A household dictionary of medicine, preventive and curative / by Frederick Rufenacht Walters.


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A

HOUSEHOLD DICTIONARY OF MEDICINE,

PREVENTIVE AND CURATIVE.

BY

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PREFACE.

The following pages have been written with a twofold aim: to enable its readers to avoid many common ailments by a knowledge of their causes and premonitory symptoms, and to give simple directions for the early treatment of accidents or illness.

It must often happen in sudden attacks of illness that a doctor is not at once available; and in the meantime those around the sufferer are naturally anxious to do what they can for his immediate relief, and to know what simple measures may safely be resorted to. Much may often be done by diet, rest, and quiet, the application of hot or cold water, and the like; and stress has been laid in this book on the adoption of such expedients. The medicinal formulæ which have been given are intended to be used where a doctor cannot be obtained, as on board ship or in remote country places. The doses, under the head of Prescriptions, are, with very few exceptions, intended for adults; those suitable for children may be calculated by reference to the article Doses. The reasons for the selection of the different drugs have been as far as possible given; and it is believed that such a method is better, even in a work of this nature, than to give a list of remedies without explanation. Where the selection of the remedy requires greater knowledge than is possessed by the reader, this will be sufficiently obvious to him, so that he will naturally seek further advice.

But the chief distinguishing feature of the work will be found in the preponderance of information connected with Preventive Medicine. It is not enough to consult a doctor when the health begins to fail, but it is also desirable to know where possible danger lurks. Prevention is better than cure; and for this it is necessary to have some acquaintance with the rudiments of Physiology and the laws of health and disease. The need for such information is becoming more and more widely recognised, as shown by the increasing interest in lectures on Elementary Physiology and Hygiene, Ambulance lectures, and the like, which it is hoped the present work may usefully supplement.

20, Finsbury Circus, E.C.

HOUSEHOLD DICTIONARY OF MEDICINE.

Abdomen.—The belly or part of the trunk below the chest, separated from it by the diaphragm or midriff. It contains most of the digestive organs, the kidneys, and other important structures. Just below the diaphragm are the liver, stomach, and spleen (*fig.* 1). Still lower

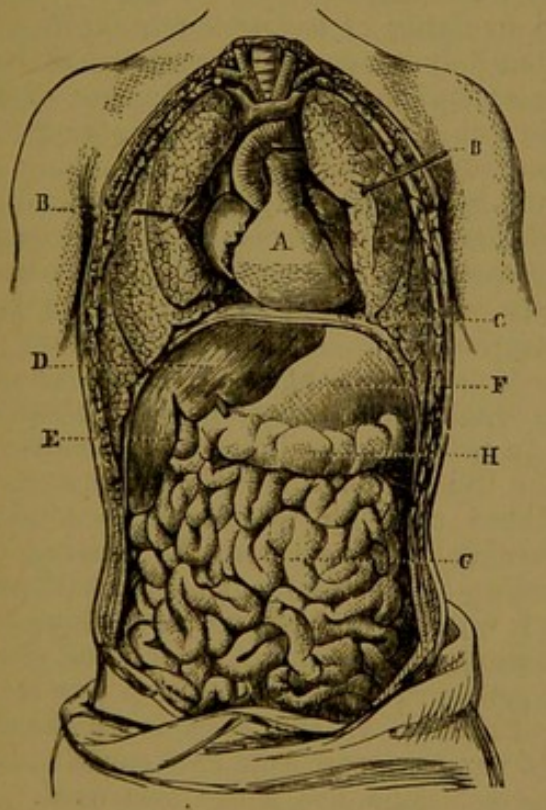

FIG. 1.

ORGANS OF THE CHEST AND ABDOMEN, SHOWN BY REMOVAL OF THE FRONT WALL.

A, heart; *B*, lungs drawn aside; *C*, diaphragm; *D*, liver; *E*, gall-bladder; *F*, stomach; *G*, small intestine; *H*, large intestine. (From Robertson's "Elementary Physiology.")

are the large and small bowel, and behind these the kidneys and pancreas (or "sweetbread" of animals). The lowest part, which is surrounded by bone, is called the *pelvic cavity*. It contains the bladder, rectum, and, in women, the womb. Folds of smooth membrane (*peritoneum*) surround and support most of these organs, enabling them to move freely upon one another without friction. (*See* SEROUS MEMBRANES.) For convenience of reference, the abdomen is mapped out into certain regions (*fig.* 2). Of these the lumbar extends to the spine on either side; the others are only seen in front and at the sides. *See* DIAPHRAGM; PELVIS; and various organs mentioned above.

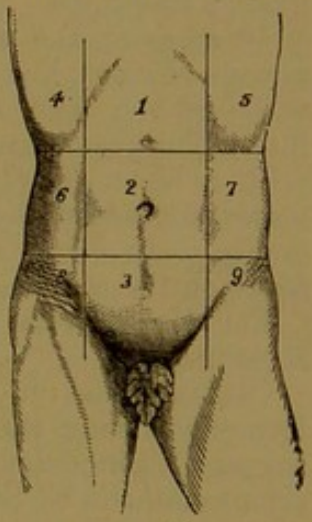

FIG. 2.

REGIONS OF THE ABDOMEN.

1, epigastric region; 2, umbilical region; 3, hypogastric region; 4, 5, hypochondriac regions; 6, 7, lumbar regions; 8, 9, iliac regions. (From Robertson's "Elementary Physiology.")

ENLARGEMENT of the abdomen may be due to many causes, some trivial, some serious. If the enlargement is associated with pain, fever, wasting, or discomfort; or if the cause is doubtful, medical advice should be promptly obtained. *See* CONSTIPATION; DROPSY; FLATULENCE; HERNIA; OBESITY; PREGNANCY; TUMOURS; and various organs mentioned above.

INJURIES to the Abdomen.—*Blows* cause more damage if unexpected, as the muscles are then unable to contract so as to protect internal organs. Important nerve-networks exist inside the abdomen, so that even slight blows on the pit of the stomach may cause faintness, and

sometimes death from stoppage of the heart. Severe blows may bruise or rupture internal organs, causing discharge of their contents or of blood into the peritoneal cavity. If this happens, there is great pain and profound collapse, and inflammation follows (*peritonitis*) if the sufferer live long enough. Life has been saved by prompt operative measures. It is never safe to do without medical aid, even where the injuries appear to be slight. Until assistance comes, keep at rest in horizontal position, with perfect quiet, and warmth to the feet. Give no food until medical sanction has been obtained. Stimulants must be given with great caution, or not at all, as they increase internal bleeding. *See* COLLAPSE; HÆMORRHAGE; PERITONEUM; PERITONITIS; RUPTURE.

Wounds of the abdomen are nearly always serious, and often fatal. If the walls of the body are penetrated, and internal organs protrude, protect them with a clean towel wrung out of hot water, covered with a blanket and a bed-cradle. In other respects treat as in *blows* on the abdomen.

For MOVEMENTS of the abdomen, *see* RESPIRATION.

OPERATIONS on the abdomen were formerly among the most dangerous in surgery. Since the introduction of antiseptic methods by Sir Joseph Lister and others, many operations formerly considered unjustifiable have been repeatedly performed with success, and in the hands of skilled operators the failures in suitable cases are becoming every year less numerous. *See* ANTISEPTICS.

For PAIN in the abdomen, *see* BOWELS; COLIC; INDIGESTION; MENSTRUATION; PAIN; PERITONITIS.

Ablution, or washing the body in order to cleanse it, is an important means of preserving health. If neglected, skin diseases, parasitic and other, are liable to occur. Moreover, other excretory organs (such as liver and kidneys) are overworked, and either become diseased or do their duty imperfectly; thus causing headache, debility, lowness of spirits, and other more serious consequences. To some extent the skin is self-cleansing, as the copious perspiration which results from active exercise flushes out the pores. Still, in the long run, this alone is insufficient, and the skin must be relieved of its load of dirt, scales, and secretions by other means. To cleanse the skin, warm or tepid water should be used, with good, unirritating soap. Every part of the body needs daily cleansing, not forgetting the nails, hair, mouth, and other mucous orifices. (*See* HAIR; NAILS; TEETH.) Probably most people in England take a warm bath at least once a week, and wash some parts of the body several times a day. A morning cold bath is useful more for its tonic effects than for cleansing the skin. (*See* BATHING.) *Children* have a very sensitive skin, which quickly resents the presence of dirt or the use of irritating soap. They should be washed quickly, as they readily lose heat. (*See* INFANCY.) Careful sponging of *bedridden invalids* will often help to prevent formation of bedsores; and many of the ailments of *old age* would be avoided by greater attention to the skin. Where washing all over is trying to the system, the difficulty may be overcome by quickly washing each part separately, drying it carefully with a well-aired towel before wetting the next. A large sponge may be used, not wet enough to drip, and a handful of salt added to each basinful of water.

In *skin diseases* it is sometimes necessary to leave the affected part unwashed. Where the skin is raw, some kind of dressing will be required. During the healing of sore places, washing with soap and water destroys the new skin, and washing with bran water, or weak gruel, or gentle rubbing with starch powder is preferable. If the skin is thickened, and not sore, soft soap and caustic alkaline solutions are sometimes used. In many skin diseases medicated soaps are useful. All such matters should be left to the discretion of the medical attendant. *See* BATHS AND BATHING; BEDSORES; DUSTING POWDERS; SKIN; SOAP.

Abortion. *See* MISCARRIAGE.

Abrasion.—Removal of the cuticle or outer skin by rubbing or scratching: often painful, and sometimes a source of danger, when the part is exposed to dirt or irritating fluids.

TREATMENT.—Cleanse with care, and apply a protective covering. If small, court plaster is suitable; if large, apply gold-beater's skin or guttapercha tissue, and paint over the whole with "flexible collodion." Where this is not obtainable, tissue paper and gum mucilage form a handy substitute. If the abrasion is a deep one, or becomes inflamed, it is best treated like a wound, with water dressing or soothing lotions. Ordinary resin plaster (*diachylon*) should never be used for abrasions, as it causes irritation. Isinglass plaster is not easy to apply. Where an infant's skin is chafed, dusting powders should be used. *See* COLLODION; DUSTING POWDERS; PLASTERS; WOUNDS.

Abscess.—A collection of matter in a cavity formed in the tissues by inflammation. (*See* INFLAMMATION.) It may arise from many different causes, such as blows or pricks, impurity of the blood, poisoned wounds, or constitutional weakness; and may affect any part of the body. (*See* ABSORBENT SYSTEM: BOILS; WHITLOW.) There are two chief kinds: *acute*, running a rapid course; and *chronic*, progressing more slowly. The latter usually occurs in weakly people, or where there is long-continued irritation, as from a piece of dead bone, a bad tooth, or a thorn in the flesh. In an *acute abscess* there is heat and tenderness, followed by throbbing pain, and swelling where this is not prevented by dense unyielding tissues. A practised hand will recognise fluctuation, or a feeling as of a wave passing through fluid. Feverishness is commonly present until the abscess bursts or is opened. In course of time it usually finds its way to the surface, and "points," the skin becoming red, thin, and bulging. If not opened by the surgeon, the abscess bursts spontaneously and discharges its contents, and after a while shrinks and heals up, leaving a puckered scar; or it may be converted into a *chronic abscess*. An abscess may be old or chronic from the beginning, with very little pain and no noticeable heat. Enormous collections of matter sometimes form in this way. (*See* HIP DISEASE; SPINAL CURVATURE.) There is in these cases a tendency to hectic fever and blood-poisoning. The *matter* or *pus* in healthy abscesses is yellowish-white and creamy, with very little smell. If unhealthy, it is thin and irritating to the skin, with curdy bits or shreds of tissue floating in it, or blood-stained or offensive.

TREATMENT.—Put the part at rest without delay, in an easy, elevated position, and apply poultices and hot fomentations. It is always safest to send for a surgeon, as the abscess, if left to itself, may burst into a joint, or large blood-vessel, or internal cavity, causing perhaps fatal consequences; or it may burrow a long way before pointing, and cause much destruction of tissues, or refuse to heal, or give rise to blood-poisoning. It is essential that the matter be let out as speedily as possible. If opened in good time the dangers are greatly diminished, and the place heals more quickly, and with less scarring. Lancing may very often be done painlessly. *Medicinal* treatment is less important. If there is much fever, give aconite (*Pr.* 31) or a saline draught (*Pr.* 7). Sulphurated lime (*Pr.* 45) is said to help the escape of matter. *See* ACONITE; FEVER; FOMENTATION; LIME, SULPHURATED; POSITION; POULTICE.

Absinthe.—A powerful intoxicating drink much used in France, Switzerland, Algiers, etc., consisting of an alcoholic extract of wormwood tops, angelica root, sweet flag, and other aromatics. Taken diluted and in small doses, it acts like tinctures of aromatic bitters. Taken frequently, or in large doses insufficiently diluted, it quickly produces effects resembling, but somewhat worse than, those of brandy-drinking. The upper part of the spinal cord is especially affected by it, and giddiness, epileptic fits, and hallucinations frequently result from its use. *See* ALCOHOL; BITTERS; WORMWOOD.

Absorbent System consists of absorbents and absorbent glands. Naturally connected with it are the serous and synovial cavities of the body. ABSORBENTS are minute vessels forming a dense network in every part of the body, which take up fluid from the tissues (*see* BLOOD-VESSELS) and discharge it by means of

two unequal-sized trunks (2, 3, *fig.* 3) into the large veins at the root of the neck. There are two sets, (1) *lacteals*, distributed to the Alimentary Canal, and carrying a milky fluid (chyle) during digestion: (2) *lymphatics*, serving the rest of the body, and filled with a more transparent fluid (lymph). Of the main trunks, the larger (*thoracic duct*) receives the lacteals, together with the lymphatics of both lower limbs, left arm, and left side of head and body. Situated on the absorbents are numerous knot-like *absorbent* or *lymphatic glands*, which purify the lymph. Poisoned wounds, whitlow, sore places, and some skin diseases are apt to cause *inflammation* of the absorbents, which then show through the skin as red lines. Still more often, the lymphatic glands inflame, and perhaps break down into abscesses. In this way running from the ear, sore throat, bad teeth, or a sore scalp may cause lumps in the neck (waxen kernels); bad fingers, or cancer of the breast, lumps in the armpit; and inflamed corns, or boils on the buttocks, or diseases of the genital organs, swelling in the groin. Such lumps are especially common in sickly children, in whom a mere scratch may cause glandular enlargement. (*See* SCROFULA.) Where the bowels are inflamed, the swelling of the mesenteric glands (through which the lacteals pass) may cause wasting of the body. (*See* MESENTERIC DISEASE.) Some fevers and other general diseases lead to swelling of the glands; but as a rule a local cause is to be discovered, and requires treatment. At the same time the inflamed gland should be kept quiet, and treated like a threatening abscess. Glands that have been long enlarged are best treated surgically. *See* ABSCESS; CANCER; INFLAMMATION; SCROFULA, WOUNDS.

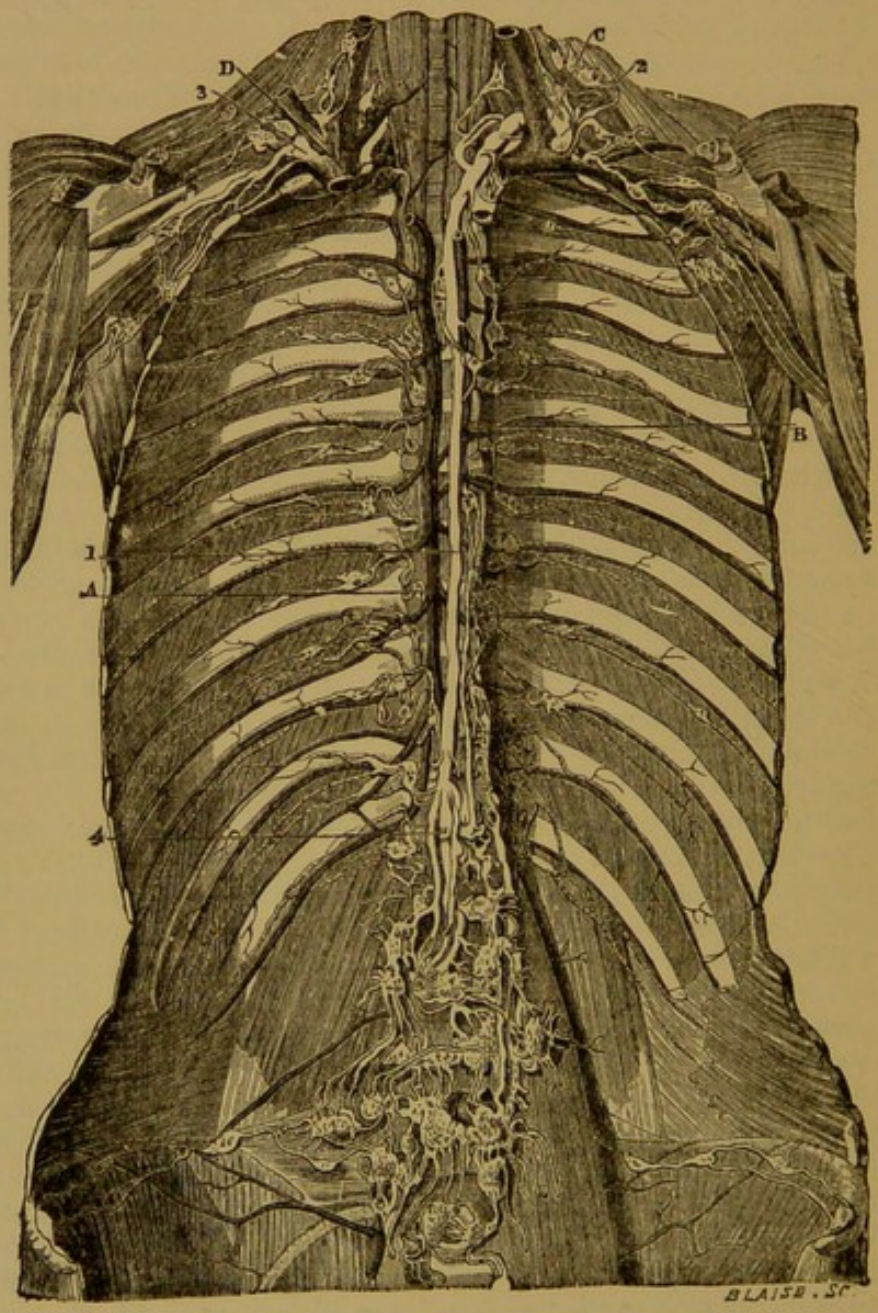

FIG. 3. ABSORBENT SYSTEM.

1, thoracic duct; 2, its termination in the left subclavian vein; 3, the right lymphatic duct; 4, the receptacle of chyle, or beginning of the thoracic duct; *A*, *B*, *C*, *D*, veins. The front wall of the body has been removed, together with most of the organs of chest and abdomen.

Absorbent Dressings for wounds are such as readily soak up the discharges; *e.g.* carbolised tow, purified sponge,

charpie, cotton-wool, wood-wool, peat dressings, etc. *See* DRESSINGS; WOUNDS.

Absorbent Pads are prepared for the use of ladies during menstruation (*which see*).

Absorption. *See* DIGESTION; DROPSY; INFLAMMATION; MEDICINES.

Abstinence from *food*, *see* DIET; FASTING; STARVATION. For abstinence from *alcohol*, *see* TOTAL ABSTINENCE.

Abuse of *aperients*, *narcotics*, *stimulants*, see these.

Accidents. *See* AMBULANCE; BITES AND STINGS; BRUISES; BURNS AND SCALDS; CRUSHED LIMBS; DISLOCATIONS; DROWNING; FITS; FRACTURES; LIGHTNING STROKE; POISONING; SHOCK; SUFFOCATION; SUNSTROKE; WOUNDS.

Acclimatization. *See* CLIMATE; EMIGRATION; TRAVELLING.

Accommodation. *See* EYEBALL; HOUSES; ROOMS.

Accoucheur. *See* CHILD-BIRTH; DOCTOR; PREGNANCY.

Acetates. *See* ACETIC ACID.

Acetic Acid is contained in vinegar, and produced in the destructive distillation of wood, and the acid fermentation of wine and other substances. (*See* FERMENTATION.) Its compounds are called acetates. (*See* LEAD; MINDERERUS SPIRIT; POTASSIUM SALTS.) The strongest (or *glacial*) acetic acid, containing very little water, may be frozen into crystals, and is used as a caustic to destroy corns and warts. *Strong* acetic acid, containing about one-third of the pure acid, is a colourless liquid, with pungent smell and strong acid taste. It is sometimes used for blistering, more often as a solvent of drugs and chemicals. *Dilute* acetic acid, containing about $3\frac{1}{2}$ per cent. of acid, is most suited for domestic purposes. It may be used to sponge the skin in excessive perspiration, and to stop bleeding from leech bites, etc., as a gargle with honey in relaxed sore throat, and internally as an addition to some kinds of cooling drinks. (*See* BEVERAGES; OXYMEL; VINEGAR.) In POISONING by the strong acid, give chalk, whiting, or plaster in milk and water or other bland fluid, repeating every half hour. *See* POISONS.

Acids have a sour taste, and redden blue litmus paper. They neutralize alkalies and bases, uniting with them to form "salts." Two classes are used in medicine, mineral and vegetable. Of the *mineral* acids, hydrochloric (*spirits of salt*), nitric (*aquafortis*), and sulphuric (*oil of vitriol*) are the most useful; of the *vegetable*, acetic (present in vinegar), citric (in lemon juice), and tartaric (in gooseberries, grapes, etc.). (For *uses*, *see* BEEF-TEA; BEVERAGES; DEBILITY; DIARRHŒA; DISCHARGES; EFFERVESCENCE; HÆMORRHAGE; INDIGESTION; and *Pr.* 1, 2, 8, 14.) Mineral acids attack the teeth, and should therefore be taken through a quill or glass tube. If taken for too long, they are apt to irritate the stomach and injure the health.

POISONING. — Strong mineral acids, when swallowed, cause more or less destruction of the lining of mouth, throat, and stomach. If the sufferer survives long enough, inflammation comes on, requiring prolonged and careful treatment. The best immediate remedies are magnesia or lime-water; or, failing these, chalk, whiting, plaster from walls or ceilings, soapsuds or washing soda, given in repeated doses mixed up with milk and water, oil or other bland fluids. Sucking bits of ice may also be tried, if grateful to the patient. The stomach-pump should not be used nor emetics given. *See* CORROSIVE POISONS; IRRITANT POISONS; OXALIC ACID; POISONS; SHOCK.

Acidity. *See* INDIGESTION.

Acne.—Swelling and inflammation about the sebaceous or oil glands of the skin, leading to the formation of pimples. It is a very common disease, of which there are several varieties. COMMON ACNE is often met with in young men and women on the face, neck, shoulders, and other parts. The secretion of the oil glands forms more rapidly than it is removed, and causes pimples, from which little worm-like masses, often with black heads, may be squeezed out. These "maggots" are not worms, but merely thickened secretion blackened at the top with dirt. A kind of mite has occasionally been found in these masses; but it is too small to be seen by the unaided eye, and appears to cause no discomfort. Acne pimples do not usually itch, and

are objectionable chiefly on the score of appearance. Sometimes however the retained secretion causes inflammation, and matter forms; or the skin around becomes hard and thick. In this case there is some pain and tenderness, and scarring remains after recovery. In another form of common acne, sometimes called "stone pock," the pimples are red and raised without a central "worm," and a feeling of tightness about the face is commonly present. Acne is sometimes caused by the use of drugs, such as iodide of potassium.

Rosy Acne, or "grog blossom," occurs chiefly after thirty years of age, either as the result of menstrual disorders in women, or from indigestion, especially that due to over-indulgence in fermented liquors. The face is flushed, and red spots or patches appear on the forehead, nose, or cheeks, with a sensation of burning. The rash is worse after exposure to wind, sun, or fire, taking food or stimulants, or anything else which causes the face to flush. It is always an obstinate complaint, and liable to relapse. In bad cases overgrowth of the skin takes place, and the nose may reach an enormous size.

Treatment. — Of *Common Acne*: Squeeze out the secretion gently with fingers or end of a watch-key. Apply an astringent lotion twice a day (equal parts spirit and water, or zinc sulphate, 2 grains in an ounce of eau-de-cologne). Wash frequently with hot water and unirritating soap, and rub well with a rough, soft towel, flesh brush, or very fine, smooth piece of pumice stone. Where the skin is irritable, and in "stone pock," use soft tepid water or bran water to wash with, discontinue use of soap, and apply thrice daily glycerine of starch, or zinc lotion (*Lotion* No. 10), or sulphur lotion (*Lotion* No. 20), or Goulard water (No. 4). See to general health, keep skin healthy by bathing, and exercise in fresh air; attend to constipation, indigestion, or deranged menstruation. If there is debility, give tonics (such as iron, quinine, cod liver oil), and see that drainage of the house is all right. In *Rosy Acne*, avoid sugar, pastry, seasoned dishes, and alcoholic drinks, and attend to general health as above. Skilled advice is usually required.

Aconite, monkshood, wolfsbane, or blue rocket — an intensely poisonous plant, but most valuable for its medicinal virtues. It grows wild in many parts of Europe, and is often cultivated in England for the sake of its handsome spike of blue or violet flowers. The root has been mistaken for horse radish, with fatal results. The two are, however, very different in appearance. Aconite root is conical, tapering rapidly to a point, brown outside, turning pink when scraped, and has an earthy smell. Horse radish root is cylindrical, of almost the same thickness for several inches, yellowish or white outside, and with a biting taste and irritating smell when scraped. Eating a very small quantity of aconite root may prove fatal. The taste is bitter rather than biting; very soon tingling and numbness come on in lips, mouth, and throat, and may extend to other parts of the body. There is often vomiting, with pain and tenderness in the stomach. The pulse becomes feeble, breathing difficult, skin cold and clammy; and as a rule death occurs within three hours of a fatal dose.

Treatment of Poisoning.—Send at once for a doctor; give an emetic (*Pr.* 27). When this has acted, give brandy, sal volatile, or hot coffee, and keep the patient warm.

Medicinal Uses.—Externally as a liniment for neuralgia of the face or brow, and for sick headache. Internally in early stages of fever and inflammation, often acting like a charm. It is valuable in chill, sore throat or quinsy, erysipelas, rheumatic fever, gout, and other diseases. The feverish attacks of children often yield rapidly to aconite. The pharmacopœial tincture is too strong to be safely used as a domestic remedy. *Pr.* 31 may be used in case of need, but does not keep more than a few days. Warner's parvules of aconite root are convenient. One may be taken every two hours. Aconitine is dangerous.

Actæa. *See* Cimicifuga.

Acupressure.—A method of stopping bleeding introduced by the late Sir J. Y.

Simpson, of Edinburgh, in which the bleeding vessel is compressed by a needle thrust near it through the flesh.

Acupuncture.—Puncture of the flesh with long needles for the relief of sciatica and other painful diseases. It was practised by the Chinese at a very early date, and is still occasionally used with benefit. The operation is not very painful, but requires a knowledge of anatomy.

Acute diseases, such as are severe but not lasting; *chronic* diseases are lasting, and less severe; *subacute* are intermediate in these respects.

Adder-bite. *See* BITES AND STINGS.

Addison's Disease.—A somewhat rare and fatal disease, first described by Dr. Thomas Addison in 1855, characterized by pallor, extreme weakness, and bronzing of the skin in various parts of the body. The suprarenal bodies are usually diseased.

TREATMENT as for debility, indigestion, etc. A skilful physician will often be able to prolong life and relieve suffering. *See* BLOOD, POORNESS OF; BRONZED SKIN; DEBILITY; SUPRARENAL BODIES.

Adhesion.—Growing together, as of the sides of a wound, or of two inflamed surfaces. After severe burns of the hand two fingers may adhere together. Pleurisy also causes adhesions which greatly interfere with the expansion of the lung. *See* INFLAMMATION; WOUNDS.

Adipocere.—A spermaceti-like substance occasionally formed by the decomposition of flesh exposed to moisture. In 1786–7 a vast number of bodies were found in the Cimetière des Innocents at Paris, converted into this substance.

Adipose.—Fatty. *See* TISSUES.

Adulteration is a form of cheating which has been practised from the earliest times, but especially prospers under some of the conditions of modern civilization. In olden times many things were made at home by the user which are now prepared by others quite unknown to him, and perhaps living on the other side of the world. Hence the price is more easily ascertained than the quality, and it sometimes actually happens—as in the case of coffee—that the public forget the properties of the unadulterated article. The chief laws in England for checking adulteration are the "Sale of Food and Drugs Act, 1875," with its amendment of 1879, and the "Margarine Act, 1887." (*See* BUTTER.) The former regards as food all articles used as food or drink by man, other than drugs or water, and as drugs all medicines whether for external or internal use. The chief provisions are as follows:—

Sect. 3. No person shall mix, colour, stain, or powder, or order or permit any other person to mix, colour, stain, or powder, any article of food, with any ingredient or material so as to render the article injurious to health, with intent that the same may be sold in that state; and no person shall sell any such article so mixed, coloured, stained, or powdered, under a penalty in each case not exceeding £50 for the first offence. Every offence after a conviction for the first offence shall be a misdemeanour, for which the person shall be imprisoned for a period not exceeding six months with hard labour. *Sect.* 4. No person shall, except for the purpose of compounding as hereinafter described, mix, colour, stain, or powder, etc., etc., any drug with any ingredient or material so as to affect injuriously the quality or potency of such drug, with intent that the same may be sold in that state; and no person shall sell any such drug so mixed, coloured, stained, or powdered, under the same penalty as in the preceding section. *Sect.* 5 renders the foregoing sections nearly inoperative by providing that no conviction is to take place if the person accused did not know that the article of food or drug sold by him was so mixed, coloured, stained, or powdered, and is able to show that he could not with reasonable diligence have obtained that knowledge. *Sect.* 6. No person shall sell, to the prejudice of the purchaser, any article of food or any drug which is not of the nature, substance, and quality of the article demanded by such purchaser, under a penalty not exceeding £20; provided that an offence shall not be deemed to be committed where (1) Any matter or ingredient not injurious to health has

been added to the food or drug, because the same is required for the production or preparation thereof as an article of commerce, in a state fit for carriage or consumption, and not fraudulently to increase the bulk, weight, or measure of the food or drug, or conceal the quality thereof; (2) Where the drug is a proprietary medicine, or is the subject of a patent in force, and is supplied in the state required by the specification of the patent; (3) Where the food or drug is compounded as mentioned in this Act: (4) Where the food or drug is unavoidably mixed with some extraneous matter in the process of collection or preparation. It is no defence to allege that the purchaser, having bought only for analysis, was not prejudiced by the sale. Nor is it a defence to prove that the article though defective in nature or substance or quality, is not defective in all three respects. With regard to spirits, it is a good defence to prove that it has not been reduced by admixture with water, more than twenty-five degrees under proof for brandy, whisky, or rum, or thirty-five degrees under proof for gin. *Sect.* 7. provides that no person shall sell any compound article of food, or compounded drug, which is not composed of ingredients in accordance with the demand of the purchaser; penalty not exceeding £20. *Sect.* 8. No person shall be guilty of any such offence as aforesaid (*Sect.* 6), if at the time of delivering the article or drug he shall supply to the person receiving the same a notice by a label distinctly and legibly written or printed on or with the article or drug, to the effect that the same is mixed. *Sect.* 9. No person shall, with the intent that the same may be sold in its altered state without notice, abstract from an article of food any part of it so as to injuriously affect its quality, substance, or nature, and no person shall sell any article so altered without making disclosure of the alteration, under a penalty in each case not exceeding £20. *Other sections* provide for the appointment of public analysts by various local authorities, confirmed by a central authority, which in England is the Local Government Board, in Scotland one of Her Majesty's Secretaries of State, and in Ireland the Irish Local Government Board. The analysts must be persons possessing competent knowledge, skill, and experience. Arrangements may be made to combine for this purpose neighbouring boroughs, or boroughs with their county. Any purchaser may have an article analysed by the public analyst on payment of 10*s.* 6*d.*, provided the article has been purchased in accordance with the provisions of the Act. Any medical officer of health, inspector of nuisances, or inspector of weights and measures, or any inspector of a market, or police constable acting under the direction and at the cost of the local authority, may purchase samples for analysis. The person purchasing must at once notify to the seller his intention to have it "analysed by the public analyst," and shall offer to divide the sample into three parts, each to be then and there separately sealed up or fastened up, one part to be returned to the seller, one to be retained by the purchaser for future analysis, and the third to be delivered to the analyst. In case of any dispute, part of the sample will be analysed by the Government analysts at Somerset House. Where the seller declines to have the sample divided into three parts, the whole is taken to the public analyst. Refusal to sell for analysis is punishable. Practically it is most convenient for such purchases to be made by the inspector or his deputy. *See* Wynter Blyth on Foods.

Advice, Medical. *See* MEDICAL ADVICE.

Adynamic Diseases.—Those associated with constitutional exhaustion.

Aëration. *See* BLOOD; CIRCULATION; RESPIRATION.

Aërated waters are usually prepared with carbonic acid gas; but some are now supplied which have been aërated with oxygen. Apollinaris, puralis, "soda water," and seltzer water are aërated waters with a small amount of mineral matter in solution. Soda water may be prepared with 30 grains of bicarbonate of soda to the pint of water; but that usually sold contains little more than carbonic acid gas. For *Aërated Bread*, *see* BREAD.

Æther. *See* ETHER.

Affusion.—Treatment of disease by pouring water over the body. Cold affusion is employed to reduce the heat of the body in fever and sunstroke. *See* BATHS; WET PACK; FOMENTATION.

After-birth or *placenta.*—A spongy body attached to the interior of the womb during pregnancy, and expelled, together with the membranes, after the birth of the child. In shape it is like a round flat cake, about the size of a dinner plate, with a stalk in the middle formed by the navel-string. It consists largely of blood-vessels, and is the means whereby the blood of the unborn child is purified and enriched with nourishment from the mother. The after-birth is usually attached to the middle or upper part of the womb; if lower down, there is danger of flooding during child-birth. *See* CHILD-BIRTH.

After-pains.—Regularly recurring pains felt for a day or two after child-birth, caused by contractions of the womb. If moderate in degree, they should not be interfered with, as they assist the womb to return to its natural size. Severe after-pains may be caused by the presence of clots of blood or pieces of the after-birth in the womb, which require to be expelled by firm, even pressure over the lower part of the abdomen. Constant unintermitting pain soon after delivery may indicate internal flooding, and should never be neglected. (*See* FLOODING.) After-pains may continue for more than thirty-six hours after delivery if the bowels are loaded. Under these circumstances a tablespoonful of castor oil should be given. Severe after-pains not due to the above-mentioned causes may be relieved by giving 20 drops of laudanum in a little water, not more than three times in the day; or if there be little discharge and an infrequent pulse, by applying hot flannels to the lower part of the abdomen, or by readjusting the binder.

Age influences both the kind of disease to which people are liable, and the chances of recovery. Both extremes of life are subject to catarrhal affections, which in children are apt to spread to the stomach and bowels. Children are rapidly affected by any disorder interfering with nutrition, which accounts for the fatality of diarrhœa at that age. Rickets and scrofula also appear in early childhood, and infectious complaints are common. The nervous system is then very sensitive, so that convulsions or feverishness are excited by very trivial causes. At puberty the development of the sexual organs makes great demands on the bodily strength, so that care should be taken not to overwork the brain or overfatigue the muscles with long walks, mountain-climbing, violent boating exercise, and the like. It is at this period of life that poverty of blood, consumption, and hysterical complaints begin to declare themselves. After middle age, the chief diseases are those caused by degeneration of heart, lungs, liver, or kidneys. Gout becomes common, and the results of earlier irregularities of life begin to show themselves. As age advances, these degenerative tendencies increase, bloodvessels become brittle, the brain ill-nourished, chronic rheumatism is common, the lungs become easily congested, the heart feeble, digestion impaired, and kidney action imperfect; and cancer often attacks the failing tissues. As in infancy, it is important to maintain the body-warmth. Food must be suited to the failing digestive powers, and given with pepsin or other aids to digestion; while the action of the bowels is regulated by various simple remedies. *See* CHILDREN'S DIET; DIET, IV.; DOSES; INFANT FEEDING.

Ague.—A kind of fever common in marshy districts, due to exhalations from the soil (*malaria*). It begins with feelings of sickness, oppression, and fatigue, flying pains in limbs and head, and chilliness. This increases till there are violent shivering fits, with chattering of teeth, blue, pinched face, and cold shrunken limbs. This is the first or *cold* stage. After a while the *hot* stage comes on, with hot, dry skin, throbbing pulse, headache, and fever. Finally, this gives way to the third or *sweating* stage, in which there is copious perspiration with disappearance of all the symptoms, leaving the patient feeble, but otherwise well. The urine during the first stage is pale and often irritating; in the second, high-

coloured; in the third, muddy, as in other fevers attended with much perspiration. These three stages form a paroxysm or *ague fit*. After an interval there comes another attack like the first, which may be followed by a third or even more. The fits return with great regularity, either every day (*quotidian* ague), every other day (*tertian*), every third day (*quartan*), or at other intervals. Quotidian attacks usually begin in the morning, and last 10 to 12 hours; tertian come on at noon, and last 6 to 8 hours; and quartan begin in the afternoon, and last 4 to 6 hours. Sometimes the attacks are irregular. The spleen swells up during the ague fits, and may remain permanently enlarged (*ague cake*). Congestion of the liver is also common. Ague shows a remarkable tendency to return, even after several years, and may be brought back by exposure to east wind, over-fatigue, or indiscretions in diet. Neuralgia, especially of the brow, and other nervous complaints are also caused by malaria; and all subsequent illnesses are likely to be influenced by an attack. Ague was formerly common in many parts of England which are now free from it. James I. and Oliver Cromwell both died of ague caught in London. It is still found in marshy districts of Kent, Essex, Cambridgeshire, Lincolnshire, Norfolk, and Yorkshire; also common in Holland and some parts of Italy; but its chief seat is in the tropics. Drainage and cultivation of the soil in time get rid of malaria, but cultivation may at first intensify it. The nature of the soil is not an absolute test, as ague occurs on granite or sandy soils, with only a small proportion of vegetable matter, and even (it is said) on dry and arid plateaux in Persia. Probably, however, the soil of malarious districts always contains vegetable matter. (*See* BACTERIA.) The disease can be *recognised* by the regularly recurring attacks of fever, together with known exposure to marsh miasma.

PREVENTION.—If possible, avoid malarious districts: few prizes are worth the risk of a shattered constitution. If compelled to enter such districts, take quinine, 2 to 5 grains, twice or thrice daily, live regularly with moderately generous diet, avoid over-fatigue, sleep in an elevated spot, and remain indoors with the windows shut from sunset till after sunrise, and till a good breakfast has been taken. Marsh poison does not rise high from the ground in still air, so that upper storeys are decidedly less dangerous than the ground floor. But the poison may be carried long distances by the wind—several hundred feet up hill, or even several thousand in the tropics. Belts of trees or broad sheets of water arrest the poison. Eucalyptus trees, sunflowers, and some other plants are said to purify malarious neighbourhoods. Decaying vegetable matter fosters malaria, and should be carefully removed or destroyed by fire. Spring and autumn, and the time following the rainy season in the tropics are especially dangerous.

TREATMENT *of the ague fit*.—If the stomach is loaded, give an emetic; if the bowels, a purge. During the *cold* stage put to bed with hot bottles or bricks and plenty of blankets. If the pulse is feeble and irregular, give hot coffee or *Pr.* 4 or 5. For cramp, rub limbs well with camphorated oil. Avoid baths and copious drinks. In *hot* stage give cooling drinks; sponge with vinegar and water. At the close of *sweating* stage, dry carefully and change linen. Then give quinine 10 grains every six hours during the interval, unless headache and singing in ears come on. Should these doses cause sickness, give them as an enema in a teacupful of beef-tea. *Pr.* 39 contains 10 grains in two ounces. This treatment will either prevent or greatly modify the attacks. During convalescence, and for other effects of malaria, give quinine tonic (*Pr.* 6, 37, 38), especially three to four weeks after the attack. In the tropics ague is not a disease to be trifled with, and the best advice should be at once obtained. *See also* DEBILITY; LIVER DISORDERS; NEURALGIA.

Air is one of the prime necessaries of life; without it death takes place in less than five minutes. It consists chiefly of nitrogen and oxygen gases, with smaller quantities of carbonic acid gas, ammonia, ozone, etc., and a variable proportion of watery vapour. The oxygen forms 21

per cent. by volume, or 23 by weight, the rest being nearly all nitrogen. Of carbonic acid gas there is in pure air four parts in 10,000; of ammonia, less than one part in a million. Oxygen is the great purifying agent concerned in burning, rusting, and similar processes. Animals in breathing take up oxygen into the blood, and give out carbonic acid gas. Nitrogen serves to dilute the oxygen of the air, which, if undiluted, would cause convulsions and death. Carbonic acid gas and ammonia are useful as food for plants. Ozone is a peculiarly active form of oxygen, existing in only minute proportions, but of the greatest importance in oxidising dead organic matter. There is more of it at the seaside and on mountain tops than in the impure air of houses and towns. Associated with the ozone is hydrogen peroxide (H_2O_2), which has very similar properties. (*See* HYDROGEN PEROXIDE; OZONE.) The watery vapour of the air usually amounts to about 1 or 1½ per cent, or from 50 to 75 per cent. of the quantity required for complete saturation. *See* CLIMATE.

ATMOSPHERIC IMPURITIES are common causes of disease. They are some of them solid, others gaseous; and are derived from many different sources. (1) By the combustion of fuel and rubbish of various kinds, carbonic acid gas (carbon dioxide) is chiefly produced. Imperfect consumption of coal, coke, or charcoal leads to the formation of carbonic oxide gas (carbon monoxide), or, if still less perfectly burnt, of soot and smoke, consisting chiefly of unburnt carbon with some sulphur and ash. In addition to this, sulphurous, sulphuric, and other irritating acids are produced, which are very destructive to clothes and furniture, and increase the tendency to diseases of the chest. (2) The breath of man and animals contains about four per cent. of carbon dioxide, together with organic matters prone to decomposition. Particles are also derived from other parts of the body in both sick and healthy people. (3) Sewage, dung, and refuse of various kinds yield decomposing particles and noxious gases of various kinds. (4) Irritating particles are derived from streets, workshops, walls of houses, clothing materials, etc. (5) Living and dead microscopical organisms, such as bacteria, eggs of flies, insects, pollen of plants, etc., swarm in the air of our cities. They are especially abundant in the neighbourhood of the sick. (6) Many manufacturing processes give rise to poisonous fumes and gases, such as hydrochloric acid, sulphuretted hydrogen, sulphurous acid, and ammonia. Many of the above-mentioned impurities may be recognised by the sense of smell. Others require chemical or microscopical examination for their discovery. The presence of dust in the air is easily shown by a beam of light, which remains invisible in perfectly pure air, but is revealed by reflection from the solid particles. For microscopic examination the air is drawn through distilled water or glycerine, and a drop then examined on a glass slide. The quantity of air drawn into the lungs of an active man in ten hours may, in a place like Manchester, contain as many as 37½ million spores and bacteria, besides vast quantities of dead organic and mineral particles (Angus Smith). Gelatine may be added to the water through which impure air has been drawn, and the life-history of the contained organisms ascertained by cultivation. (*See* BACTERIA.) Chemical examinations are made in many different ways. Some are described under the heading of VENTILATION.

EFFECTS OF IMPURITIES.—Solid particles and acid or alkaline fumes irritate the lungs and eyes, causing more or less inflammation. Sulphurous soot does much harm in this way. Decomposing organic matter poisons the system or favours the growth of bacteria, some of which are causes of disease. Breathing impure air is one of the causes of consumption. Typhus fever is nearly always associated with dirt and overcrowding; and, speaking generally, the dirtier a town and the more impure its atmosphere, the more liable it is to outbreaks of infectious fevers. Some of the atmospheric impurities derived from manufacturing processes are not only irritating, but poisonous; *e.g.* arsenic or quicksilver. *See* OCCUPATION.

Purification.—Dead organic matter is naturally oxydised into carbon dioxide, ammonia, and nitrites, which are useful as food for plants. The chief agents in these transformations are the oxygen of the air, together with ozone and peroxide of hydrogen, both of which are produced by aromatic plants, pine trees and their allies, by thunderstorms, and the silent electricity continually arising from the friction of wind and water, and in other ways. Plants and some of the smaller animals also directly utilize organic matter, acting as natural scavengers. In towns where much decomposing organic matter exists, pollution of the air should be prevented as far as possible by careful cleansing and scavenging, the use of suitable disinfectants, and the prompt destruction of refuse. In all large towns fairly complete burning of smoke should be insisted upon, alike from factories, railway and steam engines, and from offices and private houses. If only it were realized how much expense is entailed by every yellow fog, and how great a destruction of property is caused by imperfectly burnt coal smoke, more systematic efforts would be made to put a stop to the smoke nuisance. Some day it will perhaps be considered criminal to poison or defile the air, just as it is to poison food or drink. *See* Bacteria; Climate; Contagion; Disinfectants; Drainage; House Drainage; Occupation; Poisonous Gases; Respiration; Scavenging; Ventilation.

Albinism.—Defective formation of colouring matter in the skin and other parts of the body. The causes are not well understood; but the condition affects dark as well as white races, and is usually hereditary. Exposure to unhealthy climates, such as marshy damp districts in Africa or America, appears to favour the production of albinism. Albinos have a pinkish-white skin, and white flaxen or yellowish hair. Their eyes are usually pink or grey, or in the negro blue. From the absence of dark colouring matter inside the eyeball the eye is very sensitive to light, so that the pupil is usually contracted and the eyelids half closed, and the albino can see better in twilight than in full daylight. Some assistance is rendered by goggles, or screens of some opaque material, such as aluminium, perforated with a fine hole opposite the pupil. Albinism is often associated with a want of constitutional vigour; but several instances are known of albinos possessed of more than the average mental power. Amongst animals, the ferret is said to be an albino polecat. Albino guinea pigs are by no means uncommon.

Albumen forms an important part of the tissues of all living organisms, and an essential ingredient of the food of animals. Chemically it consists of carbon, hydrogen, oxygen, and nitrogen, with small quantities of sulphur and phosphorus. Several varieties exist, such as egg albumin (white of egg), serum-albumin (from the blood), and alkali-albumin or casein (from milk and cheese). Heat or strong mineral acids coagulate or solidify albumen. Albuminous fluids are useful antidotes to poisons, such as corrosive sublimate. *See* Food; Poisoning.

Albuminuria.—Albumen in the urine. *See* Urine.

Alcohol. A number of organic compounds go by this name, the commonest and most important being ethylic alcohol, or pure spirits of wine. This is a colourless inflammable liquid, lighter than water, with a pungent odour and burning taste, usually obtained by fermentation of substances, such as malt, which contain starch or sugar. (*See* Fermentation.) Three different strengths are prepared: *absolute alcohol*, nearly pure; *rectified spirit*, with 16 per cent. by weight of water; and *proof spirit*, with 51 per cent. water. It is also present, together with various other substances, in many medicines and most intoxicating drinks.

Uses.—Chemical, as a solvent of alkaloids, resins, volatile oils, etc.; medicinal, in the treatment of disease; and as an article of diet.

Action in Body.—Applied *to the skin*, it produces a sensation of cold, and may be used as an evaporating lotion for a headache or a sprained joint. It is also used as an astringent, to prevent cracked nipples or bed sores; or if its evaporation is prevented, as a counter-

irritant. *Internally*, its action depends upon dose and dilution. In small doses it assists digestion in those who are exhausted or weakly, or getting on in years. Somewhat larger doses stimulate the circulation, especially that through the brain and skin, and cause a sensation of warmth and liveliness. Still larger doses diminish the warmth of the body, and paralyse the nerve centres. An early sign of overdose is flushing of the face, due to paralysis of the bloodvessels and their nerves. After this the speech becomes thick or hesitating, while the emotions are easily excited and the judgment impaired. Muscular movements cannot be properly executed, so the sight becomes double and the gait unsteady; finally an unnatural, heavy sleep (*coma*) comes on, with paralysis of the breathing organs and heart, as in apoplexy. Thus the effects of a small dose are stimulant, while a large dose acts as a narcotic poison. Whether alcohol is ever *a food* has long been under discussion; but the results of careful experiments and of bedside observation leave no doubt that in moderate doses it is used up as a food, in much the same way as starch or sugar. That it is a desirable substitute for other foods cannot, however, be affirmed, unless in some cases of serious illness, where it is more easily used up than other articles of diet. As a *medicine*, it may be given in fevers and other exhausting acute diseases, to support strength until the disease begins to yield; to put the skin into action after a chill; to stimulate the heart in faintness, profuse diarrhœa, or extreme pain; or to aid the digestion in convalescence from acute illness, or in debility from other causes. Where attacks of pain happen repeatedly, alcohol is not a desirable remedy. The *mode of administration* of stimulants will depend upon circumstances: each class of alcoholic drinks has its own special uses, and every case of illness its special needs.

Dietetic Uses.—Perfectly healthy people do not require alcohol, and are probably better without it. In *hot climates* stimulants are especially mischievous; and in *cold climates* they are useless for keeping up the heat of the body, which is much better done by taking plenty of fatty food. Alcoholic drinks are often taken with the idea of "keeping out the cold." It should be remembered that since they drive the blood to the surface they actually increase the loss of heat, and may thereby diminish the warmth of the body. Travellers in the arctic regions have found that the use of alcohol is dangerous there, and may lead to fatal results. In temperate climates during the winter, it may sometimes be advisable for travellers to take stimulants to warm themselves, provided they are warmly clad; but as a rule hot soup, or hot coffee or tea are preferable, and alcoholics are best postponed until the journey's end. Stimulants are sometimes taken to allow of *extra work* being done. In such a case it must be remembered that more energy is being spent, so that there will be a corresponding reaction afterwards, unless a proper amount of food and rest are also taken. Such a use of stimulants draws upon the bank, but does not replenish the coffers; and cannot therefore be always safely indulged in. It is especially dangerous for nervous, excitable people, with comparatively small appetite, who are liable to overwork themselves when deprived by the use of alcohol of the sense of fatigue. Such use cannot increase the total amount of work of which they are capable, but only its distribution, and may mischievously increase the wear and tear of the body. Where the *digestion* is weak, as so often happens with town dwellers, stimulants are sometimes necessary at meal-times; but this should not be taken for granted, as other remedies are often far better. (*See* Indigestion.) Where alcohol is necessary, the following three *rules* should always be observed: (1) Never to take it on an empty stomach, or instead of food. The practice of "nipping" with glasses of wine or beer between meals is ruinous to the health, and does as much harm as getting dead drunk at intervals. (2) Never to take it in a concentrated form. Spirits are very bad for healthy people, especially if taken neat; and strongly brandied wines are nearly as mischievous. Where the state of health renders the use of spirits advisable, they should be diluted with at least

three or four times as much water, to reduce the strength to about ten per cent. of pure alcohol. (3) Never to exceed 1½ ounces of pure spirit per day, or in the case of big men two ounces. As a general rule, if alcohol diminishes the appetite it is doing harm. For strength of different kinds, *see* FERMENTED LIQUORS.

Ale. *See* FERMENTED LIQUORS.

Aliment. *See* DIETARIES; FOOD.

Alimentary Canal. — That through which the food passes from the mouth to the anus. It consists of the mouth, pharynx or throat, œsophagus or gullet, stomach, small and large intestines (*fig.* 4), its average length in man being 33 feet, of which 25 feet belong to the small and 5 feet to the large intestines. It should be remembered that anything in the alimentary canal is as much outside the body as if it were placed on the skin, and only really enters the body when it passes through the walls of the canal. *See* ABDOMEN; DIGESTION; MOUTH; THROAT; GULLET; STOMACH; BOWELS.

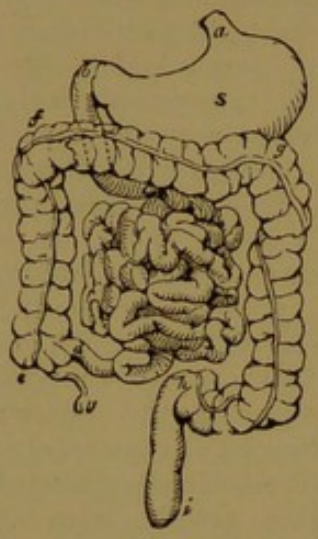

FIG. 4.
STOMACH AND BOWELS.

s, stomach, with *a*, end of gullet, and *b*, beginning of small bowel. *d*, end of small bowel. *e*, cæcum. *e f*, *g h*, arch of the colon. *i*, anus. *v*, vermiform appendage.

Alimentary Tube.—The name given to a contrivance which enables helpless patients to take liquid food and drink without raising the head from the pillow.

Alkalies are substances which neutralize acids more or less perfectly, forming "salts" with them. They turn red litmus paper blue, and turmeric paper brown. Three of the alkalies commonly used in medicine (*potash*, *soda*, and *lithia*) contain easily oxidizable metals. The fourth (*ammonia*) is volatile, and contains a combination of nitrogen and hydrogen gases in place of a metal. The term alkali was originally applied to glasswort, then to potash. The true or caustic alkalies, together with some of their salts, are classed together under the heading ANTACIDS. These also include the alkaline earths (lime, etc.) and their carbonates, which have many of the properties of the alkalies, but are less soluble. POISONING by alkalies gives rise to corrosion of the mouth and throat, with vomiting and purging and more or less collapse. The best treatment is to give vinegar and water, or failing this, the juice of lemons or other acid fruits. A doctor will be required. *See* CORROSIVE POISONS; IRRITANT POISONS.

Alkaloids, or organic alkalies, are complex bodies containing carbon, hydrogen, nitrogen, and frequently also oxygen, resembling ammonia in their chemical properties. Most of them are solid, but some are volatile liquids at ordinary temperatures. Amongst them are some of the most powerful medicinal principles obtained from plants, such as atropine, morphine, quinine, and strychnine. Alkaloids are also formed during the decomposition of animal or vegetable substances, and in the living body, where they sometimes give rise to disease.

Almond. Two varieties are used, sweet and bitter. Both contain much nutritive matter, but only the sweet can be safely eaten. *Sweet or Jordan almonds* contain over half sweet oil of almonds, about one-fourth albuminous matter, and four per cent. grape sugar. The latter can be washed out, and the remainder, containing no starch, may be used to prepare bread for those suffering from diabetes. Sweet almond oil is laxative in large doses (over ½ fl. oz.). It may be applied with advantage to chapped hands. *Almond mixture* (sweet almonds 4 ozs., refined sugar 2 ozs., gum acacia ½ oz., all in powder, well mixed and rubbed up in a mortar with eight times as much water) is given in coughs, and as a vehicle for some drugs. (*See* DIABETES.) *Bitter almonds* when moistened yield *oil* of bitter almonds and prussic acid, and are therefore very poisonous. The oil is sold as a flavouring agent, under the names of almond flavour, spirit of almonds, and essence of peach kernels. It is however not at all safe if made from almonds. One drop of the pure oil has

proved fatal to a cat in five minutes, and twenty bitter almonds have killed a dog. In *poisoning*, treat as for PRUSSIC ACID.

Aloes.—A brown, or yellowish-brown resinous substance, with bitter nauseous taste, consisting of the thickened juice from the leaf of several species of aloe, from the East and West Indies, Cape of Good Hope, and island of Socotra. Barbadoes aloes have a disagreeable smell; Socotrine aloes smell somewhat fruity. They are used as *aperients* in habitual constipation, the action being chiefly on the large bowel. Also given combined with iron in *suppressed menstruation*. There are many useful preparations, mostly in the form of pills. An aloes pill, aloes and myrrh pill, or colocynth and henbane pill may be given an hour before bedtime. *Pr.* 55 is a good dinner pill. The aloes and asafœtida pill is useful in constipation with flatulence. The aloes and iron pill is for poverty of blood, with costiveness or suppressed menstruation. Compound decoction of aloes is used in the form of a draught. The dose is from ½ to 2 fl. ozs.; that of the above-mentioned pills is from 3 to 10 grains. Pills are also made containing aloine, the active principle of aloes, which is much more powerful. *Cautions:* Do not give in pregnancy, or where there are inflamed piles. If taken alone, it may fail to act, or cause much griping. The action is rather slow. *See also* APERIENTS, ABUSE OF.

Alopecia. *See* BALDNESS.

Alterative.—A vague term applied to remedies which influence the nutrition of the body, but cannot be included among tonics or other medicinal groups.

Alum.—A well-known crystalline transparent substance, consisting chemically of a double sulphate of potash and alumina, and obtained by the decomposition of clay and shale. In ammonia-alum the potash is replaced by ammonia; and in iron-alum (which forms pale violet crystals), the aluminium is replaced by iron. All these are astringent, and may be applied externally to stop bleeding. Alum is given internally to prevent cough and vomiting in whooping cough, consumption, etc.; also in lead colic, diarrhœa, or internal hemorrhage. For such purposes the dose for an adult is 10 to 15 grains in syrup and water. Large doses are emetic and purgative. Alum gargle (*see* GARGLES) is useful in relaxed throat. *Caution:* Dried or burnt alum is a caustic, and should not be given internally. *See also* LOTIONS.

Alvus.—The bowel. *Alvine* evacuations, the stools or motions. *See* BOWELS; MOTIONS.

Ambulance.—A term originally applied to a wagon containing drugs, splints, etc., for the relief of the wounded in war, but extended by means of transport and first aid to all suffering from accidents, whether in the streets, or on the battlefield, or elsewhere.

Ambulance lectures are given periodically on these subjects, by lecturers appointed by the St. John Ambulance Association, who also supply stretchers, splints, and other useful materials. Where it is desired to get up a class in any neighbourhood, it will be advisable to write for instructions to the society at St. John's Gate, Clerkenwell. In time of war, the care of the wounded falls in the first instance on the Hospital Staff Corps, who carry them to the rear of the army. (*See* Porter's "Surgeon's Pocket-Book" for details.) In civil life the police are usually called upon, under the direction of a surgeon. Ambulance stations have been established by the St. John Association in many parts of London and other towns and cities, where stretchers and bearers may be obtained in an emergency. The best stretchers are probably those of the St. John Ambulance Society, and of Carter, High Holborn (*fig.* 5). In the absence of regular stretchers, many other means of transport may be extemporised from doors, shutters, planks, etc., covered

FIG. 5.
STRETCHER.
Copied by kind permission of the St. John Ambulance Association.

with something soft. A stretcher may be made by rolling a blanket at the edges round two poles, tying firmly through holes at intervals of a foot along the side, and fixing cross-bars at either end to prevent the poles from approaching one another. Another method is to take two thick overcoats, turn the arms inside out, and pass the poles through both, allowing the coats to overlap, and lashing on cross-bars as before. The necks of the coats should look in opposite directions, and the coats be buttoned down the front (*figs.* 6, 7).

FIG. 6.

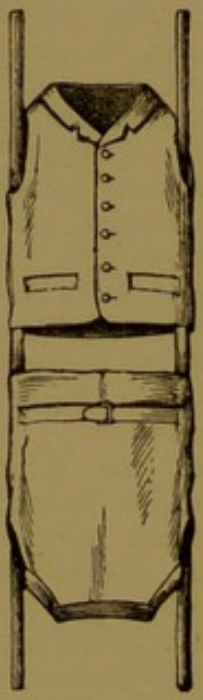

FIG. 7.

EXTEMPORISED STRETCHERS.

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A lattice-work arrangement of belts, straps, or ropes will also answer the purpose. In carrying a stretcher the two bearers should keep step, but with opposite feet, so that if one sets out left foot foremost, the other will set out right foot foremost; and both should avoid a jolting or springing gait. The patient should have any broken limb secured with splints or their substitutes, and bleeding checked with suitable pads and bandages. (*See* ACCIDENT; HÆMORRHAGE; SPLINTS.) As a rule he should be carried feet foremost, except in going uphill or upstairs, when the position should be reversed. For carrying long distances it is convenient to make use of wheeled carriages. Regular stretchers are often made to fit a pair of wheels. Cabs, carts, carriages, and costermongers' barrows may also be used, a level support being arranged, with straw mattresses or other soft material as pillow and bed. In railway carriages hammocks may be suspended from the seats or roof by poles or ropes, and anchored to the floor by ropes; or if many have to be conveyed, upright poles may be arranged to carry the weight. Special invalid carriages are provided on most lines. A hammock is often rendered more comfortable by a cross-bar under the knees, suspended from the same pole which supports the ends.

In transporting wounded or sick persons, plenty of coverings should be provided, as the circulation is apt to be depressed. For the conveyance of patients to the *fever hospitals*, ambulances may be obtained by telegraphing to the Metropolitan Asylums Board, Norfolk Street, W.C. *See* CONVEYANCE OF PATIENTS.

Amenorrhœa. *See* MENSTRUATION, DEFICIENT.

Ammonia.—A colourless gas with the pungent smell of hartshorn, containing nitrogen and hydrogen gases chemically united. Water absorbs at ordinary temperatures over six hundred volumes of the gas, the solution being strongly alkaline and forming salts with acids in the same way as the fixed alkalis. Ammoniacal compounds are obtained by the distillation or decomposition of organic matter, such as coal, urine, sewage, or bones, the chief source being gas liquor. The most important medicinal preparations are the solution of ammonia, the carbonate, chloride (*sal ammoniac*), citrate, and acetate (*mindererus spirit*). All these are stimulants, and increase the reaction from various mucous membranes.

SOLUTION OF AMMONIA contains ten per cent. of the gas. A stronger solution is prepared, which is not safe as a domestic remedy. The pain caused by bee-stings, etc., may be greatly relieved by the application of the weaker solution. Ammonia and olive oil form a

useful liniment ("hartshorn and oil") for rheumatism and other ailments. (*See* LINIMENT No. 1.) Ammonia is also used in the same way as smelling salts. If sniffed up incautiously, or applied too long to the nostrils of an unconscious patient, it may cause great irritation or inflammation of the nose and throat. The eyes may suffer in the same way.

In POISONING by ammonia, give vinegar and water, and send for a doctor.

AROMATIC SPIRITS OF AMMONIA, or *sal volatile*, is a mixture of spirit and water with solution of ammonia, carbonate of ammonia, oil of nutmeg, and oil of lemon. It is useful as a diffusible stimulant in fainting fits, nervous headache, spasms and flatulence. Dose, ten to thirty drops in a wine-glassful of water. Also used in the same way as smelling salts (*which see*).

CARBONATE OF AMMONIA is a white crystalline solid, smelling strongly of ammonia. It forms the chief part of "smelling salts." *See* SMELLING SALTS; MINDERERUS SPIRITS; SAL AMMONIAC; and *Pr.* 4, 5, 6, 9, 12, 16.

Ammoniac.—A gum-resin used in chronic bronchitis, obtained from *Dorema Ammoniacum*, which grows in India and Persia. The stem is punctured by beetles, and the juice exudes and hardens into yellowish-brown tears, which have a peculiar smell and a bitter, nauseous, biting taste. *See* EXPECTORANTS.

Amputation.—The removal by surgical operation of a limb for injury or disease.

Amyl Nitrite.—A volatile liquid with strong fruity smell, derived from amyl alcohol (*fusel oil*). It has the peculiar property of causing temporary relaxation of the small arteries; flushing of the face and giddiness quickly follow the inhalation of a very few drops. Dr. Lauder Brunton first used it as a remedy for angina pectoris (or breastpang), which it rapidly relieves. It has also been employed with advantage in asthma, epilepsy, and poisoning by chloroform. It is not a safe domestic remedy.

Anæmia. *See* BLOOD, POORNESS OF.

Anæsthesia. — Loss of sensation, whether due to nervous disease, the action of drugs, cold, or pressure. Often associated with prickling or tingling sensations, or "pins and needles," as in a limb that has "gone to sleep." Inability to feel pain is called *analgesia*. *See* ANÆSTHETICS; CIRCULATION, FEEBLE; NERVOUS SYSTEM, PARALYSIS.

Anæsthetics.—Substances which cause loss of sensation, and are used to prevent the pain of surgical operations. There are two classes, local and general, the latter causing loss of consciousness. GENERAL anæsthetics include chloroform, ether, and nitrous oxide gas, which are administered by inhalation. Nitrous oxide gas (*laughing gas*) is suitable for short operations such as tooth-drawing. The other two are better for longer operations. The introduction of anæsthetics has robbed surgical operations of many of their terrors, rendering them not only painless but less dangerous. Pain is very depressing, and may, under some circumstances, cause death by stoppage of the heart-action, while at other times it renders recovery more tedious by exhausting the strength. Many operations formerly considered too dangerous to be attempted are now frequently done with perfect success with the aid of anæsthetics. Nevertheless their use is not absolutely free from risk, although with careful administration the number of deaths is very small. Whether there is more danger in using the anæsthetic or in submitting to the operation without it, will depend upon circumstances, and must be left to the surgeon to decide. Probably nitrous oxide is safe for all short operations; but chloroform and ether should never be used without medical advice. Sickness often follows the use of anæsthetics. This is best avoided by taking no food for some hours previously. Before the administration all false teeth should be taken out of the mouth, the clothes loosened, and in ladies the stays removed. In case of danger, the medical man in attendance will give the necessary directions; but it may be convenient to know that fresh air, flicking the face with a cold wet towel, and applying to the chest a sponge wrung out of very hot water are useful remedies. In children, suspension head downwards is sometimes found of use. Friends

who remain in the room during an operation are sometimes concerned because the patient struggles and cries out. It is therefore well to know that such movements are not necessarily a sign of pain, but are usually unconscious. Chloroform is also used in the treatment of lock-jaw, convulsions, and a few other spasmodic diseases, and in the course of childbirth.

LOCAL ANÆSTHETICS include freezing mixtures, ether spray, cocaine, and a few other remedies. The first two are open to the objection that although they abolish pain during the operation, there is often much pain while the part is "coming to"; they are moreover not suitable where the circulation is feeble, or the operation involves any great depth of tissue. Cocaine is applied by means of a hypodermic syringe, which causes no more pain than the prick of a pin. It is extremely useful for all small operations, but the depth of tissue affected is not very great, and if a large quantity has been injected, disagreeable or even dangerous symptoms may follow. *See* COCAINE.

Analysis, Chemical. *See* ADULTERATION; CHEMISTRY.

Anatomy.—The science which deals with the structure of the body as revealed by dissection. *See* BODY.

Anchylosis.—Fixation of a joint from disease. Sometimes this is the best result that can be expected. The joint may in certain cases be enabled to move freely again by forcible manipulation under chloroform, or without it. Many of the cures of "bonesetters" are of this nature. *See* JOINTS, DISEASES OF; BONESETTERS.

Aneurysm. — A tumour containing blood, communicating with the inside of an artery, and usually formed by bulging of its walls. It may appear on any artery of the body, although some are more often affected than others. It is caused, on the one hand, by anything which weakens the walls of the arteries, such as dissipation or constitutional weakness; and, on the other hand, by violent exertion at irregular intervals, or more rarely by wounding of the artery. It is commonest in men between thirty and forty years of age, rare in women. Uniformly laborious work does not cause aneurysm; but occupations such as those of the soldier or sailor, or athletics, or sport indulged in by those unused to exertion may bring it on. In the *limbs* it may be mistaken for an abscess, or for rheumatism, the earliest symptoms being a sense of weakness in the limb, followed by throbbing pain and swelling. The veins or nerves may be pressed upon, causing numbness and swelling of the extremity. In the *trunk* aneurysm may give rise to cough, shortness of breath, difficulty in swallowing, or palpitation. Wherever present, if left unheeded, it tends to increase in size, and prove fatal by bursting or by some complication. The TREATMENT should be in medical hands. Small and accessible arteries can be tied or compressed when the blood forms a firm clot inside the aneurysm and fills it up. Where this is not possible, much may be done by rest in bed for long periods, together with the use of suitable medicines and a very spare diet. Such treatment diminishes the quantity of blood in the body and the activity of the circulation, and encourages the formation of a clot. No time should be lost in getting good advice if the existence of aneurysm is suspected, as the treatment is far more successful if early adopted.

Angina. *See* **Quinsy.**

Angina Pectoris, *Breast-pang*, is a painful and often fatal disease, usually occurring in men after middle age, especially in the upper classes of society. It gives rise to sudden attacks of agonizing pain in the chest and left arm, with feelings as of impending death. The attacks may be brought on by exertion, over-excitement, indigestion, or over-smoking, or may come on in bed. Lord Clarendon, John Hunter, and other famous men died of this terrible disease, for which until recently there was no means of relief.

TREATMENT.—Those who have once been attacked by the disease should live very regular lives, free from excitement, over-exertion, or any other indiscretion. They should avoid all kinds of food likely to cause indigestion, insure the regular action of the bowels either by diet or by

means of mild aperients, avoid strong stimulants, and get medical advice for any gouty tendency or other unhealthy condition. With such precautions life may be prolonged for many years, although there is always the possibility of a suddenly fatal ending. *During an attack* there are several remedies which may be of the greatest benefit. The most useful as a rule is amyl nitrite, a remedy which we owe to Dr. Lauder Brunton. A few drops inhaled from a pocket-handkerchief cause flushing of the face, and almost instant relief from the pain. Amyl nitrite is supplied by chemists in glass capsules, each containing a single dose of three minims. Another valuable remedy is nitroglycerine, which is sold in tablets containing each $\frac{1}{100}$ gr. One or other of these remedies should be kept close at hand, as a means of warding off death. They are not remedies to be taken without sufficient reason, but in suitable cases under medical advice are of the utmost value.

Aniline dyes are obtained from coal tar; they are sometimes prepared with the aid of arsenic, and may then cause great irritation of the skin, and a rash resembling eczema or erysipelas. The pure dyes have no such effect.

Animal Food. *See* DIET; MEAT; VEGETARIANISM.

Animal Heat. *See* HEAT OF THE BODY.

Animal Magnetism.—A misleading term applied to mesmerism (*which see*).

Animation, Suspended. *See* COLD; DROWNING; FAINTING; SHOCK; SUFFOCATION; SUNSTROKE; TRANCE.

Anise, Oil of, is obtained from the fruit of two distinct plants, the European anise plant and the Chinese Star anise. It has similar properties to other aromatics (*which see*).

Ankle.—The joint between the leg and foot. (*See* JOINTS.) It is a hinge joint, which allows the toes to move from side to side when they are dropped, but locks tightly when they are raised. Weak ankles are usually due to muscular flabbiness, or to sprains. When the muscles are weak they may be strengthened by bathing in cold salt water, followed by vigorous rubbing. High boots should be avoided, as they confine the muscles and prevent their development. Suitable exercises, tricycle riding, and dancing are valuable means of strengthening the ankles. Artificial supports are suitable in extreme conditions, and temporarily where the bones are unnaturally soft or have been growing fast; but otherwise they are best avoided. Sometimes when the ankles are supposed to be weak the real defect is FLATFOOT or KNOCK-KNEE (*which see*). See also DISLOCATION; FRACTURE; SPRAIN.

Anodynes.—Remedies which relieve pain. The chief are opium and belladonna. Anæsthetics, heat, and cold also act as anodynes. *See* ANÆSTHETICS; PAIN.

Antacids.—Medicines which counteract acidity. They include potash, soda, magnesia, lime, and some of their salts. *See* INDIGESTION.

Anthelmintics. — Remedies against intestinal worms. *See* VERMICIDES; VERMIFUGES; WORMS.

Anthrax. *See* WOOLSORTER'S DISEASE.

Antidotes.—Remedies to counteract poisons. Some prevent their action, some counteract their effects. Some act by mechanically protecting the stomach; others by forming insoluble compounds with the poisons; and yet others by acting on the body rather than on the poison. *See* POISONS.

Antimony. — A metal contained in JAMES' POWDER, TARTAR EMETIC, and PLUMMER'S PILL (*which see*). Butter of antimony (a chloride) is a violent corrosive poison. *See* POISONS; CORROSIVE POISONS.

Antiperiodics. — Remedies against ague, recurring neuralgia, etc.

Antiphlogistics. — Remedies against inflammation.

Antipyretics.—Fever cures. *See* FEBRIFUGES.

Antiscorbutics. — Remedies against scurvy (*which see*).

Antiseptics.—Substances which arrest or prevent decomposition. Those chiefly used for dressing wounds are boracic and carbolic acids, thymol, iodoform, corrosive sublimate, chloride of zinc, chlorinated soda, and friar's balsam. Amongst those given internally are creosote, qui-

nine, salicylic acid, and sulphite of soda. *See* DISINFECTANTS; DRESSINGS; FOOD, PRESERVATION OF; WOUNDS, TREATMENT OF.

Antiseptic Surgery, first systematically adopted by Sir Joseph Lister, has revolutionised the art of surgery, rendering possible and successful many operations formerly considered too dangerous to be attempted. It consists in the application to cuts or wounded surfaces of substances which prevent the development of microscopic organisms from the air, or neutralize their ill effects. *See* ANTISEPTICS; BACTERIA; DRESSINGS; WOUNDS.

Antispasmodics. — Remedies against muscular spasm. Most stimulants and many tonics are antispasmodics. *See* ANODYNES; AROMATICS; BROMIDES; COLIC; SPASM; STIMULANTS; TONICS.

Anus.—The fundament or lower opening of the bowel, surrounded by "sphincter" or closing muscles, which are partly under voluntary control, partly involuntary. When the sphincter is paralyzed, or loses its tone from debility, or is injured in childbirth, there may be involuntary escape of fæces. This is a natural condition in early infancy, although the child usually soon learns to control the bowel. On the other hand, in fissure or other painful affections of the anus, *spasm* of the sphincter is often set up, causing pain and difficulty in passage of the motions. Such a condition requires prompt attention from a surgeon.

Anus, Artificial.—An opening made into the bowel above the natural anus, in cases where the bowel is obstructed by disease. It is sometimes made in the groin, sometimes in the loin. *See* BOWELS, OBSTRUCTED.

Anus, Fissure of the.—A small crack or sore place just inside the anus, causing spasm of the sphincter, burning or aching pain during and after action of the bowels, and occasionally a little bleeding. It is more common in women than in men, and in middle life than at other ages. It may be caused by constipation, piles, or injury in child-birth. It is easily cured if not neglected, but may otherwise be a source of much misery.

Anus, Fistula at the. *See* FISTULA.

Anus Imperforate.—A condition sometimes found at birth, in which the natural passage has not been formed; sometimes curable by a surgical operation.

Anus, Itching at the.—A distressing malady, which causes great misery, preventing sound sleep and greatly disturbing the general health. The continual scratching, which can scarcely be avoided, causes soreness and alteration in the skin of the part. Moreover, as the nervous supply to the anus is from the same source as that of the genitals, irritation may spread to the latter, greatly adding to the distress, or in children leading to objectionable practices. The *causes* may be constitutional or local. Gout or nervous irritability is often present, calling for special treatment. The local causes may be internal, or outside the bowel, or even situated in neighbouring organs, such as the vagina or urinary passages. Thus the bowel may be irritated by worms, or by the use of unsuitable articles of diet, such as pickles, spices, pepper, strong coffee, or alcoholic drinks, especially such as are imperfectly fermented, as champagne, fruity port, or malt liquors. Diet is of especial importance where there is a gouty tendency. Irritation about the anus is frequently due to the presence of such diseases as fistula, fissure of the anus, ulcer or cancer of the rectum. Perhaps the commonest cause is piles, or the venous overfulness which precedes this disorder. Of external causes may be mentioned the presence of lice, eczema, and other skin diseases.

TREATMENT.—Depends upon the cause. (*See* other articles.) Sponging with water as hot as can be borne sometimes relieves the irritation. The anus should be frequently cleansed with soap and water if there is no eczema, and carefully sponged after action of the bowels. White precipitate ointment, calomel ointment, camphor ointment, or Goulard ointment may then be applied. (*See* OINTMENTS.) Scratching aggravates the disease, and should be carefully avoided. Wearing a vulcanite or bone plug 1½ in. long and the thickness of the little finger, will sometimes give relief. An india-

rubber ring should pass through the plug to prevent its slipping into the bowel. The disease is usually a very obstinate one, and it will save both time and discomfort to consult a medical man.

Anus, Warts about the, may be caused by want of cleanliness, or contact with irritating discharges. In middle-aged and elderly people rapidly growing warts are sometimes cancerous, and call for early removal. Flaps of skin roughly resembling warts are common in piles and other diseases of the rectum. *See* PILES.

Aorta.—The largest artery in the body, and the source of all the others, excepting the pulmonary. It arises from the left ventricle of the heart, and is shaped like a walking stick with a curved handle,

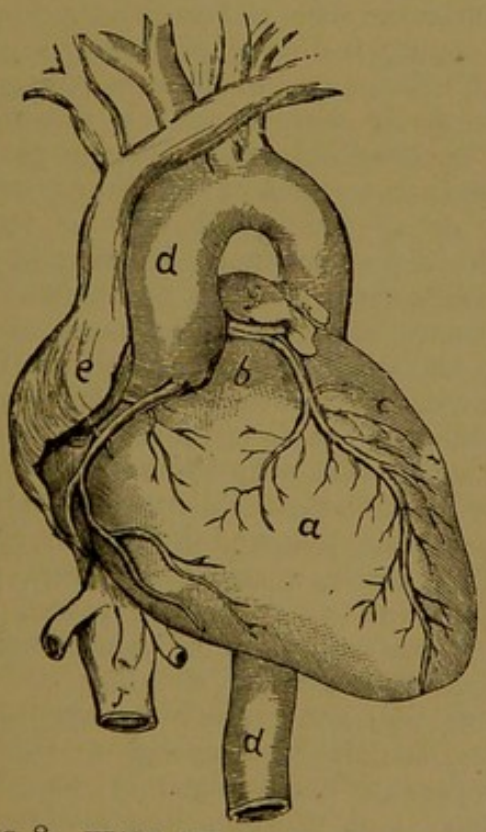

FIG. 8. HEART AND LARGE BLOOD-VESSELS.
a, right ventricle; *b*, right auricle; *c*, left ventricle; *d*, aorta; *e*, right auricular appendage—above it is the superior vena cava; *f*, inferior vena cava; *g*, left auricular appendage. The coronary arteries are seen spreading over the heart.

the curve or "arch" giving rise to the three large arteries for head, neck, and arms, while the straighter part supplies branches for the trunk, and divides into two large branches for the pelvis and lower limbs (*figs.* 8, 12). *See* BLOOD-VESSELS; HEART.

Aortic Disease usually means disease of the aortic valves of the heart. *See* HEART.

Aperients.—Opening medicines, drugs which help to expel the contents of the bowels. They are divided into several classes according to their activity or mode of action.

LAXATIVES act very mildly, and can be safely used as domestic remedies for constipation. They include almond oil, olive oil; honey, treacle, manna; prunes, tamarinds, figs, garden rhubarb, and stewed fruits generally; sulphur, magnesia, and its carbonate. In addition to these, brown bread, gingerbread, oatmeal, lentil flour, green vegetables and salads, coffee, and malt liquors have a slightly laxative effect. Sulphur is useful in constipation of pregnancy, and in piles and other diseases of the rectum. Magnesia counteracts acidity.

SIMPLE PURGATIVES act more vigorously. They include: castor oil, rhubarb, senna, aloes, and cascara sagrada. Of these the first three are most suitable for occasional use to clear the bowel; the last two for habitual costiveness, as they may be used repeatedly without losing their effect or causing irritation. In pregnancy castor-oil is usually preferred. In diarrhœa from irritant matters in the bowel, rhubarb is useful, as in large doses it first empties and then confines the bowels.

SALINE PURGATIVES cause watery motions, and are suitable for sluggish or congested liver. They include phosphate of soda, Epsom salts, Rochelle salts, citrate of magnesia, and various mineral waters.

PURGATIVES ACTING ON THE LIVER include preparations of mercury, euonymin, and podophyllin. Aloes and rhubarb also promote the discharge of bile.

Of more POWERFUL PURGATIVES the only ones at all suitable for domestic use are jalap and colocynth; and even these are best avoided as a rule.

The MODE OF USING aperients is indicated under the head of each drug. They are often usefully combined with one another, or with tonics and other medicines, such as nux vomica, iron, henbane, belladonna, or ipecacuanha. (*Pr.* 10, 11,

14, 24, 35, 46, 49, 50, 53, 54, 55, 56, 57, 58, 59, 60.)

The ABUSE OF APERIENTS is very common, and causes much mischief. Weakness of the digestive organs, and general debility may easily result from such abuse, as the food is hurried on too fast for absorption, and at the same time the bowels are rendered irritable or even inflamed, and the blood impoverished by the excessive drain of secretion. In the natural course of digestion much of the bile and other digestive agents is reabsorbed and does duty again. Where aperients are used to excess, these secretions are hurried out of the body and lost. Especially mischievous is the abuse of mercurials and of other drugs acting on the liver. Aperients should never be used in constipation until simpler remedies have been unsuccessfully tried. Where constipation is attended with pain, vomiting, or swelling of the abdomen, the use of aperients is dangerous. *See* BOWELS, OBSTRUCTION OF THE; CONSTIPATION.

Aphasia.—Loss or impairment of the faculty of speech, usually due to disease or injury of a particular part of the brain. (*See* BRAIN; PARALYSIS.) In this disease speech is not lost because the muscles required are paralysed, but because the right word cannot be remembered, or pronounced at will. There are several varieties. In one, the patient is only capable of meaningless gabble, or uses one or two words for everything. In another form, one word is invariably substituted for another, as chair for coat, brush for hat (*amnesia*). In another, writing is possible, but speech is lost (*aphemia*), or the reverse (*agraphia*). Slight temporary aphasia may result from overwork or worry. As a rule however it is associated with paralysis.

Aphonia.—Loss of voice. *See* VOICE.

Aphtha. *See* THRUSH.

Apnœa.—Absence of breathing movements. It occurs under two very different conditions,—when there is too much oxygen in the blood; and when the blood is impure and the nerve centres for breathing are paralysed, as in suffocation.

Apollinaris. *See* MINERAL WATERS.

Apomorphine.—An alkaloid obtained from opium, used to cause vomiting in case of poisoning.

Apoplexy.—A "stroke," or sudden paralysis with loss of consciousness, usually due to escape of blood from a vessel in the brain. It may be caused by excitement, passion, or violent exertion; or in those predisposed, even by stooping, coughing, or straining at stool. It usually happens after forty-five years of age, in those whose arteries have been rendered brittle by gout, kidney disease, intemperance or high living, or by advancing age. Those who have large heads, florid features, and short thick necks, are especially liable to apoplexy; but it is by no means uncommon in people of sparer build. As a rule, some *warning* is given of an impending attack. This may take the form of headache, giddiness on stooping, feelings of weight or fulness in the head, noises in the ears, temporary deafness, or disturbance of the sight. The memory may fail, and the patient suffer from lowness of spirits or peevishness, or a tendency to use the wrong words in conversation. He may be unnaturally drowsy by day, and suffer from nightmare at night. Numbness of the feet, an awkward gait, bleeding from the nose, bilious attacks or constipation may also be the forerunners of an apoplectic fit. The *attack* sometimes begins suddenly with insensibility and paralysis, or paralysis followed by insensibility. At other times, a slight faintness, pain in the head or confusion, passes into drowsiness and loss of consciousness. During the attack, shouting at the patient will not rouse him; his face is flushed or pale, his eyes dull and glassy, with perhaps unequal pupils; breathing is noisy and snoring, lips and cheeks puffed out with each breath, teeth clenched, the body covered with clammy sweat, pulse full and less frequent than in health. The limbs lie motionless, and fall heavily when raised, or are stiff or convulsed. The motions and urine may be retained, or discharged involuntarily. The attack may end in slow but complete recovery, or leave behind it some paralysis or feebleness of intellect, or prove fatal after some hours. Where

recovery takes place, other attacks are very apt to follow, sooner or later proving fatal. Apoplexy must be distinguished from drunkenness, hysteria, opium poisoning and injuries to the head.

PREVENTION.—Where there is a predisposition to apoplexy, the causes should be remembered, and as far as possible avoided. Regular life is essential, free from all excesses, over-exertion, or excitement. Extremes of temperature, very warm baths, and the use of tight collars are dangerous. Heavy meals at long intervals are objectionable, and alcoholics should be taken very sparingly. Bowels must be kept regular, with an occasional purge if giddiness, headache, fulness or throbbing about the head should occur (*Pr.* 11, 14). The patient should sleep not more than eight hours, in a well-ventilated room, on a firm mattress, with head well raised. Daily moderate exercise in the open air is advisable. If there is debility, quinine and iron (*Pr.* 35, 38, 39) are sometimes useful.

TREATMENT of an attack.—Send for a doctor, describing the attack. Loosen the clothes about neck, open windows, place the patient in an easy chair, or on the floor with head and chest raised. Apply warmth to legs and feet, and cold water or ice to the head. (*See* ICE.) Keep perfectly quiet, and do not attempt to give food or stimulants. The hair may have to be cut short. *See* APHASIA; PARALYSIS.

Appendage, Vermiform.—A small blind tube attached to the beginning of the large bowel (*v*, *fig.* 4). Cherrystones and other hard substances occasionally block up the tube, and cause inflammation. *See* BOWELS.

Appetite may be *lost* through many different causes, such as too frequent or irregular meals, the abuse of stimulants, excessive tobacco-smoking, or the use of opium. Extreme fatigue, sedentary occupation, mental anxiety or preoccupation, or violent emotions, are also apt to take away the appetite. It is also lost in debility, poverty of blood, fevers, and other diseases which weaken the digestive powers of the stomach. *See* FEVER; INDIGESTION; STOMACH DISEASES.

EXCESSIVE APPETITE may arise from the presence of worms, or from imperfect digestion. It is common during convalescence from fevers. Growing children with large appetite should have plenty of plain nourishing food at regular intervals, without sweets or delicacies. If they are suffering from worms, these may be got rid of, although they very often do little harm. A voracious appetite is sometimes caused by diabetes. *See* DIABETES; WORMS.

A PERVERTED APPETITE is occasionally met with in pregnant or hysterical women, or the insane. In such cases there may be a craving for chalk, cinders, and other indigestible substances. Some savage tribes also habitually satisfy their hunger by eating earth or clay. Such perversions of appetite may point to deficiency of certain constituents of the diet. *See* PREGNANCY; INSANITY.

Apples. *See* FRUIT.

Appliances for Invalids. *See* SICK-ROOM.

Aquafortis.—Nitric acid. *See* ACIDS.

Aqua Regia.—Nitrohydrochloric acid, a mixture of nitric and hydrochloric acids. *See* ACIDS.

Arcus Senilis.—A narrow, opaque, white ring which forms round the cornea of old people. *See* EYEBALL.

Areca-nut.—The seed of the betel-nut tree, sometimes used to kill tape-worms.

Areola.—(1) A blush surrounding an eruption on the skin. (2) The coloured circle round the nipple. *See* BREAST.

Arm, Broken. *See* FRACTURES.

Arm, Swollen, may be due to poisoned wounds, pressure on veins, or other causes. Consult a doctor at once.

Armpit contains important bloodvessels and nerves. Wounds in this region may prove rapidly fatal unless promptly attended to. (*See* HÆMORRHAGE.) Lumps in the armpit are usually swollen glands. *See* ABSCESS; ABSORBENT SYSTEM; ANEURYSM; CANCER.

Arnica Montana, leopard's bane, a plant resembling the marigold, growing in parts of Europe and the United States, has been extensively used in the treatment of bruises, sprains, and muscular

fatigue; but its usefulness and mode of action are still disputed. Some years ago Sir Alfred Garrod produced artificial bruises with cupping-glasses, and treated some with arnica lotion, and some with spirit of equal strength, while others were left untreated. The results appeared to prove that the action of arnica lotion in dispersing bruises was due to the spirit contained in it. Arnica is liable with some people (especially those with a gouty tendency) to cause irritation of the skin, or even a condition resembling erysipelas. It is commonly used in the strength of half a small teaspoonful of the tincture to a tumbler full of cold water.

Aromatics include many vegetable substances with a warm taste, which yield an essential oil; they are chiefly used to assist digestion and prevent griping and flatulence. The *spice* group includes allspice, anise, caraway, cardamoms, cinnamon, cloves, coriander, dill, fennel, ginger, mace, and nutmeg. Pepper, capsicum (yielding chillies and cayenne pepper), mustard, camphor, peppermint, and many kitchen herbs are also aromatics. *See* BITTERS; CARMINATIVES; COLIC; INDIGESTION.

Arrowroot, obtained from the tubers of certain tropical plants, consists almost entirely of starch. For advantages and drawbacks *see* FARINACEOUS FOODS. Modes of preparation: (1) Dessert spoonful of arrowroot, same quantity of cold milk, rub up to a paste, add sugar to taste, and pour slowly over the mixture half-a-pint of boiling milk, stirring well. (2) To make a pudding, add to the above the yolks of two eggs and whip up. The whites must be separately whipped to a stiff froth, and added to the mixture, which is then put into a buttered dish and baked for ten minutes in the oven. (3) Dessert-spoonful of arrowroot rubbed up with six of cold water; add by degrees first half-a-pint of boiling water, then the same quantity of cold, stirring well all the time. Add two wine-glassfuls of sherry and sugar to taste. This makes a pleasant drink. Fruit-syrup may be added instead of wine. *See* MALTED FOODS; PEPTONISED FOODS.

Arsenic is contained in several substances used in the arts, all of them very poisonous. WHITE ARSENIC or Arsenious Acid, a heavy white almost tasteless powder, is used for sheep washing to free them from vermin, to protect timber, to preserve grain for seed, in enamel-making, glass-making, shot-making, candle-making, and leather-dressing, and as an ingredient of fly-papers and vermin-killers. It was formerly much used by murderers and suicides, and in India hundreds of people are said even now to die every year from its secret administration. By the "Arsenic Act," however, no arsenic may be sold retail which has not been mixed with soot or indigo; excepting in the case of doctor's prescriptions. OTHER ARSENICAL PREPARATIONS are used to colour wall papers, artificial flowers and leaves, and even confectionery. Of these compounds the chief are king's yellow, orpiment, realgar, Scheele's green, and emerald or Schweinfurt green. Arsenic is also used in preparing some of the aniline dyes, which are therefore sometimes poisonous.

POISONING BY LARGE DOSES of arsenic has sometimes been mistaken for cholera. It causes vomiting and purging, with faintness, prostration, severe burning pain and intense thirst. Cramps or convulsions may also occur. *Treatment:* Send for a doctor. If vomiting has not taken place give emetics (*Pr.* 27, 28). Send also to a chemist for "moist peroxide of iron for arsenical poisoning," or make it by adding ammonia or sal volatile to tincture of steel, using the thick deposit. This, or dialysed iron, should be given in large doses. Later on, soothing drinks, such as barley water, gelatine water, linseed tea, beaten up eggs, etc., are useful.

SLOW POISONING, as from coloured sweets or wall papers, causes griping pain in the stomach, repeated diarrhœa, nausea and loss of appetite, headache, extreme weakness, sore throat and eyes, shortness of breath, and sometimes ulceration of the skin. In order to test a wall paper for arsenic, cut up two or three square inches into small pieces, put them into a large test tube half full of

pure hydrochloric acid and water, add a bright piece of pure copper foil, and boil for a few minutes over a spirit lamp. If arsenic is present, a black or dark steel gray coat will appear on the copper. The result should be tested by boiling another slip of copper with acid, but without the wall paper. The arsenical coat may be volatilized by carefully drying the slip and heating in a dry test-tube. Crystals of white arsenic then appear higher up in the tube. *Treatment* of slow poisoning—get rid of the cause, and consult a doctor.

ARSENIC EATING is practised in Styria and other parts of Austro-Hungary, to beautify the complexion and improve the "wind" for mountain climbing. Beginning with minute quantities every few days, the dose is gradually increased until a grain or more is being taken. Many people are said to fall victims to poisoning, but others take enormous quantities of the drug with impunity.

MEDICINAL USES.—Arsenic is given in skin diseases, asthma, some forms of indigestion and diarrhœa, poverty of blood, malarious disease, neuralgia, etc. (*Pr.* 48). Arsenical paste is often employed by "cancer curers" who profess to remove tumours without the aid of knife or caustic. It is only safe in experienced hands.

Artery. *See* BLOOD-VESSELS; HÆMORRHAGE.

Artichoke. *See* VEGETABLES.

Articulation. *See* JOINT; SPEECH.

Artificial Respiration. *See under* DROWNING.

Artisans. *See* OCCUPATION.

Asafœtida. — A nauseous gum resin obtained from the root of a plant growing in Affghanistan. Very useful in hysteria, chronic bronchitis, and flatulent distension of the bowels. May be given in pill or as an enema. *Dose* of compound asafœtida pill, or of aloes and asafœtida pill, 5–10 grains. For an enema, 30 grains may be rubbed up with 4 fl. oz. of water.

Ascarides. *See* WORMS, INTESTINAL.

Ascites. *See* DROPSY.

Ashpits. *See* SCAVENGING.

Asparagus. *See* VEGETABLES.

Aspect. *See* HOUSE, CHOICE OF A.

Asphyxia, or *Apnœa*, is the condition which follows arrest of breathing. The blood becomes loaded with carbonic acid gas and other impurities, and imperfectly supplied with oxygen. The impure blood circulates with difficulty in the vessels, the veins become distended, face purple, and breathing apparatus tense. Violent respiratory efforts are made, and very soon convulsions appear. Finally the heart ceases to beat, and death ends the scene. As a rule asphyxia is fatal within five, or at most ten, minutes. *See* DROWNING; RESPIRATION; SUFFOCATION.

Aspirator.—An apparatus employed to draw off fluid from serous cavities, large abscesses, etc., without allowing entrance of air. It consists of a glass bottle furnished with tubes, hollow needles, etc. The bottle is exhausted of air by a syringe, the needle inserted into the abscess and a stop-cock turned, when the fluid flows into the bottle.

Assimilation.—The process whereby every living tissue takes up food and incorporates it with its own substance. *See* DIGESTION.

Asthma is characterized by fits of extreme difficulty of breathing, usually coming on in the early morning, causing great distress, death-like pallor, and coldness of the limbs. The tendency is often inherited, especially in gouty families; and may show itself at any age, even in early infancy. Attacks are excited by various causes, such as indigestion, fatigue or anxiety, night air, damp, fog, smoke, change of weather, the smell of new hay, flowers, ipecacuanha, sulphur matches, cats, etc. Some suffer in the country and not in town, or *vice versâ*. Somewhat similar attacks occur in those subject to winter cough. The fits often come on at regular intervals, and may be preceded by wheezing and whistling sounds in the chest, by indigestion or other signs; they may come and go gradually or suddenly. During the attack, the patient sits up with rounded back, fixed chest, raised shoulders, and squared arms, grasping a chair back or other convenient support. Notwithstanding his violent efforts very little air enters or leaves

the chest, and his whole attention is concentrated upon the struggle for breath. After a while the attack ends, sometimes with the bringing up of a pellet of gelatinous mucous. Although alarming and distressing, these attacks are rarely fatal unless disease of the heart or some other serious complication is present. In those under fifteen years of age there is a fair chance of getting rid of the disease; but after forty-five there is little probability, especially if the attacks are frequent and severe and imperfectly recovered from.

PREVENTION. — Avoid the causes, which vary in different cases. Find out by trial which locality suits best, and live there permanently. Take the chief meal early in the day, and after this only small meals of nourishing, easily digestible food, and nothing for five or six hours before bedtime. Potted meats, dried tongue or sausages, stuffing, seasoning, meat pies or puddings, cheese, nuts, and preserved fruits are all dangerous. Coffee and malt liquors are unlikely to suit: the best drink is water, or milk and water, or cocoa.

TREATMENT OF THE ATTACK.—Several remedies are likely to be of great service, and may be tried in turn until the right one is found. (1) Ipecacuanha, 20 grains in water, will cause sickness, and often put an end to the attack. (2) Lobelia tincture, 10 minims every quarter of an hour in water till four doses have been taken. (3) Iodide of potassium (*Pr.* 41). (4) Grindelia robusta, 20 to 30 minims of the liquid extract three or four times a day in water, has been recently introduced, and succeeds well in some cases. (5) Strong black coffee, without milk or sugar, on an empty stomach, may answer. Certain inhalations are useful: thus smoking tobacco or stramonium or datura tatula leaves, or "*cigarres de Joy*," which are said to contain arsenic; or inhaling the fumes of "Himrod's Powder," or of nitre paper, or the vapour of amyl nitrite. *See* INHALATIONS.

Astigmatism. *See* SIGHT, DEFECTIVE.

Astringents.—Substances which brace up and contract living tissues. Two groups exist. (1) *Vegetable*, including tannic and gallic acids and various drugs containing them, such as oak bark, oak galls, catechu, kino, rhatany, and logwood. Hamamelis belongs to this group, but is said to contain very little tannic acid. (2) *Mineral*, including the mineral acids, with many compounds of iron, alum, bismuth, lead, zinc, copper, and silver. Astringents are used to cure relaxation of mucous membranes, over-secretion, and bleeding. Some only act locally, others after absorption into the blood. If used too strong they may cause inflammation (*Pr.* 8, 23, 33, 34).

Atavism.—Inheritance from grandparents, the parents escaping. *See* INHERITANCE.

Ataxy.—A form of arterial degeneration. *See* BLOOD-VESSELS, DISEASES OF.

Atmosphere. *See* AIR.

Atony.—Want of tone, as for instance in an overdistended bladder. *Atonic dyspepsia*, indigestion with want of tone. *See* INDIGESTION.

Atropine. *See* BELLADONNA.

Atrophy. *See* WASTING.

Attitude.—Much may be learnt by an experienced eye from the attitude of a patient. In painful diseases of the abdomen, the knees are drawn up, and the breathing is shallow and done entirely by movement of the ribs. In pleurisy the affected side is kept quiet, and in early stages the patient avoids pressure upon it. Later on, when fluid has been thrown out, he usually lies on the affected side, so as to leave the other as free as possible to do its double work. Those who suffer from shortness of breath sit up in bed, grasping some firm object with their hands, the shoulders being pushed up very square and the neck muscles contracting visibly. In heart disease people often put their hands to the left side when seized with pain. They usually prefer to be well propped up in bed. Many characteristic attitudes occur in nervous diseases, which we cannot here describe. Very exhausted patients lie flat on their backs, and are apt to slip down in the bed. The first sign of improvement in a fever patient is often that he begins to sleep on his side.

Auditory.—Concerned with hearing (*which see*).

Auricle.—The external ear. Also part of the heart. *See* EAR; HEART.

Auscultation.—Detection of disease by listening to sounds produced in the body, either with the unaided ear or with a stethoscope. A very important means of distinguishing disease of the organs of respiration and circulation.

Autopsy.—Inspection of the body after death. *See* POST-MORTEM.

Axilla. *See* ARMPIT.

Azote. *See* NITROGEN. *Azotised* = containing nitrogen.

Bacillus. *See* BACTERIA.

Back, Pain in the, may be due to many different causes, some serious, others of small importance. (1) It may be due to fatigue, especially where the muscles of the back have been exercised in an unaccustomed manner, as in rowing, or working a heavy sewing machine, or in prolonged stooping. Sleeping in badly made beds is another cause. High-heeled boots may cause back-ache by altering the natural balance of the body, overworking one set of muscles, while others are relaxed. (2) Gout or rheumatism may attack the muscles or joints of the back. Lumbago is another common cause, if this is not the same as rheumatism. (3) Spinal curvature and spinal disease usually come on with pain in the back. (4) The same result may be due to disorders of the abdominal organs—such as constipation, flatulence, disease of the rectum or kidneys. In liver disorders there is usually pain under the right shoulder-blade. In heart disease and in ulcer of the stomach there may be pain in the middle of the back; and in lung disease, pain in one or other shoulder. (5) More rarely back-ache is due to disease of the spinal cord or of the nerves attached to it. (6) Pain in the back is common in debility and during the onset of fevers. The *treatment* will be local or general, according to the cause. For details *see* other articles.

Backbone. *See* SPINE.

Bacon. *See* PORK.

Bacteria are minute unicellular plants, which contain no chlorophyll (or green colouring matter), and multiply by simple division or by formation of spores. They are very widely distributed, being found in all natural waters and most surfaces exposed to the air. In the air of crowded cities they are far more numerous than in the pure air on the tops of mountains. Some kinds live in dead organic matter, and cause it to putrefy. Others fertilize the soil by converting ammoniacal compounds into nitrates. Yet others are the cause of fermentations, such as that of sugar of milk into lactic acid, of sugar into vinegar, of butter fats into butyric acid. Many bacteria are found infesting the human body, more especially in the digestive and respiratory tracts; and some have been proved to be the cause of diseases, such as erysipelas, "blood poisoning," boils, whitlows, and carbuncles, wool-sorter's disease, scrofula, consumption, and glanders. Probably all the infectious fevers are due to special bacteria, although the proof is in many instances still incomplete. In some cases it appears that bacteria grow in the body because it is diseased rather than the converse. To prove that they are the actual cause of a disease it must be shown that they are always present in the body in some stage of the disease; that after separate cultivation in gelatine or other suitable media through several generations, they are capable of producing the disease when inoculated into some animal; and that they are again to be found in the tissues (*See* ZYMOTIC DISEASES.) Bacteria exist in several different *forms*. Some are round or oval, arranged in chains, groups, or irregular masses; others in short rods or jointed threads, which may be straight, wavy, or spiral, movable or otherwise, and may form spores inside them. The common bacterium of whitlows is a spherical bead, about $\frac{1}{30000}$ in. diameter. The bacterium of tubercle (or consumption) is a rod (*bacillus*), from $\frac{1}{12500}$ to $\frac{1}{5000}$ in. long, and six times less in breadth. Special apparatus and special methods have been invented for the study and cultivation of bacteria. Great care has to be taken to prevent accidental contamination; jelly with meat juice, potato slices, meat broth, milk, and other substances, have been used as a soil to grow them in, all other living organisms being

killed by boiling the materials. Bacteria usually require a special degree of heat for their development, being rendered quiescent by cold and destroyed by great heat. The spores will usually stand a higher temperature than the bacteria themselves; but all are probably killed by exposure to superheated steam. This is important in connection with disinfection. Related to the bacteria are the *Moulds* and *Yeasts*. Several skin diseases (such as ringworm and favus) are caused by moulds. (*See* SKIN DISEASES.) Among the yeast fungi are the common yeast plant, the vinegar plant, and a few species found on the scalp in dandruff (Payne).

Bael is obtained from a member of the orange tribe. The fresh fruit has obtained a reputation in India in the treatment of diarrhœa and dysentery.

Baking. *See* COOKING.

Baldness is one of the signs of advancing age; but is also met with earlier as a consequence of debility, poverty of blood, syphilis, fevers, the use of hot or tight head-coverings, dandruff, or ringworm. A tendency to early baldness may be inherited.

TREATMENT.—When it comes on after fevers little need be done beyond improving the health. When other constitutional ailments are present, the treatment suitable to them should be adopted. Ringworm, which is parasitic, requires local applications to kill the fungus which causes it. One form of baldness (*alopecia areata*) comes on suddenly in smooth, shining patches, surrounded with healthy hair. If it is not parasitic (which is uncertain), it probably arises from nervous or constitutional causes. Generally speaking, it is well to cut the hair short, avoid nightcaps, wigs, and close head-gear, wash daily with cold water, and use stimulating lotions (*Lotion* No. 13; *Liniment* No. 4). *See* DANDRUFF; RINGWORM.

Balsams.—Oleoresins containing benzoic or cinnamic acids, obtained by bruising or cutting the bark of certain trees. The chief are balsam of Tolu, balsam of Peru, storax, and benzoin. They are all stimulating to mucous membranes, especially those of the air-passages. Balsam of copaiba, balsam of sulphur, and Canada balsam are not true balsams. *See* BENZOIN; COPAIBA; RESINS; STORAX; SULPHUR.

BALSAM OF ANISEED.—A secret preparation for coughs and colds. *See* SECRET REMEDIES.

BALSAM, FRIAR'S. *See* BENZOIN.

BALSAM OF PERU is thick and viscid like treacle, with a fragrant odour and aromatic, biting taste. Rubbed up with yolk of egg, it forms a good application to bed-sores. In bronchitis and catarrh of the bladder, where there is much discharge of mucus, ten minims may be given on a lump of sugar or beaten up with gum-water.

BALSAM OF TOLU, from Central America, is reddish-yellow, like soft resin, but with smell and taste like that of balsam of Peru. Syrup of tolu is useful in coughs; dose, 1 to 3 fl. dr. Tincture of tolu may be given in 20-minim doses, like balsam of Peru (*Pr.* 19, 20).

Bandages are intended to retain dressings, or to exert pressure or support. The chief materials used are soft unbleached calico, torn without selvage, linen, domett, woven nett, gauze, and flannel. The length of an ordinary, or *roller* bandage, should be not less than six yards, without a join; the width 2½ in. for the upper limb, 3 in. for the lower. In bandaging fingers, shorter and narrower bandages are useful, and for the trunk considerably wider. Besides the ordinary or roller bandage, triangular, manytailed, and T bandages are used. The *triangular* (Esmarch's) bandage is like half a large handkerchief. The long side measures four feet, the two short sides 2 ft. 10 in. The St. John Ambulance Association provide one marked with illustrations showing how it may be used. *Manytailed* bandages are made by cutting a piece of calico into narrow parallel strips, leaving the middle uncut. It is useful where part of the bandage requires to be frequently disturbed. *T bandages* are composed of two or three pieces, joined in the shape of a T. In applying a *roller* bandage, it should be tightly rolled up, and the outside applied to the limb, so as to unroll freely. It may be applied in simple spiral, each turn over-

lapping the one below by one-third of its width. When the *hand* or *foot* is to be bandaged, this is best done in figure of eight, alternately above and below the wrist or ankle-joint. Rapidly *tapering*

FIG. 9. BANDAGING WITH "REVERSES."

parts of a limb, such as the calf of the leg, should be bandaged with "reverses," turning down the bandage as in *fig.* 9. This requires practice to do neatly, but is worth learning. In bandaging the *shoulder* or *hip-joint*, turns are made

FIG. 10. "SPICA" BANDAGE, FOR THE HIP-JOINT.

alternately round limb and trunk (*fig.* 10). In the same way, in bandaging a *finger*, turns are made alternately round the finger and the hand. Here of course the bandage must be narrower (say ¾ in.). In bandaging the *chest*, a broad roller is required, 6 to 8 in. wide, and long enough to go many times round the body. This kind may be made use of to fasten a bandage attached to the head. In the *abdomen* a broad bandage is also convenient. Braces are sometimes required to prevent the bandage from slipping down; and it is also a good plan to stitch successive folds. For the *armpit*, a handkerchief is simple and convenient. The middle may be brought over the dressing in the armpit, the ends being tied over the opposite shoulder. In the *groin* a double bandage is required, one to go round the body just below the hip-bones, the other attached to this, coming up from behind between the legs and again fastened to the first. For the *buttocks* or *perineum* (between the legs), a double T bandage is best. For the *head* a triangular bandage may be used, with the ends tied under the chin. Another convenient method is to split up a broad, short piece of bandage lengthwise at the ends, leaving the middle whole. This is then applied to the back of the head, the two back ends tied over the forehead, and the two front ends tied under the chin. It may also be reversed. *Tight bandages.*—Any bandage which causes pain or swelling should be re-applied without delay. If this is not done, the parts deprived of their blood supply by the constriction may mortify or ulcerate. When a tender or swollen part is bandaged, it is a good plan to put cotton wool, or some other elastic material, next the skin. *Stiff bandages.*—When a bandage is comfortable and need not be removed for some time, it may be stiffened by the application of gum, starch, or plaster of Paris. This method is not free from danger in unskilled hands. *See* FRACTURES; INDIA-RUBBER BANDAGES.

Bandoline is used for rendering the hair glossy and keeping it in position. It may be made as follows: Digest 1 oz. gum tragacanth in half a pint of distilled water for five or six hours, strain through muslin, press, and add to the liquid alcohol and rose-water, of each 5 fl. oz. Mucilage of quince seeds and eau de cologne are also used.

Banting System.—A system of dieting introduced by Mr. Banting for the cure of corpulence. Briefly, it consists in the very sparing use of bread, butter, sugar, beer, potatoes, and similar articles of diet, other kinds being freely taken. It succeeds well where some other methods fail, but sometimes causes serious disturbance of the health. *See* OBESITY, TREATMENT OF.

Barbadoes Leg. *See* ELEPHANTIASIS.

Bark. *See* CINCHONA.

Barley (*see* CEREALS) is chiefly used in soups and for the preparation of barley water or gruel.

BARLEY GRUEL: Boil 3 oz. pearl barley in a pint of water for ten minutes, throw away the water, and add 2 quarts of boiling water. Then boil down to one half, strain, add sugar and lemon peel to taste, and simmer for a few minutes more.

BARLEY WATER is made like barley gruel, but with 3 quarts of water instead of 2. The barley which has been used will still yield a little more material, and may be mixed with some fresh barley and used again. Barley water is valuable wherever much fluid has to be taken. Its mucilaginous character probably prevents its too rapid absorption through the coats of the stomach. *Another mode* of preparing it is to wash a tablespoonful of pearl barley in cold water, add a little sugar, the rind of one lemon pared off very thin, and the juice of half a lemon; pour on to these a quart of boiling water, allow it to stand for seven or eight hours in a warm place, and strain. The barley should not be used a second time. *See* BEVERAGES.

Barometer.—An instrument for measuring the atmospheric pressure. Two kinds are commonly used, mercurial and aneroid. In the first, the air supports a column of mercury in a tube closed at the top; in the second, a thin metallic plate or spring, moving a lever, registers the pressure. Damp air weighs less, bulk for bulk, than dry air, and warm air than cold. The direction and force of the wind also affect the barometer. *See* CLIMATE.

Barrenness may be due to structural defects in husband or wife, or to local or constitutional disorders curable by proper means. Any form of intemperance or dissipation may lead to sterility. Excessive use of tobacco by the husband, and excessive horse exercise or bicycle riding are also credited with the same result; but other influences probably play a far more important part. *See* MARRIAGE; MISCARRIAGE.

Basilicon Ointment. *See* RESIN OINTMENT.

Baths and Bathing influence the condition, not only of the skin, but of the whole body. The effects of a bath vary according to the kind of bath and the state of health. Baths are considered cold below 70° F., tepid up to 85°, warm up to 97°, and hot above this temperature.

COLD BATHS are valuable stimulants to the healthy. Their first effect is to cause chilliness and contraction of the blood-vessels of the skin. This should be followed by reaction, with feeling of warmth and an active circulation. The tissue-changes of the body are also stimulated, so that appetite and digestion improve, and excretion is promoted. Reaction is assisted by vigorous rubbing of the skin with a rough towel, flesh-brush, or loofah, or by a short brisk walk after the bath. If reaction is feeble, the bathing should be done quickly, and the body immersed piecemeal, as in a hip-bath, where the face and trunk are sponged while the feet are yet out of water; or a platform bath may be used, and the feet placed in hot, while the trunk is sponged with cold or tepid water. After the bath the body should be wrapped in a large warm bathing-sheet or dressing-gown of towelling, and the skin quickly dried. Many people fail to get a proper reaction because they are too long in the bath, or expose themselves afterwards to the cold air. They then feel languid and chilly, and perhaps suffer from headache. Standing with naked feet on oil-cloth and other cold materials may also lead to chill. A thick piece of cork or a dry piece of blanket is far more suitable. The cold bath should be used very cautiously in heart disease; it should not be begun during pregnancy or near the menstrual period, although it

need not be discontinued if used habitually at other times. Children under two years of age should be bathed in tepid rather than in cold water; and for some years later the chill should be taken off in winter.

SWIMMING BATHS are more fatiguing, but for robust people more stimulating, than ordinary cold baths. Five minutes is a very good time for a swimming bath; but if reaction is imperfect, a shorter time is better. Many people injure themselves by staying too long in the water. Such a bath should not be taken immediately after a full meal, nor on an empty stomach. Robust people may with advantage bathe before breakfast, taking, if necessary, a crust of bread or a biscuit beforehand. For those in delicate health about eleven in the forenoon is preferable. *Salt water* renders the bath still more stimulating; but sea bathing is often very fatiguing for those who are not strong. Salt water may be prepared by dissolving 1 lb. of common or of Tidman's salt in 4 gals. of water.

Cold bathing is used *in disease* to diminish fever. As a rule, the best method is to put the patient into a warm or tepid bath, and gradually reduce the temperature within a quarter or half hour to about 60° F. The body heat continues to fall after the patient leaves the bath, so that he should not remain too long in the water. The temperature should be taken every five minutes with a thermometer in the mouth, and the patient taken out when the temperature is nearly natural. Cold affusion, cold sponging, and the cold pack are also used in fever. Cold sponging is useful in false croup and night-crowing of children. The cold *sitz bath* may be tried in constipation and weakness of the bladder. It increases the blood supply to the pelvic organs, or if the time is prolonged diminishes it. It is sometimes useful in pregnancy; but where there is a tendency to miscarriage it is not quite safe. *Cold foot baths* help to prevent chilblains and cold feet; they should be avoided at the menstrual period. Cold *compresses* act like cold packs. (*See* COMPRESS; WET PACK.) Cold water may also be applied locally by means of *Leiter's tubes*, and in the form of cold or evaporating *lotions*. The cold *douche* is applied to the spine in melancholia, anæmia, and debility; and to the regions of the liver and spleen in enlargements of these organs. It is also useful in the treatment of sprains. Alternate hot and cold douches are often preferable as they are more stimulating. A finely subdivided stream is less depressing than a mass of water in both douche and shower-baths. Ascending douches are also useful applications to the anus and perinæum in piles and pruritus ani; and to the vagina in "whites" and some other women's diseases. They may be applied by means of a bidet.

TEPID BATHS may be used instead of cold baths where there is debility or a weak circulation.

WARM BATHS soften the skin and promote perspiration. They diminish internal congestion, and relieve the liver and kidneys after a chill. They are soothing in extreme fatigue, and often relieve sleeplessness and fever where the skin is dry. They are sometimes useful in diarrhœa. (*See* WET PACK.)

HOT BATHS act somewhat similarly, but embarrass the heart action, so that they must be used very cautiously in heart disease, or not at all.

Hot foot baths and hot *sitz baths* increase the pelvic circulation, and are useful in suppressed menses, inflamed piles, and some disorders of the womb.

MUSTARD BATHS are prepared by adding about a teaspoonful to a gallon of warm water. It should be remembered that boiling water destroys the activity of mustard. These baths are stimulating to the circulation. They should not be used longer than ten minutes, and should be discontinued if there is chilliness or a burning sensation.

VAPOUR BATHS may be taken in specially constructed rooms or by means of portable contrivances. In the *Russian* bath a room is filled with steam, and provided with benches at different levels. The higher the seat the greater the heat. To breathe comfortably it is usually necessary to hold a sponge with cold water before the nose and mouth. At

the end of the bath a cold douche is taken and the skin dried. *Portable contrivances* are of two kinds, one for use in bed, the other under a chair. A simple method is to envelop the body with a large blanket, and sit on a cane-bottom chair with a pan or tin of water underneath, heated by a spirit lamp or by hot stones or bricks thrown in. No night-dress or cotton or linen garment should be used, or a lamentable accident might easily happen. That the head is exposed to the air is on the whole an advantage. Several ingenious contrivances are sold by surgical instrument makers. Vapour baths are useful in chills, rheumatism, and dropsy from kidney disease; also in certain skin diseases. *Turkish baths* are usually provided with three rooms. The first or dressing-room is moderately warm. Here the clothes are removed, a towel wrapped round the loins and another round the head, the latter being sometimes wetted. The next room is hotter. Here much cold water is drunk to promote perspiration. Some people go into the third or hottest room, remaining until the skin is moist, and then returning to the second room. For many, however, this is not advisable, as the hottest room may cause oppression or faintness. It is never advisable to enter the third room at a first visit. When the skin is acting freely the body is shampooed and washed. A cup of coffee or beef tea is then taken while reclining in the first room, after which the body is gradually cooled and the clothes put on. The Turkish bath is very efficacious in removing colds or rheumatism, and in bringing the skin into a healthy state. The chief objection is the length of time required. Those with heart-disease should not attempt such a bath. (*See* MASSAGE.) Some apparently healthy people suffer greatly from a Turkish bath.

BRAN BATHS are useful where the skin is raw or irritable. Hot water is used, and the bran placed in a thin linen bag. Fixed baths should not be used for a bran bath, or the pipes may be stopped up.

HOT-AIR BATHS act in much the same way as vapour baths; and portable apparatus are sold which will serve for either at will.

MEDICATED BATHS are also employed in the treatment of disease. Among the substances used are carbonate of soda or potash, sulphurated potash, pine tree oil, nitro-muriatic acid, and calomel —the latter usually with a hot air or vapour bath. None of these should be used without medical advice. Mustard baths have already been mentioned.

MINERAL BATHS are to be found in most bathing resorts. It is uncertain how far their utility is due to the heat of the water, and how far to its peculiar composition. (*See* HEALTH RESORTS; MINERAL WATERS.)

Battery. *See* ELECTRICITY.

Battley's Solution. *See* OPIUM.

Beans. *See* PEAS, BEANS, AND LENTILS.

Bearberry. *See* UVA URSI.

Bed-cradles are contrivances to take the weight of the bed-clothes off the body (*fig.* 11). One may be improvized by cutting open a bandbox. In Salter's cradle a broken leg may be suspended from a small wheel running on a bar at the top of the cradle.

Bed-lifts are contrivances for lifting up patients while in bed. Some are permanently attached to the bed; others

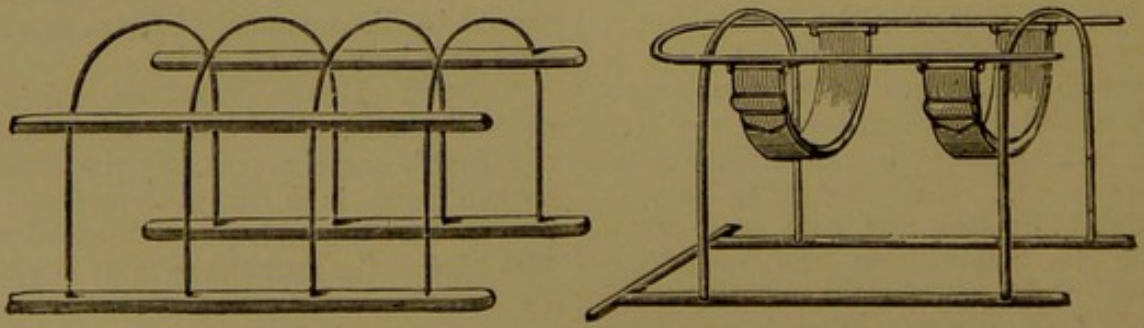

FIG. 11. BED-CRADLES.

By permission of Messrs. Krohne and Sesemann.

are separate. A helpless patient can be easily transferred on the under blanket on to another bed placed alongside. In this way the necessity for a bed-lift can often be avoided.

Bed-rests are useful to support patients in a sitting or reclining position in bed. Some are made to move with rackwork, others are simpler, but probably equally useful. In an emergency an ordinary cane-bottom chair placed upside down forms a fair bed-rest.

Bedrooms require very thorough ventilation. It often happens that people wake with headache from breathing foul air during the night. Where there is a dressing-room adjoining, the window may be left open, together with the door of communication. *See* HOUSE DRAINAGE; NURSERY; VENTILATION.

Beds and Bedding. — Wooden bed frames are less common than formerly, being largely superseded by iron ones. The bottom of a bed is sometimes made of laths, sometimes of stretched canvas laced to the sides with stout cords, or of wirework. An ingenious canvas bed has been introduced by Mr. Stidolph, of Dartford, in which the canvas is stretched over rollers like a round towel. For iron bedsteads, crossed steel laths are elastic and cleanly; or a wirewove mattress may be fixed directly to the framework. In a sick room the bed should not be more than $3\frac{1}{2}$ feet wide. For invalids, a bed on large, noiseless wheels is convenient.

BEDDING may consist of a straw palliasse, or of a horsehair mattress. The latter is more elastic, but more expensive. Other materials used are cotton waste, flock (a mixture of cotton and wool) hay, Indian grasses, cocoa fibre, fern or seaweeds. Long straw laid lengthwise inside a tick makes a very comfortable bed. Feather beds are warm, but too yielding to be perfectly healthy. Spiral spring mattresses are comfortable when still new, but are apt to wear unequally.

Bed coverings should consist chiefly of blankets. In the sick room a waterproof sheet may be placed under the blanket, and a linen or cotton draw sheet under the middle of the patient is often useful. Bed curtains and valances should be reduced to the scantiest proportions, as they harbour dirt and obstruct the purifying currents of air. The old-fashioned inclosed beds have nearly or quite gone out of use in England, which is a good thing for the health of the sleepers. Anything which interferes with the supply of fresh air at night is highly objectionable. In choosing the *position* of the bed this should be remembered. The length of the bed should stand at right angles to the wall, with a free space on either side. A very low bed is unhealthy, as the air near the floor is both colder and less pure than that midway between floor and ceiling.

CARE OF THE BED. — All bedding should be thoroughly aired near a fire before being used. If there is any doubt in a strange house about this having been done, it is well to discard the sheets, and use the blankets alone. Bed-clothes take up many organic impurities during the night, so that they should be freely shaken and exposed to the air and sunlight in the morning. To "make" a bed immediately after it has been used is a great mistake. *See* NIGHT-DRESS.

Bed-pans.—There are many different varieties of this indispensable adjunct to the sick-room. Some are round, others slipper-shaped, or some modification of these forms. In using them, it is advisable to warm them, and cover the margin with flannel. They should be emptied and cleaned out as promptly as possible. Where inspection is necessary, they should be kept in a cool place out of the sick-room. The "Liverpool" bed-slipper is a convenient form; and for heavy people, the "Woolwich." In case of need, a soup-plate has been substituted.

Bed-sores are formed in bedridden people through long-continued pressure on prominent parts, together with weakness and a feeble circulation. They may form very rapidly in disease of the spinal cord, brain, or nerves. The first sign is usually a red patch or blister, which turns black, and ulcerates. The ulceration may in bad cases extend deeply, sometimes to the bone. As bed-sores not

only cause great discomfort, but increase the danger to life, any redness of the skin should be promptly attended to. Before the skin is broken, bathing with eau de cologne, pure brandy, or whisky, or painting with solution of nitrate of silver (20 grains to one ounce of distilled water), or with saturated solution of alum and tannin, will often prevent the formation of bed-sores. The sheets must be kept free from crumbs, folds, or unevenness, and all soiling prevented. The bed should be firm and elastic. In prolonged illness, a water or air bed or cushion is valuable. Taking the pressure off by means of lead-plaster on chamois leather, perforated to let through bony prominences, is often useful, provided that the plaster is applied smoothly without creases. If in spite of these precautions a sore has formed, it should be poulticed till the dead tissue comes away, and then dressed with equal parts of resin ointment and balsam of Peru, or with carbolic lotion (1 in 40), or boracic ointment. *See* MORTIFICATION.

Bed-tables. *See* FURNITURE FOR INVALIDS.

Bed-wetting. *See* URINE, INCONTINENCE OF.

Bee-stings. *See* BITES AND STINGS.

Beef. *See* MEAT.

Beef-tea, as ordinarily made, contains stimulating extractives in solution, and most of the nourishment in the grounds. If these are thrown away, the beef-tea has little food value. (1) To make beef-tea, put a pound of finely chopped beef into a pint of water, and cook slowly till the beef is hard, keeping down the heat. Strain off the juice, flavour with salt, and serve hot. (2) Or, allow the minced beef to remain for an hour in cold water, in an earthenware jar; place this into a saucepan half full of water, and heat over a slow fire for another hour; then flavour to taste. This method prevents coagulation of much of the nourishment. (3) A nourishing beef-juice may be made by finely chopping a pound of beef, and adding 1½ pint of cold water, containing 8 drops of hydrochloric acid and a pinch of salt. This is left for an hour, the fluid drained off without pressure, another half-pint of cold water poured over the beef, and added to the first. The whole is then strained, and used cold. (4) To remove the raw flavour, some of the beef may be slightly broiled, and then cut up and squeezed with a lemon-squeezer. Celery essence and salt may be added. (*See* MEAT EXTRACTS.) Beef-tea may be made into jelly by the addition of gelatine, or thickened with baked flour or a biscuit powder.

Beer. *See* FERMENTED LIQUORS.

Beetroot. *See* VEGETABLES.

Belladonna, deadly nightshade, is a light green plant, with dingy brownish-purple bell-shaped flowers, and deep cherry-black berries. It is a valuable drug, but contains an exceedingly poisonous alkaloid, atropine.

POISONING with belladonna or its preparations causes dryness of the throat, flushed face, dilated pupils, and dimness of sight. Sometimes a bright red rash appears on the skin; and gay busy delirium is common.

TREATMENT.—Send for a doctor, give an emetic (*Pr.* 27, 28; *see also* EMETICS), unless there has been free vomiting. Stimulants and strong coffee are useful.

MEDICINAL USES.—To relieve pain, especially in muscles, nerves, or skin, to arrest secretion of milk and excessive perspiration, and to relieve some forms of sore throat, headache and cough. It is a valuable remedy for bed-wetting in children. Atropine is used in diseases of the eye. *Preparations* for outward use, a liniment, ointment, and plaster; for internal administration, extract and tincture, etc. *See Pr.* 22; *Liniment*, No. 6; *Lotion*, No 3.

Bell's Paralysis.—Paralysis of the facial nerve, described by Sir Chas. Bell. *See* PARALYSIS.

Belly. *See* ABDOMEN.

Belts are made for use in pregnancy and other enlargements of the womb; in hernia at the navel, and in obesity. They are made of various materials, with elastic or without, to lace or to draw tight with strings.

Benzoin.—A balsamic resin obtained by cutting the bark of the Benjamin tree, a native of the East India islands. (*See* BALSAMS.) Benzoin prevents the

decomposition of lard and other animal fats (*see* LARD), and is an ingredient of *compound tincture of benzoin*, or friar's balsam, which also contains storax, tolu, and aloes. This preparation has long been used as a stimulating application to cuts and wounds, and given internally in winter cough and catarrh of the bladder. (*See* BLADDER, BRONCHITIS.) It is also used for inhalations. *See Inhalation* No 1.

Benzòic Acid.—A feathery crystalline white substance obtained from benzoin and other balsams, also contained in paregoric and ammoniated tincture of opium. Benzoic acid and benzoate of ammonium are given in catarrh of the bladder with offensive urine. Lozenges are prepared containing each ½ grain benzoic acid. Dose—1 to 5 of these.

Betel-nut.—A remedy for diarrhœa, and for tapeworm in dogs. In Eastern countries it is chewed to increase the flow of saliva.

Beverages may be divided into stimulant, nutrient, diluent, and medicated. The basis of every beverage is water; and in illness this alone is often more suitable than any other drink. Large quantities of water are, however, apt to become distasteful; and it is also not advisable that it should be too rapidly absorbed into the blood. Other substances are therefore added to the water, and the beverages so formed go by the name of *diluents*. They include aërated waters; acidulous waters (lemonade, imperial, fruit-drinks); simple flavoured waters, such as toast-water, sugar-water, and water flavoured with tincture of oranges; and thin mucilaginous drinks (linseed tea, barley-water, gelatine-water). The latter form a connecting-link between diluents and *nutrient* beverages. These may be made from meat (beef-tea, soups), milk, farinaceous foods (arrow-root-water, oatmeal-water, rice-water, thin gruel), or a combination of several of these. For *stimulant* beverages, *see* STIMULANTS. Amongst *medicated* beverages are included many mineral waters, chamomile tea, and other infusions. For further details, *see* EFFERVESCENCE, AËRATED WATERS, MINERAL WATERS, LEMONADE, IMPERIAL, FRUIT-DRINKS, TOAST-WATER, LINSEED-TEA, BARLEY-WATER, GELATINE-WATER, and other articles.

Bile.—A bitter alkaline fluid secreted by the liver, usually of a golden red or dingy brown colour, but sometimes grass-green. It contains 9 per cent. of bile salts (*taurocholate* and *glycocholate of soda*), with smaller quantities of mucus, fat, cholesterine, common salt, and colouring matters. It assists in the digestion and absorption of fat, prevents decomposition, and acts as a natural laxative. *See* DIGESTION, JAUNDICE, LIVER.

Biliary Calculi. *See* GALLSTONES.

Biliary Fistula.—An unnatural communication with the bile-duct or gall-bladder, either from the bowel or from the surface of the body. It may be caused by ulceration from gall-stones.

Bilious Attacks. *See* LIVER DISORDERS; MEGRIM *under* HEADACHE.

Binder.—A belt or bandage applied to the abdomen of the mother in childbirth. Whenever the contents of the abdomen are suddenly reduced in bulk, the blood is apt to accumulate in the large veins, and cause faintness and discomfort. If the abdomen is supported by a binder which is tightened as labour proceeds, such faintness may be prevented. After delivery the womb is liable to relax, and dangerous loss of blood may result. This also can be prevented by firm pressure with a suitable pad and binder. For this purpose the pressure should be chiefly applied over the lower part of the abdomen, and should be as great as can be borne with comfort. Many forms of binder are sold by surgical instrument makers. A perfectly efficient one may be made by folding up a tray-cloth, or round towel, or double strip of calico, about 10 inches wide, and 5 or 6 feet long. Such a binder is best put outside the night-dress at the beginning of labour, passed twice round the body, and fastened behind with tapes or safety-pins. It is convenient to have the binder narrower towards the ends than in the middle. A slit may be cut lengthwise about a foot from one end, and the other end passed through it. The pad may be made of a pin-cushion covered with a napkin, or of a thick

towel repeatedly folded on itself. *See* CHILDBIRTH.

Birds, Flesh of.—Poultry are chiefly esteemed for their digestibility and delicate flavour. They are deficient in fat and in salts of iron; so that the practice of serving them up with melted butter and sauce made from butcher's meat or Liebig's extract is a reasonable one. Geese and ducks, having much more oily matter intermixed with the flesh are less digestible, and not suited as food for invalids. Game is valuable during convalescence, and to stimulate a fanciful appetite.

Birth. *See* CHILDBIRTH.

Biscuits are more porous and, if plain, more digestible than bread. Taken in large quantities they are apt to cause constipation.

Bismuth.—The carbonate and subnitrate of this metal are insoluble white powders, but the ammonio-citrate forms a clear solution in water (*Pr.* 16). The subnitrate has been used as a cosmetic under the name of Spanish or pearl-white; as however it is blackened by some foul gases, its use is unadvisable. It is also employed as a dusting powder in chapped nipples, eczema, etc., as snuff in cold in the nose, and internally for indigestion and diarrhœa. Bismuth preparations should be taken about half an hour before meals. The carbonate and sub-nitrate may be suspended in linseed-tea or barley-water, or in water by means of gum-tragacanth or mucilage (*Pr.* 17). They are also taken in the form of lozenges. All bismuth preparations blacken the motions. *See* DIARRHŒA; ECZEMA; INDIGESTION.

Bites and Stings.—Bites of *dogs or cats* usually cause lacerated or punctured wounds. Great pains should be taken to wash away all dirt, etc. For this purpose it may be necessary to enlarge the mouth of the wound by inserting the closed blades of a clean pair of scissors and opening them slightly. Within reasonable limits bleeding should be encouraged, as it makes the wound clean. Where the animal is suspected to be mad, it is well to apply caustic freely to the wound or touch it with a white-hot knitting needle. Afterwards treat as a lacerated wound. (*See* WOUNDS; HYDROPHOBIA.

Snake bites cause faintness and depression out of all proportion to the size of the wound, followed by rapid swelling and discoloration, with more or less pain in the bitten part. Adder-bite is the only kind likely to be met with in this country. It may cause serious symptoms, but is seldom fatal.

TREATMENT.—Tie a band tightly round the bitten part between the wound and the heart; suck the wound well, taking care to wash the mouth out with strong brandy and water, and not to swallow any of the poison. Apply poultices and fomentations; and give stimulants freely (*Pr.* 5 every ten minutes until there is reaction).

Insect stings.—Harvest-bugs cause much irritation and inflammation by burrowing in the skin. They should be removed with a clean sewing needle, and an alkaline lotion applied (Lotion No. 5), or later on, when there is inflammation, lead lotion (No. 4). Bee, wasp, and hornet stings should be removed with forceps, and the same treatment resorted to. The bites of mosquitos, sandflies, gadflies, fleas, and bed-bugs, and the "nettle rash" caused by some kinds of jelly fish and sea anemones, may be treated with the same lotions. Sweet oil and vinegar are also recommended, and as preventives of insect bites, oil of pennyroyal, spirits of camphor, carbolic lotion (1 in 30) or limejuice.

Bitter Tonics.—Many vegetable remedies are included under this head. Some, such as calumba, quassia, gentian, and chiretta, are pure bitters. Others, such as canella, cascarilla, chamomile, cusparia (or angostura bitters), hops and bitter orange-peel, are aromatic bitters; and yet others, such as quinine and nux vomica, have a wider sphere of influence, acting not only on the digestive organs but on the nervous system and other parts of the body. Bitter medicines in small doses improve the appetite and digestion: larger doses cause irritation and destroy the appetite. To habitually take "sherry and bitters" before meals is a sure way of injuring the digestion. The mildest of the simple bitters is pro-

bably calumba. Aromatic bitters combine the properties of simple bitters and aromatics, and often do good where simple bitters cause discomfort. Bitter ale is an instance of an aromatic bitter (from hops) combined with alcohol; tincture of bitter orange, of hops, compound tincture of gentian, are similar combinations. If alcohol is not required, infusions of calumba, quassia, or chiretta among pure bitters, or of cascarilla, chamomile, cusparia, or compound infusion of orange, will be more suitable preparations. The dose of these infusions is from 1–2 fl. oz. That of the tinctures mentioned above (excepting nux vomica), is from ½–1 fl. drachm. (*Pr.* 1, 6, 12, 13, 15, 25, 37, 38, 40.) *See* ABSINTHE; ALCOHOL; CINCHONA; NUX VOMICA.

Black Death. *See* PLAGUE.

Black Draught.—Salts and senna, a well known purgative, suitable for occasional use.

COMPOSITION.—Epsom salts 1 oz.; liquid extract of liquorice 2 fl. dr.; tincture of senna 5 fl. dr.; compound tincture of cardamoms 3 fl. dr.; infusion of senna to 5 fl. oz. Dose 1–1½ fl. oz. For the cardamoms, may substitute tincture of ginger 1½ fl. dr. *See* EPSOM SALTS; SENNA.

Black Drop. *See* OPIUM.

Bladder, Urinary, the receptacle for the urine (*see* URINARY ORGANS), a hollow muscular bag, lined inside with mucous membrane, and partly covered with peritoneum. It is situated when empty in the pelvic cavity (excepting in young children), rising up into the abdominal cavity as it fills. It receives the urine from the kidneys by the ureters, and discharges it through the urethra. During health it will retain about a pint of urine, but is usually emptied before this quantity has collected. When there is an obstruction to the overflow of urine (as in *stricture*), the bladder may become enormously distended and contain many pints of urine. Over-distension weakens the bladder, causing either inability to retain the urine (*urinary incontinence*) or to expel it (*urinary retention*). Those in society should never allow over-distention to occur from motives of false delicacy. Damage may be done in an hour which years of treatment will fail to repair. Special precautions are necessary on long journeys. *See* TRAVELLING.

Bladder, Inflammation of, may be due to several different causes, such as gout, venereal disease, stone in the bladder, severe blistering with cantharides, or incomplete emptying of the bladder. (*See* URINE, RETENTION OF.) It shows itself by changes in the urine, frequent calls to pass water, and more or less pain or discomfort whenever the bladder is distended, pressed upon, or emptied. (*See* BLADDER, IRRITABLE; URINE.) It is not a disease which can be safely treated with domestic remedies; but in the absence of a doctor an attempt should be made to discover the cause. A hot hip-bath or bidet is always a safe remedy, and hot poultices may be applied to the lower part of the abdomen. Light diet is advisable, with milk and slops, and if the urine passes freely, plenty of bland drinks, such as barley-water or linseed tea, to which carbonate of potash may be added (a small tea-spoonful to a pint). Constipation should be remedied by an aperient.

Bladder, Irritable, causes frequent desire to pass water. It may be due to changes in the bladder itself, such as inflammation or tumours, or to disturbance of its nerves. Infants have little control over the bladder; and older children sometimes have the same infirmity. (*See* BED-WETTING.) Debility or nervous weakness in adults may lead to a similar condition. Irritability of the bladder is often due to an over-acid or watery state of the urine, or to ammoniacal changes from retention, or the presence of gravel, or stone, or sugar in the urine. Irritability may also be caused by disorders of other parts of the body, such as constipation, intestinal worms, piles, displacements of the womb, or other diseases of the reproductive organs.

TREATMENT will seldom be successful unless the cause is first discovered. The use of particular articles of food, such as tea or coffee, is sometimes a cause; at other times there may be a gouty condition of system. Very often local causes require attention. Where the

urine is natural in composition, *Pr.* 15, 22, may be given alternately. Should there be debility, *Pr.* 36 will be more likely to succeed. As a rule competent medical advice is necessary. *See* BED-WETTING; DIABETES; RAILWAY CONVENIENCES; URINE.

Bladder, Rupture of the.—This formidable accident rarely occurs excepting as the result of over-distension. A blow received when the bladder is full may cause it to burst into the abdominal cavity or the surrounding tissues, with agonising pain and great shock to the system. This has been known to happen after a drinking-bout or during a railway journey. On the other hand, the bladder may be weakened by long continued over-distension from stricture, when a very slight blow or effort may cause the organ to give way. In this case, there is at first rather a feeling of relief. The rupture takes place below, and urine collects and spreads under the skin, causing after a while severe inflammation and fever. Prompt surgical attention is essential to prevent a fatal result. Those who travel long distances should be careful to relieve themselves at suitable intervals. (*See* RAILWAY CONVENIENCES.) Rupture of the bladder may also happen where the pelvis is run over by vans or otherwise seriously injured. Under such circumstances recovery is almost hopeless.

Bladder, Stone in the, causes pain in the abdomen, back, thighs, and privates, together with passage of urine containing blood or gravel or both. The symptoms are increased by exercise, especially such as causes jolting, *e.g.* riding. There is irritability of the bladder, and pain after passing water; and the stream is sometimes suddenly stopped. Little boys who suffer from stone in the bladder may get into the habit of pulling the penis, as the chief discomfort is usually felt there. In women, bearing-down pains are often excited. As the female urethra is shorter and simpler than in men, stone is often passed by women without assistance; whereas in the male sex this is not so common. Stone in the bladder is pre-eminently a disease in which early advice should be obtained, as a small stone is much more easily dealt with than a large one, and a neglected stone may cause formidable or even fatal complications. Much may be done by constitutional treatment to prevent the recurrence of stone, although the removal of a stone by medicinal means alone is unusual. *See* KIDNEY, STONE IN THE; URINE, CHANGES IN THE.

Bladder, Weakness of the, causes inability to retain the urine for long. (*See* BED-WETTING; BLADDER, IRRITABLE; URINE, INCONTINENCE OF.) It usually arises from over-distension or constitutional debility, but may be due to disease or injury of the spinal chord. (*See* PARALYSIS.) Neglect of the calls of nature is a common cause. It is well to remember that continual dribbling of urine may be a sign of over-distension and not of weakness of the bladder. *See* URINE, RETENTION OF.

Bladder-worm. *See* HYDATIDS.

Blain, Bleb. *See* BLISTERS.

Bleeders. *See* HÆMOPHILIA.

Bleeding. *See* BLOOD-LETTING; HÆMORRHAGE.

Blindness may arise from many different causes. Sometimes it is caused by injury or disease of the eye, rendering it opaque to light. (*See* OPHTHALMIA; CATARACT). At other times the sensitive part at the back of the eyeball (*retina*) is at fault, or the optic nerve which connects it with the brain; and sometimes blindness is due to disease of the brain itself. Temporary blindness may result from loss of blood or exposure to a very bright light (such as the electric light), or to great exhaustion, as in soldiers after a hot, long march, or in shipwrecked sailors. Sudden transient loss of sight sometimes arises from dyspepsia, and is cured by an aperient and attention to diet. Sudden blindness, with pain or inflammation in the eye, is never to be trifled with. In all cases it is safest to consult an oculist without delay. *See* COLOUR-BLINDNESS; EYE DISEASES; SIGHT.

Blisters are collections of serum under the horny skin, occurring as the result of burns or scalds, chilblains, various skin diseases, chafing, or the application

of counter-irritants. The same term is also applied to blistering agents. *See* COUNTER-IRRITATION.

TO RAISE A BLISTER, cut or shave off all hairs, cleanse the skin thoroughly from all grease, put on a thin piece of muslin, and over this a piece of blister-paper covered with a folded napkin. Where the skin is sensitive, some oiled tissue-paper may be substituted for the muslin. The blister-paper must be snipped at the edges to adapt it to curved surfaces, and pressed firmly into the skin. It should never be applied to inflamed surfaces, or near acutely inflamed parts, to the breast during pregnancy, to loose folds of skin, or over bony prominences. In order to prevent the absorption of the cantharidin, it is the custom in France to sprinkle the paper with powdered camphor. A blister usually begins to rise in from six to eight hours, after which the paper may be replaced by a poultice. In children, however, or in adults with a sensitive skin, a much shorter time may be sufficient, and the effect must be carefully watched, as it is very depressing to leave the paper on too long. "Flying blisters" are left just long enough to cause redness, and then repeated elsewhere.

TO DRESS THE BLISTER, snip it with a clean pair of scissors, empty it by gentle pressure with a soft cloth, and dress with sweet oil and cotton wool or cold cream on tissue-paper. If the contents are gelatinous, they may be left to ooze out of their own accord. Where the blister is small, it may be left alone, as the fluid helps to protect the deep skin, and is afterwards readily absorbed. If the blister inflames, or "gets the fire into it," apply a poultice for a few hours, and then a water dressing. *See* BURNS AND SCALDS; CHILBLAINS; COUNTER-IRRITATION; SKIN DISEASES.

Blood.—The fluid which carries nourishment to all the tissues, removes their waste products, and distributes heat and oxygen throughout the body. It consists of a liquid portion (*plasma*) having an alkaline reaction, and of minute corpuscles, the latter constituting rather more than one-third of its weight. The corpuscles are of two kinds, red and white; the red being flattened discs $\frac{1}{3200}$ in diameter, and cupped on both sides, the white much less numerous, a trifle larger, globular when at rest, and provided with a nucleus. (*See* CELLS.) These white corpuscles during life are continually changing their shape, throwing out prominences and retracting them again. There is evidence to show that they attack bacteria which enter the blood, and take up small particles of various kinds into their interior. They probably pass through the walls of the small blood-vessels into the surrounding spaces, thus entering the lymphatic circulation. (*See* INFLAMMATION.) The red corpuscles owe their colour to the presence of hæmoglobin, a nitrogenous substance containing iron, which has the property of taking up oxygen in the lungs, and giving it up again to the tissues of the body. There are over 70,000,000,000 red corpuscles in every cubic inch of blood; the number of white corpuscles is about 350 times less; they are most numerous after a meal. Blood corpuscles are probably manufactured in the spleen, lymphatic glands, and red marrow of bones. When worn out they are broken up in the spleen and liver. Blood in the arteries has a bright scarlet colour; when it reaches the veins it contains less oxygen and more carbon dioxide, and is reddish purple. (*See* RESPIRATION.) Blood drawn from the body separates into a straw-coloured fluid (*serum*), and a deeper coloured jelly-like clot consisting of a network of fibrin inclosing the corpuscles. Clotting also takes place when a blood-vessel is injured. This is one way in which bleeding of wounds is arrested. (*See* HÆMORRHAGE.) The quantity of blood in the body is about one pound to every stone weight.

Blood, Impurity of the.—Since the blood is the common recipient of all the waste products or refuse of the tissues, an increase in the waste or diminished activity of the excretory organs will lead to impurity of the blood. Such a condition is present in liver and kidney disease, habitual constipation, fever and gout. (*See* EXCRETORY ORGANS.) The blood may also be rendered impure by

the absorption of poisons through the skin or digestive organs (POISONS). In a third form, the "poison" consists of living particles capable of almost indefinite multiplication. (*See* INFECTIOUS FEVERS.) From this it is evident that there can be no single medicine or mode of treatment for all cases of impurity of the blood. Where this is suspected, the cause must be sought and treatment regulated accordingly.

Blood in Motions. *See* MOTIONS.

Blood in Urine. *See* URINE.

Blood-letting used to be a very common operation in surgical practice, and people used to be regularly bled in spring and autumn as a precaution against illness. Now-a-days it is quite a rarity, and many medical men avoid it altogether. Many diseases formerly treated by blood-letting are better treated by milder measures, such as leeching, scarifying or cupping, or by the internal administration of aconite and other medicines. Still it occasionally happens that blood-letting is necessary to save life, more especially when the heart is overful and cannot contract properly. Bleeding from a vein (*venesection*) is usually done either at the bend of the elbow or from the "external jugular vein" of the neck, but might in cases of suffocation be done from a distended vein on the forehead or elsewhere. The choice is determined by the absence of other important structures and the possibility of firmly compressing the vein afterwards.

Blood, Loss of. *See* HÆMORRHAGE.

Blood-poisoning is a term popularly applied to "pyæmia" and "septicæmia," which usually arise as complications of a wound-injury or local inflammation, especially of bones or veins. Impure air, bad drainage, overcrowding, and want of cleanliness are especially apt to induce blood-poisoning, and those who are intemperate, or suffer from Bright's disease, or are pregnant, or have been recently confined are particularly liable to this terrible disease. The ulcerated throat so common in scarlatina and diphtheria, and the ear disease or bone disease which often follows an attack of measles in delicate children, may also lead to blood-poisoning. Any wound in which matter is formed, especially if this is unable to escape freely, may cause blood-poisoning; but the introduction of antiseptic surgery has greatly diminished this risk. The actual cause of blood-poisoning is not yet certain; but there are good reasons for attributing it to the presence of bacteria, which flourish in the matter and the fluids of the body, and manufacture a poison which causes the fever and other symptoms. These bacteria may enter the body and give rise to the formation of abscesses in the joints and other parts. The first indication of pyæmia is often a violent attack of shivering (*rigor*), followed by sweating and rise of temperature. The fever continues, but rises and falls irregularly; pains in the limbs are complained of, with thirst, loss of appetite and other common symptoms of fever. The patient has an anxious expression, and loses flesh and strength. If inflammation of the joints appears, or abscesses form, the condition is called pyæmia; if not, septicæmia. The disease is an exceedingly fatal one, and recovery depends largely upon the constitutional strength and the possibility of active surgical treatment.

Blood, Poorness of.—*Anæmia* consists essentially in a deficiency of red corpuscles or their colouring matter, especially common in young women and town-dwelling youths. The chief *causes* are, want of fresh air and light, irregular hours, insufficient or ill-chosen food, anxiety and overwork, over-indulgence in tobacco, rapid growth and development in young people, diarrhœa and other discharges, and various exhausting diseases. Fevers and impurities in the blood lead to a similar condition. (*See* BLOOD, IMPURITY OF THE.) The *symptoms* are, pallor, especially noticeable in the lips and tongue, languor and listlessness, heavy, unrefreshing sleep, headache, neuralgia, and giddiness, constipation, loss of appetite and indigestion, tendency to faintness, palpitation, and shortness of breath, and sometimes loss of flesh and strength, or swelling of the feet. In young women the monthly discharge is often absent, and the com-

plexion assumes a sickly yellowish green tint (*green sickness*). As a rule it is an easily curable disorder; but it may, as already stated, be dependent upon other diseases, curable or otherwise; and in rare cases (*pernicious anæmia*) it proves fatal in spite of every attention.

TREATMENT. — Remove all possible causes; keep regular hours, ventilate rooms carefully, and take plenty of exercise in the open air, avoiding over-fatigue. Change of air, sunshine, and cheerful occupations assist recovery. Meals should not be too far apart, the food nourishing and easily digestible, with a fair proportion of meat. Medicinally, iron in some form is usually required. If there is constipation, give *Pr.* 35. If there is a tendency to sickness, *Pr.* 36, 52 will be more suitable. If discharges are present, *Pr.* 34 is useful. Should there be wasting, cod liver oil is valuable. Chalybeate mineral waters are often of use, and in growing boys and girls phosphate of lime. (*See* PARRISH'S CHEMICAL FOOD.) For headache on rising give a cupful of milk or a basinful of bread and milk. In malarious neighbourhoods arsenic or quinine is usually required (*Pr.* 6, 25, 37, 38, 48), and removal to a healthier place. If improvement does not quickly follow treatment as above, consult a doctor, as some other condition requiring special treatment is probably present.

Blood Spitting (*Hæmoptysis*) is commonly a sign of consumption or of inflammation of the lungs, but may arise from less serious affections of the throat or gums. The blood sometimes wells up suddenly with little warning into the throat and mouth, causing perhaps a momentary faintness or slight cough. At other times it may be so little in amount as only to be recognised by a saltish taste and the stain on the handkerchief. Very often it appears after hard coughing. The expectoration in inflammation of the lungs is, at one stage, tinged more or less deeply with blood. Heart disease may also cause blood spitting. There is seldom any immediate danger to life, but it is a symptom which should never be neglected. *See* COUGH; HÆMORRHAGE.

Blood, Vomiting of (*Hæmatemesis*), usually arises from ulceration of the stomach or overfulness of the veins from intemperance or disease of the liver. The treatment depends upon the cause. Medical advice is essential. *See* HÆMORRHAGE; LIVER, GIN-DRINKER'S; STOMACH, ULCER OF; VOMITING.

Blood-vessels are of three kinds—arteries, capillaries, and veins. The

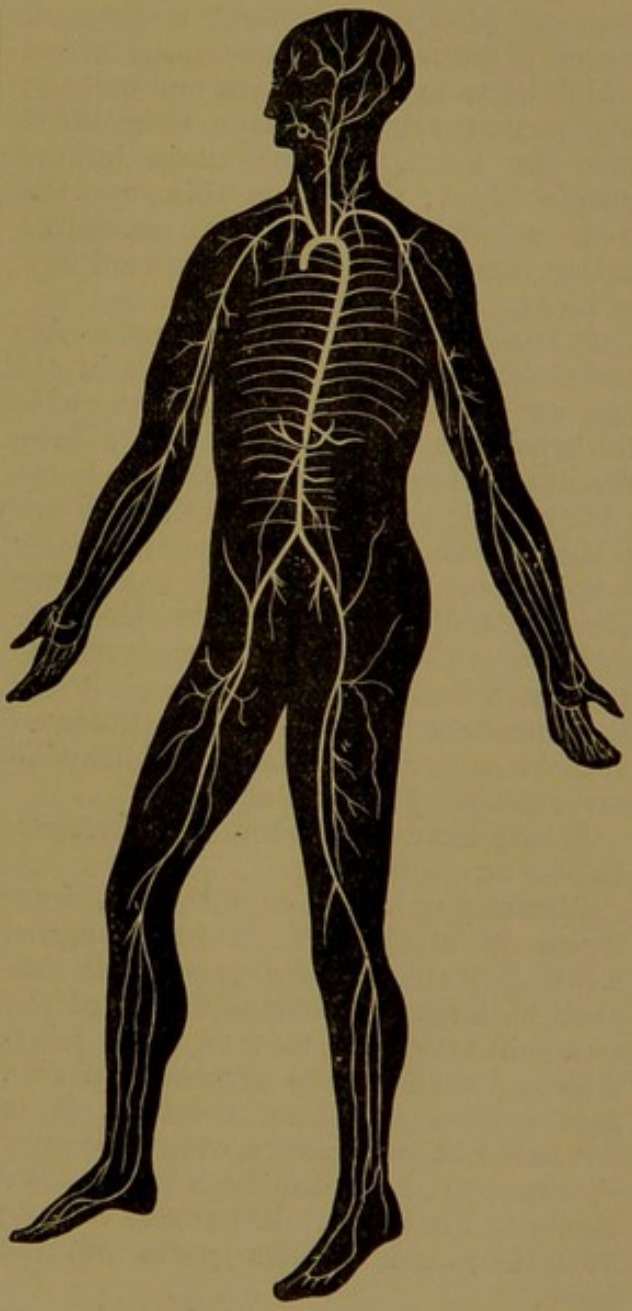

FIG. 12. ARTERIES OF THE BODY.
(From Cleland's "Animal Physiology.")

arteries (*fig.* 12) are thick-walled, and (excepting the pulmonary artery) contain pure red blood from the heart. The larger ones (such as the *aorta*) have much elastic tissue in their walls, enabling them to stretch and recoil at every

heart-beat (PULSE), and rendering the flow of blood uniform instead of jerky. The smaller arteries are provided with much muscular tissue, and contract or relax under the influence of a special set of nerves (*vasomotor nerves*), as seen in blanching and blushing. Arteries divide and subdivide repeatedly, ending in thin-walled *capillaries*, from which the tissues obtain their nourishment. These smallest blood-vessels form a network which is gathered up into small *veins*, which unite repeatedly with one another. The largest veins discharge their blood into the heart. Veins contain impure purple blood: they have thinner walls than arteries, and possess pouch-like valves inside to assist the onward flow of blood. *See* CIRCULATION.

DISEASES OF BLOOD-VESSELS. — Arteries become brittle and weak in old age, or earlier in life, where there is intemperance, dissipation, or kidney disease. They are then liable to bulge (ANEURYSM) or burst (APOPLEXY). Veins which are overstretched or weak usually become swollen, knotty and tortuous (VARICOSE VEINS). They sometimes inflame, in which case it is important to rest in a horizontal position, until the inflammation subsides. An inflamed vein is tender and painful, and may be surrounded by a red blush.

Bloody Flux. *See* FLOODING; MOTIONS, BLOOD IN.

Blows may cause cuts, bruises, fractures, or rupture of internal organs. Even slight blows over parts well supplied with nerves (such as the pit of the stomach) may give rise to much faintness and shock to the system. After a severe blow has been received, it is advisable to rest quietly, even if no very apparent damage has been done. *See* BRUISE; FRACTURE; RUPTURE; SHOCK; WOUNDS; and various parts of the body.

Blue Disease (*Cyanosis*), depends upon malformation of the heart, dating from birth. A somewhat similar condition occurs in heart disease, coming on at an early age, and in some diseases of the lungs. When due to malformation, the child is sluggish and unintelligent, with purple lips and cheeks, and habitually cold hands and feet, and rarely survives to maturity.

Blue Gum. *See* EUCALYPTUS.

Blue Pill. *See* MERCURY.

Blue Stone. *See* COPPER SULPHATE.

Body, The, consists of trunk, head, neck and limbs. The trunk is composed of two tubes, a narrow one behind containing spinal cord, and a large one in front divided by the diaphragm or midriff (*fig.* 20) into chest and abdomen. Separating the two tubes and protecting the hinder one is the spinal column. The chest cavity is protected by the ribs and breast-bone. The abdomen (or belly) is more open to injury; its lowest part surrounded by bone is called the pelvis. The spinal canal expands above into the skull cavity, containing the brain. The nose, mouth and throat may be regarded as continuations of the front tube of the trunk. *See* ABDOMEN; CHEST; NECK; PELVIS; SKELETON; SKULL; SPINE.

Body, Organs of the, are special parts set aside for particular *functions* (or offices), just as in a community some are engaged in the production of food or in manufacture, others in distribution, and yet others in regulating and combining the energy of all the rest. Thus we have in the body organs of *digestion* for the preparation and absorption of nourishment; organs of *circulation* to distribute it, and to carry off refuse; purifying or *excretory* organs to get rid of the latter (*excretions*); *respiratory* organs for gaseous interchange; *secretory* organs for the preparation of substances required for use in the body (*secretions*); organs of *reproduction;* a *skeleton* to support the soft parts, and *muscles* to give power of movement; the *skin* and *mucous membranes* (or inside skin) for protection; and a *nervous system* to combine and regulate the action of the whole. *See* ANATOMY; PHYSIOLOGY; TISSUES OF THE BODY.

Body coming down. *See* HERNIA; RECTUM, PROLAPSE OF; WOMB, FALLING OF.

Boils (*furuncles*), are little abscesses in the glands of the skin, leading to discharge of matter with a dead "core" or slough. They are *caused* by a variety

of conditions, and may occur in any part of the body excepting palms of hands and soles of feet, although the neck, seat, and other prominent parts are on the whole most commonly affected. Boils may arise from exposure to foul air, as from sewers or decomposing refuse, occupations involving contact with dust and dirt (rag-picking and the like), or the application of plasters, poultices, liniments, or blisters. Amongst other causes may be mentioned circumstances involving a drain upon the constitution—such as training for athletic sports, exhausting fevers, diabetes, over-suckling, and weakening discharges. The diet may be at fault, either by excess or deficiency. Thus stout middle-aged people who habitually take too much meat and alcoholics, and poor people with scanty monotonous dietary, are alike subject to this complaint. Among children, it may be caused by excess of sugar in the food. Boils are said to be more common in spring and autumn, and sometimes come in epidemics, as in the years 1857 and 1858.

Symptoms.—The first indication is often the appearance of an itching pimple close to a hair, with a patch of redness around it. Stinging or throbbing pain follows, the pimple breaks and discharges, and in about four or five days the core comes away; after which the place heals up quickly, leaving a scar behind. Boils differ from carbuncles in size, and in possessing one opening instead of several.

Treatment. — In the earliest stage, pulling out the little hair on the pimple is said to prevent the development of the boil. If too late for this, cover with galbanum and opium plaster (Erasmus Wilson) or with belladonna plaster, with a hole in it; spread equal parts of extract of belladonna and glycerine over the exposed part and apply hot linseed or starch poultices. *Internally*, give a saline aperient (*Pr.* 11, 14), and follow this by a dose of sulphurated lime (*Pr.* 45) every hour. Where a large core comes away, the wound may be dressed with balsam of Peru, or friar's balsam, spread on lint. To *prevent* recurrence of boils, search for and remove all possible causes, put the skin in order by regular exercise, sponge baths and other means, and take tonics (*Pr.* 6, 34, 35, 36, 37, 38, 39, 40). A course of Harrogate waters from the mild Montpelier spring is sometimes useful. Where boils obstinately recur, medical advice should be taken, as they may be due to diabetes or other serious diseases. *See* Carbuncle.

Boiling. *See* Cooking.

Bolus.—A rather large soft pill; not much used now-a-days.

Bone consists of laminæ or plates, with spaces between them occupied by marrow, blood-vessels and nerves. There are two kinds of bony tissue—dense and spongy — differing in the closeness of their texture. Bone plates are often arranged in beautiful intersecting curves, radiating from surfaces of pressure, so as to give great strength and elasticity. In compact bone the plates are arranged in concentric circles round channels containing the blood-vessels (*Haversian canals*). If a thin slice of bone is highly magnified, a number of very small spaces are seen, with still finer channels radiating from them. Each space accommodates a bone corpuscle, which communicates with its neighbours by means of the hairlike channels. Alternate layers of bone corpuscles and of hard ground substance arranged round a Haversian canal form the concentric rings already mentioned. *Chemically*, bone consists of animal matter impregnated with lime salts—chiefly phosphate, with smaller quantities of carbonate, etc. A rib from which the earthy salts have been removed by means of a mineral acid, can be tied into a knot; but it still shows the characteristic structure of bone. On the other hand, the animal matter may be converted by boiling into gelatine, or burnt away by heat, leaving "bone ash," which also shows traces of the bony structure. In healthy bone about two-thirds is mineral matter. In rickets there is less, and the bones easily bend or break. In some other diseases, and in old age, the proportion of mineral matter is increased, and the bones are unnaturally brittle. Every bone is *covered*

with a tough membrane (*periosteum*), in which run most of the blood-vessels before they enter the bone. Damage to this covering is liable to cause death of the layer of bone beneath (*necrosis*). The bone-ends at the joints are covered with *cartilage*. Like all other living tissues, bone is continually wearing out and undergoing renewal. This process is particularly active while the bones are growing. *See* BONES; SKELETON; MEAT.

Bones are of four kinds: long, short, flat and irregular. Long bones (such as the arm bone, or thigh bone) have a shaft and two expanded ends; the shaft composed of dense bone inclosing a marrow cavity, while the ends consist chiefly of spongy bone. Short bones (such as those of the wrist) are composed of spongy bone with a thin coating of denser bone. Flat bones (such as those of the vault of the skull) consist of two dense layers with a spongy layer between. The pelvic bones are examples of irregular bones. (*See* SKELETON.) In early life bones are largely represented by cartilage or membrane. Bony centres appear in these, afterwards uniting with one another. Thus at the age of fifteen the upper arm-bone consists of three parts, separated by cartilage. These pieces do not join together until after twenty years of age; and before this age they may be separated by violence, with symptoms resembling those of fracture.

Bones, Broken. *See* FRACTURE.

Bones, Crooked. *See* RICKETS.

Bones, Displaced. *See* DISLOCATION.

Bone, Inflammation of, may arise from injury, fevers, and other causes. (*See* INFLAMMATION.) Where the lining membrane is inflamed, it is called *periostitis;* where the bone itself, *ostitis*. The former is often caused by rheumatism and other constitutional diseases. Ostitis may lead to death of pieces of bone (*necrosis*), superficial ulceration (*caries*) or thickening of the bony layers. *Abscess* also occurs in bone; in which case it is particularly important to let out the matter early by surgical means, as the tissues cannot yield, and the bone might therefore die from compression of its blood-vessels, with perhaps a fatal result. The *symptoms* leading one to suspect disease of the bone are deep-seated, throbbing or aching pain, change in shape, and discharge of matter through "sinuses" in the soft parts. The limb is often subject to painful starting at night. *See* JOINTS; MORTIFICATION; SCROFULA; SPINE.

Bone-setters are men who, without having studied anatomy or surgery, profess to remedy sprains and dislocations. In every disease or injury near a joint, these men declare that "the bone is out," and if this is really the case they sometimes, by manipulation, produce astonishing cures, where surgeons who know the possible dangers have feared to do mischief. Some of this success is undoubtedly due to long practice and a sort of rough knowledge learnt by experience; some, however, is due to the fearlessness of ignorance.

An injured limb or joint must, as a rule, be kept quiet for a time, and it may in this way get stiff. Competent surgeons then advise "passive movement," if there are no signs of inflammation. This is a painful process, and is often done very imperfectly, unless the patient is put under chloroform. A bone-setter getting hold of such a case will, by a sudden violent manipulation, unstiffen the joint and get the credit of the cure. If on the other hand the joint is stiff because there is inflammation, such violent manipulation may excite active mischief, which will perhaps cost the patient his limb, or even his life. To properly treat an injury, knowledge of anatomy and surgery are quite as necessary as manipulative skill; and since the introduction of chloroform there is no excuse for consulting a bone-setter. Some very sad stories are told of the mischief done by such ignorant pretenders, and whoever employs them does so at his own risk.

Boots and Shoes should be sufficiently roomy to allow the foot to spread in length and breadth when the weight of the body is thrown upon it. They should also correspond in shape to that of the undistorted foot. The inner margin of the foot is naturally almost straight, whereas boots are commonly made as if

the foot came to a point in front, like that of a goose. This causes the formation of corns and bunions, and in time leads to permanent deformity. High-heeled boots throw the weight of the body on to the front of the foot, which is forced into the toe of the boot like a wedge. This destroys the steadiness and the elasticity of the foot, and increases the work of the muscles of the back; so that pain in the back, or even spinal curvature, may result from wearing high-heeled boots. High boots in young people are apt to interfere with circulation, so that chilblains appear. Moreover, by confining the muscles they weaken the ankles.

Borax, biborate of soda, is found native in Thibet and California. Like soap, a solution of borax removes the scales of the skin, and is used for this purpose, and to allay itching, in dandruff and other skin diseases. It is also useful as a mouthwash and as a gargle for sore throat. In sudden hoarseness of public speakers, a piece of borax the size of a pea dissolved in the mouth will often restore the voice. It should not be taken internally during pregnancy. *See Lotion* 16; BORIC ACID.

Boric Acid, or boracic acid, occurs native in Tuscany, but is usually prepared from borax. It forms colourless crystals with cooling, bitter taste. The solution turns blue litmus paper red, and turmeric paper brown, and possesses antiseptic properties. The lotion, ointment and lint are useful for dressing wounds, patches of eczema, etc. One part of powdered boric acid with nine of starch is useful as a dusting powder for infants, and to cure foul-smelling perspiration. Ten grains of boric acid added to a pint of milk or beef tea will keep it sweet for several days, and the addition is said to be harmless, although this is not quite certain. Barff's *boroglyceride*, a patented preparation, has similar properties. A mixture of 1 part to 50 water will preserve meat for weeks. *See* BORAX; *Lotion* 15; OINTMENTS.

Bottles are made of many sizes and shapes. Those intended for outward applications, or for poisonous substances, should be of a special shape and colour, so as to be recognisable both by sight and feel. There are some which are made for this purpose of blue ribbed glass.

Bottle-feeding. *See* INFANT-FEEDING.

Bougie.—A rod-shaped instrument used for dilating passages, such as the gullet and urethra.

Bowels, or intestines, are about 30 feet long, and extend from the stomach to the anus (*fig.* 4). The first four-fifths go by the name of small bowel, the rest being called large bowel. The *small bowel* begins with a horse-shoe curve (*duodenum*), embracing the head of the pancreas and receiving its duct, and the bile duct from the liver (*fig.* 36). The rest of the bowel is more freely moveable, being held in place by a double fold of membrane (*mesentery*) attached to the back of the abdomen. At the junction with the large bowel is a valve with two flaps, which checks backward flow of the contents of the bowel. The *large bowel* begins as a large blind pouch (*cæcum*) near the right groin. Succeeding this is a bold arch (*colon*) which runs up one flank and down the other; then comes an S-shaped double curve, ending in the rectum. Attached to the cæcum is a narrow blind offset (*vermiform appendage*), which is of no particular use in man, but corresponds with a more important structure in other animals. Like the small bowel, the large intestine is attached to the back of the abdomen by a double layer of membrane. The inner surface of the small bowel is thrown into a number of permanent transverse folds, which increase the extent of surface. It is not smooth, but provided with minute projections (*villi*) like the pile of velvet. Two classes of glands are found in the coats of the bowel, one provided with ducts and secretory in function, the other ductless and connected with the absorbent system. Of the former, most are simple tubular glands; of the latter, some are single, while others are grouped in patches (*Peyer's patches*) an inch or more in length. These patches are only found in the small bowel, and are the chief seat of inflammation in enteric fever. The *contents* of the bowel consist of more or less digested food, with bile and other secretions. In descending the bowel, more and more of the fluid is ab-

sorbed, while what remains, consisting chiefly of undigested fragments, is periodically expelled from the rectum. (*See* BOWELS, ACTION OF; MOTIONS.) The wavy or worm-like contraction of the bowels which forces on the contents is called *peristalsis*. It consists of alternate contractions and relaxations of one part after another.

Bowels, Action of the, usually happens in a state of health once in twenty-four hours, although some people habitually relieve their bowels twice a day without being the worse for it. Others are said to have an action once in two days or even less, often without obvious loss of health; but for the vast majority of people this would be mischievous. The bowels receive not only the undigested remnants of the food, but also excretory (or waste) matters which may have a poisonous influence if absorbed into the blood. Probably poorness of blood is frequently caused in this way. Where other excretory organs (such as skin or kidneys) are inactive, or the amount of waste matter in the blood is large (as happens in gout, fever, etc.), regular relief of the bowels is of especial importance, and may in some serious illnesses make all the difference between life and death. INVOLUNTARY ACTION may occur in paralysis, fits, weakness of the closing muscles round the end of the lower bowel (*anus*), diarrhœa, worms, and other conditions. It is natural in early infancy; in older children it may be due merely to dirty habits, mental weakness, or one of the above-mentioned causes. PAINFUL ACTION may arise from hardness of the motions in constipation, or from fissures or ulcers, or other diseases of the bowel. Where such pain is not due to costiveness, a surgeon should be consulted. The earlier the matter is attended to, the better the chance of cure. *See* ANUS; CONSTIPATION; DIARRHŒA; DYSENTERY; MOTIONS.

Bowels, Consumption of the, is a term popularly applied to several different diseases. Sometimes it means ulceration or other changes in the coats of the bowel; sometimes changes in the absorbent glands through which the chyle passes from the bowel (*mesenteric disease*). Some of these changes are due to consumption; others are of a different nature. Much so-called consumption of the bowels in children is the result of injudicious feeding. *See* INFANT-FEEDING.

Bowels, Inflammation of the, usually causes diarrhœa, fever, and more or less pain or tenderness of the abdomen. The motions are usually light-coloured, with much mucus, and may be offensive. Where only the small bowel is affected, there may be constipation instead of diarrhœa; and the same is to be expected where the inflammation is caused by constriction of the bowel. Inflammation of the large bowel usually causes well-marked colicky pains. Where the stomach is involved, there is loss of appetite and nausea or vomiting. Where the peritoneal membrane is affected, there is marked pain and tenderness, and the pulse becomes hard and quick. In all forms of inflammation of the bowels there is usually much constitutional depression. The *causes* are numerous. Improper food, especially during childhood, is a very common cause. Others are, exposure to cold, extensive burns, diphtheria, and inflammation of neighbouring organs. It is more often met with during the summer and early autumn.

TREATMENT.—This disease must be distinguished from enteric fever, peritonitis, or simple diarrhœa. It is also important to ascertain that no complication is present. It is therefore not suitable for domestic treatment. If a doctor is not available, the patient should be kept in bed, and fed on peptonised milk, peptonised farinaceous food, or milk and lime-water. If there are thirst and nausea, these may be relieved by sucking small pieces of ice, or by *Pr.* 30. Poultices to the abdomen are often grateful. Opium is often invaluable, but is best left in medical hands. In infants, *Pr.* 17 should be given, or if there is much depression, *Pr.* 16. The food usually requires altering. *See* INFANT-FEEDING.

Bowels, Obstruction of the, arises from many causes, such as hernia, internal strangulation, obstruction by gall-stones, or accumulated fæces. A form which is common in children is called *intussus-*

ception. Here one part of the bowel is driven into the next, like a pushed-in finger of a glove. Obstruction of the bowels may arise suddenly or very gradually. In the first case it causes pain and vomiting in addition to constipation. The vomiting is often urgent, and after a while fluid with a fæcal smell is brought up. Such a symptom is always a serious one, and calls for prompt attention. If unrelieved, the abdomen swells, the expression becomes anxious, urine is suppressed, and the patient falls into a state of collapse. Constipation is not always absolute, but may be preceded or replaced by a sort of diarrhœa. The only form at all suitable for domestic treatment is that due to accumulation of fæces. Here the obstruction comes on slowly, with little or no pain, and at first no vomiting. Diarrhœa may precede the constipation, as the fæcal matter irritates the bowel. Strong aperients should not be given in such a case until the rectum has been unloaded by a large enema (*see* ENEMAS); indeed, they are best avoided altogether. Whenever acute pain or urgent vomiting are present without obvious cause, assistance should be promptly sought. *See* COLIC.

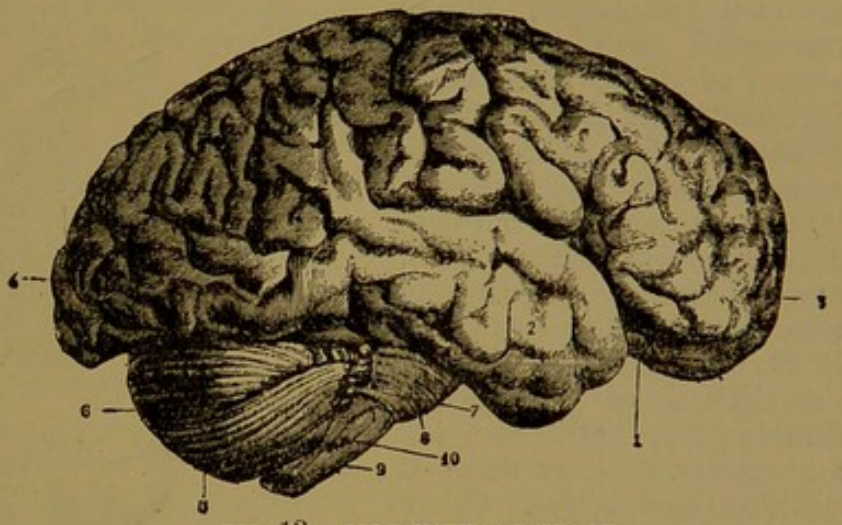

FIG. 13. SIDE VIEW OF BRAIN.
9, Medulla oblongata; 6, Cerebellum.

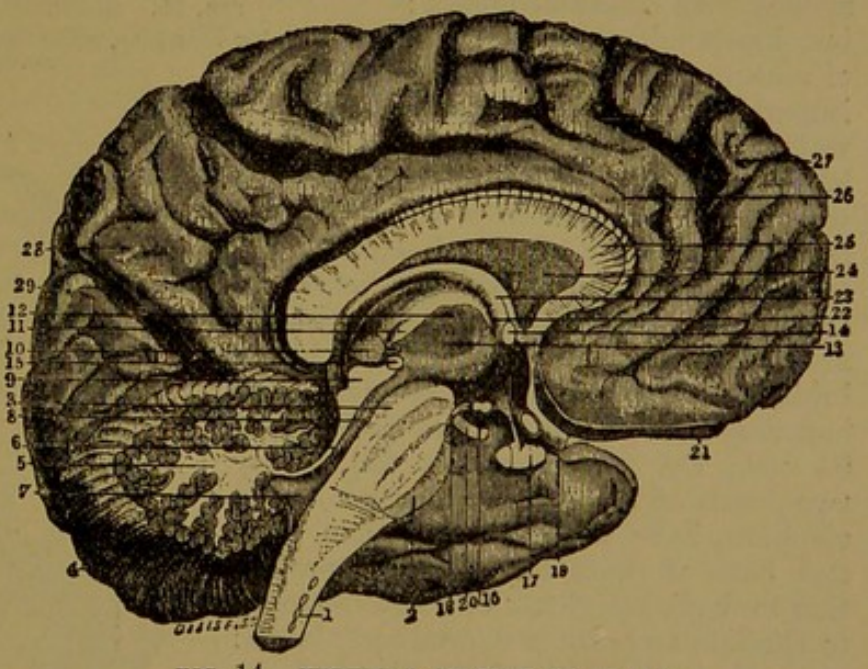

FIG. 14. VERTICAL SECTION OF BRAIN.
Showing cut surfaces of medulla oblongata (1), and cerebellum (5), and inner surface of left cerebral hemisphere.

Brain—The expansion of the spinal cord within the skull cavity. The continuation of the spinal cord (*medulla oblongata*) (9, *fig.* 13) has attached to it the small brain (*cerebellum*, 6, *fig.* 13) behind, and the large brain (*cerebrum*) in front, each imperfectly divided into two halves. The cerebrum incloses several cavities or ventricles (*fig.* 15; 7, 13, 24, *fig.* 14), which contain watery fluid. Its outer surface is increased in extent by being thrown into folds or convolutions, that of the cerebellum forming a number of flattened plates. The brain is made up partly of white opaque conducting nerve-substance, partly of gray semi-transparent material. The latter is found as a coating on the outside, and in isolated masses, or ganglia, at the base and in the interior. Surrounding the whole brain are three membranes separated by fluid, the inner (*pia mater*) being delicate and full of blood-vessels, while the outer (*dura mater*) is tough and fibrous. The fluid outside the brain and in its ventricles acts as a sort of water

bed to protect it from injury, and is displaced into the spinal canal when the brain is active and gorged with blood. Attached to the brain are twelve pairs of "cerebral nerves" (*fig.* 16), some being nerves of movement or of common sensation, others concerned with the special senses of smell, sight, hearing, and taste. (*See* NERVOUS SYSTEM.) The brain is the *organ of mind*, by means of which perception, emotion, memory, formation of ideas, and the act of willing become possible. In addition to this, it is concerned in the *co-ordination*, or appropriate combination, of complex movements, such as those of walking, speech, etc. Other things being equal, the weight of the brain corresponds with the intelligence; but inasmuch as the control of muscular movements is an important function of the brain, body-weight and muscular development must be taken into account. The prevailing weight in women is from 41 to 47 ozs.; in men, from 46 to 53. The brain-weights of many idiots are strikingly below the average, but occasionally insane people are met with who have large heavy brains. Some distinguished men have had very heavy brains: Cuvier's weighed 64 ozs., Dr. Abercrombie's 62½. Only two kinds of animal, the whale and the elephant, have larger brains than man, and both of these have less in proportion to body-weight. The blood-supply to the human brain is exceedingly large: as much as one-fifth of the blood of the body may be present in the skull cavity at one time. Different parts of the brain have different functions. The *medulla oblongata*, besides transmitting messages between the upper brain and spinal cord, contains centres for the control of sucking, mastication, swallowing, and vomiting; for closure of the eyelids, and dilatation of the pupils; for breathing, sneezing, and coughing; for the action

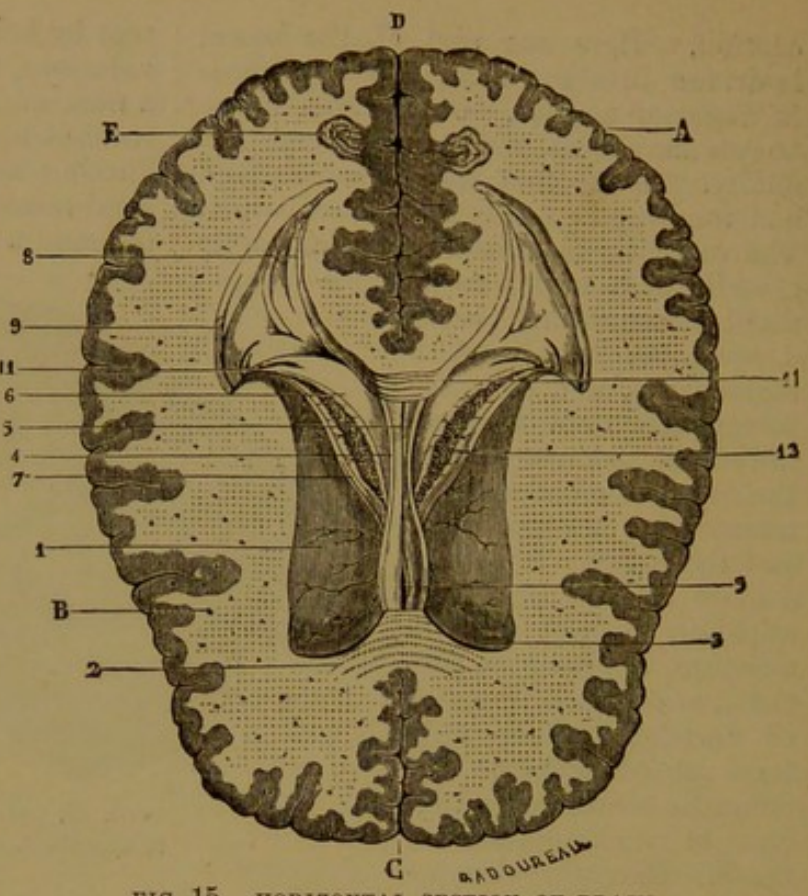

FIG. 15. HORIZONTAL SECTION OF BRAIN.
Showing ventricles, white matter, and gray matter coating the convolutions.

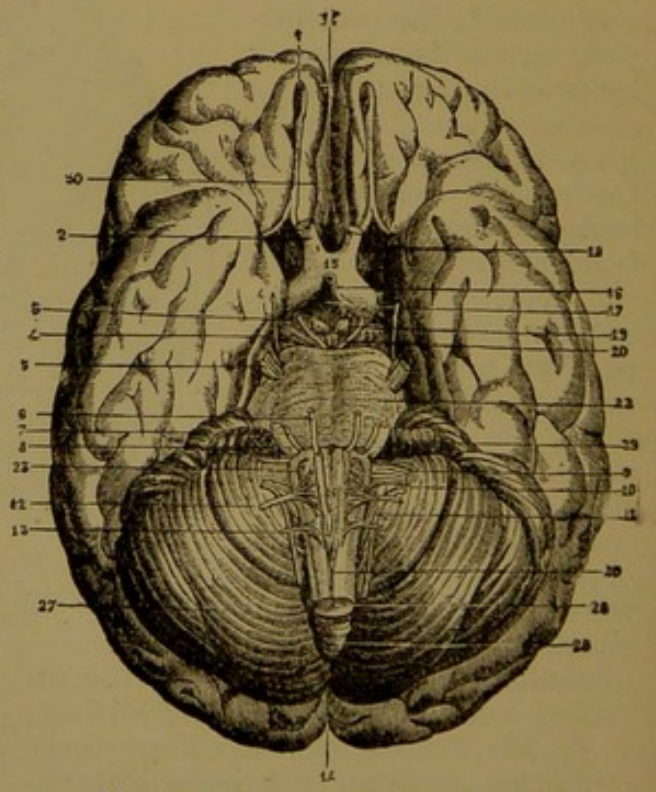

FIG. 16. BASE OF BRAIN, SHOWING ORIGIN OF NERVES.
13, Medulla oblongata; 22, Pons Varolii; 27, Cerebellum; 15, Optic commissure between optic nerves; 2, Right optic nerve; 1, Olfactory bulb.

of the heart, and contraction of the blood-vessels; for secretion of urine, and formation of glycogen by the liver. (*See* DIABETES.) Damage to the medulla oblongata is usually fatal. The parts at the *base of the brain*, together with the *cerebellum*, are concerned in maintaining the balance of the body, and in other complex movements. A pigeon deprived of its cerebellum can see and hear, and tries to avoid obstacles, but cannot stand, and exhausts itself in trying to get on its legs. Disease of the cerebellum often causes a staggering gait in man. The *cerebral hemispheres* are necessary for all the higher and more spontaneous actions. A pigeon without its cerebral hemispheres remains as if asleep, but can be roused and made to walk or fly, but with no evidence of intelligence. Damage to the brain causes unconsciousness. The most active part appears to be the gray matter on the surface, which is most highly convoluted in the brains of clever men, and simplest in those of savages. The part midway between the front and back has control over muscular actions, special regions being set apart for the muscles of the arm, trunk, leg, head, neck, and face respectively. Irritation of these regions causes localized convulsions; destruction causes paralysis. On the left side is a convolution concerned in the movements of speech. Damage to this convolution causes "aphasia." The front of the brain is probably concerned in intellectual processes, although the evidence is not complete. The hinder part has to do with touch, sight, and hearing.

INJURY TO THE BRAIN is never a trivial matter, however slight the injury. Death or permanent ill-health may follow an insignificant injury; while on the other hand a very severe one may be followed by recovery. Whenever from the nature of the accident, or the symptoms present, damage to the brain is suspected, skilled advice will naturally be obtained.

CONCUSSION OF THE BRAIN is said to be present whenever anybody is stunned without serious injury to the brain. At first there is loss of consciousness, with coldness and other symptoms of collapse (*which see*). After this with return of consciousness there is often vomiting, followed by a sleepy condition which may last from a few hours to as much as a week. This is followed as a rule by recovery; but very often for some time after the brain works uneasily, and the patient is subject to headaches, and easily tired by mental efforts. After an accident to the head it is well to avoid the use of alcohol as far as possible. The sufferer should be kept warm by other means until reaction sets in, and be put into a quiet, darkened room.

COMPRESSION OF THE BRAIN often follows concussion; it may be caused by pouring out of blood from an injured vessel, by pressure of broken bone, or later on by inflammatory effusion. When these conditions are present, the brain has usually been seriously injured, and the patient falls into stupor with heavy breathing, flushed face, and paralysis, or shows symptoms of brain-fever after an interval of consciousness. In such a case it is usually necessary to trephine the skull.

ABSCESS IN THE BRAIN, if not due to injury, usually follows neglected ear-disease. No child should be allowed to have a discharge from the ear or persistent ear-ache without medical advice. So long as the discharge continues the child is in danger; one day perhaps the matter will be unable to escape outwardly, and will find its way to the brain, which is separated from the middle ear by a very thin plate of bone.

BRAIN-FEVER is a term popularly applied to inflammation of the brain or its membranes, as well as to any fever in which the brain is disturbed. In the former sense it may be caused by injury, erysipelas, or rheumatic fever, blood poisoning, ear disease, tumours of various kinds, and tubercular deposits. (*See* CONSUMPTION; SCROFULA.) The symptoms commonly are pain in the head, vomiting, restlessness, and sleeplessness, squinting, convulsions, or paralysis. Whenever children complain of headache without obvious cause, it is well to have the matter inquired into. It may be a simple, easily curable headache, but it may be an early symptom of brain fever. (*See*

HEADACHE.) Those afflicted with this terrible malady are usually put into a darkened room, their hair cut, and an ice bag applied to the head. Their strength must be sustained by suitable food at regular intervals.

SOFTENING OF THE BRAIN usually comes on after middle age, especially in those who have brittle arteries, or who suffer from kidney disease or heart disease. The usual symptoms are mental dulness, loss of memory, drowsiness, and sometimes headache, numbness, or paralysis of the limbs. The emotions are easily excited, and the temper peevish and irritable. Insanity may follow. Any of these symptoms, however, may arise from quite other and removable causes. (*See* APOPLEXY.) Where a tendency to softening of the brain is suspected, the mind should be kept occupied in some light and pleasant way, violent exertion or straining avoided, care being taken to ensure a daily gentle action of the bowels; meals of easily digestible food should be given at moderately short intervals; an even temperature maintained all over the body; at night the head should not be too much raised, and food should be given once if the patient wakes. If at any time there is faintness, give *Pr.* 5.

WATER ON THE BRAIN, or *hydrocephalus*, is of two kinds, one depending on inflammation of the membranes of the brain (*which see*), while the other is a sort of dropsy of the ventricles. Very often it is associated with rickets. The enlargement of the head may show itself from birth or later during childhood. The divisions between the skull-bones are unnaturally marked, the fontanelles remaining unclosed long after the second year. The forehead becomes prominent and the eyes depressed. In some cases the head grows to an enormous size. The enlargement may be the first symptom noticed, or may be preceded by fretfulness and irritability. TREATMENT as in Rickets (*which see*). *See also* OCCUPATION; INSANITY.

Bran.—The inner husk of the wheat grain, usually separated in milling. It contains much nourishment, as the richest part of the grain is found immediately under the woody coat. (*See* BREAD: BREAD FOR DIABETICS.) Hot bran is useful as an application to painful or inflamed parts. For this purpose, heat it in a frying-pan, sprinkling with a little water, and turning over repeatedly. Transfer when quite hot and slightly moist to a flannel bag, and apply with tapes (*see* POULTICES), covering with oil silk, or waterproof. For *bran baths, see* BATHS.

Brandy. *See* ALCOHOL; FERMENTED LIQUORS.

Branks. *See* MUMPS.

Braxy Mutton, obtained from sheep who have died of splenic fever, is largely eaten in Scotland, the most diseased parts being cut away and the rest salted. It is, however, dangerous to health, and liable to decompose rapidly. *See* WOOLSORTER'S DISEASE.

Bread probably forms more than half the food of mankind. True or vesiculated bread can only be made from flour of cereals rich in gluten (such as wheat, rye, or barley), although other kinds, such as maize, are made into cakes; and maize meal is often mixed with the wheat-flour in small proportion.

Bread is made in several ways. (1) *Fermentation.* Brewers' yeast is mixed with the dough, and set in a warm place. Alcohol and carbonic acid gas are liberated in the substance of the dough by the action of the yeast-fungus on the starch. Baking then kills the fungus, drives off the gas, and fixes the spongy structure. Sour dough (or leaven) may be used instead of fresh brewers' yeast. In many modern bakehouses machinery is used for working up the dough. This prevents the risk of perspiration from the baker's arms being mixed with his materials. Ten pounds of flour yield about thirteen or fourteen of bread. That made from "seconds" flour contains more nitrogen and is more sustaining than that made from the whitest flour. (2) *Chemical processes.* In Neville's Welsh bread, carbonate of ammonia is used to raise the dough. Ammonia gas and carbonic acid gas are produced in baking, and expelled in the usual way. Another method is by using carbonate of soda and hydrochloric or tartaric acid; in the

first case, common salt (chloride of sodium) is left behind; in the second, tartrate of soda, which is not unwholesome in small quantities. Hydrochloric acid is sometimes contaminated with arsenic, and therefore unsafe. Various baking powders are used occasionally in bread-making. Those containing alum are objectionable. Alum is also used by some bakers in bread-making, either in order to absorb more water, or to enable them to use damaged flour, or to assist in breaking off the loaves from a batch. Its presence may be detected by fresh infusion of logwood, made with distilled water; this colours the adulterated bread of a purple colour, the alum acting as a mordant. (3) *Aërated bread* (Dr. Dauglish's process) is made by forcing into the dough water charged with carbonic acid under considerable pressure. Machinery being used throughout, there is less chance of impurities being introduced; and there is no waste of flour, as with yeast-made bread, but the flavour is objected to by some people. (4) *Brown bread* contains some of the finer portions of the bran, which is rich in albuminates, fat, and earthy salts. *Whole-meal bread* is made from the whole grain finely ground up. In this and in ordinary brown bread the branny particles act as irritants, and may with some people diminish the sustaining properties of the bread, or even cause diarrhœa and dyspepsia. Many people, however, are all the better for the branny particles. *Wheat-meal bread* is made in the same way as whole-meal bread, but the grain is more finely ground, which renders it less irritating. (5) In *Malted bread* some of the starch is converted into sugar and dextrine by means of malt extracts. (*See* Malted Foods.) (6) *Black bread*, used chiefly in Germany, Norway, etc., is made partly or entirely with rye meal. It is sour, and less nourishing than white bread. *Composition of bread* in 100 parts: water 40 parts, albuminates 8, fats $1\frac{1}{2}$, carbohydrates 49, salts $1\frac{1}{2}$ (Parkes).

New bread is comparatively indigestible; one day old is by most people considered the best. Well-made *toast* is porous and easy of digestion. *See* Biscuits.

Bread for Diabetics is prepared free of starch and sugar. There are several different kinds. (1) *Bran bread* or bran cakes: Boil a quart of wheat bran in two successive waters for a quarter of an hour, each time straining through a sieve. Wash on the sieve in cold water, until the latter runs through quite clear. Squeeze dry in a cloth, spread thinly on a dish and place it in a slow oven, leaving it all night, or until crisp and dry. Then grind in a fine mill, and sift through a very fine wire sieve with the aid of a brush. If the bran is not properly washed, some starch will remain to the injury of the patient. If not thoroughly dried, it cannot be freely powdered. Three or four ounces of the bran-powder may be used with from 3 to 7 newlaid eggs, 1 or 2 ounces butter, $\frac{1}{2}$ pint milk, and a little ginger or nutmeg or other spice. Warm the butter with part of the milk, mix the eggs with the rest, and stir all together. Bake in small, well-buttered tins (patty pans) in a quick oven for half an hour, so as to make cakes rather thicker than a captain's biscuit. These may be eaten with cheese or meat, or with plenty of butter. They are, however, not easily masticated by some people, and may cause diarrhœa. (2) *Gluten bread.* Wash wheaten flour until the water comes away quite clear. Then make into bread or buns with the aid of baking powder, eggs, and milk. Gluten meal is sold ready prepared, and may be used as thickening for soups, or for pudding making. (3) *Almond bread and biscuits.* Grind sweet almonds to powder, wash with boiling water acidulated with tartaric acid, so as to remove the starch. Then make into biscuits, with eggs and milk. These and other preparations are sold by several bakers and confectioners in London and elsewhere.

Breakfast. *See* Meals.

Breasts.—The milk-secreting organs consist of glandular tissue forming lobes, and surrounded by more or less fat. The nipple is pierced by the gland-ducts, which form little reservoirs at its base. In a well-shaped breast it is prominent; but it may become depressed by pressure of stays, leading to future difficulty in suckling, and increasing the liability to

milk-abscess. Surrounding each nipple is a circle of thin skin called the areola. In virgins this is of a pink colour; but in those who have borne children it is usually reddish-brown, although complexion has some influence, and many exceptions are met with.

During Pregnancy the breasts become large and knotty, and receive a fuller blood supply. The nipples become more prominent, and the areola darker and rougher, while an outer circle of "washed-out spots" often appears. Feelings of distension and weight are common; and there may be neuralgic pain about the arms, back, and sides. Towards the end of pregnancy a little milk may often be squeezed out; the secretion is, however, only fully established about the third day after delivery. Strange cases are recorded in which the breasts of young women never pregnant, or even of men, have yielded abundance of milk. Supernumerary breasts or nipples in the armpits and other parts are also occasionally met with. During pregnancy great care should be taken not to compress the breasts and nipples. In first pregnancies, where the nipples are small and ill-developed, they may be rendered more prominent by the use of a breast-pump during the last few weeks; and before this, glass shields may be worn with advantage. (*See* Breast-pump; Breast, Swelling of the; Nipple Shields.) During the last six weeks of pregnancy it is well to remove all warm coverings from the nipple, and bathe it twice a day with equal parts of eau-de-cologne and water or an astringent lotion (*Lotions* 4, 7, 8, 9), drying carefully and rubbing gently with soft flannel while exposed to the air.

During Suckling, the infant should not be allowed to go to sleep with the nipple in its mouth. Such a practice injures both mother and child. If the nipples become tender, they should be kept as dry as possible by surrounding them with a little cotton-wool under a glass shield; or a leaden (Wansbrough's) nipple shield may be applied. These must be worn constantly during the intervals between nursing, and the nipples carefully washed before the child takes the breast, so as to prevent the possibility of lead-poisoning. (*See also* Nipples, Sore.) Or, instead of the shield, the zinc, tannin, or alum lotions already mentioned (*Lotions* 4, 7, 8, 9) may be applied three times a day.

Breast, Abscess of the, usually arises after a first pregnancy, from overdistension during suckling. The nipple is often ill-formed, owing to pressure of tight and rigid stays, so that the baby cannot properly relieve the breast. Where only one breast at a time is emptied, the full one is liable to become overdistended. A blow on the breast may rupture a milk-tube, and lead to a milk tumour. All these conditions lead first to *swelling of the breast* (*which see*), and later, if unchecked, to formation of matter. Where this is the case, there is throbbing pain and fever, and after a while the skin becomes red and thin, and matter mixed with milk escapes. Early medical advice is essential, and may prevent irreparable damage.

Breast-bone. *See* Skeleton.

Breast, Lumps in the, are of many different kinds, some very dangerous, others of little importance. If due to the presence of tumours, the sooner they are removed the better, especially if they are growing rapidly, or appear in middle-aged or elderly women. *See* Breast, Abscess of the; Breast, Swelling of the.

Breast, Pains in the, may arise from local conditions, such as injury, disease, inflammation, or distension of the organ; or from menstrual disturbance, poorness of blood, fatigue, and other similar causes. Distinguish from pain in the Chest (*which see*).

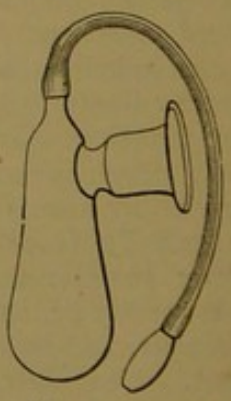

Fig. 17. Breast-glass. *By kind permission of Messrs. Maw, Son & Thompson.* The cup is applied to the breast, and the glass exhausted by suction.

Breast-pang. *See* Angina Pectoris.

Breast-pump. — A contrivance for drawing off the milk from a distended breast by means of an exhausted bottle. Simpler contrivances are the breast-glass (*fig.* 17),

which is provided with an indiarubber tube and nipple for the mouth; and the breast-reliever, which has an indiarubber ball attached to it.

Breast-supports (Wickers') are convenient for nursing mothers. They carry the weight from the shoulders, and do away with the necessity for stays. In abscess of the breast they are invaluable.

Breast, Swelling of the.—(1) *After child-birth* the breasts become swollen, hot, and liable to inflame from slight causes, such as chills, bruising from stays, or overdistension with milk. At this time they should be carefully protected, all pressure removed from the nipple, and the milk regularly drawn off by the infant, or by some mechanical contrivance (*breast-pump*). If any knottiness is observed, the part should be thoroughly but gently rubbed with warm sweet-oil or almond-oil for five or ten minutes every half-hour, and covered in the intervals with a warm-water dressing. A handkerchief, arranged as a sling, or a "breast support" will help to prevent the painful dragging sensation. If the bowels are confined, give castor oil or a saline aperient. If there is feverishness, give *Pr.* 31 or 7. (*See* BREAST, ABSCESS OF THE.) The breasts also become swollen and painful during pregnancy. (2) *In infants*, within a few days of birth, the breasts are sometimes distended with thick, milky-looking fluid. In this case, bathe with warm water, smear with cold cream, and avoid squeezing or rough handling. (3) *Girls and boys* at puberty are sometimes troubled with swelling and pain about the nipple. Here a soothing liniment (Nos. 5, 6, 7) may be used, or the same treatment as in (2).

Breath may mean a single act of breathing, or the air expelled by it from the lungs. In breathing, the air loses about 5 per cent. of oxygen, and gains rather less carbonic acid gas. In addition to this, it is warmed, saturated with moisture, and contaminated with organic matter. The latter, although present in very small quantity, is the chief cause of the discomfort produced by overcrowded rooms. (*See* RESPIRATION; VENTILATION.) The breath of consumptives, and of those suffering from measles, diphtheria, whooping-cough, or scarlatina, is apt to transmit the disease to others inhaling it. (*See* CONSUMPTION; INFECTIOUS DISEASES.) The breath may be *foul* from decayed teeth, enlarged tonsils, spongy gums, ulcerated mouth, dyspepsia, and other disorders. Cavities in the teeth also retain particles of food which decompose and taint the breath. Fœtid breath may also arise from diseases of the nose (*ozæna*). Where the mouth is at fault, a wash may be used of Condy's fluid (15 drops to 1 oz. of water), or of Sanitas (1 tablespoonful to a wineglass of water). *See* MOUTH; NOSE; TEETH; INDIGESTION.

Breath, Shortness of, may be due to diseases of the lungs or air passages, or the state of the blood and nervous system. Anything interfering with the supply of pure blood to the tissues may cause shortness of breath. Simple debility and poverty of blood may cause it, as well as inflammation of the lungs, bronchitis, consumption, heart disease, or Bright's disease.

Breathing. *See* RESPIRATION.

Brewers' Vats. *See* CARBONIC ACID GAS.

Brewers. *See* OCCUPATION.

Bright's Disease, first described by the late Dr. Bright in 1837, is a disease of the kidneys which causes dropsy, the appearance of albumen in the urine and other symptoms. There are several varieties.

ACUTE BRIGHT'S DISEASE frequently arises from chill during convalescence after scarlatina, or in the intemperate. It may cause feverishness or pain in the loins, but very often the first sign is puffiness of the face, ankles, and other parts of the body, together with a change in the urine, which is scanty, high-coloured, and turbid, and contains albumen and perhaps blood. (*See* URINE, CHANGES IN.) Such an attack is never free from danger, although under favourable circumstances recovery may be usually expected. Were every case of scarlatina, however slight, invariably confined to the house for six weeks from the time of onset, Bright's disease in children would be far less common.

Treatment.—In the absence of medical aid, open the bowels freely (*Pr.* 10, 11, 14, 58, 59), and encourage the action of the skin by plenty of warm bedding, or a warm bath, or hot air or vapour bath. Give milk diet, together with plenty of bland drinks, such as barley water or linseed tea, in small quantities at a time. If the urine is very scanty, a large, hot linseed poultice should be applied to the loins, and changed every three hours. All preparations of mercury or opium are dangerous; and stimulants are also best avoided. If there is fever, give *Pr.* 31, 7.

CHRONIC BRIGHT'S DISEASE is of several kinds, and may follow an acute attack or arise from intemperance, overfrequent pregnancies, gout, lead poisoning, prolonged discharge of matter from diseased bones or other structures, consumption, and other constitutional diseases.

Symptoms.—The patient is usually pale and sallow, weak and disinclined for exertion. His urine is often pale and increased in quantity, and is passed more often than naturally. It nearly always contains albumen, sometimes however in very small quantities; and the amount of dissolved solids (*urea*, etc.) is unnaturally diminished. Owing to the imperfect purification of the blood many other parts of the body are affected. The digestion is usually faulty; headache, giddiness, failure of sight, and of mental power are common. The disease tends to be sooner or later fatal, although with suitable treatment life may be prolonged for years. Towards the end the quantity of urine diminishes, and dropsy appears in the face, ankles, and other parts. Inflammatory complications of the lungs and other organs may carry off the patient, or he may die from apoplexy, or with delirium, convulsions, and increasing stupor.

Treatment.—Keep the skin in good order by wearing woollen under-garments, avoiding chills and living in a dry, warm, sheltered locality. Take regular exercise in the open air, and avoid all indulgence. Obtain a regular, free action of the bowels, avoiding the use of mercurials. Mild iron tonics (*Pr.* 36, 52, or dialysed iron) are often useful; but medicinal treatment is less important than other measures. The diet should be light and unstimulating, of milk, farinaceous food, and a moderate allowance of fish and poultry rather than butcher's meat. Alcohol is usually best avoided, but a little light wine is sometimes needed. *See* ALBUMINURIA.

Broccoli. *See* VEGETABLES.

Broiling. *See* COOKING.

Broken Bones. *See* FRACTURES.

Bromides.—Compounds of a metal with bromine, which is a dark red irritating liquid, with disagreeable smell, and possessing antiseptic and caustic properties, but not much used excepting in combination. Bromide of magnesium in sea-water is the chief source of bromine and its compounds. Bromides of sodium, potassium, and ammonium are white crystalline solids like common salt. They are given medicinally in sleeplessness, nervous excitement, epilepsy, and other nervous diseases. (*Pr.* 18.)

In POISONING treat as for chloral poisoning. *See* CHLORAL; NARCOTICS; SEDATIVES.

Bronchitis.—Inflammation of the mucous membrane of the bronchi or air-tubes. A severe attack is called *acute* bronchitis, a milder one, "cold on the chest." Ordinary "winter cough" is *chronic* bronchitis. These disorders are common in this country, owing to the damp and changeable climate. Occupations which involve exposure to the weather or to extremes of heat and cold, or to a dusty, irritating atmosphere, increase the liability to bronchitis. Hence laundresses, bakers, millers, masons, miners, knife grinders, and hawkers are especially subject to them. Gout, rickets, teething, debility, and old age also increase the tendency to bronchitis; and, lastly, it is a common complication of whooping cough, measles, and other infectious fevers.

SYMPTOMS.—*Acute* bronchitis often begins with a cold in the head, together with feverishness, cough, pain, or tickling and oppression on the chest. The cough at first is dry, but soon frothy or yellow phlegm is brought up. *Chronic* bronchitis usually follows an acute attack,

or else comes on after repeated colds. As a rule, the breath is short, and cough is excited by exertion or exposure to cold. After repeated attacks the chest becomes permanently expanded (*emphysema*), and the heart weak and dilated. This leads to permanent shortness of breath, blueness of the lips, and other signs of imperfect purification of the blood.

TREATMENT.—Bronchial attacks, however slight, should never be neglected, especially in children or in elderly people. It is good economy in more ways than one to attend to them without delay. The patient should go to bed in a warm, airy room, encourage perspiration by using hot bottles and plenty of bedclothes, and by taking hot gruel or grog. A hot bath or foot bath, or domestic vapour bath, is also useful as a preliminary measure. Hot linseed and mustard poultices, or mustard leaves, should be applied to the chest, and left on till the skin is reddened, but not blistered. After this a plain linseed poultice, or "oiled jacket," is useful. It is sometimes advisable to keep a "bronchitis kettle" on the fire. *Diet* should be as in fever. Medicinally, *Pr.* 21, 19, and 7, are useful. In children, an ipecacuanha emetic is of use in bringing up the phlegm, which they cannot easily cough up. Later on, when the cough is looser, *Pr.* 61, 62, may be given in adults, or *Pr.* 20 in children. (*See* COLD IN THE HEAD; HAY ASTHMA; PLEURISY; PNEUMONIA.) In *chronic* bronchitis, woollen underclothing should be always worn, and draughts avoided. Passing from a hot to a cold room often brings on an attack. An occasional Turkish bath is useful to keep the skin in order, if the circulation is not weak. Whenever the weather is foggy or damp, a respirator should be worn out of doors; or the winter may be spent in a warmer climate. Ventilation of dwelling-rooms must be carefully attended to. Plenty of fresh air is necessary, although cold air is to be avoided. *Diet* must be easily digestible, but more liberal than in acute attacks. Cod-liver oil is often valuable where it can be taken. *Medicine.* *Pr.* 61, 62, may be taken, with an occasional dose of Linctus. *See* ASTHMA; CONSUMPTION; EXPECTORANTS; LINCTUS.

Bronchitis Kettles are intended to moisten the air of a sick-room with steam. They are made for a lamp or the fireplace, and provided with long and usually telescopic horizontal pipes.

Bronchocele. *See* GOITRE.

Bronchotomy. *See* TRACHEOTOMY.

Bronzed Skin may be due to several causes, among which exposure to sun, wind, or fire, irritation of dirt or insects, sluggish, venous circulation, and pregnancy, or diseases of women are the most common. *See also* ADDISON'S DISEASE.

Broom Tops.—A valuable diuretic remedy in dropsy (*Pr.* 26).

Broth. *See* DIET FOR INVALIDS.

Brow-ague.—Neuralgia of the eyebrow and forehead, usually due to malaria. *See* NEURALGIA.

Bruises or contusions may be simple, or complicated with open wounds, fractures, or more serious internal injuries, according to the part struck and the amount of violence. In all cases, little blood-vessels are injured and blood escapes into the tissues, causing swelling and discoloration. The changes of colour from black or blue to greenish yellow are familiar to most people. *Simple* bruises are best treated by raising the part, and applying cold and gentle pressure. A metal spoon, ice bag, or evaporating lotion, or cold compress, are suitable for this purpose. Arnica lotion (*see* ARNICA) also appears to be useful, provided the skin is unbroken. Should there be a tendency to erysipelas, hamamelis lotion may be used instead. These are also stated to be useful internally. (*Pr.* 33.) Later on, when pain and tenderness have gone, bandaging, or cold douche, followed by friction with stimulating liniments (*Liniments* 1, 2, 3) will assist absorption and help to restore tone. The *constitutional* effects of a bruise sometimes call for treatment. *See* ABSCESS; CONCUSSION; FAINTING; HÆMORRHAGE; HAMAMELIS.

Bryonia Dioica.—A wild flower common on the hedges in many parts of England, Europe, and North America, with large, hairy, five-lobed leaves, yellowish flowers streaked with green

tendrils, and bright red berries. A tincture of the root is said to be useful in pleurisy, and other inflammations of serous membranes. The plant, if eaten by children, may cause diarrhœa and intestinal irritation. For treatment, *see* IRRITANT POISONS.

Bryony, Black (*Tamus communis*), is a very different plant from the foregoing, but also an irritant poison. The young shoots however when boiled have been used instead of asparagus. The plant has shining heart-shaped leaves, small yellow-green flowers and scarlet berries, but no tendrils. *See* IRRITANT POISONS.

Bubo.—An inflammatory swelling of a lymphatic gland of the groin, due to venereal disease or other cause. *See* ABSCESS; ABSORBENT GLANDS.

Buckbean.—A marsh plant with bitter tonic properties. *See* BITTER TONICS.

Buckthorn berries (from *Rhamnus catharticus*) are used to prepare a syrup with purgative properties. The preparation is however apt to gripe. Two other species of rhamnus (*purshiana* and *frangula*) are used medicinally. *See* CASCARA.

Bunion.—A swelling over the joint of the big toe, or elsewhere, due to inflammation of a "bursa." Nearly always caused by pressure of tight and badly shaped boots. (*See* CLOTHING.) It begins as a painful and tender spot over a prominence of the bone. In time fluid accumulates under the skin, evidently in order to protect the sensitive structures. If the pressure is continued, the part inflames, and may end in the formation of a nasty ulcer, or even (in unhealthy constitutions) in serious disease of the bones and joint. The tendency to bunions is said to be hereditary in some families.

TREATMENT.—In early stages cover the tender spot with wet dressing at night, and with soap plaster spread on wash-leather during the day time. Discard pointed shoes, and wear a pair in which the inner margins are straight and the toes square. A boot with pointed toes pushes the tip of the great toe outwards towards the other toes, and makes its base project unnaturally, thus exposing to pressure a part ill adapted to bear it. If swelling has taken place, paint with iodine tincture, repeating the application as the skin rubs off. If there is inflammation, a hot foot bath, followed by large linseed poultices, will be required. If the pain and swelling do not quickly subside, consult a surgeon. The displacement of the great toe, which so often accompanies a bunion, may be remedied by wearing a steel spring lever apparatus made for the purpose.

Burgundy Pitch. *See* PITCH.

Burial. *See* DEAD, DISPOSAL OF.

Burnett's Disinfectant.—A solution of chloride of zinc containing about 25 grains to 1 fl. dr. It is a powerful disinfectant, but extremely poisonous, and not volatile. It may be used diluted with ten times its bulk of water, for disinfecting linen, excreta, closets, drains, etc. It may also be prepared by adding commercial hydrochloric acid to powdered calamine. *See* DISINFECTANTS. For poisoning, *see* IRRITANT POISONS.

Burns and Scalds.—Burns are caused by heated solid bodies, or a naked flame; scalds, by hot liquids. They may be of all degrees. A slight burn causes pain and redness of the skin; a more severe burn will cause blistering; a still more severe one, injury to the deep skin, or to the soft parts below. In very severe burns the whole of a limb may be reduced to a charred mass. The pain is not usually in proportion to the severity of the injury; for deep burns by destroying the nerve endings and causing shock, greatly diminish the amount of pain. Severe burns cause much shock to the system, which must be combated by the usual means. (*See* SHOCK.) Extensive burns, especially of the trunk, are liable to cause ulceration of the bowels, which may be fatal. After the first few hours there is often some fever.

TREATMENT.— Remove the clothes piecemeal by cutting them, as they may be adherent to the body. If the skin is not blistered, apply cotton wadding in sheets, bandage on moderately firmly and leave alone for twenty-four hours or more. Should there be blisters, these must be snipped with scissors and emptied by gentle pressure. If jelly-

like masses are allowed to form by neglect of this precaution, recovery is delayed. It is not however advisable to meddle with them once they are formed. Where there is a raw surface, carron oil, boracic ointment, or some other greasy preparation should be applied, or a saturated solution of washing soda. A piece of muslin next to the wound is useful, as it prevents sticking of the dressings. Very severe burns in children are best treated by putting them, clothes and all, into a hot bath, kept up to 90° F. This soothes and prevents shock, while it loosens charred clothing and promotes healing.

Burns of fingers, and other parts where two surfaces are close together, require much attention to prevent adhesion. Scars after burns often contract greatly and cause much distortion. This can only be prevented if at all by the use of splints and similar appliances, often irksome to the patient. Superficial burns on the face may be painted with one part collodion to two parts castor oil. If there are blisters, they may be snipped and dressed with boracic ointment.

To Prevent Burns, fireguards should be used in every room inhabited by children. Reading in bed is always unwise. When a woman's dress catches fire she should at once lie down and roll on the floor; or, better still, be quickly enveloped with a rug, tablecloth, or thick coat. This can be more safely done by men than by lightly clad women. Linen or cotton dresses are more apt to catch fire than woollen. Clothing materials are sometimes treated with molybdate of soda, to render them non-inflammable.

Bursæ.—Small collections of fluid existing naturally under the skin, over parts exposed to pressure, such as the knee, elbow, or great toe. Injury may cause them to swell up and inflame. *See* Knee, Housemaid's.

Butter.—The fatty part of milk, separated by churning; a valuable and easily assimilated article of diet. (*See* Milk.) Should consist of not more than 12 per cent. of water, the rest being nearly all fat. Butter easily turns rancid, especially if made from sour milk or in dirty vessels, or if insufficiently washed or worked. To enable it to keep better, salt is added. Salt butter should not contain more than 35 grains per ounce. Rancid butter can often be restored by washing and working in plenty of cold water. A substitute for butter has been largely manufactured of late years in Holland, America, and other places, under the name of butterine, oleomargarine, or Dutch butter. By the Margarine Act (1887) such imitations must be sold as "margarine," not butter, and all packets clearly marked "margarine" in large letters. It consists of beef and other fats, purified and melted down, the butter flavour being given by churning with milk or in other ways. Provided it is sold honestly at the price of margarine, and not as butter, and is made from good and properly purified fat, there is no objection to its use as an article of diet.

Butterine. *See* Butter.

Butter Milk.—A thick, somewhat acid, fluid left after churning. It contains some butter fat, casein, and lactic acid, derived from fermentation of the milk sugar. It is a highly nourishing and easily digestible drink, valuable for invalids who cannot digest fat, and for children who are losing weight.

Buttocks.—The muscular masses which connect the trunk with the back of the thigh, a favourite place for inflicting corporal punishment on children. This however is not quite free from objection, as it may lead to injury of an important nerve distributed to the sexual organs, and cause irritability or wasting of these parts.

Boils or eruptions on the buttocks often cause swelling of the glands in the groin. *See* Absorbent System; Boils.

Butyl-chloral or *Croton-chloral hydrate*, a white crystalline substance, with pungent smell and nauseous taste, obtained by the action of chlorine upon a derivative of alcohol. A valuable remedy for facial neuralgia and in other disorders, but not very suitable for domestic use. *Dose*: five grains in a pill every three or four hours. *See* Anodynes; Narcotics; Neuralgia.

Cabbage. *See* Vegetables.

Cacao Butter.—*Oil of theobroma*, a concrete oil obtained from the ground cacao bean. It is a yellowish white substance of the consistence of tallow, with the fragrant odour of chocolate; much used in medicine as a basis for suppositories, as it does not turn rancid, and melts at about the temperature of the body.

Cachexia.—An unhealthy state caused by cancer and other non-febrile diseases.

Cachoux, or mouth pastils, are used to perfume the breath of smokers and others. A simple form consists of 3 oz. extract of liquorice, 1½ fl. dr. oil of cloves, 15 drops oil of cinnamon, mixed and divided into 1 gr. pills, and silvered.

Cæsarian Section.—An operation for extracting the unborn infant by cutting the walls of the abdomen and womb, when delivery cannot be effected in more natural ways. Julius Caesar, Scipio Africanus, and other famous men are said to have been born in this way. Although a formidable operation, it is now-a-days far more often successful than formerly.

Caffeine, or *Theine.*—An alkaloid existing in tea and coffee, also given medicinally for nervous headaches, inactivity of the kidneys, and other conditions. Good tea-leaves contain from 3 to 4 per cent.; coffee berries less than 1 per cent. Bishop's granular effervescing citrate of caffeine is a convenient preparation. The dose of this preparation is one teaspoonful or less. *See* TEA; COFFEE; GUARANA; STIMULANTS; THEOBROMINE.

Calabar Bean.—The seed of *Physostigma venenosum*, the ordeal bean of Calabar, has a few times been mistaken by children for kidney beans, with fatal consequences. It is of a brown coffee colour, about an inch long, with a broad black groove running along the convex edge, and yields eserine and another alkaloid. Eserine is used in eye diseases to contract the pupil of the eye after dilatation by atropine, and to diminish the fulness or tightness of the globe in glaucoma. It is not much used internally.

TREATMENT OF POISONING.—Emetics (*Pr.* 27, 28); artificial respiration; stimulants (*Pr.* 4, 5). Atropine is an antidote, but only safe in medical hands. Artificial respiration may be useful, as in drowning (*which see*).

Calamine.—Native carbonate of zinc. *See* ZINC.

Calcium.—The metal contained in chalk, lime, etc. Its compounds form a large part of the crust of the earth, and are ingredients in many mineral waters.

Calcium Chloride forms white crystalline masses. By heat these are converted into a white porous material, which eagerly absorbs water, and is used by chemists for drying gases. Medicinally, the solution is given for glandular enlargements. Dose of the B.P. solution 15 to 20 min. in milk. For other compounds, *see* CHALK; LIME; HYPOPHOSPHITES; PHOSPHATES; PHOSPHORUS.

Calculus. *See* STONE.

Callus.—The hard substance poured out round broken ends of bone to help them to unite.

Calomel.—A subchloride of mercury. *See* MERCURY.

Calumba Root is obtained from the forests of Eastern Africa, and sold in disk-shaped pieces. It is a bitter, unirritating tonic, free from astringency (*Pr.* 13, 16). *Preparations.*—Tincture, dose, ½ to 1 fl. dr.; infusion, dose, 1 fl. oz. The infusion turns mouldy in a few days. *See* BITTER TONICS.

Camboge. *See* GAMBOGE.

Camphor.—A crystalline, white, volatile solid, obtained by distillation from the wood of a Japanese forest tree belonging to the laurel family. Has a powerful characteristic smell, and a biting, bitter taste, followed by sensation of cold. Pure camphor is sold in curved pieces, which have been sublimed in a bell-shaped chamber. It may be powdered if a few drops of spirit are added. Only slightly soluble in water, it dissolves easily in oil or spirits of wine. Three useful preparations are made for *internal* use: camphor water (made by leaving a few lumps in a bottle of water), dose, 1 fl. oz.; spirits of camphor (1 oz. in 8 fl. ozs. of spirits), dose, ½ fl. drachm in water; and saturated solution or

essence, or Rubini's solution (1 oz. in $1\frac{1}{4}$ fl. oz. rectified spirit), dose, 1 to 5 minims on a lump of sugar or in water.

For *outward application*, camphorated oil (1 oz. in 8 fl. ozs. olive oil), compound camphor liniment (camphor 1 oz., oil of lavender 24 minims, strong solution of ammonia 2 fl. ozs., rectified spirit 6 ozs.), and many more.

Uses.—Solid camphor is useful for killing fleas and other insects; it is also used as an ingredient of toothpowders, but is apt to soften the enamel. The embrocations are useful as counter-irritants, to promote absorption and to cure itching. *Internally*, given in early stages of cold in the head, in diarrhœa, colic, hysteria, and some stages of fever.

Poisoning by camphor causes giddiness, dimness of sight, languor, delirium, etc. *Treatment.*—Emetics (*Pr.* 27, 28), followed by castor oil.

Cancer is justly dreaded as a painful and usually fatal disease. It frequently begins as a hard lump or thickening in the breast, womb, scrotum, lip, tongue, stomach, lower bowel or other part, not inflamed, but causing shooting neuralgic pain, and liable to increase at the expense of surrounding parts, to which it becomes firmly glued. Before long the absorbent glands are enlarged, and the whole body wastes, and shows signs of defective nutrition. Ulceration of the tumour is common, with a bloody or offensive discharge. Internally cancer may cause obstruction of important ducts or tubes, dropsy, irritation or inflammation of neighbouring organs. Where the stomach is affected, the symptoms are like indigestion. Cancer often resembles other disorders of far less serious nature. Whenever there is any doubt as to the nature of a lump, wart, or ulcer, a visit to a competent surgeon will set it at rest. It used to be believed that a special cancer cell existed, which might be recognised by the microscope. This is an error: it is the arrangement rather than the shape of the cells which are characteristic of cancer. The *causes* of cancer are by no means clear. Although the tendency to it appears to be hereditary, this is far less important than in many other complaints. All ranks in life are affected by it, and all ages, although it is chiefly a disease of middle and advanced life. A soft, rapidly growing form of tumour, resembling cancer (*sarcoma*), may attack even young children. Grief, anxiety, and other depressing influences seem to be concerned in the production of cancer; and slight injuries or long-continued irritation, as from a jagged tooth or a clay pipe, or in chimney sweeps the contact with soot, may also help to bring it on. Cancer is far more common in some neighbourhoods (such as the Thames valley) than in others. Whether the real cause will prove to be a bacterium or other parasite, time must show; but there is certainly some reason for holding such a theory.

Treatment.—Early removal by a surgical operation is, where possible, the best means of preventing the spread of cancer. Medicinal treatment has hitherto been powerless to cure, although pain and other distressing symptoms may be relieved. Certain remedies, such as hydrastin, arsenic, and chian-turpentine have been vaunted as specifics, but on insufficient evidence.

Cancrum Oris.—A kind of mortification affecting the cheek and gums, usually found in weak, ill-fed, or scrofulous children, especially after measles and other infectious fevers.

The first symptom is usually the appearance of a red, hard, angry-looking spot on the cheek, which ulcerates into the mouth. The gums are affected, and the tissues gradually destroyed. The breath is usually very fœtid. There is not much pain, but usually high fever and extreme weakness. The disease often proves fatal. Prompt medical advice is essential. *See* Noma.

Canella Bark, from Florida and West Indies, is an aromatic, bitter tonic. Aloes and canella bark used to be a popular remedy, under the name of hiera picra or "hickory pickory," for menstrual irregularity. Canella is an ingredient of rhubarb wine. *See* Bitter Tonics.

Cannabis Indica. *See* Indian Hemp.

Cantharides, or Spanish fly.—A kind of beetle about $\frac{1}{2}$ in. to 1 in. long, with

brilliant green wings, usually obtained from Russia or Hungary, and used for the preparation of blistering fluid and paper. (*See* COUNTER-IRRITATION.) It is also contained in many active remedies for baldness, and is occasionally administered internally, in minute doses, for its action on the urinary organs. POISONING by these preparations causes intense burning pain in the stomach and bowels, with nausea and vomiting, followed by active inflammation of these parts and of the urinary organs. Urine is passed frequently, but with pain and difficulty, and may be bloodstained or suppressed.

TREATMENT.—Assist vomiting by emetics (*Pr.* 27, 28), and copious soothing drinks, such as milk, flour and water, or white of egg. After this, castor oil is useful, but further treatment should be in medical hands, as there are many dangers to be overcome. *See* BLISTERS.

Canula. *See* TROCAR.

Caoutchouc. *See* INDIARUBBER.

Capillary.—A minute blood-vessel uniting an artery with a vein. *See* BLOOD-VESSELS.

Capillary Tube.—A fine tube, usually of glass, used for preserving vaccine lymph, and for other purposes.

Capillary Bronchitis. — Bronchitis attacking the finest air-tubes. It is a very dangerous form, especially in children. *See* BRONCHITIS.

Capsicum, cayenne, or chillies, is derived from a plant belonging to the potato family. Its properties are those of pepper (*which see*). It may be added to aperient pills in 1 gr. doses. A tincture is prepared—dose, 5 to 10 minims. It is sometimes prescribed to relieve the cravings of dipsomaniacs. Two fl. drachms with 5 fl. ozs. hot water form a useful gargle in early stages of relaxed throat, with no fever. Another useful preparation is the infusion, made by infusing a handful of crushed pods in a pint of hot water for thirty-six hours. *See* CHILBLAINS; NECK.

Capsules.—Little membranes for inclosing nauseous drugs. The same term is applied to the coats of internal organs, such as the spleen.

Caraway Seeds. *See* AROMATICS; CARMINATIVES.

Carbohydrates.—Substances which are chemical compounds of carbon, together with hydrogen and oxygen in the same proportions as in water. Starch, sugar, and gum are included under this head. *See* FARINACEOUS FOODS; SUGAR.

Carbolic Acid, *Phenol.*—A well-known and valuable disinfectant, obtained from coal-tar. Several kinds are sold, the strongest and purest being a white crystalline body, which readily absorbs moisture to form an oily-looking fluid. This dissolves readily in sweet oil, glycerine, or hot water, but only sparingly in cold. Carbolic acid has a characteristic smell and burning taste, like that of creosote. It is not a true acid, and does not, when pure, redden blue litmus paper. Strong phenol, melted by heat and sopped up with cotton wool, is a good application for a hollow, aching tooth. The pledget must be covered with plain cotton wool to protect the tongue, and kept away from the gums. Great care must be taken not to swallow it, as it is poisonous. Carbolic solution (1 in 40) is used as a lotion in skin diseases, and to keep off bugs, fleas, and other insect pests. Where the skin is ulcerated or sore, a weaker solution (1 in 60) should be used. For disinfection, several preparations are made, the most useful being a strong solution (1 in 20). This may be prepared by diluting 1 gallon of crude eighty per cent. carbolic with water to 16 gallons. For disinfecting excreta and organic fluids, at least two per cent. of the strong acid should be present in the mixture. Its action is more preservative than destructive, so that on dilution the material sometimes regains its infective properties. Heat is a better disinfectant for bedding and clothing, sulphurous acid for the air of empty rooms, and cupralum for excreta. Carbolic powder is also prepared by Messrs. Calvert & Sons for disinfecting purposes. Carbolic acid decomposes Condy's fluid and preparations of chlorine, which should therefore not be used with it. Carbolised oil (1 in 20) is used as an application to wounds and ulcers. Car-

bolic acid is given internally in very small doses, for flatulence and other disorders, but is unsuitable for domestic use.

POISONING by carbolic acid may result from its external use as well as from internal administration. Children are particularly sensitive in this respect. When swallowed, carbolic acid causes burning pain in the mouth, throat, and stomach, followed by giddiness and a sort of tipsy condition, which passes into collapse and unconsciousness. The urine becomes dark olive-green. As little as 6 drops of the strong acid may cause dangerous symptoms.

Treatment.—Empty stomach by emetics (*Pr.* 27, 28). After this, sweet-oil and bland drinks ease the pain. A dose of castor oil is also useful. If poisoning arises from external applications, replace them by boracic acid dressings and give stimulants (*Pr.* 4, 5). *See* ANTISEPTICS; DISINFECTANTS.

Carbon.—An elementary substance existing in the forms of charcoal, graphite, plumbago or blacklead, and diamond. All animal and vegetable organisms contain carbon in combination, and yield it when heated without free access of air. ANIMAL CHARCOAL, or bone-black, is prepared by charring bones in a closed furnace, and purified by dissolving the earthy matter with hydrochloric acid. It is a black, insoluble powder, without taste or smell, used chiefly by sugar refiners and others for decolorizing solutions. Also useful, in teaspoonful doses, as an antidote in poisoning by vegetable alkaloids. VEGETABLE CHARCOAL is chiefly prepared from the wood of oak, beech, hazel, or willow trees, and shows traces of the woody structure. It readily absorbs gases, and is used as a dressing for ill-smelling ulcers, for receiving foul discharges, and for absorbing sewer-gas and other noxious vapours. (*See* DRESSINGS; POULTICES; RESPIRATORS; TRAPS.) It forms a useful tooth-powder, though more liable to scratch the enamel than one made with chalk. Internally, it is given to relieve flatulence and indigestion, either in form of powders, or in lozenges, charcoal biscuits, or very thin, over-done toast. *Dose*, up to 60 grains. Charcoal is also used as a filtering agent, and in the form of coke from the gas-retorts forms an element in many galvanic batteries. *See* FILTERS.

Carbonates.—Compounds of carbonic acid gas with a metallic oxide.

Carbonic Acid Gas, or *carbon dioxide.*—A colourless gas produced by burning carbon, or substances containing it, with free access of air; also by decomposition and fermentation of vegetable matter, and the respiration of both plants and animals. (*See* VEGETATION.) It is expelled from its compounds (*carbonates*) by heat or mineral acids. Thus chalk or carbonate of lime is broken up by heat into lime (*calcium oxide*) and carbonic acid gas. Explosions of "fire-damp" in mines give rise to carbonic acid gas or "choke-damp," a name given to it because men and animals cannot breathe it with safety. Being heavier than ordinary air, it tends to accumulate in old wells or disused mines, in the holds of ships, in brewers' vats, and on the ground near lime-kilns, and in some volcanic regions. As it is free from taste or smell, people have occasionally fallen asleep in the dangerous atmosphere, and never woke up again. If much of the gas is present, people become rapidly suffocated in it, unconscious, livid, and frothing at the mouth. Whenever its presence is suspected, the air should be tested with a lighted candle; if the candle burns feebly or goes out, there is probably choke-damp present, and danger to living beings. The best way to purify such a place is to lower into it a bucket of freshly slaked lime, or scatter it about with bucketfuls of water. Another good way is to throw down burning shavings to create a draught. Should any one incautiously enter such a place before it has been purified, and fall down unconscious, buckets of water, or of weak lime and water, should be dashed in until the air is a little purer; and the rescuers should wear over their mouths cloths soaked in lime-water or in weak solution of caustic potash, or, failing these, in pure water. The rescued person must then be treated by artificial respiration, as in drowning (*which see*). Air rendered foul by breathing is noxious, not

only because of the carbonic acid gas produced, but chiefly because of the organic substances which accompany it. Carbonic acid gas is contained in effervescing drinks and in some medicinal draughts. It is useful in this form in nausea and vomiting. Iced soda-water, or seltzer, or champagne, will often be retained when other drinks are rejected. The addition of soda-water to milk renders it more digestible and less irritating. *See* EFFERVESCENCE.

Carbonic Oxide Gas.—A highly poisonous gas, formed by the burning of carbonaceous substances in a limited quantity of air and at a high temperature. Coke or charcoal stoves are apt to produce it, and render the air dangerous if ventilation is imperfect. A certain amount is also present in coal-gas. The inhalation of carbonic oxide causes throbbing headache, giddiness, nausea, and great weakness. This may rapidly pass into insensibility, convulsions, and death. A peculiar change in the blood is produced, which may be recognised by the spectroscope.

TREATMENT OF POISONING.—Artificial respiration as in drowning (*which see*), and plenty of fresh air. Send at once for medical assistance, as further measures are nearly always necessary.

Carbuncle.—Differs from a boil in being larger, more inclined to spread, more painful, usually single, and provided with several openings. It usually occurs on the nape of neck, shoulders, or buttocks, and begins with a painful patch of hardness and swelling, with much throbbing pain, and more or less fever. The swelling increases and becomes dusky-red; and openings form, through which a core is gradually discharged piecemeal. After this the pain and constitutional disturbance subside, and the large, ragged opening heals up under favourable circumstances. In old people, or those of weak health, death may occur from exhaustion. Carbuncular boils of the scalp or face are particularly dangerous. They often cause inflammation of the veins and blood-poisoning.

Causes.—Carbuncle is rare before the age of twenty, and is twice as frequent in men as in women. It is especially common, on the one hand, in gouty or overfed people; and, on the other hand, in debilitated, ill-nourished individuals. It is a common and dangerous complication of diabetes.

TREATMENT.—A good surgeon's advice should be promptly obtained, as early treatment may save much suffering and diminish danger to life. The general health always requires attention. The bowels should be freely opened by moderate doses of saline aperients (*Pr.* 11, 14). When the fever ceases, tonics (*Pr.* 6, 34, 35, 36, 37, 38) will be required. Sulphurated lime is strongly recommended by some authorities (*Pr.* 45). Diet should as a rule be nourishing and easily digestible, stout or sound port wine being taken at dinner. Gout or diabetes calls for special diet and medicinal treatment.

Local Treatment.—In early stages apply galbanum and opium plaster spread on leather, with a hole in the middle to let out discharge. Over this a poultice may be applied if throbbing or tension is great. Starch poultice and linseed poultice mixed with lard are the least irritating. When the core is being discharged, balsam of Peru spread on lint is a good application. Antiseptics injected into the swelling, or applied as dressings, are said to hasten recovery. Sometimes incisions are necessary. *See* BOILS; DIABETES; GOUT; WOOLSORTER'S DISEASE.

Carbuncle, Malignant. *See* WOOLSORTER'S DISEASE.

Carcinoma. *See* CANCER.

Cardamoms.—The seeds and capsules of a shrub growing in the East India Islands. The seeds are of the shape of orange pips, about half an inch long, covered with a brown membranous coating. Cardamoms are valuable as carminatives or stimulant aromatics (*Pr.* 4, 11, 13). *See* AROMATICS.

Cardiac.—Relating to the heart (*which see*).

Caries is to bone what ulceration is to the softer tissues. *See* BONE, INFLAMMATION OF; ULCERS.

Carlsbad.—*See* MINERAL WATERS; HEALTH RESORTS.

Carminatives.—Remedies for flatu-

lence and spasm in the bowels. *See* AROMATICS. (*Pr.* 4, 10, 13, 24, 46.)

Carotids.—The large arteries of the neck which supply the brain with blood, sometimes wounded in *cut-throat*.

Carpets are objectionable in proportion as they harbour dust and dirt. Turkey carpets and thick pile carpets are in this respect less healthy than smoother and finer ones. Carpets are best laid over the centre only of the room, leaving a space around, which may be veneered with parquet work, or painted with four good coats of dark oil paint and varnished, or merely covered with linoleum or oil-cloth. All carpets should be easily removable. In bedrooms small strips only should be used, or, better still, strips of Chinese or Indian matting.

Carrageen or Irish Moss is really a seaweed. In preparing for the table soak for a quarter of an hour in cold water, and then boil in water till dissolved (1½ oz. to 1 pint). Flavour and cool to form a jelly.

Carron Oil.—Equal parts of lime-water and linseed-oil, introduced at the Carron Iron Works as a soothing dressing for burns. It is very useful for this purpose, although its smell is disagreeable. If olive-oil is substituted for linseed-oil, the mixture is equally efficacious and less offensive. *See* BURNS.

Carrots. *See* VEGETABLES.

Cartilage or gristle, a pearly white, semi-transparent, elastic substance existing at the articular ends of bones, and in the nose, ear, larynx, and other parts. It diminishes friction and deadens vibration. By boiling it is converted into a substance resembling gelatine. In infancy many bones are represented by cartilage. In old age cartilage may become partly converted into bone.

Cascara Sagrada.—The dried bark of *Rhamnus purshianus*, a kind of buckthorn from the North Pacific coast. It is a valuable medicine for habitual constipation, acting in small doses as a bitter tonic. It may be used day after day for a long time without causing mischief. Dose of the liquid extract, 10 minims to 2 fl. drs. in water. A preparation with spirit and various aromatics is sold under the name of "cascara cordial," which sometimes answers well when the simple form causes irritation. Dose of this is one teaspoonful.

Cascarilla Bark, obtained from a small tree growing in the West Indies, is an aromatic bitter tonic, used in dyspepsia. It also acts upon the lining membrane of the breathing tubes. The powder when burnt emits a fragrant odour; it is an ingredient in most fumigating pastilles. An infusion and a tincture are prepared (*Pr.* 1). The powder may also be given in 10 grain doses in milk. *See* BITTER TONICS; BRONCHITIS; INDIGESTION; PASTILLES.

Casein.—The cheesy constituent of milk. It resembles albumen in its chemical composition and properties, but is coagulated or clotted by gastric juice, being subsequently re-dissolved into peptones. *See* MILK; INFANT FEEDING.

Cassia Bark.—A kind of cinnamon, obtained from China. CASSIA BUDS are supposed to be from the same source. CASSIA PULP is from quite a different plant, the purging cassia, a near relative of senna. The pulp from the pods is an ingredient of confection of senna.

Castile Soap. *See* SOAP.

Castor Oil is expressed from the seeds of the castor-oil plant or *palma christi* (*Ricinus communis*), often grown in greenhouses in this climate, and growing to the size of a large tree in India. The seeds are of the size of small beans, and are violently poisonous. The best oil is that obtained by pressure without heat ("cold drawn"), and is of a pale straw colour, viscid, with slightly nauseous smell, and sickly burning taste. It acts as a mild, speedy, and certain aperient, causing little or no straining or griping, and may therefore be used in occasional constipation of children, delicate adults, or pregnant women. It is also useful in diarrhœa from indigestible or unsuitable food. "Concentrated castor oil" and castor-oil capsules often contain a little croton oil, and are not safe for domestic use. (*See* CROTON OIL.) A drop of castor oil is a good application to the eye after dust or grit has been removed.

INTERNAL ADMINISTRATION.—Give in

hot milk, orange wine, highly peppered and salted beef tea, peppermint water, hot coffee, or the froth of porter. Wet the spoon and glass thoroughly with whatever vehicle is used, and do not allow the oil to touch the sides. Chewing a small piece of orange or lemon peel before taking the oil deadens the nerves of taste. *Dose* for a baby, 20 drops to a small teaspoonful; for an adult, one to three tablespoonfuls. A smaller quantity will sometimes answer if taken an hour before breakfast Five drops rubbed up with a little cinnamon water, syrup, and gum water, is useful in diarrhœa of infants. This dose may be given every hour, at one year of age, until four doses have been taken.

Castor-oil Biscuits.—Make a paste of the consistency of pie-crust with the following ingredients: ¼ lb. flour, 2 ozs. moist sugar, a small quantity of mixed spice finely powdered, and 1½ ozs. castor oil. Roll out the paste, divide into ten cakes, and bake in a quick oven. Dose, one to two. May also make into gingerbread nuts by adding ginger and treacle.

Castor-oil Emulsion (*Pr.* 50) is also useful in irritable states of the stomach. *See* Aperients.

Casts.—(1) Moulds of urinary tubes, usually consisting of epithelial cells, blood, fibrin, or other similar substances. The presence of casts in the urine (recognised by the microscope) proves that the kidneys are diseased. Similar casts are sometimes formed in the breathing and other tubes of the body. (2) Casts of various parts of the body are made of plaster of Paris, modelling clay, etc., for the purpose of recording the shape. When applied to the skin, it should be carefully greased to prevent the hairs from being embedded in the cast.

Catalepsy.—A rare kind of trance, in which there is sudden loss of power of movement, and usually of consciousness, together with a peculiar state of muscular rigidity. The limbs and body are stiff, and remain in any position in which they may be placed. Awkward and usually fatiguing attitudes are long retained without any sign of effort. The attacks usually occur in hysterical young women, but are also met with under other circumstances. They may last a few minutes or many hours, and recur with or without warning. The disease is not necessarily dangerous, but calls for skilled medical advice. All causes of emotional excitement should be avoided, and the same general treatment adopted as in hysteria.

Catamenia. *See* Menstruation.

Cataplasm. *See* Poultice.

Cataract.—Opacity of the crystalline lens or its capsule (*see* Eyeball) interfering more or less with sight. It may be present from birth, or come on during childhood; but as a rule it is a disease of advancing age. There are many varieties, which differ in their rate of progress and in other respects. Patients with cataracts usually see best in the dusk, or with their backs to the light, as the pupil is then dilated. Hence the use of atropine drops or belladonna appears to improve the sight—a fact of which advantage has been taken by quacks.

In children the first sign may be that they look aslant at their books, and bring them too close to the eye. Some forms of cataract are curable by operation, the lens being removed and a spectacle lens substituted, or a new pupil made opposite to the transparent part. Where this is not advisable, some relief may be obtained by the use of dusky goggles. An ophthalmic surgeon should always be consulted.

Catarrh.—Inflammation of mucous membranes, especially of the respiratory passages. "Cold in the head" and "cold on the chest" are two common forms of catarrh; but the same disorder may attack the stomach, bowels, bladder, and other parts. Although usually attributed to damp or cold, catarrh also occurs as a result of infection in influenza, measles, whooping cough, and other diseases. *See* Bronchitis; Cold in the Head; Cold on the Chest; Influenza.

Catechu is of two kinds: *pale catechu*, an extract from the leaves and young shoots of a tree growing in the Eastern Archipelago; and *black catechu*, an extract from the wood of a species of acacia from Pegu, no longer official in the B.P.

Both are powerful astringents, used in relaxed throat, diarrhœa, etc. For the throat, a few grains may be allowed to dissolve in the mouth, or the lozenges used. For spongy gums, a tooth-powder of chalk and catechu is useful (*see* TOOTH-POWDER); or the tincture may be used as a mouth-wash, pure or diluted. For diarrhœa, *Pr.* 23 is disagreeable, but efficient. The infusion is rather more pleasant. It is made with 160 grains of catechu and 30 grains of cinnamon in coarse powder, and ½ pint of boiling water. Dose 1 to 2 fl. ozs. Tincture of catechu is useful as an application to chapped nipples of nursing mothers. *See* ASTRINGENTS, VEGETABLE; DIARRHŒA; NIPPLES; THROAT.

Catgut is used in surgery for tying arteries and stitching up wounds. After a while, the living tissues absorb it. *See* LIGATURES.

Cathartics. *See* APERIENTS.

Catheter.—An instrument for drawing off urine from the bladder. That for *males* is a long, curved tube, consisting either of silver or silvered metal, or of "gum elastic" or other flexible material. Catheters made of metal are only suitable for a surgeon's use, as in the absence of the necessary skill and anatomical knowledge, serious mischief may be done. Where catheters must be used daily, the patient should be instructed in their use by the surgeon, who will also tell him which kind and size to get. It is of extreme importance that they should be kept scrupulously clean, and properly disinfected after use. Neglect of such precautions has often led to a serious attack of inflammation of the bladder. Immediately after using the flexible catheters they should be plunged into a basin of warm carbolic (1 in 30) or boracic acid solution (15 grs. to the ounce) and left there for some minutes; after which they must be thoroughly cleansed by a stream of the antiseptic driven through with a syringe. The oil or vaseline used for lubricating should contain five per cent. of carbolic acid. If vaseline causes irritation, castor oil may be used. Broken or rough catheters, or such as are a little worn, should never be used. They may scratch the passage, or break in the bladder. Soft rubber catheters are liable to swell after being used a few times. It is well to allow for this by getting them two sizes smaller than required. All cloths, tins, or receptacles in which catheters are kept must be regularly and carefully cleansed. Catheters for *women* ("female catheters") are much shorter than those for men, and nearly straight. They are usually of silver or silver-plated, and provided with a stylet, plug, or stopcock to close the outer end. All good nurses should know how to pass them. Before being used they should be warmed and lubricated with carbolised oil or vaseline (five per cent.), and plunged immediately on withdrawal into boiling carbolic solution (1 in 30) and thoroughly cleansed.

H. D. M.

Caul. — The omentum or apron-like membrane which covers over the bowels. Also, the membranes from the womb when they cover the child's head like a veil at birth. This kind of "caul" used to be superstitiously preserved as a charm against drowning.

Cauliflower. *See* VEGETABLES.

Caustics.—Substances which destroy the tissues. They are used to remove warts and other new growths, to prevent infection from the bites of mad dogs, and for counter-irritation. The most important are nitric and other mineral acids; strong or glacial acetic acid; caustic potash, soda, and lime; chloride of zinc; strong carbolic acid; and lunar caustic. Caustic potash penetrates more deeply than lunar castic. It may be neutralized with vinegar and water.

Cautery.—An agent for destroying tissues by great heat, used to check bleeding, and for the same purposes as caustics. The actual cautery is a knob of iron or other metal applied at a red or white heat. In the galvanic cautery a wire is heated by means of a galvanic current. In Paquelin's "thermocautère" a hollow metal point is heated in a spirit lamp, and then kept hot by a stream of air and benzolene vapour from a bottle.

Cavity in Lungs. *See* CONSUMPTION.

Cayenne. *See* CAPSICUM.

Cell or *corpuscle.*—The body may be shown by microscopic examination to be

built up of minute particles of living jelly, each usually provided with a nucleus or kernel. These particles are called cells or corpuscles. Some, like those of the blood and lymph, are able to move about freely; others are stationary, and united to form tissues. The corresponding structures in plants, which were earlier discovered, are usually hollow; hence the name *cell*, which is still applied to the animal structures, although these are now known to be usually solid. The whole work of the body is directly or indirectly done by the cells or corpuscles; so that it may be regarded as a colony of living particles in co-operation. Cells grow, multiply, and die, like all living things. Every time we wash our hands, dead skin cells are rubbed off, to be replaced from below; and in other parts of the body the same process of decay and renewal continually goes on. *See* TISSUES.

Cellular Tissues. *See* TISSUES.

Cellulitis. — Inflammation of cellular or connective tissue.

Centigrade. *See* THERMOMETER.

Cerate.—An ointment containing wax, which renders it a little firmer. When applied to the skin cerates do not melt. In the B.P. both kinds are called *ointments*, in the U.S.P. the distinction is retained. *See* OINTMENT.

Cereals, or grains, are seeds of plants belonging to the grass family used as food. The most important are wheat, maize, oats, rye, millet, barley, and rice. Buckwheat, belonging to the same family of plants as dock, sorrel, and rhubarb, resembles the true cereals in its properties, and is often classed with them. Cereals contain gluten, starch, sugar, fat, and other substances. Rice is richest in starch; oats and maize contain most fat. The gluten, which forms the tenacious part of dough, is only present in small proportions in rice, oats, barley, and maize, which are therefore not suitable by themselves for making into vesiculated bread. Cereals contain from seven to fifteen per cent. of nitrogenous foodstuffs, and from seventy-one to seventy-seven per cent. of starch, sugar, gum, and fat, the first of these largely preponderating.

Cerumen.—The ear-wax. *See* DEAFNESS; EAR-WAX; HEARING, DISORDERS OF.

Cesspools. *See* DRAINAGE.

Chafing in children and stout adults may often be prevented by keeping the skin dry with dusting powders and attention to cleanliness. The general health may require to be improved by tonics, good suitable food, fresh air, and other measures. *See* DUSTING POWDERS; ECZEMA.

Chairs, Invalid, are of several kinds, some intended for conveyance indoors, others for out-door use, or both. A good carrying-chair is made by Carter, of New Cavendish Street. It is provided with handles, which slide into sockets under the seat, and is suitable for carrying up and downstairs. Others are made with leg-rests and adjustable backs. In one pattern, the patient can propel himself with his hands by means of a lever acting on the axle. In another, the patient's efforts both move the chair along the ground and cause the seat to rise and fall, acting as a substitute for horse exercise. Chairs are also fitted with tricycle action, to be worked by an attendant. Others are provided with shafts for a pony.

Chalk, limestone, marble, and calcspar, are all forms of carbonate of lime (*calcium carbonate*). PREPARED CHALK is made by finely grinding and stirring up with water, after which it is allowed to settle slowly, and then dried. It is used externally as a dusting-powder or tooth-powder; and internally to correct acidity or stop diarrhœa, or as an antidote to poisoning with oxalic or mineral acids. If given for too long a period it may cause intestinal concretions. CHALK MIXTURE consists of 1 part prepared chalk, 1 part gum arabic, 2 parts syrup, and 30 parts cinnamon water. Dose 1 to 2 fl. ozs. (*See* DIARRHŒA.) AROMATIC CHALK POWDER consists of 22 parts prepared chalk, 8 parts cinnamon, 2 parts cardamoms, 3 parts cloves, 6 parts nutmeg, 6 parts saffron, and 50 of sugar, powdered and mixed. Dose 10 to 60 grs. (*See* DIARRHŒA; INDIGESTION.) For COMPOUND AROMATIC CHALK POWDER, *see* OPIUM. *See also* DUSTING POWDERS;

TOOTH-POWDERS; *Gray Powders* under MERCURY; and *Pr.* 23, 60.

Chalkstones are accumulations of urate of soda about the joints, external ear, etc., found in gouty people. *See* GOUT.

Chalybeate.— Containing iron. *See* IRON; MINERAL WATERS.

Chamomile has been long used as a domestic remedy. An infusion of the flower-heads (chamomile tea) is used externally as a soothing fomentation, internally as a calmative in teething disorders of children, sleeplessness, and other nervous disorders. It is an aromatic bitter, and useful as such in dyspepsia. (*See* BITTER TONICS.) Taken warm, it may act as an emetic, but is uncertain. Essential oil of chamomile is used as a carminative. Five to ten drops may be taken on sugar. *To make chamomile tea*, infuse ½ oz. dried flower-heads in ½ pint boiling water for ¼ hour, and strain. Dose, 1 fl. oz. An infusion made more slowly with cold water is said to be pleasanter and equally efficacious.

Champagne. *See* FERMENTED LIQUORS.

Chancres are ulcers due to venereal inoculation. Two kinds exist, one of which occurs singly, and produces a hard lump, but very little discharge; the other is usually multiple, grows rapidly, and discharges freely. The former is the more serious of the two. A reputable surgeon should be consulted. *See* VENEREAL DISEASE.

Change of Air and scene are useful remedies for the results of overwork, and taken in time will often prevent breakdown in busy brain-workers. Monotony of occupation and surroundings is in the long run very trying to the health, and should be periodically broken by all busy people. The mind has a great influence over bodily health; and a new stock of ideas and experiences will often act as a more efficient tonic than much medicine. The kind of change likely to be beneficial will depend upon tastes, habits, and constitutional peculiarities. Sometimes it is desirable for members of the same household to separate for their holidays, so as to get a complete change of surroundings. Those whose business of life involves much travelling will often derive most benefit from a holiday with friends or relatives in a quiet country village. Others whose occupation is more monotonous will possibly do better at a busy seaside place. Within certain limits, the more complete the change the better. But sudden change from a sedentary life to one involving violent physical exercise, or *vice versâ*, is seldom advisable. Where such a holiday is contemplated, due preparations should be made to diminish the contrast. *See* CLIMATE; EXERCISE; HEALTH RESORTS; SEASIDE; SEA VOYAGES; TRAINING; TRAVELLING.

Change of Life.—The time of life in women when menstruation ceases — usually about forty-five to fifty years. The cessation may be abrupt, or gradual and preceded by irregularity. Slight disturbances of health are very common about this time, although they may be entirely absent. Loss of blood from piles or nose-bleeding may occur, or else headache, flushes, giddiness, irritability or depression of spirits. Obesity and growth of hair on the face are frequently met with at this time of life.

TREATMENT.—Prevent constipation by use of saline aperients; avoid late hours, heated rooms, and excitement of all kinds; and cultivate regularity in mode of life. Diet should be plain and unstimulating. (DIET, IV.)

Beer and spirits are usually objectionable; light wines may be taken in strict moderation. Regular exercise in the open air is advisable. For headaches and other nervous symptoms, *Pr.* 18 is often useful; for flushes, *Pr.* 35, 36, or 40. *Pr.* 18 may also be taken with 10 gr. ammonio-citrate of iron in each dose.

Chapped Hands are frequently due to irregular circulation or imperfect drying of the skin after washing. The habit of warming the hands before the fire, rather than by exercise or warm gloves, increases the tendency to chapping. This disorder is not merely a source of discomfort, but may be actually dangerous, owing to absorption of poisonous substances through the cracks in the skin.

TREATMENT.—The hands should always be plunged into cold water after washing with warm, and then very carefully dried

with a soft towel, and anointed with one of the following applications:

(1) Glycerine of starch.

(2) Glycerine, 1 part; eau de Cologne, 2 parts.

(3) Sweet almond oil.

(4) Pure vaseline.

(5) Zinc ointment, 1 part; sweet almond oil, 1 part; cold cream, 6 parts.

Chapped Lips should be carefully dried and painted with flexile collodion. Movements should be as far as possible restrained. The sound parts may be anointed with one of the applications mentioned under CHAPPED HANDS.

Chapped Nipples. *See* BREAST; NIPPLES.

Charcoal. *See* CARBON.

Charpie.— Loose fibres from scraped linen, used to absorb the discharge from sore places. *See* DRESSINGS; ULCERS; WOUNDS.

Cheeks. *See* FACE.

Cheese consists of casein of milk, together with more or less fat and salts (phosphate of lime, etc.). In making cheese, rennet is added to the milk, the thin whey run off, the curd pressed, salted, and coloured with anatto or some other substance. Soft cheeses are made at a low temperature, with little pressure; hard cheeses with more heat and pressure. Some cheeses, such as Cheddar and double Gloucester, are made with whole milk; other richer cheeses, such as Stilton, from mixed cream and milk; while poor cheeses are made from mixed skim milk and whole milk (single Gloucester, Shropshire, and some American), or skim milk alone (Parmesan and Suffolk). Great variations are therefore met with in composition.

	Water.	Nitrogenous.	Fat.
Rich cheese ...	35·75	7·16	30·43
Middling	46·82	27·62	20·54
Poor	48·02	32·65	8·41

—*after König.*

Cheese, when young, is tough; when old, rancid. The best age is from nine to twenty months. The ripening of cheese is due to a sort of fermentation, in which water is lost, fat broken up into glycerine and fatty acids, casein rendered more soluble, and flavour developed. Cheese is a valuable food for those whose digestion is strong; but it usually calls for plenty of physical exercise to aid its digestion. It is stated that a small quantity of cheese aids the digestion of other foods. Toasted cheese is proverbially indigestible. Soft-cooked cheese (as in well-made macaroni and cheese) is rather more digestible. Taken in moderate quantities, rich cheeses are more easily digested than poor kinds. Cream cheeses are probably the most digestible of all. Irritant poisoning has occasionally followed the consumption of cheese. This has been attributed to the presence of copper and other metals, but is probably far more often due to the decomposition of the casein into poisonous alkaloids. *See* MILK; FOOD STUFFS, etc.

Chemistry of the Body.—Fifteen or more elementary substances are present in the human body: carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus, chlorine, fluorine, potassium, sodium, calcium, magnesium, manganese, iron, and silicon. There is nearly 60 per cent. of water in the body, the bones even containing 22 per cent. The elementary constituents of the body, together with their combinations, correspond closely with those found in the food. *See* FOOD.

Cherry. *See* FRUITS.

Chest (*thoraæ*), the upper part of the trunk, between the neck and abdomen (*figs.* 1, 18). A cone-shaped cavity, of which the narrow upper end is cut short, and the broad lower end closed by a muscular partition (*midriff* or *diaphragm*). Its walls are supported by the spine behind, the ribs and breast-bone in front and at the sides. It contains three serous sacs, of which two (*pleuræ*) surround the lungs and line the chest-walls, while the third (*pericardium*) incloses the heart. The remaining space is occupied by large blood-vessels and nerves, the gullet, thoracic duct, and other structures. The chest-walls are largely concerned in the breathing movements, and should be allowed to expand freely. (*See* RESPIRATION; CLOTHING.) Occupations involving long-continued pressure on the chest—such as shoemaking—often cause deformity. "Pigeon breast" is due to violent coughing or difficulty of breathing, while the ribs are

yet soft, and occurs especially in rickety children after bronchitis or whooping cough. (*See* RICKETS.) A deformed chest may also indicate disease of the lungs or heart, or a crooked back. *See* HEART; LUNGS; SPINE. For *Injuries to the Chest, see* RIBS, BROKEN; for *Water in the Chest, see* DROPSY; PLEURISY.

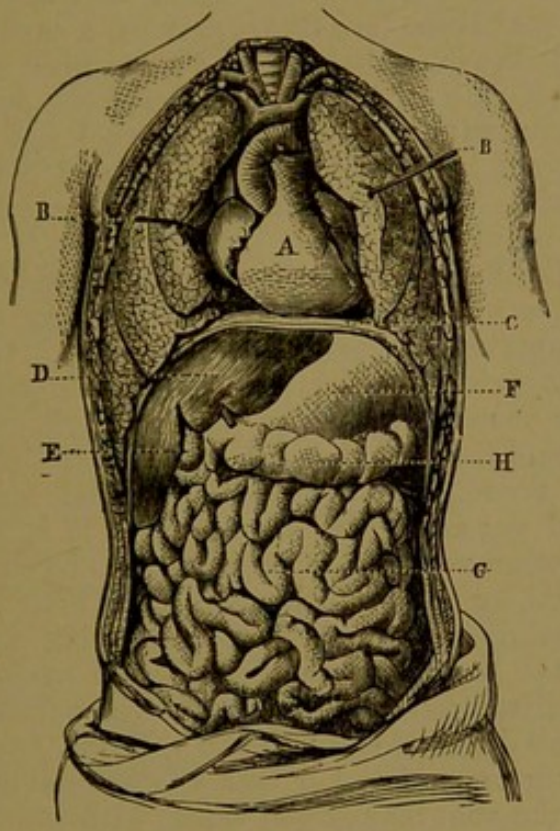

FIG. 18. ORGANS OF CHEST AND ABDOMEN; FRONT WALL OF BODY REMOVED.

A, heart; *B*, lungs; *C*, diaphragm; *D*, liver; *E*, gall-bladder; *F*, stomach; *G*, small intestine; *H*, large intestine.

PAINS IN THE CHEST may be due to indigestion, diseases of lungs or heart, or simple debility; to rheumatism, neuralgia, inflammation or injury of the chest walls. It is not uncommon as the result of violent coughing or muscular exertion. *See* MUSCLES, PAIN IN THE.

Chestnuts, the fruit of the Spanish chestnut, contain much starch and sugar, resembling in composition cereals rather than nuts. They are largely used on the Continent in the form of meal or flour. Although highly indigestible in the raw state, when properly cooked they form an extremely nourishing food for all excepting invalids. They should be notched, boiled for ten minutes, and then roasted until quite soft.

Composition in 100 parts approximately:

Water...	14	Dextrin	23
Albumen	8½	Oil	1⅓
Starch...	30	Woody Fibre and Starch	5⅔
Sugar	17½		

(*See Church on "Food."*)

Chickenpox, *Varicella*, an infectious fever common in childhood. (*See* INFECTIOUS FEVERS.) After an incubation-period of about thirteen days or more, and slight feverishness lasting one or two days or less, successive crops of pimples appear on the back, chest, and other parts of the body, and rapidly change into little bladders or vesicles. These become cloudy, dry up, and fall off after four days. The whole illness lasts about a week or ten days, and is not dangerous, although very catching. In modified smallpox, which might be mistaken for chickenpox, the fever is more severe before the rash appears, while this is hard and shotty at first, flat, dimpled, and mattery later on. The spots also take longer to develop. Each disease affords some protection against a second attack; but smallpox will not protect against chickenpox, or *vice versâ*.

TREATMENT of chickenpox, as in feverish attacks. Keep the child in bed, or at all events indoors; give light, unstimulating food; prevent him from scratching, and do not allow the dress to rub the spots. Cold cream or boric ointment on soft rags may be applied; and if necessary, a mild aperient given.

Chicken. *See* POULTRY.

Chicory Root, when roasted and ground, is used to adulterate coffee. A strong infusion sometimes acts upon the bowels; at others, it increases the flow of urine. With some people it causes languor, headache, and indigestion. It contains a volatile oil and bitter principle, but no alkaloid like caffeine, and has not therefore the stimulating properties of coffee. To detect its presence in ground coffee, mix with a little cold water. Coffee floats on the surface, and scarcely discolours the water; chicory sinks, and gives a deep red tint. *See* COFFEE.

Chigoe, Jigger or flesh flea, a parasitic insect common in the West Indies and

South America, living in dry, sandy places. It bores under the nails and between the toes, causing much pain and formation of matter. The natives are very expert in turning out the flea uninjured, which renders the cure more rapid. If sores are produced, they should be syringed with carbolic lotion.

Chilblain.—An inflammation of the skin, due to cold. It usually appears in cold weather, and especially affects children and old people, and others who have a feeble circulation or broken constitution. The tendency to chilblains is sometimes inherited. The parts usually affected are the feet and hands, but ears and nose may also suffer. In the first stage, a red itching swelling appears. If neglected, a large blister (or blain) forms over it (second stage), and in extreme instances mortification may occur (third stage).

To avoid chilblains, improve the general health by good food and observance of the usual laws of health, giving tonics if necessary. Take plenty of exercise in the open air, even if the weather be bad; but change damp boots and clothes promptly on arrival at home. Clothe warmly in flannels, but not so warmly as to induce a sodden state of the skin. Avoid all constriction and unequal pressure, such as that due to tight lacing, garters, or tight boots or gloves. Wear thick-soled, roomy boots, and warmly lined gloves. When hands or feet are chilled, warm them gradually by means of exercise or gentle rubbing. Exposure to the heat of the fire is apt to produce chilblains, by causing a rush of blood into vessels paralysed by cold. Soaking the feet in hot water is allowable, provided the temperature is gradually raised, and the pores are afterwards closed by a douche of cold water, followed by brisk rubbing.

To cure chilblains in the first stage, apply stimulating applications. (1) Iodine ointment rubbed well in two or three times a day. (2) Compound camphor liniment. (3) Turpentine liniment. (4) Capsicum plaster, made as follows: Steep capsicum pods for several days in a warm place in twice their weight of rectified spirits of wine, strain off, add to the tincture an equal quantity of gum water of the consistency of treacle, and mix thoroughly. Brush the mixture on to a sheet of silk or tissue paper, let it dry, and repeat until a shiny surface is produced. The plaster should be applied like court plaster. (5) Camphor ball. If chilblains are blistered, apply a poultice, or snip the blister and apply friars balsam (*see* Benzoin) with a camel-hair brush, or balsam of Peru rubbed up with yolk of egg. In either case, surround with plenty of cotton wool and a flannel bandage. For *gangrenous chilblains* (*see* Frost-bite) a surgeon will be required.

Child-birth, *accouchement*, is a wonderful example of the natural powers of adaptation possessed by the body. On comparing the body of the child with the channel it has to pass through, one would imagine that the process could not be accomplished without external aid; and yet among the savage races it is no uncommon thing for a woman to be confined by the roadside, and in an hour to continue her journey as if nothing unusual had happened. Although among civilized nations the process is usually more difficult and painful, yet even here nature performs her task almost unaided in the vast majority of cases, with safety to both mother and child.

Preparation for Child-birth.—It is always advisable to make early arrangements for the attendance of a doctor and monthly nurse or a midwife. (For probable date of labour and for common ailments of pregnancy *see* Pregnancy; *see also* Doctor; Monthly Nurse.)

The lying-in room should be quiet, airy, and well ventilated, removed from all refuse and bad smells. It is particularly important that the drainage should be satisfactory, as otherwise puerperal fever may attack the mother. When scarlatina is about, it is well to remove into an unaffected neighbourhood; none who suffer from any bone disease, or from bad ulcers or erysipelas, should be in the house. There should be a fire, even in warm weather, as this improves the ventilation; and it is well to see beforehand that it will burn without smoking. The room may be kept at a

temperature of about 60°. All superfluous *furniture* and clothing should be removed. The bed should be of a convenient height, without curtains, and accessible from both sides, or at all events from the right side. It should have a firm mattress and no feather bed. A piece of mackintosh sheeting should be put over the lower half, covered by a sheet folded double and another spread-out sheet. These, which will remain after labour is over, should be covered with another piece of mackintosh, a folded blanket, and a folded sheet over the lower half of the bed; all to be removed after the confinement. When mackintosh sheeting is not available, American cloth or gutta-percha tissue may be substituted. There should be an easy chair in the room, a night-stool and bed-pan, several jugs and basins, and a bath for the baby. Hot and cold water should be provided, plenty of towels and napkins, some clean unused sponges, and clean linen rags. The latter should be burnt after being used. A few absorbent medicated pads, or "sanitettes," are convenient for use after delivery instead of napkins. A lubricant must be provided, either carbolised vaseline, boric ointment, or sanitas ointment. (*See* OINTMENTS.) Antiseptic solution will be useful, either 1 in 40 carbolic acid, boracic acid (*lotion* No. 15), 1 in 3,000 corrosive sublimate, or sanitas solution (*lotion* No. 17). Brandy should be at hand in case of need, with drinking water, smelling salts, and a fan, and a few cups, spoons, and glasses. The medical man usually brings with him laudanum, ergot, and other necessary medicines.

For the baby, a flannel "receiver," the usual clothing, safety pins, dusting powder, and a feeder will be needful. There should also be four ligatures, six inches long, each consisting of four plies of stout linen thread, and a sharp pair of blunt-ended scissors. In addition to these, two thermometers (bathing and clinical) and a Higginson's enema-syringe should be provided.

PREPARATION OF THE MOTHER.—The bowels should be cleared out the day before with a dose of castor oil, or, if this has been neglected, with an enema. This precaution will prevent delay and discomfort. The bladder should also be relieved from time to time during labour. If there is any difficulty in this respect, it may be necessary to have a catheter passed. No false modesty should prevent the mother from obtaining assistance in these and similar matters. The *dress* should consist at first of a loose dressing gown: later on this may be exchanged for a clean chemise and night-dress, rolled up to the armpits, and a flannel petticoat without shoulder straps, that can be readily removed. In cold weather warm stockings will be required. To be confined in ordinary dress is nasty, and may be dangerous. Stays give no assistance, and are in the way. A good binder must be provided (*see* BINDER), which may be put on loosely at an early stage outside the night-dress. The mother will at first find it useful to be up and about; but as the labour proceeds, she will have to lie down on her left side on the bed. To be delivered kneeling is dangerous, and other positions are in some respects inconvenient. *Diet* should be light and nourishing, neither starving nor overloading the stomach. If there is sickness, small quantities of cold liquid food will often stay down, and be sufficient to maintain the strength. Stimulants are best avoided, as they increase the tendency to flooding, and lose their effect for emergencies. A cup of tea or broth with extract of meat are far better restoratives. The patient should keep her mind occupied in cheerful conversation, or at all events not dwell upon dangers which may after all never threaten. Strangers, excepting the nurse and doctor, are best excluded; but one other female friend may remain in the room. Mothers should however, as a rule, not be present at the confinement of their daughters. There should be some one else within call to go with messages if necessary.

STAGES OF LABOUR.—The unborn child is usually placed head downwards in the womb, inclosed in a bag of waters, which protect it, and help to stretch the neck of the womb. The head rotates in a complicated way during the progress of labour, adapting itself successively to the

different parts of the mother's pelvis, so that the child is usually born looking directly backwards. Other "presentations" are also met with, so that birth may be effected with the face looking forwards, or breech foremost. These cause more tedious and difficult delivery, and assistance may be required. This is still more the case with cross births, when an arm or a leg presents. The presentation should be ascertained in good time, as in an early stage it can often, if wrong, be rectified by the doctor. During the *first* stage of labour the maternal parts gradually relax, the neck of the womb being dilated by pressure of the bag of waters. During the *second* stage the child is expelled from the womb, and after it is born the after-birth and membranes come away, the womb contracting into a firm ball. The total *duration* of labour is usually from twelve to thirty hours in first confinements, but may be much less or more.

Early Symptoms.—About twenty-four or forty-eight hours before labour begins, the child sinks down lower in the pelvis, so that the mother seems to be smaller about the waist, and feels lighter and can breathe with more comfort. At the same time, the bladder and lower bowel being pressed upon, are apt to be irritable. If tenesmus is troublesome, an injection of gruel with 20 drops of laudanum will be useful. The chief sign of commencing labour is the appearance of regular twinges of pain in the womb, back, hips, and thighs. Similar pains may occur for some time, even as much as a fortnight, before labour; but these are irregular and comparatively slight, so that they go by the name of "false pains." These may be excited by costiveness, flatulence, fatigue, and other slight causes. If troublesome, they may be stilled by a dose of *Pr.* 7 with 15 minims of laudanum, repeated if necessary after three hours. When the pains begin to be regular, there is usually a discharge of mucus tinged with blood ("a show"); shivering, nausea, and vomiting are also common. For the shivering, warm tea, beef-tea, or gruel may be given. The vomiting is seldom dangerous. If cramp is troublesome, it may be relieved by rubbing with warm camphorated oil. The first stage of labour usually lasts from six to twelve hours, but great variations are met with. In the *second stage*, the pains become bearing down, so that there is an instinctive tendency to hold the breath, and actively assist the pains. At this stage it is well to send for the doctor, to make sure that the presentation is natural. Up to this time the patient has kept for the most part up and about, but now she will do well to lie down. When the doctor is about to make an examination, she should lie down on her left side, with the knees moderately bent, the feet against the foot of the bed, and the buttocks close to the edge of the bed. A blanket may be thrown over head and shoulders, and the room darkened, so that there may be less shock to the feelings of the patient. The examination is made when a pain is coming on. When it has been ascertained that the labour is progressing naturally, there is no advantage in making frequent examinations. The woman will be able to help the progress by pushing her feet against the foot of the bed, and by pulling a towel attached to the same place; and the nurse may give some comfort by pressing on the back of the patient. After a while the bag of waters bursts, or is scratched through by the doctor's finger. Pains come on at shorter intervals and last longer, and in time the head appears at the external orifice. During this time the nurse should support the right knee, which is uppermost. When the head is born, the doctor has to see that the navel cord is not twisted round the child's neck, and to slip it over if necessary. The mouth and nostrils of the child must be carefully freed from mucus. After a short pause the body follows, and the cries of the child reassure the mother that all is right with it. The navel cord has now to be tied about three fingers' breadth from the child's body, and again an inch farther on, and cut between. The child can now be placed in the receiver in a moderately warm place, and if the cord has been securely tied so that there is no oozing, it may be left for a moment. (*See* Infancy.)

Care must be taken not to smother it with wraps. If the child does not breathe when it is born, the cord should not be immediately tied, but cold water dashed on to its face and chest, and artificial respiration performed. (*See* DROWNING.) The nose and mouth should be carefully freed from mucus. Inflation with the breath is sometimes practised. Children half suffocated in birth have been recovered, even after half an hour's persistent artificial respiration. Directly the child is born, the binder should be readjusted and tightened round the mother's abdomen, a thick pad being placed low down below the navel. If there is a second child, it is usually born soon after the first. The after-birth and membranes usually come away after a short pause, during which the mother should be left quiet, with a warm dry napkin next the person. The womb should by this time be contracted into a firm hard ball. If this is not the case, and the pulse is over 100, or the mother feels very faint and complains of continuous pain in the back, there is danger of flooding (*which see*). Very often the after-birth comes away without assistance, and can be removed with the membranes by twisting the latter into a rope. At times however it has to be squeezed out by pressing on the womb from the abdomen. The cord should never under any circumstances be pulled upon; such treatment may cause serious accidents. The after-birth should be kept for inspection. If any piece is left behind, it may decompose and set up fever. When it has come away the mother should be left quite quiet without changing the dress, merely applying to her a dry folded napkin or absorbent pad, and tightening the binder. She should however not be left alone, for fear of accidents. A little extra covering is usually grateful. Should all go well, a cupful of gruel may be given in half an hour, and the dress changed and bed arranged about an hour after the birth, when the mother will probably drop off to sleep. Where a doctor cannot be obtained to assist in child-birth, everything necessarily devolves upon the nurse or midwife. Here the main point to remember is, that too much interference is mischievous, and that while the child is being born it should not be pulled, but merely supported; and above all, the after-birth should never be pulled out by the navel cord.

ABNORMAL LABOURS.—When there is deformity or contraction of the pelvis, or the mother has suffered in early life from rickets, there may be difficulty in delivery. Lingering confinements from whatever cause usually call for the use of instruments, which prevent exhaustion of the mother and diminish the risks to the child. In first confinements however it is well not to interfere too soon. Heart disease, tendency to epilepsy, or Bright's disease greatly increase the risks of delivery. If there has been one abnormal confinement, subsequent ones are apt to be so too. The chief dangers are those of wrong presentations, adhesions of the after-birth, convulsions, or flooding. ANÆSTHETICS DURING LABOUR are not universally applicable. The amount of pain experienced during child-birth varies enormously. Very often there is little suffering.

COURSE AFTER DELIVERY.—When the mother wakes from her sleep, she should be supplied with some light, nourishing food. Milk, beef-tea, gruel, milk puddings, and the like are all suitable; but stimulants are best avoided. It is a mistake to starve the patient, and as much may be given as she feels inclined to take. It should be ascertained that she can relieve her bladder; if not, a catheter must be passed. The infant should about the same time be put to the breast, as this stimulates the secretion of milk and helps the contraction of the womb. The binder must be kept carefully in place, exerting a moderately firm pressure on the womb, which should be felt as a hard ball in the abdomen. (*See* FLOODING.) It gradually regains its natural dimensions during the first fortnight. For some days after delivery there is a *discharge* from the womb. This at first contains clots of blood, and remains tinged with blood for about a week; after that it is greenish, and disappears in about another week. It should be free, but not profuse nor offen-

sive. It may be taken up with absorbent pads ("sanitettes"), or perfectly clean napkins. These should be frequently changed, the parts being each time cleansed by syringing with antiseptic solution. Throughout the lying-in period bathing with plenty of tepid water is serviceable. With the help of a waterproof sheet this can be done in bed. On the third day after delivery the *bowels* should be opened with a dose of castor oil, unless they act without this assistance. After this, a little meat or fish may be added twice a day to the diet. The milk usually is secreted freely about the third day.

Rest and Quiet.—Throughout the month following delivery the mother should be kept very quiet, and not disturbed by visits of friends. She should be kept lying down during the first week, after which she may get on to the sofa, and after ten days sit up a little. Neglect of this rule is a fruitful source of diseases of the womb, and sometimes causes flooding. If the mother is much exhausted with disturbed nights, it will be advisable to let the child sleep with some one else, who will bring it early in the morning to be nursed. The chief *ailments* after delivery are troublesome after-pains, flooding, disorders of the breasts, fever, and convulsions. Occasionally there is also some wandering of the mind. *After-pains* are caused by the contractions of the womb, and should not be checked if moderate in degree. Should they be excessive, a few doses of *Pr.* 7, with 10 drops of laudanum in each dose, may be given. Constant, unintermitting pains soon after delivery may point to flooding. *See* BREASTS; CONVULSIONS; FLOODING; MILK FEVER; PUERPERAL FEVER; PUERPERAL INSANITY; SUCKLING.

Children require plenty of fresh air and sunlight, warm clothing, perfect cleanliness, simple, unstimulating food, regular hours for meals and exercise, and a large allowance of sleep. (*See* ABLUTIONS; BATHS; CLOTHING; EDUCATION; GROWTH; INFANCY; PUBERTY; RECREATION; SLEEP; and following articles.)

CHILDREN'S AILMENTS.—Very slight causes are sufficient in children to cause considerable disturbance of the health; fever readily appears, and presents great fluctuations. Convulsions are common, and may replace shivering fits in adults. Disorders of the digestive organs rapidly affect the general health, since the body has, not only to be maintained, but also built up. As the body area as compared with the body weight is larger than in adults, children readily lose heat; they are also especially liable to inflammations of the respiratory and digestive passages. Profuse perspiration is not common, but the skin is sensitive, and readily becomes diseased. Teething and its complications are naturally almost peculiar to children; and infectious fevers far more common than in later life. The chief diseases of children are described under the heads of BRAIN FEVER; BRAIN, WATER IN THE; BRONCHITIS; CONVULSIONS; CROUP; DIARRHŒA; ECZEMA; INFANTILE PARALYSIS; INFECTIOUS FEVERS; OPHTHALMIA; PLEURISY; PNEUMONIA; TEETHING. *See also* INFANCY.

CHILDREN'S DIET. (*See* INFANT FEEDING; WEANING.)—Up to the end of the first year of life the food for children should consist of milk or some suitable milk food. At twelve months a light milk or custard pudding may be given at the midday meal, with beef-tea or carefully skimmed broth. At fifteen months bread and milk or bread and gravy may be added to the dietary. Up to eighteen months from $1\frac{1}{2}$ to 2 pints of milk should be taken daily. After this period a little mashed potato with gravy may be given at midday, and some of the other more digestible vegetables or ripe stewed fruit added to the list. *At two years*, four meals a day should be given: a breakfast of bread and milk, or porridge and milk, or a lightly boiled egg; a dinner of tenderly cooked meat, fish, or chicken, with mashed potatoes and a milk pudding. At tea time, bread and butter with fruit-jelly or treacle, and milk or cocoa; and at supper bread and milk or porridge. In young children, raw fruit, nuts, uncooked vegetables, raisins, currants, caraway seeds, cocoa-nut, cakes, pastry, cheese, buttered toast, or tea-cakes, must all be avoided. All highly spiced or seasoned dishes are objectionable, and the practice

of giving mouthfuls of such unsuitable food from the parents' dinner-table is productive of many digestive troubles. Alcohol, tea, and coffee should also not be given. Sweets of a wholesome kind are not objectionable in reasonable quantities after a meal, but should be prohibited, together with all other food, in the intervals. Of vegetables, cauliflower, vegetable marrow, soft young peas, and mashed carrots are most suitable. Sponge-cake and plain biscuits may be given occasionally; and lightly boiled paste puddings are also allowable. *After six or seven years*, meat will be needed twice a day, unless much milk is still taken. Children should have their meals regularly, and at comparatively short intervals, as they are unable to bear long fasting with impunity. They require a larger proportion of nitrogenous food than adults. They should be taught to thoroughly chew their food, eat slowly, and drink chiefly towards the end of a meal. A child of ten years old will require half as much food as an adult; at thirteen or fourteen about as much as when grown up. Some children have an aversion to the fat of meat. Here it will be necessary to supply them with fat in some other form. Butter may be added to milk puddings, or treacle puddings made with plenty of suet. The bones of roast sirloin and other joints may be cracked and stewed with rice. Such children will often eat bacon fat with bread crumbs or floury potato, and should have their bread and butter cut thin, with the butter well rubbed in. Jam, although useful for other reasons, is not a true substitute for butter.

Chilies. *See* PEPPER.

Chill. *See* COLD, EFFECTS OF.

Chimney.—This is intended in the first place to carry off the fumes and smoke of the fire, but is also an important means of ventilation. Whenever the air in the chimney is warmer than that of out of doors, a current is produced up the chimney. This is further aided by the aspirating action of the wind playing over the top. (*See* VENTILATION; WIND.) In this country a chimney with an ordinary fire provides outlet for impure air sufficient for four or five persons. In summer time, when the air in the room and chimney is cooler than that out of doors, the current will often be downwards into the room. Chimneys should always be left open, winter and summer, and their lower ends left free of obstructions. A room without a chimney is not fit for habitation unless special ventilation is provided to replace it. Chimneys in olden times were made with large lower openings capable of accommodating seats for several people. Now-a-days the ends are narrowed, so as to increase the draught and diminish the loss of heat. Such narrowing should not be more than half the diameter of the chimney, nor should it be sudden. All sudden alterations in the size or shape of the chimney, or irregularity in the walls, are apt to check the current of air. The efficiency of a chimney depends on its height; the taller the chimney (within certain limits) the more powerful the draught. The chimney-pot should not be near higher buildings, as a down draught may be produced. A smoky chimney may sometimes be cured by raising the top or providing it with a cowl; but as a rule the cause of smoking is inefficient ventilation of the room, leading to a double current in the chimney. Provide more inlets for fresh air, and the smokiness disappears. (*See also* STOVES.) The ventilation of rooms is sometimes improved by providing valves for exit of foul air into the chimney or into a second flue alongside of it. *See* VENTILATION.

Chimney Sweep. *See* OCCUPATION.

Chin Cough. *See* WHOOPING COUGH.

Chiretta.—The dried plant of *Ophelia chirata* from Northern India; a bitter tonic, with properties like gentian. *See* BITTER TONICS.

Chloralum.—Chloride of aluminium, recommended by Wanklyn for removing bad smells, and disinfecting clothing, rooms, drains, and excreta. For the latter 1 lb. to a gallon is a suitable strength. *See* DISINFECTANTS.

Chloral Hydrate.—A white, crystalline substance, with sweetish smell and bitter, burning taste; introduced by Prof. Liebreich as a substitute for chloro-

form, but chiefly used for the relief of pain or sleeplessness. Like all drugs of the same class, it is not suitable for indiscriminate and habitual use. Valuable as an occasional remedy in suitable cases, it may cause grave discomfort or sudden death if an overdose be taken, or the heart or lungs be unsound. If taken habitually, it may upset the digestion, and cause nettle-rash, nervous irritability, low spirits, or even insanity. It should therefore only be taken under medical advice. It usually induces sleep within about half an hour. The patient should take it at bedtime, and remain quiet afterwards until drowsiness comes on; otherwise it may induce restlessness. Some drowsiness or violent dreaming or delirium may follow the next morning, though as a rule the after effects are slight. Symptoms of an overdose are faintness, giddiness, and sickness, with feeble pulse and heart action.

TREATMENT OF POISONING.—Send for a doctor, stating what is the matter; meanwhile give an emetic (*Pr.* 27, 28). Keep warm and constantly moving about. After the patient has vomited, give *Pr.* 4 or 5. Artificial respiration may be useful if the breathing is shallow. For this, *see under* DROWNING.

Chloral and Camphor rubbed together in equal parts form a syrupy liquid, useful as an external application in neuralgia. One part of this syrup with 4 parts of simple ointment relieves itching of skin diseases.

Chloric Ether. *See* CHLOROFORM.

Chlorides are compounds of a metal with chlorine: *e.g.* common salt is chloride of sodium. *See* CALCIUM; SAL AMMONIAC.

Chlorinated Lime or *chloride of lime*, is made by passing chlorine gas over slaked lime, which then goes familiarly by the name of bleaching powder. Acids (including the carbonic acid of the air) cause it to give off chlorine gas. This is an elementary gas of greenish-yellow colour, with choking smell and great bleaching power. Chlorinated lime may be exposed in saucers in the sick-room, or sprinkled upon excreta. To disinfect empty rooms, it may be mixed with rather more than an equal bulk of commercial hydrochloric or sulphuric acids diluted with water. Solution of chlorinated lime, containing 1 lb. to a gallon of water, may also be used as a disinfectant for excreta.

Chlorinated Soda (*Labarraque's disinfectant*) is formed, like the foregoing, by passing chlorine gas through a solution of carbonate of soda. It is very useful as a stimulating lotion for wounds.

Chlorine Water.—A weak solution of the gas (*see* CHLORINATED LIME) is used as a lotion in foul-smelling ulcers and in irritating skin diseases; as a gargle in ulcerated sore throat; and to form an inhalation in offensive expectoration.

Chlorodyne.—A secret preparation, said to contain chloroform, morphine, prussic acid, and other drugs. The compound tincture of chloroform and morphine of the B.P. is an imitation of the secret remedy. It is a very powerful medicine, used chiefly for the relief of pain and spasm. The dose is 5 to 10 minims in a little water; but it is not very suitable for domestic use. *See* OPIUM.

Chloroform.—A compound of carbon, hydrogen, and chlorine, formed by the action of chlorinated lime upon alcohol. It is a colourless, volatile, heavy liquid, with sweet taste and fruity smell. It was introduced as an anæsthetic by Sir J. Y. Simpson in 1835; and is also taken internally in small doses for relief of pain and spasm, flatulence, griping, and cough. Overdoses cause death from stoppage of the heart or breathing. What is a safe dose for one person may be an overdose for another. The liniment can be safely used. *See* ANÆSTHETICS; LINIMENTS; CHLORODYNE; and *Pr.* 30, 40, 43, 49.

Chlorosis, *Green Sickness*. *See* BLOOD, POORNESS OF.

Chocolate. *See* COCOA.

Choke Damp. *See* CARBONIC ACID GAS.

Choking from large mouthfuls of food, or marbles, coins, etc., accidentally swallowed, may happen in one of two ways. If the substance enters the larynx, or "goes the wrong way," violent coughing is excited. If it passes into the gullet or œsophagus, a feeling of suffocation follows, but not necessarily any cough. In such a case, it may sometimes be dis-

lodged by putting the finger down the throat so as to excite vomiting. Should this fail, a surgeon will be required. When fish-bones, pins, or other small pointed bodies stick in the throat, fluids should not be given, but a dry diet, consisting of bread, thick porridge, or pudding, which will frequently carry the offending object safely through the body. The sensation as of a foreign body will frequently remain after the article has been dislodged, until the scratches in the lining membrane have healed.

Cholagogues.—Substances which cause expulsion of bile from the body. Bile is excreted by the liver, but passing into the bowel is to a large extent reabsorbed and carried back to the liver. Cholagogues either increase the amount of bile excreted, or prevent its reabsorption by hurrying it along the bowel. The following drugs act in both of these ways: aloes, colocynth, jalap, podophyllin, rhubarb, sulphate of potassium, sulphate and phosphate of sodium, and mercurials. Ipecacuanha, iridin, and euonymin also increase the excretion of bile. *See* Bilious Attacks; Liver Pills and Powders.

Cholera.—A disease characterized by vomiting, purging, cramps, and collapse, always present to some extent in parts of British India, and spreading from time to time into temperate regions by epidemics. Europe and America were visited by it about the years 1830, 1848, 1854, and 1865. An epidemic seldom lasts a twelvemonth in temperate climates, or more than three years in hot countries, where it is most deadly in the first year and in hot weather, and gradually declines in the two following years. The disease attacks all ages, the strong as well as the delicate, either suddenly or after more or less diarrhœa of an ordinary kind. Those who live in dirty, ill-ventilated rooms, and low-lying neighbourhoods where the drainage is defective, are especially liable to suffer from cholera; but the chief source of infection is through contaminated drinking water or milk. One attack does not protect against another.

Symptoms.—The disease may begin suddenly with vomiting and purging, or be preceded by nausea and oppression, overpowering lassitude, and an anxious expression. At first the rejected substances consist of the contents of stomach and bowels, more or less bile-stained; later on, the evacuations are pale, watery, and offensive, resembling rice-water or thin gruel in appearance, containing white, flocculent matter, or gelatinous masses. The diarrhœa is at first painless, but may become associated with painful colic, from over-distension of the bowels. Sooner or later the patient suffers from severe pain at the pit of the stomach, cramps in the limbs, and oppression on the chest, and passes into a state of collapse, with pinched and altered features, intense thirst, cold tongue and breath, husky voice, and clammy, cold skin. During this stage the urine is often suppressed, and the vomiting and purging may cease. If death does not carry off the sufferer, reaction sets in after a while, with symptoms of fever. One of the earliest signs of improvement is the reappearance of bile in the vomited matter and motions. In the early part of an epidemic, as many as four out of every five attacked may die; later on many more recover. Very severe attacks may cause fatal collapse, without any vomiting or purging.

Prevention.—If possible, avoid places where cholera is raging, and live in a well-elevated spot, with good sanitary arrangements. Remove, disinfect, or destroy all refuse, see that drains and sewers are in order, and flush them out periodically with green vitriol (*sulphate of iron*), 1 oz. to a pint of water. Boil all milk; boil and filter drinking-water; avoid food which is indigestible or ready to decompose. Be careful not to overfatigue yourself, avoid the unnecessary use of purgatives, and do not neglect diarrhœa, however slight. For this, *Pr.* 25 may be useful. In India soldiers have to report themselves if they visit the closet more than once a day. It has been clearly shown that the matters ejected from the stomach and bowels of a cholera patient speedily become the source of infection to others, unless carefully disinfected. Through these discharges drinking-water, clothes, rags,

and other things may become dangerous. In the London epidemic of 1854, two different water companies supplied different parts of the same street, and houses supplied by one company with Thames water from Battersea suffered severely, while those supplied with purer water from higher up the stream were little affected. Cholera patients infect the atmosphere only where ventilation is defective, and the freshly ejected matters are not infectious, so that with suitable precautions there is little danger in nursing the sick. Disinfectants should be used in the sick-room in the usual manner. (*See* DISINFECTION.) All rags used to sop up discharges of any kind, should be burnt, and the motions, etc., received into vessels containing disinfectants, and sprinkled with a little more. No infectious matter should ever be poured into a cesspool during a cholera epidemic. If poured into the sewers, it should be first thoroughly disinfected for an hour or more. Where water-cleansed sewers do not exist, it is best to bury the disinfected matters deep in the ground, away from all wells or dwellings. If a death occurs, the body should be at once put into a coffin with a mixture of lime, charcoal, and carbolic acid, and buried within twenty-four hours. Vexatious quarantine regulations exist in some countries with regard to cholera. These are perfectly useless, and indeed often do more harm than good. It is however important that cargoes of rags, etc., from infected districts should be thoroughly disinfected on landing, and sick people treated without delay. *See* DISINFECTION; DISINFECTANTS.

TREATMENT.—During the early stage, the main indication is to get rid of the poisonous contents of the bowels. A tablespoonful of castor oil should be taken on orange juice or lemon juice and water, or in form of emulsion. (*See* CASTOR OIL.) Should it be vomited, repeat the dose immediately, let the patient lie still, and avoid taking any other liquid for half an hour. Should castor-oil be unavailable, a tablespoonful of tincture of rhubarb, or a teaspoonful of Gregory's powder, or 10 to 15 grains of powdered rhubarb may be substituted. When the medicine has acted freely, and there is no cramp or oppression, a tablespoonful of brandy may be given in the arrow-root or gruel. If there is vomiting, copious draughts of tepid water should be given. The diarrhœa and vomiting are an effort of nature to get rid of the cholera poison, and should therefore not be checked by opiates. Excessive vomiting may be controlled by small draughts of iced water at short intervals. If thirst is urgent, give pure cold water acidulated with lemon juice, or a few drops of dilute sulphuric acid, or small pieces of ice to suck. So long as vomiting continues, the patient is better without food; and as long as diarrhœa continues, the patient should keep in bed and take no food but milk, rice, or arrow-root, gruel, broth, or beef-tea. Cramps in the legs are best relieved by friction or hot packing. Hot bottles to the feet will be useful. During the *stage of collapse*, food, alcohol, and especially opium, must be carefully avoided. If the diarrhœa ceases, another dose of castor-oil should be given. Plenty of cold water (not iced) may be given in small quantities at a time. Diffusible stimulants (*Pr.* 4, a dose every hour, or 5 minims of strong spirits of camphor on sugar every $\frac{1}{4}$ hour) are useful. The foregoing directions have been given chiefly because it is not always possible to obtain medical assistance at once, and much may be gained by suitable early treatment. Apparently moribund patients have been sometimes revived by blood-letting, or the injection into the veins of hot saline fluids at 110° F. This, together with the medicinal treatment of the *stage of reaction*, must be left in the hands of a competent doctor. The diet will be as in fever (DIET, II.). If the stomach remains irritable, nutrient enemas must be given. (*See* ENEMAS, NUTRIENT.)

The foregoing directions have been based on those advocated by Dr. Johnson. Many authorities disagree with him, and condemn the use of aperients, while they regard opium as a valuable remedy for the disease.

Choleraic Diarrhœa. — Summer diarrhœa, or British cholera, resembles cho-

lera, but is milder, and is stated not to be infectious. It is common in hot, damp seasons of the year, and at all seasons in India. Bad water and decomposing animal food are probably among its chief causes. It seldom proves fatal, excepting to infants, or to older people who have been much reduced by other diseases. The best TREATMENT in the case of infants is to give no food for several hours, but as much ice to suck or iced water to drink as the child cares to take. A large poultice of equal parts of mustard and flour may be applied to the abdomen, and if there is much collapse 1 minim of strong spirits of camphor in milk every ½ hour, until there is improvement. In an adult, the treatment should be similar, the medicine being given in larger doses. If there is suspicion of malaria, quinine will be useful (*Pr.* 25, 39). *See also* CHOLERA.

Chorea, or *St. Vitus' Dance*, resembles an exaggerated state of the "fidgets." It usually appears first in children from six to fifteen years of age, but is occasionally seen in much older people. In degree it varies from slight and scarcely noticeable unsteadiness or twitching of hands or face, to violent jerkings of all parts of the body, throwing the sufferer out of bed, and causing bedsores by the incessant movements. In such extreme cases death may happen from exhaustion and loss of sleep. Attacks of ordinary severity are however by no means so serious, and are nearly always recovered from. In such cases the child is perpetually making meaningless grimaces; the tongue cannot be steadily protruded, but is jerked in and out of the mouth; swallowing may be difficult, owing to convulsive movements of the throat-muscles; the hand, if extended, is unsteady, fingers being independently moved about against the will of the child; and anything taken up is liable to be dropped. The trunk and lower limbs are also unsteady, causing an uncertain gait. With regard to the *causes* of this singular complaint, it is often associated with rheumatic tendency, so that those who have had rheumatic fever are more liable to chorea, and *vice versâ*. Probably for the same reason heart disease is common, and may be discovered on examination with the stethoscope. The complaint may be excited by cutting of the permanent set of teeth. It sometimes follows overwork at school, especially when the work is distasteful and unsuited to the child's age, or the hours are injudicious. (*See* EDUCATION.) It is more common in girls than in boys. It appears to be transmissible by imitation, one child catching the tricks from another. In the Middle Ages there were formidable epidemics of the disorder, in which whole multitudes of men, women, and children went about, making the wildest contortions. In one famous epidemic at Strassburg, in 1418, the sufferers made a pilgrimage to the shrine of St. Vitus, whence the popular name of the disease.

TREATMENT.—Rest, fresh air, good food, and drilling exercises or rhythmical movements, executed to suitable music, are valuable means of curing this disease. In the Middle Ages a similar disorder, attributed to the bite of a kind of spider (*tarantula*), was said to be cured by a particular kind of dance. Several drugs (notably arsenic) also appear to be of use; but these are best left in medical hands. Severe attacks will require much medical skill and ingenuity to bring them to a successful termination.

Chromic Acid and the chromates of potash are violent poisons. Chromic acid forms beautiful crimson crystals; it is used as a caustic. Chromate of potassium is sold as yellow transparent prisms; the bichromate as orange-red four-sided tablets. Both are occasionally used as disinfectants (*see* CUPRALUM), but they are by no means cheap, and produce a yellow stain. In poisoning, treat as for CORROSIVE POISONS or IRRITANT POISONS, according to the degree of concentration.

Chronic diseases. *See* ACUTE.

Chyle.—A milk-like fluid contained in the lacteals during digestion, and conveyed by them to the thoracic duct. It consists of lymph, together with fatty particles and other food products absorbed from the bowel. The same term is also sometimes applied to the contents of the small bowel during digestion. *See* LYMPH; LACTEALS; ABSORBENTS.

Chyme.—The thick, gray, acid fluid into which food is converted during digestion in the stomach.

Cicatrix.—A scar.

Cicatrization.—Scarring. *See* WOUNDS, HEALING OF.

Cider.—A fermented drink made from the juice of apples. It contains from five to nine per cent. of alcohol, and is used in some parts of the country instead of beer. Opinions differ as to its wholesomeness. Probably much depends upon the quality. Devonshire colic (lead colic) has been traced to the use of cider made in leaden presses. *See* LEAD POISONING.

Cimicifuga or *Actæa*, black snake-root (from U.S.A.). The rootstock is used in preparing a tincture and a liquid extract. This drug is chiefly used for the relief of chronic rheumatism and uterine complaints. It appears to strengthen the heart, and is useful in bronchitis. Large doses cause nausea, vomiting, depression, headache, and giddiness. Five minims of the tincture may be given in water every two or three hours.

Cinchona Bark, or *Jesuit's bark*, the great specific for ague, is derived from several nearly related trees, natives of the Andes of South America, but acclimatized in India. Its virtues depend chiefly upon quinine and other alkaloids which it contains. *Quinine* forms beautiful silky, needleshaped crystals with a bitter taste, and dissolves readily in water on addition of a little acid. Cinchona and quinine are not only used as remedies for ague and other malarious disorders, such as "brow-ague," but are valuable in fever and debility of various kinds. Ammonia and "bark" is a favourite and often successful prescription in convalescence from acute illness (*Pr.* 6). Another mode of combining tonic with stimulant is to steep an ounce of powdered bark in a bottle of good port wine for a week, and give a small wine glassful every day with the chief meal. A decoction of bark may be made with an ounce of powdered bark and two pints of water, boiled down to one pint. An infusion may be made by pouring a pint of boiling water over one ounce of bark, and leaving it covered over for two hours near a fire. Dose of these, a small wineglassful. For other prescriptions, *see Pr.* 37, 38, 39. These remedies cannot safely be given when the digestive organs are irritable. An overdose causes headache, deafness, singing in the ears, giddiness, and confusion of sight.

Cinnabar.—Sulphide of mercury, when purified called vermilion. It is poisonous, like most mercurial compounds.

Cinnamon is obtained from the inner bark of a tree growing in Ceylon and the Indian Archipelago. It is a stimulant slightly astringent aromatic, given as a remedy for flatulence, and to prevent griping of aperients (*Pr.* 24, 25). It yields a volatile oil. Chief preparations:

Cinnamon water (dose, 1 to 2 fl. ozs.); *tincture* (dose, ½ to 1 fl. dr.); *spirits* of cinnamon (dose ½ to 1 fl. dr.).

Compound Cinnamon Powder, equal parts of cinnamon, cardamoms, and ginger (dose, 10 to 30 grs.). A somewhat similar preparation in the U.S. Pharmacopœia is called aromatic powder. *See* DIARRHŒA; CARMINATIVES; APERIENTS.

Circulation of the blood, first discovered by William Harvey (1616–1619). Before his time the veins alone were considered to be true blood-vessels, the arteries being regarded as conduits of "vital spirits," mixed accidentally with a little blood. The liver was regarded as the source of all the veins, and the heart merely as a temporary cistern dilated with blood drawn into it by movements of respiration. The blood was supposed to pass backwards and forwards through the veins in a tide-like manner. Harvey showed by observations and experiments that the blood travels continually in a circle through the heart and vessels, being forced into the arteries by the heart's contraction, and returning through the veins. Until his time the dark blood in the right side of the heart was supposed to mix with the brighter blood in the left side by passing through the wall between the two ventricles. When Vesalius showed that this wall is solid, Servetus suggested that the blood passed through the lungs, and Harvey supported the same view. The final link in the chain was completed when Malpighi, in 1661,

showed with the microscope that blood passes through the capillaries from the arteries to the veins. The circulation from the right to the left side of the heart through the lungs is often termed the lesser or pulmonic circulation, that through the body from left to right side of the heart, the greater or systemic circulation (*fig.* 19). *See* Blood-vessels; Heart; Pulse.

Circulation of Lymph.—The tissues of the body are bathed in fluid, which oozes out through the coats of the small blood-vessels into the "lymphatic spaces." From these arise small lymphatic vessels, which form networks, and are finally gathered up into two large trunks, the right lymphatic duct and the thoracic duct. These discharge their contents into the large veins at the root of the neck, so that the lymph again enters the blood-vessels whence it came. The circulation of lymph is maintained partly by the suction exerted by the flow of blood, partly by breathing and other movements. *See* Absorbents; Serous Membranes.

Circulation, Feeble, shows itself by cold feet and hands, blue lips, and a tendency to giddiness, faintness, or swelling of the feet. It may be due to heart disease, or to debility, or old age. A similar condition may arise where the work of the heart is increased by disease of the lungs or of bloodvessels in other parts of the body. Where the heart and vessels are sound, the chief means of remedying this unpleasant ailment is regular active exercise in the open air short of over-fatigue. Flannel should be worn, and tight clothing avoided. Diet should be easily digestible, with a full proportion of starchy and fatty

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matters. In the aged and bedridden, circulation may be assisted by applying hot bottles to the feet, and rubbing the limbs with camphorated oil, always finishing with friction upwards towards the heart. The position should be regularly changed, as otherwise bedsores may

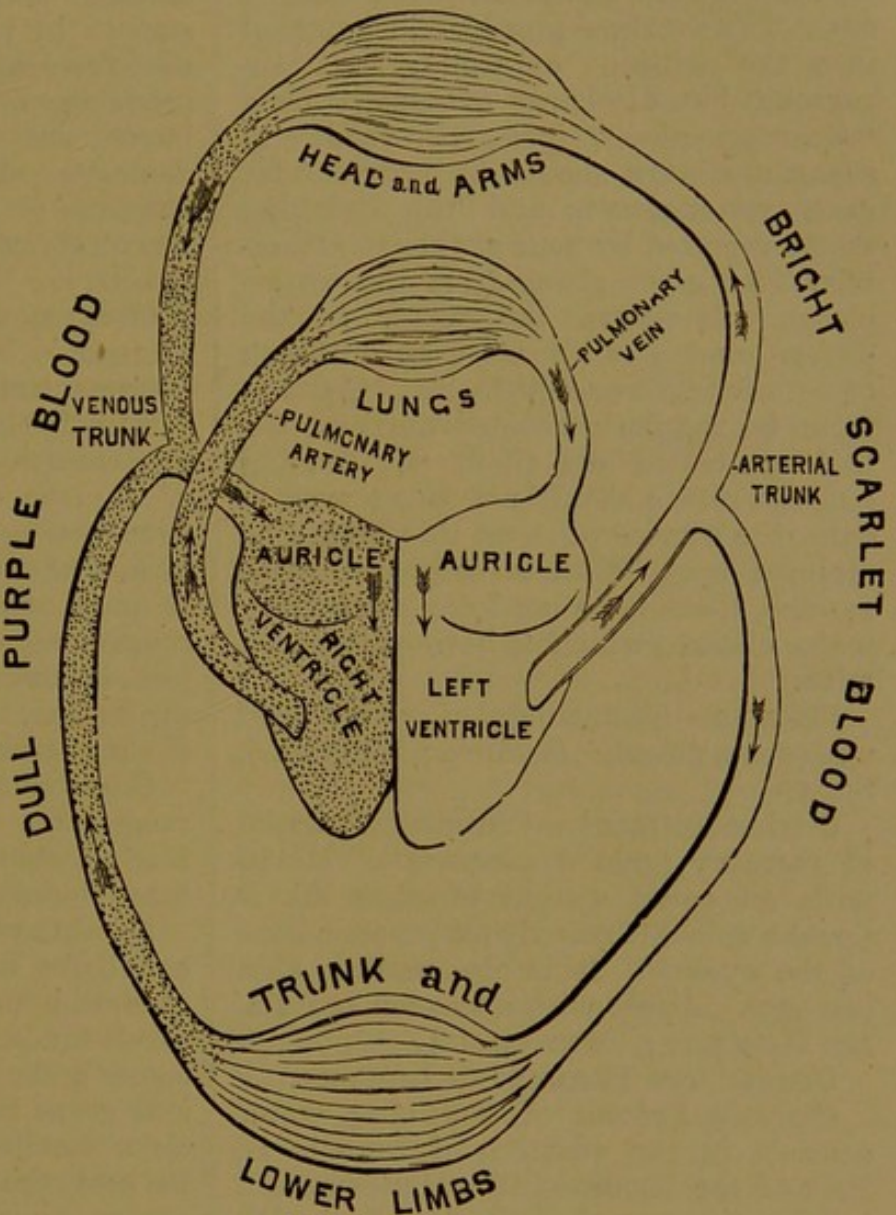

FIG. 19. DIAGRAM OF THE CIRCULATION OF BLOOD.

form on compressed parts of the body. Tonics are often necessary (*Pr.* 6, 34, 35, 36, 37, 38, 40). *See* Heart Disease.

Circumcision.—Removal of the foreskin or prepuce. This is a highly desirable operation where the foreskin is unnaturally long, tight, or adherent, and may prevent the occurrence of bedwetting and some more serious disorders. If done in infancy, there is little difficulty or danger.

Cirrhosis.—A disease affecting the

liver and other organs, in which fibrous tissue is formed at the expense of more important structures.

Cisterns are best made of slate set in good cement, or of galvanised iron. They should be placed in an accessible spot for the sake of cleansing; covered with a good lid, and periodically cleaned out. The overflow pipe should not lead into the soil-pipe or water-closet apparatus, but discharge externally by a "warning pipe" into the yard. A separate cistern should be provided for each water-closet, and the drinking water supplied by none of these. Otherwise foul gases rising from the water-closet will poison the water in the cistern, and possibly cause an outbreak of enteric fever or diphtheria. Cisterns must be regularly cleaned out, and the ball taps tested and oiled. In cleaning out, the refuse should not be allowed to enter the service pipe, as this might be stopped up. With a constant water service, there is no need for a drinking-water cistern, which is better dispensed with.

Citrates.—Compounds of citric acid with some metal. *See* IRON; MAGNESIA; SODA.

Citrine Ointment.—Ointment of nitrate of mercury (*golden ointment*). Mixed with an equal weight of olive oil, it forms a valuable remedy for inflammation of the eyelids. It is also used in skin diseases. Apply with a wooden spatula. *See* MERCURY; OPHTHALMIA.

Claret. *See* FERMENTED LIQUORS.

Clarke's Process of softening water consists in the addition of lime to it. Part of the hardness of water is caused by the presence of chalk dissolved with the aid of carbonic acid gas. Lime water, or "milk of lime," added to such water unites with the gas to form chalk, and both this and the original chalk fall to the bottom.

Clarke's Soap Test for hardness of water is performed by shaking up a solution of soap of known strength with the water to be tested. Soft water forms a lather at once with soap. In hard water none forms until all the lime salts have been neutralized by the soap. Hence the amount of solution used shows the amount of hardness. Every grain of chalk uses up eight or nine grains of soap. Each grain of chalk per gallon corresponds with one degree of hardness. *See* WATER.

Cleanliness is all-important to health. Dirt consists largely of dead organic matter, which yields poisonous substances by its decomposition, and moreover furnishes a suitable soil for disease-producing bacteria. For *personal* cleanliness, *see* ABLUTION, BATHING: for *domestic* cleanliness, *see* BEDS AND BEDDING; HOUSE-CLEANING; HOUSE DECORATION: and for cleanliness *in the streets*, *see* SCAVENGING.

Clergyman's Sore Throat. *See* SORE THROAT.

Climacteric. *See* CHANGE OF LIFE.

Climate has a remarkable influence over health and disease. The climate of a place depends upon the distance from the equator, the elevation, the influence of neighbouring mountains, lakes, or seas, character of the surrounding country as regards soil, slope, and elevation, cultivation, drainage, and nature of vegetation, the aspect of the place, and the prevailing winds.

Climates are usually divided into hot, temperate, and cold; and, again, into marine, insular, continental, and mountain climates.

Speaking generally, the sea has an equalizing influence over both temperature and moisture, banishing extremes of all kinds, and rendering the summer cooler and the winter warmer. Forests and grass have a similar influence, but on a smaller scale. Large lakes tend to cool the neighbourhood. Mountain chains render one side damper, the other drier. They shelter, but on the other hand may give rise to cold, cutting winds at certain seasons.

High mountain climates are remarkable for the clearness, purity, and lightness of the atmosphere, the warmth of the sun, and the coolness of the air. Some striking cures of consumption have been obtained in such climates. The whole subject however is too large to be discussed here. Further information may be obtained from "The Book of Health" (Cassell & Co.), the "Encyclo-

pædia Britannica" (article, Climate), Dr. Burney Yeo's book on "Climate and Disease," or from vol. iv. of Ziemssen's Cyclopædia. The advice of a competent physician should however if possible be obtained before deciding on a change of climate. *See* SOIL; DAMP; COLD; HEAT; HOUSE, CHOICE OF A; and HEALTH RESORTS.

Closets for clothes, etc., should not be overlooked in disinfecting after fever. Instances are not uncommon where small-pox or scarlatina has been transmitted by clothing left in a forgotten closet or drawer. *See* WATER-CLOSETS; DISINFECTION.

Clothing is used partly for protection, partly for adornment and reasons of modesty. It should be light and evenly distributed, both as to weight and as to pressure, bearing more on bony than on yielding structures, and not interfering with breathing, circulation, or the action of the muscles. It should keep the whole trunk uniformly warm, not overloading one part, while leaving another exposed. The exit of perspiration should not be interfered with, and saturation with moisture should be avoided. It will be easily seen that many fashionable ways of clothing do not conform to these rules. Children, for instance, are frequently thickly clad over the lower part of the chest and abdomen, while the arms, legs, and neck are left bare, thus exposing the lungs to chill. Ladies' low dress is open to the same objection; indeed it has been aptly said that it presents a frigid zone about the neck, and a torrid zone round the waist; and there is often an additional objection on the score of tight lacing.

Out-door costumes in which parts are covered with fur are also not to be recommended, as the body underneath gets overheated, and less protected parts are all the more likely to chill. Gentlemen's costumes which overheat the back and leave the chest exposed, are also objectionable. The use of "chest protectors" which incompletely cover the lungs is strongly to be condemned.

With regard to the *materials* of clothing, those are best which keep the body at an even temperature, and do not interfere with the action of the skin. For under-clothing, wool best fulfils these indications, as (partly owing to the large amount of air it retains) it parts very slowly with its heat, and at the same time steadily takes up moisture from the body and gets rid of it by evaporation. Linen quickly becomes soaked with perspiration, and rapidly cools. This is why it tends to cause chill. Cotton is intermediate in its properties. Silk comes between cotton and wool. The use of woollen combination garments is fortunately coming more and more into fashion. Where more warmth is desired, two layers will be warmer than one, because of the air retained between the two garments. Wool has a further advantage over linen or cotton in that it is less inflammable, smouldering rather than blazing when a spark reaches it. This has frequently saved life in case of accidents. The chief drawback to the use of woollen undergarments is that in some people it irritates the skin. Finely woven woollen materials are less open to this objection than flannel. With very sensitive skins, a thin layer of linen or gauze may be worn underneath the woollen garment. It is a mistake to suppose that wool is unsuited for summer wear. When the skin is acting freely, the danger of chill is all the greater, and the garment, even if thinner, should still be of wool. Chamois leather waistcoats confine the perspiration, and therefore cannot be recommended. Waterproofs, being open to the same objection, should be so constructed as to freely admit air.

The *colour* of an outer garment has some influence on its warmth. Dark-coloured materials absorb more light and heat than light-coloured. Some aniline colours have caused a rash to appear on the skin, owing to their having been prepared with arsenic. Since clothing absorbs impurities from the body, it should be frequently changed, especially that next the skin. Clothes should be hung up at night so as to be thoroughly aired. A dressing-room is convenient for this purpose.

Clotting, or *coagulation*. – Conversion into a soft solid.

Milk clots on entering the stomach; and the character of the clot greatly influences its digestibility. Human milk, mares' and asses' milk clot in fine particles, whereas cows' or goats' milk forms a firm clot. *See* Infant Feeding.

Blood clots when it is shed, and under some circumstances in the vessels of the body. This is of service when a bloodvessel is cut, as it helps to seal the opening. On the other hand, a displaced clot may be carried to the brain and cause paralysis. A similar clotting in muscle is the cause of *post-mortem* rigidity. *See* Death.

Cloves.—The undeveloped flower-buds of a tree growing in the Indian Archipelago. (*See* Aromatics.) Essential oil of cloves is sometimes applied locally to still a toothache.

Clubfoot.—A deformity of the foot sometimes present from birth, sometimes arising later in life from paralysis or contraction of muscles, or from other causes. There are four chief varieties of clubfoot, in one of which the heel is drawn up (horsefoot), in another depressed. In the third kind, the foot is twisted inwards, so that the patient walks on the outer margin of the foot, or even on the back of it. The fourth kind is the reverse to the third, being a sort of exaggerated flat foot, in which the weight of the body is borne on the inner margin of the foot. Clubfoot is often curable by operation or by wearing suitable instruments. When however it is caused by paralysis, such measures can only partially restore the integrity of the foot. *See* Infantile Paralysis.

Clyster. *See* Enema.

Coagulation. *See* Clotting.

Coal Gas. *See* Poisonous Gases.

Coal Tar is obtained by the dry distillation of coal in retorts, during the process of gas-making. From the crude coal tar are obtained carbolic acid, coal naphtha, ammonia, paraffin, and the bases of aniline dyes, fruit essences, etc. Coal tar is not usually taken internally, but several preparations—such as Wright's *liquor carbonis detergens*, coal tar soap, etc.—are used externally in skin diseases. *See* Tar; Carbolic Acid.

Cobra. *See* Bites and Stings.

Cobweb is sometimes applied to arrest bleeding from cuts. It is usually dirty, and therefore not to be recommended. *See* Hæmorrhage.

Cocaine.—An alkaloid obtained from the leaves of the coca plant from South America. It possesses the property of deadening the sensation of parts to which it is applied. (*See* Anæsthetics, Local.) It is also useful as a remedy for sea-sickness. The natives of South America chew the coca leaves to sustain their strength on long journeys, when food is not available. The use of cocaine is not advisable in domestic medicine, as an over-dose produces alarming disturbance of the circulation, and people differ very greatly in their susceptibility to the drug.

Cocculus Indicus.—The fruit of an East Indian shrub, formerly used to adulterate beer, and by poachers to stupefy fish.

Cochineal.—The dried body of a kind of insect which feeds on the cactus in Mexico. It contains a colouring matter (*carmine*), and is used to give an attractive colour to medicines.

Cocoa, or *cacao*, is prepared from the fruit of a tree cultivated in the West Indies and Central America. The fruit consists of a large leathery capsule, containing from twenty-five to thirty seeds; it yields a kind of fat (*cocoa butter*), theobromine, and an aromatic body developed by roasting. *Theobromine* is an alkaloid chemically related to caffeine, and possessing somewhat similar properties. Cocoa Nibs consist of the seeds roughly broken. If boiled in water, a refreshing beverage is formed. The fat which rises to the surface may be removed by skimming. This renders the cocoa more easily digestible. Cocoa is made by grinding seeds and husks to a paste with sugar and starch between hot rollers. There are many varieties, differing chiefly in the proportion of husks used, the amount of fat removed, and of sugar and starch added. The beverage is prepared by mixing the powder with boiling water, and adding sugar and milk to taste. Rock cocoa requires powdering. Cocoa Husks contain all the essentials of the cocoa bean, and form a cheap substitute for cocoa

nibs. CHOCOLATE is made in much the same way as cocoa; but the seeds alone are used, more sugar added, together with vanilla or some other flavouring agent. It is scraped to a powder and prepared like cocoa. All these preparations are both nourishing and stimulating. The following table shows the approximate composition of good cocoa nibs:

Water	5	Tannin	6
Albuminoids ...	12½	Gum	7
Fat	50	Woody Fibre, etc.	18½
Theobromine ...	1		

(Church, *On Food*, slightly altered.)

Cocoa does not hinder digestion in the same way as tea and coffee, and is also far more nourishing. On the other hand, it is less stimulating. Chocolate is apt to disagree with sensitive stomachs, owing to the large proportion of sugar in it.

Cocoa Butter.—A white fat with fragrant smell, forming about half the weight of the cocoa bean. It is not liable to turn rancid, and melts below the heat of the body. It is therefore much used as a basis for suppositories.

Cocoa Nut, the fruit of the cocoa palm, is difficult of digestion. The milk of the fresh fruit is cooling and nourishing.

Codeine.—One of the alkaloids obtained from opium (*which see*).

Cod Liver Oil is well known as a valuable remedy for consumption and other diseases attended with wasting. Being easily absorbed and assimilated, it is often useful where other kinds of fat cannot be taken. It is given with advantage in chronic winter cough, scrofulous diseases, glandular enlargements, tendency to boils and abscesses, and the wasting diseases of young children. It contains chiefly palmitin and olein, with traces of iodides, bile acids, etc. Many different kinds are sold, some pale yellow, some light or dark brown. The pale kinds, which are the best, are made by daily collecting the livers, slicing and exposing to gentle heat. The oil which drains away is filtered, cooled to congeal the more solid fats it contains, and again filtered. Brown oils are prepared with less care, and owe their colour and strong taste to partial decomposition of some of the livers. Cod liver oil should be taken an hour or more after meals, as it then passes quickly through the stomach and is less likely to excite nausea. Some people prefer to take it before lying down at night. The oil may be taken floating on orange or ginger wine, or, better still, on some bitter medium (*Pr.* 1). Care should be taken not to let the oil touch the sides of the glass. Putting a little salt on the tongue before taking the oil, or chewing a little orange peel afterwards, will take the taste away. The oil may also be taken in the form of an emulsion, by adding to it an equal quantity of mucilage and a few drops of oil of lemon and strong solution of ammonia. Or it may be mixed with isinglass, and taken as a jelly. The dose may be from a teaspoonful to a tablespoonful twice a day. If too much is taken, it either upsets the digestion and takes away the appetite, or else passes through the bowels unchanged.

Coffee.—The berry of a shrub cultivated in Arabia, East and West Indies, etc. It contains about one per cent. of caffeine, together with an astringent acid (*caffeo-tannic*), and after roasting, a substance called *caffeon*.

For use as a beverage, an infusion should be made of the strength of one ounce or more to a pint of boiling water. It is a mistake to boil the coffee, as the aroma is thereby lost. The strong infusion may be taken with sugar or a little brandy, or mixed with an equal quantity of hot milk. "Black coffee" is sometimes largely adulterated with burnt sugar. Chicory is another common adulteration. Imitation coffee is also made from figs, dates, acorns, dandelion root, etc. Coffee is, like tea, a stimulant; but it differs in checking the action of the skin, and encouraging the action of the bowels. Its action is in some respects more powerful; and it is always preferred as an antidote to alcohol, opium, arsenic, etc. Digestion is somewhat retarded by coffee, but not to the same extent as by tea; although some allowance must be made for individual peculiarities in this respect. Over-indulgence in coffee causes indiges-

tion, sleeplessness, palpitation, and irritability, as in the case of tea. Dose in poisoning with opium, 1 ounce every twenty minutes made into an infusion. *See also* ASTHMA; CHICORY; CAFFEINE; HEADACHE.

Colchicum.—The meadow saffron, of which the seed and corm (or enlarged underground stem) are used medicinally. It is a valuable remedy for the pain of acute gout, but scarcely suitable for domestic use, as an overdose causes dangerous depression. The preparation most frequently used is the wine, of which the dose is from 10 to 30 minims. Two teaspoonfuls have proved fatal (Christison). The symptoms of POISONING are vomiting, purging, colic, headache, and depression of the circulation and body strength. *Treatment.*—Give an emetic (*Pr.* 27, 28) if there is no vomiting. Then give tannic acid in large doses, together with white of egg, barley water, or linseed tea, and stimulants with external warmth for the depression.

Cold, Effects of, differ according to the degree and extent to which it is applied, and the strength of the individual. Locally applied, as in using an icebag, it diminishes the circulation through the part, deadens pain, and generally diminishes sensibility. (*See* ICE; LEITER'S TUBES; LOTIONS, COOLING; SPRAY-PRODUCERS.) It is frequently used to prevent or reduce inflammation; also to diminish the bulk of imprisoned gases (as in flatulent distension and the reduction of hernia). If too long continued, it causes mortification. (*See* MORTIFICATION; FROST-BITE.) Applied more widely, a moderate degree of cold in a healthy person stimulates circulation, breathing, digestion, and other chemical processes in the body. This accounts for the tonic effects of cold bathing and of "bracing" health resorts. People however differ very greatly in their power of reaction against cold. Convalescents, the ill-fed or ill-clad, the very young and the aged, all stand cold badly. Alcohol increases the loss of heat from the skin, and has been found dangerous in arctic explorations. In cold winter weather, it is best to keep warm by means of exercise, and restore the circulation at the journey's end by taking hot milk, soup, or coffee. Extreme cold depresses the circulation and nervous system, inducing drowsiness, feeble circulation, and shallow breathing. It is very important to fight against such drowsiness, as under the circumstances to sleep is often to die. Fortunately the conditions are rare in temperate climates. A diet containing plenty of fat increases the power of withstanding cold.

Cold Catching arises in many different ways. It will be impossible here to do more than allude to a few of the more common. Amongst these one of the commonest is *unsuitable clothing.* Children are often allowed to go with bare arms, legs, and neck, even in tolerably cold weather, and babies promoted to "short clothes" are also often much exposed. Fashionable ball dress, with low-necked, thin garments unequally distributed over the body, and thin boots, is frequently a cause of catching cold. The wearing of linen or cotton underclothing to the exclusion of flannel is equally objectionable. (*See* CLOTHING.) Too heavy clothing may also give rise to bad colds, by encouraging profuse perspiration. Whenever the skin acts freely, it is advisable to rub it dry after exertion, and to air and change the undergarments once or twice a day. *Sitting in draughts*, either indoors or while travelling, is another way in which colds are caught. To avoid this it is not necessary to prevent all ventilation. Indeed, living in ill-ventilated rooms rather encourages cold catching. (*See* VENTILATION.) *Getting wet*, and sitting in damp clothes, or sitting down on damp grass, or using a damp bed, may also be mentioned as common causes. When caught in a storm, it is well to keep moving until you can change into dry clothes. When a bed is suspected to be damp, the risk may be diminished by removing the sheets or putting a waterproof coat outside the bedding. The second of these methods converts the bed into a sort of vapour bath, but prevents rapid evaporation.

Damp houses, and a damp, ill-drained soil, are also to be avoided. Bathing

may be the means of bringing on a cold. Judicious bathing is invigorating, and helps to prevent cold-catching; but if too long a bath is taken, or the water is too cold, or the body is long exposed to the air while wet, a cold is very likely to follow. *Debility* greatly increases the susceptibility to chill. (*See* COLD, EFFECTS OF.) Those suffering from gout, Bright's disease, and other diseases which cause impurity of the blood, also easily catch cold. Exercise in the open air is a valuable means of preventing colds. Whether *germs* have anything to do with cold-catching is still uncertain.

Cold Cream is made by melting 4 ozs. white wax in 1 lb. almond oil with gentle heat, and mixing gradually with 1 pint of rose water in a warm mortar.

Cold Feet frequently result from a feeble circulation. It is a mistake to warm the feet at the fire; far better is it to take active exercise in the open air, so as to set the whole body in a glow. Thick, woollen socks or stockings should be worn, and thick-soled, roomy boots. Cold sponging in the morning is often useful, and bathing the feet in cold water at bed-time, drying the skin by rapid rubbing with a bath towel. If the lips and cheeks are pale, iron tonics will be required. (*See* BLOOD, POORNESS OF); if the appetite is poor, bitter tonics such as gentian, nux vomica, or quinine (*see* BITTER TONICS). Another useful remedy is hypophosphite of lime. *See* HYPOPHOSPHITES.

Cold in the Head usually begins with a sense of fulness in the nostrils, dull frontal headache, and feverishness, shivering, and sneezing. This is soon followed by running from the nose and eyes, with more or less relief from the headache and fever. The causes are those of catarrh. *See* COLD-CATCHING.

TREATMENT.—If much fever is present, take aconite (*Pr.* 31), go to bed after a hot foot bath, and encourage the action of the skin by hot gruel, plenty of blankets, and other remedies. If violent shivering or sneezing is present, camphor (5 drops of the strong spirit on sugar) is the best remedy: two or three doses should be taken at intervals of half an hour. Ipecacuanha (*Pr.* 19, 21) is also useful. When there is much running from the nose, solution of common salt (5 grs. to 1 fl. oz.) may be used with the nasal douche (*which see*). (*See also* BRONCHITIS; SORE-THROAT.) The digestion is frequently upset by a cold, so that a light diet is advisable; but there is no advantage in fasting unless nausea is present.

Cold on the Chest is really a mild form of bronchitis, and requires similar treatment. *See* BRONCHITIS.

Colic.—Spasms, gripes, or stomach-ache, twisting pain about the navel, coming on in fits, relieved by pressure, but sometimes associated with tenderness. The bowels are usually constipated, but may be relaxed; and vomiting is often present. There is usually no fever. The attack may come on quite suddenly with some faintness, or more slowly. The usual causes are indigestible or ill-cooked articles of food, such as shell-fish, salt meat, veal or pork, unripe fruit, cucumber, gooseberries, etc. Similar attacks may however arise from exposure to cold and wet, especially in such as are pulled down by over-work and other causes. Lead poisoning also causes a form of colic (*see* LEAD-POISONING); and many irritant poisons give rise to vomiting, colic, and diarrhœa. Menstruation sometimes comes on with colicky pains. Colic must be distinguished from inflammation of the bowels, peritonitis, hernia, and obstruction of the bowels. *See also* GALLSTONES; KIDNEY, STONE IN THE.

TREATMENT. — To relieve the pain give stimulants with carminatives, such as ginger with brandy or sal volatile, or *Pr.* 4, 9, 10, 13. If irritating food has been taken, give to an adult ½ oz. castor oil, with 25 drops of laudanum; to a child, less of the oil, and none of the laudanum. Sometimes an emetic is still more efficacious, followed by draughts of hot water. If constipation is obstinate, more active aperients will be necessary (*Pr.* 11, 24, 54, 59). Heat to the abdomen often subdues the pain, applied by means of a hot bottle or hot flannels. Where such measures are not sufficient, a doctor should be consulted. Those who are subject to colic

often require some kind of tonic, or a change in the manner of life. They should wear flannel over the abdomen, and be careful about their food.

Colic in INFANTS is often due to unsuitable food which remains undigested. It may be associated with diarrhœa or constipation; and vomiting is often also present. *Treatment.*—Regulate the diet. (*See* INFANT FEEDING.) Give pancreatic emulsion (grs. 2 to 10) in a teaspoonful of dill-water twice a day after meals. If there is constipation give castor oil (20 to 30 drops); if diarrhœa, the same remedy followed by aromatic chalk powder. *See* CHALK.

Collapse.—A state of nervous prostration or extreme exhaustion, due to injury, severe pain, and other causes. Collapse may occur in cholera, violent purging or vomiting, fevers, or poisoning by prussic acid, tobacco, and other substances. For symptoms and treatment *see* SHOCK. *See also* CONCUSSION; FAINTING.

Collodion.—A solution of gun cotton in mixed ether and alcohol, used as an application to cuts, small wounds, and cracks in the skin. It should be painted on with a camel-hair brush, after carefully drying the part. The ether and alcohol evaporate, leaving a protective film. The application causes some smarting. FLEXIBLE collodion contains Canada balsam and castor oil in addition to the ingredients of ordinary collodion. It is less likely to crack. STYPTIC collodion stops bleeding from leech bites or razor cuts. It may be made by dissolving 20 parts tannin in 100 parts collodion. BLISTERING collodion contains cantharides. Painted on the skin, it raises a blister. A mixture of 2 parts of glycerine with 100 of collodion is useful as a protective coating for chilblains, burns, and similar ailments. It has also been used for skin diseases, and in coating pills. All preparations of collodion should be kept in bottles with ground-in stoppers.

Colocynth, or bitter apple, the fruit of a member of the cucumber family, growing along the shores of the Mediterranean and elsewhere. It is usually peeled, dried, and deprived of its seeds before exportation, when it resembles a white ball of pith about the size of an orange. It is a powerful purgative, usually employed in combination with other drugs. The virtue resides in the pulp. Dose of the compound colocynth pill, or of the colocynth and henbane pill, 5 to 10 grains. *See* APERIENTS; *Pr.* 54.

Colon. *See* BOWELS.

Colotomy.—An operation in which the colon is opened to form an artificial anus. *See* BOWELS, OBSTRUCTION OF.

Colour-blindness.—A defect of sight causing inability to distinguish colours. May be present from birth, or come on later in life from disease or over-use of the eyes. It is found in about one out of every twenty-five people, taken at random. Women are less subject to it than men; it is very common among Quakers. Dalton, the celebrated chemist, and several other well-known men were colour-blind. The defect may be slight or well-marked, and may be of several kinds. In the usual form, green and red are confused together, so that a pale pink and a pale green cannot be distinguished, or in extreme cases, red cherries from green leaves. Less frequently blue and yellow are confused. It is extremely important that railway servants, sailors, and the like should be carefully tested for colour-blindness, as a mistake might cause the loss of many lives. Instances have been known of railway engine-drivers losing the power of distinguishing colours after an accident. In testing the sight, red and green lights should not be used, but skeins of specially prepared coloured wool. A pale pink or green may then be chosen, and the man asked to match it. A single mistake should lead to rejection. A man may be able to name correctly the colours of familiar objects, and to tell a red from a green light under ordinary conditions, and yet be colour-blind, and fail to distinguish them in certain states of the atmosphere. Hence the necessity for delicate tests, which should be periodically repeated.

Coma.—A state of insensibility from which the person cannot be roused. The breathing is often deep and snoring, the pulse full and regular, and the face flushed. This condition is found in

severe fevers, kidney or brain disease, apoplexy, poisoning by alcohol or narcotics, and injury to the brain. *See* ALCOHOLISM; APOPLEXY; BRAIN, COMPRESSION; FAINTING; POISONS.

Complexion.—Depends chiefly upon the colour and transparency of the skin, and the state of the circulation. Great differences exist naturally between different races of mankind—Anglo-Saxon, Spanish, Malay, negro, and others. Other differences are caused by occupation, habits, and manner of life, or by conditions of health or disease. Exposure to sun and wind causes more or less bronzing, with formation of freckles in those of fair complexion. Indulgence in alcohol causes a red nose, flushed face, and blue-veined cheeks, or else the sallow gin-drinker's complexion. Poorness of blood leads to undue pallor, or a yellow or greenish tint. An unnaturally pale complexion is also often present in disease of the kidneys, while a pasty or muddy complexion may depend on dyspepsia, or on constitutional weakness. Sallowness is often caused by liver disorder, but may be due to cancer and other serious diseases. Dark rings under the eyes commonly result from want of sleep or nervous exhaustion. Blue or purple lips point to some obstruction of the venous circulation, or to imperfect aëration of the blood. Other characteristic changes are seen in the yellow tint of jaundice, the bright flush of consumption, and the dusky flush of typhus fever. These and other changes of complexion afford valuable indications to the physician, and may often suggest the need of advice to those who without special training have learnt to observe. *See* EXPRESSION; FEATURES.

Complications may arise out of the original disease, or be quite independent of it. Thus on the one hand scarlatina may be complicated with dropsy, and on the other hand with a broken leg. Many diseases, such as measles or rheumatic fever, are dangerous chiefly through their complications.

Compress.—Several folds of lint or other material applied to the skin so as to exert pressure. It may be *dry* or *wet*, and in the latter case exposed to the air or covered with flannel, waterproof, or guttapercha tissue.

Compression is useful in promoting absorption of fluids thrown out during inflammation. Extreme compression may lead to serious wasting or even to mortification. *See also* BRAIN, COMPRESSION OF THE.

Conception. *See* PREGNANCY.

Concretion.—An unnatural collection of dead matter in the solid state inside the body. Such collections occur in the urinary tubes, joints, veins, bowels, and other parts. Large and repeated doses of magnesia, especially with iron, may cause concretions to form in the bowels. A similar condition has been produced by habitually biting off and swallowing bits of hair or thread, by living too exclusively on dry and badly prepared oatmeal, or in cattle by licking each other's back. *See* STONE.

Concussion.—The effect on the body of a violent shaking, such as may happen in a railway accident. *See* BRAIN, CONCUSSION OF THE.

Condiments are substances taken with food to improve its flavour and assist in its digestion. They may influence the movements of the stomach and bowels, or increase the secretion of digestive fluids, whether by exciting the nerves of taste and smell, or by directly congesting the coats of the mouth and stomach. They do not necessarily act as true foods, although sugar, mushrooms, and a few other substances are both foods and condiments. Several groups exist: the *pepper* group including mustard, cayenne, and other pungent substances taken with salt; the *spice* group, including cinnamon, cloves, ginger, etc., less irritating and usually combined with sugar; *acidulous* substances, such as vinegar and lemon juice; and sundry *flavouring* agents not included in the foregoing, such as vanilla and fruit essences. In addition to these, the substances which are formed in cooking meat and give it its flavour may be regarded as a kind of condiment. Oil, salt, and sugar, are more correctly classed as foods. Condiments taken to excess, especially the pungent ones, cause irritation and even inflammation of the stomach and bowels;

but their use in moderation is beneficial as a preventive of monotony in diet. *See* STIMULANTS.

Condy's Fluid.—A valuable disinfectant, consisting of permanganates of potash and soda in water. It has the property of readily oxidizing (or burning up) organic matter, and may be used for disinfecting excretions, skin, soiled linen, etc., as a lotion for dressing wounds, as a mouth-wash, for purifying foul water, and cleansing filters. Not being volatile, it has no power of disinfecting the air, unless disseminated in form of a spray, which is usually inconvenient. Strong solutions turn the hands or linen brown. *Green* Condy's fluid is a strong solution of manganate of potash; when diluted with water, it forms a deep purple fluid, free from smell, consisting of permanganate. This should be kept in a bottle with a glass stopper, and further diluted for use to a pale pink. *Purple* Condy's fluid contains about 2 grains to the ounce; the pharmacopœial solution is one per cent., or between 4 and 5 grains to the ounce.

POISONING.—Condy's fluid is poisonous. In case of poisoning treat as for *irritant poisons*.

Confections.—Electuaries, or conserves, are soft pastes containing a drug mixed with sugar or honey. Confection of roses is used for mixing with other substances. Confections of senna, of sulphur, and of scammony are aperient. Confection of pepper is given with confection of senna in treatment of piles.

Confectionery. *See* PASTRY; SWEETMEATS.

Confluent.—Running together; a term used in describing eruptions on the skin.

Congestion.—Unnatural fulness of bloodvessels. Two very different conditions are included under this term, one in which the overfulness is chiefly in the veins, and caused by some obstruction to the return of blood to the heart; and another in which the overfulness is in arteries and capillaries, and is due to irritation of some kind. This form often passes into inflammation, of which it may be regarded as the first stage.

TREATMENT.—Remove all local and other causes, assist the circulation by a suitable position, and if the part is hot and painful treat as in inflammation. *See* VARICOSE VEINS; INFLAMMATION; POSITION.

Conjunctiva.—The membrane lining the back of the eyelid and front of the eyeball. *See* EYEBALL.

Conserve. *See* CONFECTION.

Constipation, costiveness or confinement of the bowels, a condition in which they are relieved incompletely or not often enough. There should as a rule be a full action once every twenty-four hours. Failing this, the health is apt to suffer. Headache, giddiness, and drowsiness are present in the daytime; sleep at night is unrefreshing, the complexion becomes sallow, dark rims appear under the eyes, the tongue becomes coated, the breath foul, and the digestion imperfect. Very often there is fulness, itching, and discomfort about the anus, and evacuation is painful, difficult, and perhaps attended with bleeding. Piles, fissure, or ulceration of the bowels may result from neglected constipation; also sciatica, irritability of the bladder, and disorders of the sexual organs. Poorness of blood is a common consequence, together with nervous irritability or lowness of spirits. From this we may gather the importance of promptly attending to constipation. Its *causes* are numerous: debility, liver disorders, insufficient exercise, errors of diet, over-fatigue, or merely disregard of the calls of nature.

TO PREVENT constipation, make a point of regularly paying a visit to the closet at about the same hour every day, and if necessary devote five or ten minutes to this purpose. A good time for most people is immediately after breakfast. Avoid over long rest in bed, especially after waking in the morning. Where there is a tendency to stoutness, a properly fitting abdominal belt should be worn. A reasonable amount of brisk walking exercise, or some substitute, such as riding, is necessary. Most people require at least three miles of walking per day, in addition to the exercise otherwise obtained in the house. Moderate tobacco-smoking after meals acts beneficially with some people, but no universal rule can be laid down in this respect.

DIET.—Milk, eggs, rice, arrowroot, and other starchy foods must be used very sparingly. Brown bread, wholemeal bread, oatmeal or hominy porridge or cakes, pea-soup, green vegetables, stewed rhubarb, prunes, figs, and other fruit, are all suitable. If sugar agrees, syrup or treacle is useful. A tumblerful of cold water on rising often assists. Coffee is usually preferable to tea at breakfast.

TO RELIEVE constipation, where the above means are insufficient, circular rubbing of the abdomen in the direction of the hands of a clock may be tried, or an enema or aperient medicine may be necessary. Strong purgatives should never be used, unless under medical advice, as they often provoke a reaction, thus causing the very evil they were intended to cure; and may in addition cause serious injury to the bowel. Whenever constipation comes on with vomiting, pain, or distension of the abdomen, especially if the cause is not obvious, medical advice should be promptly obtained. *See* APERIENTS; BOWELS, OBSTRUCTION OF THE; ENEMA; LIVER DISORDERS; MOTIONS.

CONSTIPATION IN CHILDREN seldom requires medicinal treatment, but usually yields to a change of diet, or the use of dietetic laxatives, or other simple measures. In infancy the introduction of a small piece of soap into the anus often provokes an action; a saline aperient, (*Pr.* 14) given to the mother, or a tablespoonful of cream added to half a pint of diluted milk for the child, or a little well cooked oatmeal gruel, may give relief. If this fails *Pr.* 50, 46, 49, or 58 may be given; or an aperient liniment, (*Liniment* No. 9) may be rubbed into the abdomen. For older children, stewed fruit, brown bread, oatmeal porridge, honey, or treacle should be given. When these measures fail, a little simple medicine may be necessary. Among the most frequently employed are compound liquorice powder (dose, 1 teaspoonful or less at bedtime), syrup of senna (dose, 1 or 2 fl. drs.) and syrup of rhubarb (same dose). *See* APERIENTS; ENEMA.

CONSTIPATION IN PREGNANCY should be carefully attended to, as straining may bring on miscarriage. In addition to moderate exercise and regulation of the diet, a cold compress to the abdomen may be tried; or, in those used to bathing, a sitz-bath for ten minutes on rising and at noon with moderately cold water; or a glass of cold water taken at breakfast. Should these measures fail, an enema may be given, or a dose of castor oil ($\frac{1}{2}$ fl. oz.) or as much milk of sulphur as will lie on a fourpennypiece, or a wineglassful of Friedrichshall two hours before breakfast. The last remedy is especially suitable when there is a tendency to piles and varicose veins.

Constitution.—This term has reference to the kind of health enjoyed by a patient, together with any personal peculiarities as to food or the action of drugs. Most people have such personal peculiarities, which are known to their regular medical attendants or intimate friends. It is a mistake to suppose that the constitution is necessarily inherited. Although the tendency to some diseases is strongly hereditary, much may often be done to prevent their appearance; and the constitution is quite as much influenced by habits and surroundings as by inheritance. By observance of the laws of health, a delicate constitution may be greatly strengthened, and by neglect a good constitution may be ruined.

Consultations.—Where a second opinion is desired by a patient or his friends, they are at liberty to call in a consultant recommended by the doctor in attendance, or any other registered practitioner whom they may prefer; but in every case the matter should be previously discussed with the doctor in attendance. It sometimes happens that a consultant is secretly consulted. This is not fair to either medical man, nor advisable in the interests of the patient, as all the facts of the case cannot be put before the consultant. When a consultation is necessary, the doctor in attendance has the right to charge a double fee, to compensate for loss of time and extra trouble. This is in addition to the consultant's fee, which should be paid before he leaves the house. *See* DOCTOR; FEES; MEDICAL ADVICE.

Consumption, or *phthisis*, a disease of the lungs and other parts of the body,

which causes loss of flesh. It has long been one of the most dreaded diseases of this country, and still is the cause of about one-fifth of the total deaths every year. Formerly regarded as incurable, it is now frequently arrested or even cured by suitable treatment, epecially where this is begun early and persevered in. It is therefore of the greatest consequence for every one to know the early symptoms of the disease, and how best to avoid it. *Symptoms* are: persistent cough, either dry or attended with spitting of phlegm or of blood; shortness of breath; pains in the chest or shoulder; loss of flesh and strength; tendency to feverish attacks; copious perspiration in the early morning; diarrhœa and other complications. None of these symptoms however are necessarily due to consumption, and their nature can only be settled by careful examination of the chest by a physician. In consumption little accumulations called tubercles are formed in the lungs, which first solidify it in patches, and then soften and break down into cavities. These conditions can be recognised by sounding and listening to the chest; they are the cause of the blood-spitting and shortness of breath. Similar deposits are often formed in the bowels and other organs.

Causes.—It has long been recognised that consumption is not strictly a lung disease, but rather one affecting the whole body. Since Koch in 1882 discovered bacilli in the tissues and expectoration of consumptives, evidence has been fast accumulating to prove that these are really the cause of the disease; and this theory explains the facts so well that it will be convenient to adopt it here. It appears that the bacteria entering the lung with the breath cause irritation there, and if the soil is suitable grow and multiply, giving rise to unhealthy inflammation followed by breaking down of the parts affected; and after a while they spread to other parts of the body by means of the absorbents or bloodvessels, or alimentary canal, causing various complications. *Infection* is usually through the breath, but may be received through milk, or meat, from consumptive animals, and in other ways. Jews who take special precautions to reject the flesh of diseased animals, are singularly free from consumption. A curious instance is recorded of a healthy servant girl, who became consumptive through cutting her hand with the fragments of a spittoon used by her consumptive mistress. Rabbits and guinea-pigs have been rendered consumptive by inoculation, by feeding them with infected matter, and by causing them to breathe an infected atmosphere. The most important mode of infection undoubtedly is by the breath. Hence *bad ventilation* is a very common cause. Out of 6,000 patients at Brompton Hospital, two-thirds had indoor occupations, and where husbands or wives have been known to infect their partners, it has been through living together in stuffy rooms, breathing one another's breath. All however do not become consumptive by breathing infected air; so that there must be other causes. *Inheritance* undoubtedly has something to do with it, especially from the mother. With regard to *sex*, more men suffer than women, but women are more likely to inherit consumption from their parents. No *age* is exempt, from early infancy to old age; although youth and the prime of life are probably most affected. *Occupations* involving the breathing of gritty or irritating particles, or preventing the free expansion of the chest, or requiring long hours spent in a close atmosphere, greatly increase the liability to consumption. Hence colliers, stone-masons, fork and needle grinders, potters, cotton carders, millers, chaff-cutters, tailors, seamstresses, milliners, printers, compositors, etc., are especially subject to the disease. Consumption first attacks the tops of the lungs, which are the least expanded, and chooses out the narrow or flat chested. *Debility* from miscarriages, bad confinements, over long suckling, want of food, or alcoholic or other intemperance also increases the tendency to consumption. So do *fevers* such as typhoid fever, measles, scarlatina, or whooping-cough; and *inflammations* of the lungs, bowels, absorbent glands, and other parts. A *damp* soil or climate also acts as a predisposing cause. Sea-side climate is however useful.

PREVENTION.—It is therefore obvious that much may be done, where there is a tendency to consumption, to prevent its appearance. *Infancy and childhood.* A child born of a consumptive mother should not be nursed by her, but by a healthy wet-nurse, or fed artificially. *See* CHILDREN'S DIET; INFANT FEEDING. The food should contain plenty of digestible fat. The child should, if possible, be brought up in the country or at the seaside, on a dry soil, and allowed to spend most of the day in the open air whenever the weather does not absolutely prevent it, and encouraged to take part in active games. Clothes should be woollen, keeping body and limbs equally warm; night dress of flannel, arranged so as to prevent exposure. A daily bath of salt water is useful. Rooms should be well ventilated, especially the bedroom. Education should not be forced, but directed chiefly to matters which can be learnt out of doors. All coughs and colds, glandular enlargements, decayed teeth, sore places and other ailments should be promptly attended to, and great care taken during attacks of infectious fevers. In *adult life* the same principles apply: *diet* liberal, but easily digestible. Plenty of fat, in the form of cream, rich milk, butter, meat-fat or cod liver oil. Bread soaked with bacon fat or dripping, suet puddings, cracked bones stewed with rice, sardines, and other oily fish, are useful for the fat they contain. If there is a tendency to constipation the diet must be suitably modified. (*See* CONSTIPATION.) For *drink*, malt liquors or good wine may be taken at dinner in great moderation, if the appetite and digestion unaided are imperfect. Otherwise plain water is better, or good lemonade, ginger-beer or effervescing table waters. (*See* BEVERAGES.) Tea and coffee may be taken, excepting at meat meals. Good cocoa goes well with any meal. *Dress*: flannel or lambs' wool should be worn next the skin, or merino in summer. Low-necked dresses and chest protectors which only cover part of the chest are unsuitable. Leather vests are also bad, as they confine the perspiration, and tight-lacing because it prevents free expansion of the chest. During foggy or damp weather, one or two layers of loose knitted woollen scarf should be worn out of doors over the mouth and throat. At other times it is not advisable to overload the neck. *Residence* on a dry, well-drained sandy or gravel soil is important, if possible in the country or at the seaside, and away from rivers, ponds, or swamps. A house in a warm, dry neighbourhood should be chosen, protected from the north and east, with large, well-ventilated rooms receiving plenty of sunshine. (*See also* CLIMATE; HEALTH RESORTS.) *Occupations* involving exposure to dust or to gritty irritating particles should be avoided; also such as require long hours spent in hot, ill ventilated rooms, or in a confined position (shoemaking, tailoring). Habits should be regular and temperate, and much exercise should be taken in the fresh air. Rowing, lawn tennis, riding, bicycling, and other outdoor sports are valuable, if not overdone. Cold-catching should as far as possible be avoided. (*See* COLD-CATCHING.) Cod liver oil may with advantage be taken in cold weather. Where it does not agree, an emulsion with or without malt extract may answer better. The *medicinal treatment* of consumption varies according to the form of the disease, the constitution of the patient, and the symptoms which are for the moment prominent. Early recourse to the doctor is advisable, as the chances of recovery are thereby very largely increased. Formerly death used always to follow within about two years from the beginning of the disease; but with skilful treatment from an early stage the average duration has been raised to seven or eight years, and instances are not uncommon of consumptives living for twenty, thirty, or more years, or even completely recovering. *Sea-voyages* and residence in suitable *climates* are valuable in the treatment of some kinds and stages of consumption. (*See* CLIMATE; SEA-VOYAGES.) Marriage is sometimes recommended to consumptive women. This is a serious mistake; as, apart from the probability of children being born liable to the disease, the cares of a family and the physical strain of childbearing are likely to weaken the

constitution and shorten the duration of life.

Contagion may mean infectious matter from a communicable disease, or its transmission to another individual by contact with the sick man or his clothes. (*See* CONTAGIOUS DISEASES.) The nature of this infectious matter has long been debated; but it probably always consists of microscopically minute living organisms, or of some substance manufactured by them. This has been proved in the case of some diseases, and rendered probable in others. (*See* BACTERIA; GERM THEORY OF DISEASE.) Contagion may enter the body in several ways, by the lungs or alimentary canal, or by inoculation. Dirt and refuse favour the preservation of infectious matter, so that overcrowding, want of cleanliness and of ventilation, favour the spread of catchable complaints. Some kinds of contagion are only transmitted by the excretions. For modes of destroying contagion, *see* DISINFECTION.

Contagious Diseases are such as may be caught by contact with the sick person or his clothes, etc. *Infectious* diseases, such as can also be transmitted through the air. The two terms are often confused, and used indifferently. Examples of strictly contagious diseases are to be found in glanders and venereal disease; of infectious diseases in scarlatina and measles. *See* INFECTIOUS FEVERS.

Continued Fevers. — *See* ENTERIC FEVER; RELAPSING FEVER; TYPHUS FEVER.

Contraction of Muscles.—Permanent contraction is found where the limbs are imperfectly developed, and in paralysis and some other nervous diseases. For temporary contraction, *see* CONVULSIONS; CRAMP; EPILEPSY; LOCKJAW; SPASMS.

Convalescence, the return to health after illness, may be gradual or rapid, according to circumstances. Children often convalesce rapidly, old people slowly. Where there has been great loss of blood, or severe diarrhœa, or any other exhausting condition, recovery of strength is usually slow; but much depends upon constitution. During convalescence the rules of health must be observed with unusual care, as there is less power of resisting the ordinary causes of disease. Patients often come well through severe illness, but die of its results in convalescence. The chief sources of danger vary with the nature of the original illness. Thus after scarlatina the kidneys are easily affected, and dropsy often arises from chill. After measles, whooping cough, and typhoid fever, there is a strong tendency to consumption and to scrofulous affections. Such after-effects are called "sequelae." During convalescence there is usually less power of resisting chills, so that the patient should be warmly clad in flannel or merino. The room should be kept at a temperature of about 60° in the daytime and a few degrees cooler at night; and great care taken about the ventilation. The *diet* should be nourishing, but easily digestible. Much harm is done by giving more food than the stomach can digest, or in a form only suited to established health. Milk and farinaceous foods, with light preparations of jelly, are best to begin with; and as the digestion gets stronger these may be supplemented with simple broths and soups from mutton, fowl, veal, or beef, with farinaceous foods. After this, lightly boiled eggs, boiled chicken, boiled mutton, and the lighter kinds of fish may be successively added in small quantities. As a rule much food is required during convalescence, and overloading of the stomach may be avoided by giving small quantities at short intervals. Stimulants are often useful, unless there are special reasons for not giving them. The best forms are bitter ale, good champagne, and other light wines. These should be taken with food, not between meals. (*See* ALCOHOL.) Exercise should be taken short of fatigue, either indoors or in the open air, if the climate and season permit. Fresh air and sunshine are valuable aids to recovery, and these can often be best obtained away from home. Change of air and scene undoubtedly do much good, and a suitable climate will often work wonders. Where the means of the patient are not large, recourse may be had to a convalescent home. *See* CLIMATE; CONVALESCENT INSTITUTIONS.

Convalescent Institutions. — *Becken-*

ham, Kent, *St. Agatha's (children); *Bexhill*, see London; *Bognor*, Merchant Taylor's (men); *Bournemouth*, *Herbert Home and *London Samaritan; *Brighton*, *St. John's (conval. and for crippled children); *Cheadle*, Cheshire, Barnes' Hosp.; *Clacton-on-Sea*, *Essex Conval.; *Clevedon*, Somerset, *Conval. Home; *Clewer*, Windsor, *St. Andrew's (conval. and for incurables); *Coatham*, Yorks (children); *Dover*, Cottage and Conval. Hosp. (after infectious fevers) and London and Dover Home; *Dunoon*, Argyleshire, *West of Scotland Seaside Homes; *Eastbourne*, All Saints' Hosp.; *Felixstowe*, *Suffolk Conval.; *Folkestone*, *St. Andrew's; *Great Yarmouth*, Children's; *Hastings*, Beau Site; *Horsforth*, Leeds, *Cookridge Conval.; *Hunstanton*, *Conval.; *Kingston*, see London; *Llandudno*, *Sanatorium (women); *London*, Metropolitan (Bexhill, Kingston Hill, and Walton), 32, Sackville Street, W.; *Lowestoft*, Conval.; *Mablethorpe*, Lincolnshire Seaside Conval.; *Milford*, Stafford, *Sister Dora Memorial Conval.; *Moretonhampstead*, Devon, *Conval. Home; *New Brighton*, Cheshire, *Conval. (women and children); *Painswick*, Stroud, Conval. and Training Home; *Paisley* Conval., West Kilbride, Ayrshire; *Ramsgate*, *St. Barnabas and *St. Luke's (invalid and conval. women); *Rugeley*, *Levett Conval.; *St. Leonards*, All Saints, for diseases of the chest (women and girls); *Sandgate*, Kent, *London Samaritan; *Seaford*, Sussex, Seaside Conval.; *Silloth*, Cumberland and Westmoreland Conval.; *South Croydon*, Home for Children; *Southport*, *Conval. and Sea Bathing; *Southsea*, St. John's Home (men and boys) and *South Coast Home (women); *Stanmore*, Middlesex, *Mary Wardell Conval. (scarlet fever); *Walton*, see London; *West Kirby*, Cheshire, *Conval. (children from Lancashire and Cheshire); *Weston-super-Mare*, W. Engl. Sanatorium; *Whitley*, Newcastle-on-Tyne, *Prudhoe Memorial; *Wimbledon*, Atkinson-Morley Hosp.; *Woolton*, *Liverpool Conval.; *Worthing*, Thos. Banting Memorial Home (ladies). In the foregoing list those with a star receive paying patients. Further particulars may be obtained from the Medical Directory (from which most of the foregoing has been obtained), and from a small pamphlet published by the Charity Organization Society, 15, Buckingham Street, Strand, London.

Conveyance of Patients.—In case of *accidents*, *see* AMBULANCE. For *infectious diseases*, cabs, railway carriages, and other public conveyances must not be used without previous notice, or a liability is incurred to a penalty not exceeding £5. (*See* DISINFECTION; ISOLATION.) Fever hospitals will usually send a suitable ambulance carriage on application. In London the *Metropolitan Asylums Board* at Norfolk Street, W.C., undertakes the same duty. At night between 8 p.m. and 8 a.m., and on Sundays, Christmas Day, and Good Friday, notice should be sent to the ambulance stations, of which the Eastern is at Brooksby's Walk, Homerton, the South-eastern in New Cross Road, near the Old Kent Road railway station; and the Western in Seagrave Road, Fulham. Applications must state name, age, sex, full address of patient, and of his destination, nature of fever, and name of applicant, together with a medical certificate to be handed to the ambulance nurse. The ordinary charge is five shillings. The ambulances may be sent outside the metropolitan district only by special sanction of the committee or of the clerk to the board, and on payment of an extra charge of a shilling for every mile outside the metropolitan area. *In the country* the Sanitary Authority should be communicated with. The *St. John Ambulance Association* also arrange for the removal of patients; their central office is at St. John's Gate, Clerkenwell, and they have numerous branches all over the country.

Convulsions are found at all ages, but are especially common in early childhood and infancy. The common *causes in infants* are improper food, flatulence, intestinal worms, teething, pricking of pins, chafing by tight clothes, and other sources of irritation. They also occur from sunstroke, fevers, or impurity of the blood, from insufficient ventilation or fits of coughing. They are stated to

have resulted from taking the breast when the nurse has been violently angry. Lastly, they may be a sign of brain fever or water on the brain. *In older children* they often arise during the second teething, especially if there have been convulsions when the first teeth came through. They may also be caused by falls or blows, fright or kidney-disease following scarlatina. Some children inherit a nervous instability which renders them liable to convulsions. Rickety children and the offspring of weak, intemperate, or aged parents, often have such a tendency, which may also be developed by insufficient or improper food, long-continued diarrhœa, loss of blood, and other discharges, or by ill health following measles or whooping cough. An ill-nourished nervous system is generally also an irritable one. Convulsions *in adults* arise chiefly during pregnancy or childbirth, or are caused by intemperance or diseases of the brain or kidneys. They may also be due to poisoning, or to worry, grief, want of sleep, or overwork.

Symptoms.—In infants an attack of convulsions is often preceded by twitchings, restlessness, and startings at night; or the child may unconsciously twitch its hands or feet, sleeping with the thumbs drawn across the palms, and eyes half closed. The actual symptoms of an attack are indistinguishable from those of epilepsy (*which see*). It should be distinguished from false croup. (*See* CROUP, SPASMODIC.) Most other spasmodic diseases do not cause unconsciousness. Epilepsy is distinguished by repeated appearance of fits without apparent cause. Convulsions in young adults must not be confounded with hysteria.

PREVENTION.—Avoid the causes, and improve the general health by suitable nourishing food, plenty of fresh air, warm clothing, and other measures. Remove all sources of irritation; if there is constipation give an aperient or an injection; if indigestible food has been taken, give an emetic; if the child is teething and the gums are swollen and tense, lancing will be required; or if worms are present, these must be expelled. Children liable to convulsions should not be pressed in their schooling. In older patients the state of the kidneys must be seen to, and suitable measures adopted.

TREATMENT DURING A FIT.—Undress quickly, prepare a warm bath and see that plenty of fresh air enters the room. If the head is hot in an infant, and the fontanelle tense, put the feet only into the bath, adding a handful of mustard. If it is cold, immerse up to the neck and rub the skin well. At the same time see that the child does not hurt itself. In emergencies bromide of potassium may be given in a little water, one grain for each year old. If the child cannot swallow, the dose may be injected into the rectum. Where there is feverishness, aconite is often useful (*Pr.* 31). If with fever there is a pulse below 40, the case is likely to be one of brain fever, especially if there have been vomiting and headache. Convulsions at the onset of measles or scarlatina are far less serious than during its progress. In adults convulsions are always serious. *See* EPILEPSY; POISONS; SUFFOCATION; APOPLEXY.

Cooking, when properly performed, is a sort of preliminary digestion. It is intended to soften and render food more easily digestible, and to improve its flavour. But a certain amount of chemical transformation is also effected, starch being converted into dextrine, and connective tissue into gelatine; and at the same time parasites are destroyed and products of decomposition (as in "high" game) rendered harmless. Many vegetable foods—such as dried peas—are quite indigestible until cooked: but on the other hand, salads, fruit, milk, and oysters are frequently taken raw.

COOKING MEAT may be done by roasting, boiling, stewing, baking, frying, and a few modifications of these methods. *Roast* meat is fuller flavoured, but usually not so digestible as boiled meat. The joint is put at first near the fire so as to case-harden it by coagulating the albumen. This result is aided by frequent basting, and helps to retain the juices. *Baked* meat often has an unpleasant flavour, as the volatile bodies produced by the action of the heat cannot escape so easily as in roasting. This renders it more apt to disagree; it may, however,

be prevented by covering the meat with a layer of paste or other protective. The oven should be very hot before the meat is put in, so as to case-harden it as in roasting. *Boiling* renders the meat far more easily digestible if the joint is plunged into soft boiling water, and then after three minutes simmered at a lower temperature. On the other hand, in preparing soups and broths the water should never be allowed to boil, so that the goodness may be extracted instead of remaining in the meat. In such a case what remains of the meat must not be given to invalids, as it is hard and stringy. Still more gelatine may be obtained from meat and bones by using a "digester." In *stewing*, if the meat is lean, it is rendered easy of digestion. If there is much fat present, the fibres get coated over and are too rich for weak stomachs. *Hashed* meat and re-warmed meat are not suitable for invalids. *Frying* coats the fibres with fat and so renders the meat difficult of digestion.

VEGETABLES for the most part require thorough and prolonged boiling in soft water, or, better still, steaming. Baked and boiled potatoes are more digestible than fried; mashed potatoes intended for invalids should not have too much butter mixed with them.

PASTRY is best avoided by invalids. The flaky particles coated with fat resist the action of the digestive juices. TOAST fresh made, and plain BISCUITS, are more porous and more easily digested than bread. MILK PUDDINGS should be cooked quite soft. Half-cooked rice is sure to disagree. If eggs are added, they should be put in towards the end; otherwise they become leathery and indigestible. Spices should be used sparingly, and added after boiling. FRUIT for invalids is best taken stewed. Where it is very sour, a little carbonate of soda may be usefully added to neutralise the acids and render less sugar necessary. SOUPS for sick persons should be carefully skimmed. If vegetables are added, they should be boiled separately, as they require more cooking than meat. EGGS should be lightly boiled or taken raw. Hard-boiled, fried, or baked, they are exceedingly indigestible. Poached eggs are also unsuitable for invalids. All dishes for invalids should be prepared in a tasty appetising manner and brought up in small quantities at a time. The sight of grease smeared on the side of the plate will often take away all desire for food. The appearance of the dish is almost as important as the taste.

H. D. M.

Cooper's Salts consist of chlorides of magnesium, sodium, and calcium, and are used for disinfecting drains, streets, courts, etc. *See* DISINFECTANTS.

Copaiba, Balsam of.—An oleo-resin obtained from certain South American trees. It has a stimulating action on the mucous membrane of the breathing tubes and the urinary organs. It is given either in capsules, or in the form of an emulsion with yolk of egg or mucilage and cinnamon water. It is apt to cause disagreeable eructations.

Copper, Arsenite of, Scheele's green. *See* ARSENIC.

Copper, Sulphate of, Blue stone, is used externally as a caustic, or in solution as an astringent. Internally it is given as an emetic in narcotic poisoning, phosphorus poisoning or croup (dose 5 to 10 grs. in warm water), or in much smaller doses for dysentery and some nervous diseases. It is not suitable as a domestic remedy, unless on emergency, as an overdose may cause poisoning, and a dose just small enough to be retained may greatly irritate the bowels. Where an overdose has been taken, treat as for *irritant poisons*.

Sulphate of copper has been sometimes added to cheap pickles to improve their colour. It may be detected by introducing a clean knife-blade, on which the copper will be deposited as a reddish-brown film. Some doubt has lately been thrown in France upon the poisonous effect of copper salts added in this way.

COPPER UTENSILS used in cooking may lead to poisoning if neglected and left in a greasy state (*see* VERDIGRIS), or left in contact with vegetable acids, such as those of vinegar and acid fruits.

For COPPER COINS swallowed, *see* CHOKING.

Cordials.—Alcoholic preparations containing aromatics or *carminatives*. *See* AROMATICS; FERMENTED LIQUORS.

Coriander seed is obtained from an umbelliferous plant growing in Southern Europe. It is an ingredient of some of the preparations of rhubarb and senna. *See* AROMATICS.

Corn.—A thickening of the outer skin, with enlargement of the papillæ, produced by intermittent pressure. Corns are often due to ill-fitting or overtight boots; but they may also appear where the boots are too roomy and allow the foot to slide about.

HARD CORNS often disappear when well-fitting boots are worn, and pressure is taken off by a corn pad. If not, they may be removed by repeatedly soaking in hot water, and carefully rubbing off with a corn rubber, or paring with a sharp razor. If this is carelessly done they are apt to inflame and give much trouble. Chiropodists profess—and some probably truly—to remove such corns painlessly. Various applications have been recommended for hard corns. One of these is strong (*glacial*) acetic acid carefully applied to the corn without touching the surrounding skin. Another useful application is a paste or ointment of salicylic acid (*which see*) applied through a hole left in a corn pad, and left on until the corn shells out.

SOFT CORNS often appear between the toes, where moisture collects. They may be prevented by wearing digital socks, or putting a piece of cotton-wool between the toes, or using a drying powder freely. (*See* ZINC.) Sometimes wearing thinner socks, or shoes instead of boots, will answer the purpose. In any case the foot must not be squeezed.

Corn, Wheat. *See* CEREALS.

Cornea.—The transparent front of the eye. *See* EYEBALL.

Corpulence. *See* OBESITY.

Corrosion.—Destruction by chemical action.

Corrosive Poisons are those which destroy the tissues with which they come into contact. They include the strong mineral acids (hydrochloric, nitric, sulphuric and their mixtures), strong oxalic, citric, and tartaric acids, the chlorides of mercury, antimony and tin, the caustic alkalis and their carbonates.

TREATMENT.—Give antidotes as in irritant poisoning. Avoid use of emetics or stomach-pump. *See* ACIDS; ALKALIES; MERCURY; TIN SALTS.

Corrosive Sublimate. — Chloride of mercury (formerly called perchloride of mercury), forms heavy colourless crystals, which sublime on heating without leaving any residue. It is used in solution as a preservative of furs, etc., as an antiseptic lotion for wounds, and after childbirth, and medicinally in minute doses for various diseases. (*See* ANTISEPTICS.) It is very poisonous, three grains being a dangerous dose.

The *symptoms* are those of an irritant or corrosive poison, and come on immediately after taking. Burning pain in the mouth and throat, a metallic taste, vomiting, griping and bloody purging are commonly present, together with more or less shock. Later on there may be salivation and inflammation of the bowels, unless death take place from collapse. Most of these symptoms may also result from the absorption of the poison through the skin.

TREATMENT.—Give the white of one or more eggs beaten up in a little water, or, failing this, thin paste or milk. If vomiting is not free, give an ipecacuanha emetic. (*Pr.* 28.) Later on, equal parts of milk and lime-water will be useful in allaying thirst and neutralising the poison.

Cosmetics.—External applications intended to improve the appearance of the skin. It is doubtful whether any such exist which do not spoil the complexion or cause some other injury. Many contain poisonous substances, such as corrosive sublimate. Some cosmetics prepared with bismuth turn black with rotten egg gas (*sulphuretted hydrogen*).

Cottage Hospitals present certain advantages which render them especially suitable in country places and small towns. The subject is discussed in Mr. Burdett's book. *See* HOSPITALS.

Cotton-Wool.—Hairs from the seeds of the cotton-plant, prepared for surgical use. It is valuable as a means of protecting inflamed or injured parts of the body. Cotton-wool is medicated with boracic or salicylic acid or other antiseptics, for use in treatment of wounds.

Made into sheets, it goes by the name of wadding. *See also* LINT.

Cough.—The violent expulsion of air through the air-tubes. It arises from a great number of different causes—all producing irritation of the air-tubes or their nervous apparatus, directly or indirectly. Thus we may have a *throat cough* due to sore throat, elongated uvula or enlarged tonsils; a *laryngeal* cough due to irritation of the larynx, often associated with loss of voice or hoarseness; a *bronchial* cough; a *lung* cough in pneumonia, pleurisy and consumption; a *heart* cough in heart disease; a *stomach* cough; an *ear* cough from accumulation of wax; a *nervous* cough in hysteria, whooping cough, and other nervous diseases. A chronic cough may depend for its continuance on gout or other blood diseases.

A cough may be loud or quiet; the former is often of less importance than the latter. It may be loose or tight, with little or much expectoration. Young children seldom expectorate, but swallow the phlegm. It is possible by careful attention to increase the efficiency of a cough. This should be restrained until the phlegm has collected sufficiently high up to be coughed out. Then a deep breath being taken will be followed by an effective cough. *See* ASTHMA; BRONCHITIS; CONSUMPTION; HYSTERIA; LARYNX, DISEASES OF; MEASLES; PLEURISY; PNEUMONIA; SORE THROAT; THROAT DISEASES; WHOOPING COUGH.

Countenance. *See* COMPLEXION, FACE.

Counter Irritation.—Irritation of one part of the body to cure disease in another. It includes cautery, blistering, the use of stimulant liniments, issues, setons, etc. The most useful counter-irritant in non-professional hands is probably mustard plaster. *See* CAMPHOR; LINIMENTS *Nos.* 1, 2, 3, 4; BLISTERS; MUSTARD.

Cow-Pox.—A disease of the cow in which vesicles appear on the teats; the fluid of these vesicles inoculated into the human subject produces a typical vaccine vesicle. *See* VACCINATION.

Crab. *See* SHELLFISH.

Cradle.—This should have a moderately firm pillow and mattress, waterproof sheet over the latter, soft blankets and no curtains. If rockers are present, they should only allow of gentle motion. *See* BED CRADLE.

Cramp.—Painful involuntary contractions of a muscle. The commonest seat of this unpleasant complaint is the calves of the legs; but it may be met with in any muscle of the body. Cramp of the stomach or bowels is usually called *colic* or *spasms;* cramp of the heart-muscle forms one variety of *Angina pectoris.* Cramp is usually evidence of fâtigue, irregular circulation, or impure blood. Pressure on blood-vessels, as in constipation or pregnancy, will cause cramp.

External cold has the same effect—hence "bather's cramp." Those who have varicose veins are especially subject to cramp. Other common causes are gout, over-indulgence in alcohol, and (it is stated) irritation of the stomach and bowels. Severe cramp is a prominent feature in cholera, arsenical and some other kinds of poisoning. Cramp in the arms is usually more serious than in the legs, and calls for a careful medical examination.

TREATMENT.—Shampoo the limb, or rub briskly with soap liniment or camphorated oil. If there are irritating substances in the alimentary canal, give a dose of aperient medicine (*Pr.* 11, 10, 50) with some carminative. In pregnancy, cramp may be diminished by lying face downwards. In childbirth it is unavoidable.

Cream consists of the fat of milk with water and small quantities of sugar, casein, etc. Good milk yields from 10 to 12 per cent. by volume on standing. (*See* LACTOMETER.) Taken with farinaceous food or rubbed into stale bread, cream is usually easy to digest; but if taken alone, it is apt to upset the stomach. It is often useful as a substitute for cod-liver oil when this cannot be taken. *See* MILK.

Cream of Tartar. *See* POTASH, BITARTRATE.

Creasote, Kreasote, or "spirit of tar," is obtained by the distillation of wood-tar, and when pure is a colourless liquid with burning taste and strong penetrating

smell. It is an active poison, and prevents fermentation and putrefaction by killing the minute organisms which cause these changes. A special preparation, sold under the name of "Jeyes' perfect purifier," is an excellent disinfectant and deodoriser, and is stated not to be poisonous. It may safely be used, diluted with fifteen or twenty parts of water, as a lotion for wounds. Cotton wool dipped in pure creasote is a favourite application for hollow aching teeth. A dry piece of cotton-wool should be placed over all, to protect the tongue.

Creasote is also used as an inhalation for consumption and fœtid bronchitis; a few drops may be sprinkled on to cotton-wool in a respirator. (*See* INHALERS.) Creasote is given internally in minute doses for vomiting, diarrhœa, and cough. *See* TAR.

TREATMENT OF POISONING. *See* IRRITANT POISONS.

Cress. *See* SALADS.

Cretinism.—A form of idiocy in which the head and body are imperfectly developed. It is often associated with goitre, and is found more especially in the valleys of Switzerland, Savoy, Styria, and the Tyrol. In England it is sometimes met with in the dales between Lancashire and Yorkshire. Cretins are stunted in growth, and have large faces with stupid expression, drooping lower jaw, broad nose and retreating forehead, large bellies and distorted limbs. The condition is caused in some way by residence in certain neighbourhoods. It is never safe for a pregnant woman to live in such a place. When such a condition appears, the best chance of cure lies in removing to another neighbourhood with dry porous soil, and taking nourishing food with cod-liver oil and other tonics. *See* GOITRE.

Crisis.—A sudden change in the course of a disease (such as typhus fever) tending to recovery or death. Profuse diarrhœa or discharge of sand in the urine, or copious perspiration, often accompany such a crisis.

Croton Oil is expressed from the seeds of a shrub from the East Indies (*Croton tiglium*). The oil resembles castor oil, but is a far more powerful irritant and purgative, quite unfit for domestic use. Even the dust from the seeds has been known to cause violent purging. A liniment of the oil is used as a counter-irritant, and brings out a thick crop of mattery heads, with sometimes an appearance like erysipelas or severe nettle-rash. Internally it is given in minute doses in apoplexy and other states where more bulky purgatives cannot be swallowed. In case of an overdose, treat as for IRRITANT POISONS.

Croup includes three diseases, which agree in causing noisy crowing or whistling breathing, together with more or less cough, but differ in almost every other respect.

MEMBRANOUS CROUP is a severe and often fatal disease which most physicians now regard as a variety of *diphtheria*. It is described under that heading.

CATARRHAL CROUP is caused by inflammation of the larynx; it often follows an ordinary cold in the head or sore throat, and varies from a dangerous and possibly fatal disorder to a trivial complaint which is well in a few days. *See* LARYNGITIS.

SPASMODIC CROUP, or child-crowing, arises from spasm of the *glottis* (or opening of the larynx) started by purely nervous causes without any local inflammation. It is often called false croup, as also is catarrhal croup. Spasmodic croup is common in rickety children who are cutting their first set of teeth, or who are troubled with worms or indigestible food. The child wakes suddenly in the night, starts up struggling for breath, which at last is drawn in with a loud crowing noise. During the attack, the fingers and toes often become rigid, and the thumbs are drawn across the palms. The attacks are very rarely fatal, although they may return repeatedly. They may be brought on in the daytime by any excitement or a sudden fright. Between the attacks the child is perfectly well, and no fever need be present: two points which distinguish this disorder from catarrhal and membranous croup. Very similar attacks may arise when something "goes the wrong way."

THE TREATMENT is that of *Rickets* (*which see*). During the attack a hot

bath, with cold sponging of face and chest are most likely to be of use. *Pr.* 18 may be given. If the food has been unsuitable, castor oil should be given to get rid of it. If the gums are red, hot and swollen, they may be lanced. If the glands of the neck are enlarged, cod-liver oil will be necessary.

Crushed Limbs often bleed less than mere cuts, as the arteries are twisted and closed. Bind carefully to a splint; if any bleeding is going on, tie a handkerchief tight round the limb well above the injured part; treat the sufferer for *Shock*, and send at once for a surgeon.

Crystalline Lens. *See* EYEBALL.

Cubebs.—Tailed pepper, the dried unripe fruit of a kind of pepper. It is chiefly given as a stimulant to the urinary organs, and in relaxed sore throat.

Cubic Space.—This has an important bearing on the ventilation of a room. Each adult requires a cubic space of 1000 cubic feet, or 10 feet in every direction. Less than this causes draughts or insufficient ventilation. The Privy Council require 80 cubic feet in schoolrooms for each child in average attendance, and at least 8 square feet of floor space. In barracks, 50 square feet are required per head. As a height of more than 12 feet is usually disregarded in such calculations, this corresponds with a space of 600 cubic feet. *See* VENTILATION.

Cucumber is unwholesome for invalids, and apt to disagree with many people in ordinary health, especially if not quite fresh. The peel is especially irritating.

Cupping is of two kinds: wet-cupping, in which blood is drawn; and dry-cupping, in which the blood is merely collected under the skin as in a big bruise. Cupping glasses of many kinds are used. They may safely be applied by a non-professional person to any part of the back. To do so, dip a piece of blotting paper into spirit, set fire to it in the glass, and while it is flaming, put the glass rapidly on to the skin. This puts out the light; and the air on cooling contracts and draws up the flesh into a big swelling. In *wet-cupping*, the skin is previously lanced with a lancet or scarifier. The chief difficulty in cupping is to make the skin rise properly without burning it. In an emergency, an ordinary wine-glass answers well for a cupping glass.

Cupralum.—A mixture of copper sulphate, alum, and a little bichromate of potassium with terebene. It is a valuable disinfectant and deodorant, and has been adopted by government for use in the army. It may be used for disinfecting excreta. *See* DISINFECTANTS.

Currants. *See* FRUIT.

Curry Powder consists of turmeric, cardamoms, cayenne or black pepper, mustard, ginger, and other spices. Taken in moderation with rice and other light foods it is not unwholesome; but is seldom or never suitable for an invalid.

Cusparia. *See* BITTER TONICS.

Cuts. *See* WOUNDS.

Cut Throat causes two chief dangers: one of hæmorrhage or bleeding from the large vessels of the neck; the other of suffocation. The first must be arrested in the usual way. (*See* HÆMORRHAGE). The second is combatted by putting the man on his side or face, so that the fluid will run away from, instead of into, the wind pipe. Send for a surgeon.

Cutaneous.—Belonging to the skin.

Cuticle. *See* SKIN.

Cyanosis. *See* BLUE DISEASE.

Cynanche. *See* QUINSY.

Cyst.—An unnatural cavity in the body, lined with membrane, and containing fluid or semi-fluid matter. Cysts are often removable by the surgeon.

Cystitis. *See* BLADDER, INFLAMMATION OF.

Dairies.—The sanitary authorities have power to inspect all dairies, and enforce the observance of proper rules. This is of great importance, as milk, besides being occasionally contaminated with polluted water, has a great tendency to absorb any noxious emanations near it. Ernest Hart, in 1881, gave a tabulated account of 71 epidemics traceable to infected milk. Most of these were of enteric fever; the others were of scarlet fever and diphtheria. Nearly 5000 people were attacked in these epidemics. Milk of consumptive cows is credited with causing consumption; this is another reason for careful inspection.

Dalby's Carminative is said to contain

opium, and should therefore not be given to infants.

Daltonism. *See* COLOUR BLINDNESS.

Damp. *See* CLIMATE; CLOTHES; HOUSES; SOIL.

Damsons. *See* FRUIT.

Dancing. *See* EXERCISE.

Dance, St. Vitus'. *See* CHOREA.

Dandelion.—A well-known domestic remedy for liver disorders. Preparations are made from the root, fresh or dry. The former are the most efficacious. Clean the fresh root, and slice transversely into pieces ¼ inch thick, and infuse 2½ ozs. with ¼ oz. of orange-peel in a jug with 1 pint of boiling water. Boiling spoils the preparation. Dose, 2 to 3 cupfuls per day. It is useful in liver disorder, when the urine is high coloured and scanty, depositing a pink sediment.

DANDELION COFFEE.—Dry the roots at a gentle heat, reduce to powder, and mix with coffee. It is much used in some parts of the Continent. *See* COFFEE.

DANDELION SALAD.—Use the leaves blanched by earthing up or by shade.

Dandriff, or scurfiness of the scalp. In this complaint scales are shed consisting of epidermic cells, mixed with sebaceous secretion. (*See* SKIN.) It is more common in women and children than in men, and (it is said) in dark-haired individuals. It is due sometimes to want of cleanliness with confinement of secretions of scalp, sometimes to rough combing and brushing, or to unsuitable head-gear. Some forms are said to be communicable, and associated with the presence of special bacteria. It may depend upon constitutional debility or disease. *See* ANÆMIA; SCROFULA.

TREATMENT.—Cut the hair short, apply hair oil at night, and remove in the morning with soap and warm water, drying thoroughly with a soft towel, and applying simple pomade. Arrange the hair with a comb, and avoid the use of hard brushes, or of tooth-combs. If the scales are adherent, borax lotion may be used, or a little soft soap: but too frequent use of these causes irritation and soreness of the scalp. More active remedies should only be used under medical advice. The following are suitable: *Hair Oil:* Sweet almond oil, 1 pint; oil of bergamot, 2 fluid drachms. *Borax lotion:* Borax, ½ ox.; camphor, in powder, ¼ oz.; dissolve in boiling water, ½ pint; cool and filter, and add rectified spirits of wine, ½ pint. *Pomade:* Sweet almond oil, 9 fluid ozs.; spermaceti, 1 oz.; melt together, and when a little cooled add essence of bergamot, ¼ oz. Another useful application is *red oxide of mercury* ointment, with 4 times as much simple ointment.

Darnel Grass.—A kind of rye grass which has poisonous properties. Instances have occurred upon the continent where the seeds have been accidentally ground up with barley, and eaten, causing burning in the throat, giddiness, headache, drowsiness, and diarrhœa.

TREATMENT would be as in irritant poisoning (*which see*).

Date.—An important article of diet in Egypt, Arabia, Persia, etc. It contains much sugar. Dried dates are not very digestible.

Datura. *See* STRAMONIUM.

Dead, Disposal of the.—Every dead body is sooner or later resolved into the same elements, in whatever way it may be disposed of. The process of decomposition may be hastened or delayed, but cannot be altogether prevented, unless by a costly and elaborate process of embalming. It remains to be considered which method of disposal is least likely to injure the health of the living, and most respectful to the dead. Bodies buried at sea are quickly disposed of by the innumerable living inhabitants of the ocean. Those buried in the earth undergo slower decomposition, and are preyed upon by worms and minute forms of life, both animal and vegetable. During this process the atmosphere and the water trickling through the soil are polluted. Decomposition takes about five or six years in sandy soil, ten in chalk and sandy or marly loams; but in stiff clay, such as that forming the soil of many of our graveyards, decomposition is by no means complete after 20 or 30 years. In consequence of the horrible revelations of the royal commission appointed many years ago, an Act was passed prohibiting burial within the

boundaries of our large cities; but population increases so rapidly that the same difficulties are arising in many suburban cemeteries, which are crowded with bodies in all stages of decomposition. In India there is a custom of exposing dead bodies on "towers of silence," where they are devoured by vultures; but our sentiments of respect do not permit us to think of such revolting expedients, and the choice really lies between cremation and some modification of burial which shall hasten the necessary changes. Mr. Seymour Haden, in his "earth to earth" system, employs lightly constructed wicker-work coffins, which soon give way. This meets some of the difficulties, but not all, as a suitable soil is by no means universal, and there is still danger of contaminating air and drinking water, while the dead occupy many hundred acres which might be used by the living. The water obtained near some of our graveyards has been found sparkling, and pleasant to the taste, although it was dangerously contaminated and capable of producing illness. From the researches of Darwin and Pasteur, it is probable that the spores of disease-producing bacteria are brought up to the surface by earthworms from infected bodies, so that epidemics might arise in this way. Burial in quicklime is probably a safe method, but is not regarded with much favour. On the whole the best method appears to be that by cremation, which is both safe and reverential. Crematoriums have been erected in several continental towns, and at Woking, in England, and are gradually growing in public favour. The body is placed in a suitable iron cradle, and introduced into a reverberatory furnace, which in two hours reduces it to a light ash, amounting to from $3\frac{1}{2}$ to $5\frac{1}{2}$ per cent. of the original weight. The burial service is conducted in the chapel attached to the building, or afterwards at a grave. The chief objections brought against cremation are that it is expensive, and that it destroys the evidences of the cause of death, so that poisoners might escape. The expense would, however, in time, be much less than that of burial; and as more careful examination of the body is required before cremation, it has actually led to the discovery of accidental poisoning, and prevented it in others. A child in Italy died of inflammation of the bowels, and was about to be buried with an ordinary certificate; but as the parents wished it to be cremated, the body had to be more carefully examined, when it was discovered that it had died from eating poisonous coloured sweetmeats; and the lives of other children were in this way saved. With a previous *post-mortem* examination (which should always be performed in every case of death), cremation is quite as safe as burial. Those poisons which might escape detection would be in all probability destroyed by burial as much as by cremation. It is therefore to be hoped that this method of disposing of the dead will be more and more adopted. Those who wish to learn further details may obtain them at the Woking Crematorium, and from a pamphlet on cremation by Sir Henry Thompson. *See* DISINFECTION.

Deadly Nightshade. *See* BELLADONNA.

Deaf Mutes, or deaf and dumb persons, may be so from birth, or may owe their affliction to complete deafness, arising before they have thoroughly learnt to speak. There are two different systems by which they may communicate with their fellows: one by means of the finger alphabet, and the other by lip reading. The latter method is by far the best, as it enables them to converse more freely with other people. Congenital deaf-mutism is liable to be transmitted to the offspring, so that intermarriage between those affected with it is to be avoided.

Deafness may be of all degrees, and may be due to many different causes; some affecting the outer or middle ear, others the inner ear or nerve of hearing. (1) One of the commonest is accumulation of *wax in the passage* (*see* EAR-WAX), and another is *inflammation* of the lining membrane. This may be due to a common cold, or to the introduction of pins and other bodies, or be caused by violently pulling the auricle, or by the spread of eczema from outside. (*See* EARACHE; EAR, RUNNING FROM THE.)

(3) The *drum-head* may be *injured* by mechanical causes, such as hairpins or pieces of stick pushed into the ear, sea-bathing, or a violent box on the ears (which is never a safe method of punishment). Sudden loud noises may also rupture the drum-head. Or again, it may be perforated by inflammation inside the drum. (4) *Throat deafness* is a very common affection. Here the eustachian tube (which leads from the throat to the middle ear) is blocked by sore throat, or lymphatic thickening. (*See* TONSILS, ENLARGED.) In a natural state the pressure of air inside and outside the drum-head is equalized by passage of air along the eustachian tube. Sudden deafness and fulness in the ears are often caused by violently blowing the nose; but the symptoms disappear on swallowing, because this opens the eustachian tube. But when the tube is blocked, such relief is impossible, and the drum-head becomes unequally pressed upon, which causes deafness, "stuffiness," giddiness, and noises in the ears. Itching from the throat to the ear is not uncommon. In descending a coal-mine, or in a diving bell, or going up in a balloon, the saliva should be frequently swallowed, to relieve the drum of the ear. (5) *Inflammation inside the drum* is a common cause of deafness and earache in children, and, if neglected, leads to serious damage of the drum-head or ear-bones. Acute inflammation always causes violent earache (*which see*); chronic inflammation usually follows an acute attack. (6) Deafness may result from disease of the *internal ear*. This is sometimes excited by loud noises, such as that from artillery practice or boiler-making. Other causes are blows on the head, severe mental shocks, mumps, diphtheria, and other febrile diseases, old age, and exhaustion from frequent child-bearing, or prolonged nursing in women. Most of these conditions are unfavourable for treatment; but the last is sometimes curable. Quinine and some other drugs, if given in large doses, will cause temporary deafness. Habitual and obstinate constipation sometimes causes deafness. (*See* MÉNIÈRE'S DISEASE.) Where deafness arises from disease of the internal ear, a tuning fork placed on the forehead is heard best by the sound ear, whereas if the deafness is caused by disorders of the conducting apparatus (outer ear or drum), the sound will be best heard on the deaf side. (7) Incurable deafness also arises from disease of the *brain* or its membranes, such as an apoplectic fit or a tumour.

TREATMENT.—From the foregoing remarks it is obvious that there can be no single cure for all kinds of deafness, and that special skill and knowledge are required to detect the cause and apply the proper treatment. Where an accumulation of wax is present, this may be first removed by softening and syringing. If the throat is sore, suitable remedies may be applied to it (*see* SORE THROAT), and the fulness of the ears relieved occasionally by blowing the nose with the mouth and nostrils closed, and afterwards swallowing the saliva or some water. Whenever there is earache as well as deafness, it will be wise to consult a doctor at once. *See* EAR-TRUMPETS.

Death may come suddenly or slowly, in one of several different ways. The immediate cause of death is the stoppage of heart-action, or breathing. Sudden failure of the heart action may occur in *syncope* (fainting), shock, or great loss of blood. (*See* FAINTING; SHOCK.) It is recorded that people have died of fright, or sudden joy, although this would not probably happen in health. More gradual failure may be met with in old age, and exhaustion from cold, starvation, or long-continued illness. Failure of the respiration occurs in asphyxia, suffocation, and lung diseases. (*See* ASPHYXIA.) Here the imperfectly aërated blood is unable to circulate in the tightly contracted vessels, so that after a while the heart stops beating. Since both heart-action and respiration are controlled by nerve-centres at the base of the brain, disease or injury of the latter (as in apoplexy) will often interfere with breathing or circulation, and cause death. The same result follows where the blood is very impure, as in kidney disease, or poisoning with narcotics. (*See* COMA.) Mixed ways of

dying are also met with. In one sense, the whole of life is a preparation for death. After a certain period, most of the tissues begin to degenerate, and although the weakest link finally gives way, others are often almost as defective. In old age the functions of animal life (which connect us with the outer world) commonly fail before those of vegetative life (on which our life depends), so that the parting when it comes is less painful than it would otherwise have been. Probably death is not very painful, excepting in those rare instances where people are suddenly killed (as by a stab) while in vigorous health. This is confirmed by the testimony of those who have been rescued from drowning, or revived from severe fainting fits.

Death is simulated by fainting fits, asphyxia, and trance. When persons are found apparently dead, it should at once be ascertained whether life is really and finally extinct. It is important to persevere with means of restoration, as people have recovered after being a long time unconscious. At the same time, to assist further investigations, the position and attitude should be noted, together with any marks on the ground near, the position of surrounding objects, and the presence of bottles or other clues to the cause of death.

THE CHIEF SIGNS OF DEATH are as follows: 1. The *pulse* is not to be felt, the *heart-beat* inaudible; a *string* tied round a finger during life produces a bloodless ring, and gradually increasing lividity and redness beyond, while after death this does not happen. 2. The breathing may be tested by a *feather* or *looking-glass* held close to the mouth or nose, the first being moved, and the second dimmed if there is yet life. A cup of water placed upon the chest or abdomen is another good test, as the slightest movement of these parts would be noticed. After general death, there follows local death of various parts of the body. The *skin* loses its elasticity; the *corner* of the eye becomes collapsed and wrinkled, and covered with glairy mucus. The *body-heat* falls, although there may sometimes (as after tetanus) be a rise of temperature shortly after death. After two or three hours, or even less, *rigidity* of the muscles comes on; it usually lasts from sixteen to twenty-four hours. The muscles of the jaw and neck first show the change, after them those of the arms and legs. Still later come discolorations and other signs of decomposition. For CAUSES OF DEATH, DEATH-RATE, *see* STATISTICS.

Debility may arise from many causes—such as insufficiency of food, warmth, or fresh air, or imperfect digestion. In the next place, it may arise from impurity of the blood, where more food is taken than can be used up, or the diet is unsuitable, or too little exercise is taken, or the liver, kidneys, or other excreting organs are out of order. Abuse of alcoholic drinks has a similar effect. And lastly, the fault may lie not so much in the supply as in the demands made upon the system from overwork, loss of blood, profuse discharges, or sexual over-indulgence. Fever also makes great demands on the strength. Sometimes a weak constitution is inherited, sometimes it is acquired in one of the foregoing ways. The TREATMENT consists in attending to the causes, and in taking tonics such as cod-liver oil, iron, strychnine, etc. *Pr.* 6, 34, 35, 36, 37, 38, 40, 42.

Decay. *See* OLD AGE.

Decidua.—The membranes lining the uterus during pregnancy and cast off at birth.

Decline. *See* CONSUMPTION.

Decoction.—A preparation made by boiling. Among those used in medicine may be mentioned decoctions of cinchona bark, oak-bark, and logwood, and compound decoction of aloes. *See* INFUSIONS.

Decomposition. *See* ANTISEPTICS; FERMENTATION; PUTREFACTION.

Deformities may be congenital, or acquired through accident or disease. As a rule, the best chance of cure, or, at all events, of preventing increase of deformity, is to take early surgical advice. *See* CHEST; CLUBFOOT; FLATFOOT; PELVIS; RICKETS; SPINE; WRYNECK.

Deglutition.—The act of swallowing (*which see*).

Deliriants are poisons which cause giddiness, thirst, excitement, and de-

lirium, with enlargement of the pupil. In this class are included belladonna and its alkaloid atropine, henbane, stramonium, woody-nightshade (*dulcamara*), deadly-nightshade, the leaves and fruit of the potato, camphor, cocculus indicus, darnel-grass, and some of the poisonous fungi. Some of these interfere with the heart-action, others with the breathing; a few cause stupor and insensibility.

Treatment.—Give an emetic (*Pr.* 27, 28), followed by a full dose of castor oil, and suitable antidotes. If there is much faintness, give diffusible stimulants (*Pr.* 4, 5). *See* separate articles.

Delirium.— Wandering of the mind, such as often occurs in fevers. It differs from insanity in its temporary nature, and in its necessary dependence upon bodily illness. It may vary from a slight confusion of ideas on first waking, to muttering incoherence or furious excitement. The patient often continues talking to himself about many different things, unable to distinguish between what actually happens around him, and what is due to the play of his own fancy, and he may be even uncertain of his own identity, and be unable to estimate the lapse of time, or tell where he is. Delirium occurs most commonly in fever; but may accompany great exhaustion from other causes, extreme pain, want of sleep, or mental distress. It may also be caused by poisons, such as alcohol or belladonna, or by impurity of the blood from heart or lung disease, or from disorders of the liver or kidneys. (*See* Excretory Organs.) Sometimes the cause is actual disease of the brain. Delirium is less serious in children than in adults, coming on from very slight causes, and quickly passing away with these. In adults its gravity depends upon that of the cause, and it is chiefly important as an indication of the extent of the disease.

The treatment is that of the cause; but as a rule, plenty of digestible food is necessary, with rest and sleep, and attention to the excretory organs.

Delirium tremens should be called delirium with tremors. It usually arises from abuse of alcohol, but occasionally from other causes. In an intemperate man, whether he be given to nipping, soaking, or drinking bouts, an attack may be brought on by want of food, loss of sleep, an accident, or a feverish attack. There is no evidence of its being caused by abstinence from stimulants. The attack usually begins with sleeplessness. Then the patient fancies he sees all sorts of unpleasant objects, such as snakes, spiders, vermin, or little devils, or he has delusions of persecution, or of voices speaking to him and mocking him. Occasionally his ideas are of a more amusing character. He can usually be induced to answer questions rationally, but quickly lapses into his world of unreality. Tremulousness of the limbs may be present, but not necessarily so. The digestive system is usually disordered, and the liver inactive. The condition is one of weakness with excitement, and needs careful treatment by a medical man. Alcoholic stimulants should be entirely cut off, being replaced, if necessary, by other kinds (such as *Pr.* 4, 5, 6); and plenty of good food given in an easily assimilable form. It is also important to induce sleep by suitable means. (*See* Intemperance.) If the bowels are confined, an aperient will be needed. (*Pr.* 10, 11, 14, 50.) The patient usually needs watching, lest he should hurt himself. Sometimes he must be bound down by a strong webbing band, buckled under the bed; but, as a rule, much can be done by firmness and tact, without any such mechanical aids.

Delivery. *See* Childbirth.

Delusions. *See* Insanity.

Demulcents.—Remedies which mechanically coat the digestive canal, and protect it against irritation. They include gelatine, isinglass, gum, and mucilaginous plants, such as carrageen moss, Iceland moss, marshmallow, and linseed, liquorice, starchy substances, such as bread, barley, tapioca, sago, and arrowroot, fats and oils, white of egg, and albuminous fluids, honey, figs and glycerine. When applied externally, they go by the name of *Emollients*.

Dentifrice. *See* Tooth-Powder.

Dentition. *See* Teething.

Deodorants.—Substances which disguise or destroy offensive smells. Many antiseptics and disinfectants act in this

way. Amongst volatile deodorants may be mentioned sulphurous acid, chlorinated lime and soda, ozone and peroxide of hydrogen, sanitas, terebene, and various aromatic oils, which produce peroxide of hydrogen in the air. Non-volatile deodorants include charcoal (which absorbs noxious gases, and promotes their oxidation), earth, oxide of iron, lime, sulphate of iron, Condy's fluid, and chloralum. Offensive smells usually arise from decomposition of organic matter. Although not necessarily hurtful to the health, they are so frequently accompanied by other noxious substances, that they are a valuable indication for the need of removal or destruction of refuse. *See* DISINFECTANTS; ANTISEPTICS.

Depilatory.—An agent for the removal or destruction of hair. The safest method is, however, removal with forceps or tweezers.

Depletion.—Unloading of blood-vessels by means of blood-letting, purging, sweating, and similar methods.

Depressants are poisons which cause muscular weakness, or interfere with the action of the heart. Among the first group are hemlock, tobacco, lobelia, Calabar bean, and curara. They do not affect the clearness of the mind. The second group includes prussic acid, oxalic acid, and salts of sorrel, aconite, digitalis, veratrum, colchicum, and some other poisons.

Treatment is often useless in poisoning by prussic acid, as death comes on so rapidly; in the others, empty the stomach (*Pr.* 27, 28), give stimulants (*Pr.* 4,5), and suitable antidotes. *See* separate articles.

Depression.—*See* DEBILITY. Mental depression is often due to overwork, dyspepsia, or liver disorder. Sometimes it is the forerunner of insanity. *See* INDIGESTION; INSANITY; LIVER DISORDERS.

Derbyshire Neck. *See* GOITRE.

Derivatives. *See* COUNTER-IRRITATION.

Desquamation.—Shedding of scales from the skin. It occurs after scarlatina, measles, and other infectious fevers attended with an eruption; also after irritation by the sun's rays, superficial burns, mustard plasters, etc. *See* INFECTIOUS FEVERS.

Detergents.—Substances which cleanse the skin—such as warm water, soap, alkalis, borax, or vinegar. Some act mechanically, *e.g.* pumice-stone, sawdust, oatmeal, charcoal, or sand. *See* CLEANLINESS; ABLUTION.

Devonshire Colic. *See* LEAD POISONING.

Diabetes.—A disease in which there is a greatly increased discharge of urine containing sugar. The liver in health manufactures a substance called glycogen, which is probably transformed into sugar, according to the needs of the body. In diabetes so much sugar passes into the blood that it cannot be utilized, but is cast out of the body in the urine. The quantity of urine passed in this disease is sometimes enormous. Thus instances have been known of twenty pints or more being passed in 24 hours. There are also in diabetes loss of flesh, great thirst, dryness of the skin, and irritation of any parts with which the urine comes in contact. There is a great tendency to formation of boils and carbuncles, and to a kind of consumption of the lungs. Diabetes untreated is a very fatal disease, especially in the young, but is often very amenable to treatment. The causes of diabetes fall naturally into two groups, in one of which the liver is directly affected, and in the other indirectly through the nervous system. An abscess in the liver often causes sugar to appear in the urine, and other causes of congestion of the same organ (such as indulgence in alcohol) may have a similar effect. On the other hand, diabetes has followed mental worry, fits of anger, or blows on the head. It has also been attributed to exposure to cold and wet, although it is uncertain how this acts. The TREATMENT should always, if possible, be in medical hands. Where this is not possible, adhere strictly to a diet containing little or no starch or sugar. This is usually very trying, as all bread and farinaceous foods are necessarily excluded; but it is essential to success. Several artificial substitutes for bread are now prepared. There is no advantage in curtailing the amount of water drunk; if taken warm, it will better quench the thirst. (*See* BREAD FOR DIABETICS; DIET

X.) Over-fatigue must be carefully avoided by diabetics, who should in every respect lead a regular temperate life. Neglect of these precautions may be rapidly fatal. As regards medicine, opium is the sheet-anchor. As there is usually great tolerance for it in this disease, 1 grain may be taken by an adult three times a day, or, if necessary, even more. The urine should be regularly tested, to determine the progress made. *See* URINE, SUGAR IN THE.

Diabetes insipidus.—In this disease the quantity of urine passed is immensely increased, but no sugar is present in it. Many quarts may be passed every day, causing extreme thirst. The urine is usually thin and limpid, with a low specific gravity (1001–1002), and liable to quickly decompose, in all these respects contrasting with that of true diabetes. The skin is usually dry, and constipation is the rule from dryness of the fæces. The appetite is variable and fanciful, sometimes voracious, sometimes the reverse. Loss of flesh and strength and a tendency to chilliness are commonly present. The *causes* are uncertain; but exposure to cold and wet appears to be a common one. The TREATMENT, as in true diabetes, should be in medical hands. There is no need to restrict the diet or drink, beyond observing the usual rules as in health. The best remedy is liquid extract of ergot, of which thirty drops may be taken in water three times a day.

Diachylon. *See* PLASTERS.

Diagnosis.—The art of distinguishing one disease from another, without which all treatment must be haphazard and uncertain in its effects. The same term is also applied to the result arrived at.

Diaphoretics or *sudorifics*, remedies which produce perspiration. Amongst them are hot baths, vapour baths, and hot-air baths, hot sponging, the wet pack, copious warm drinks, and, among drugs, acetate of ammonia, alcohol, ether, ipecacuanha, antimony camphor and Dover's powder. When such remedies are used, the patient should keep himself in bed and cover himself with plenty of blankets. Flannel should be worn next the skin, and care be taken to avoid exposure. When sufficient perspiration has been induced, the skin should be carefully dried with warm towels, warm dry clothing put on, and the bed coverings lightened. *See* Pr. 7, 31.

Diaphragm, or *midriff*, the muscular and tendinous partition between the chest and abdomen. (*Fig.* 20.) It is attached below by a sort of double stalk to the front of the lumbar spine, and expands above to be attached to the lower ribs and breast bone. It forms a dome-shaped arch, on which rest the two lungs and heart; while below are placed the liver, stomach, spleen and other organs. (*Fig.* 20.) When it contracts, the arch is flattened, whereby the chest-cavity is enlarged and the abdominal organs pressed down. (*See* RESPIRATION.) Flatulent distension of the stomach or bowels will often press the diaphragm upwards, and cause shortness of breath or palpitation. *See* ABDOMEN; CHEST; HEART; LUNGS.

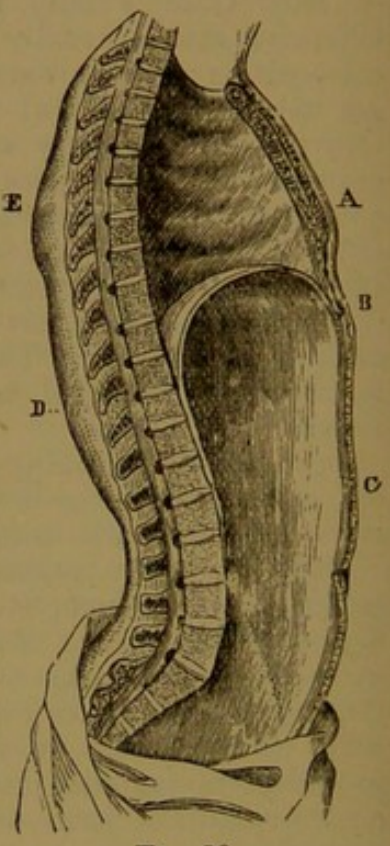

FIG. 20.

The Diaphragm, *BD*; Cavity of chest, *AE*; Cavity of abdomen, *CD*. (From Robertson's "Elementary Physiology.")

Diarrhœa.—Looseness of the bowels, is a symptom of many diseases, but sometimes constitutes the chief complaint, and may then for convenience be regarded as a disease in itself. There are many different varieties, which must be distinguished in order to be satisfactorily dealt with.

IRRITATIVE DIARRHŒA often comes on with griping pain in the abdomen; the motions may be frequent, accompanied with tenesmus, and in severe attacks there may be symptoms of col-

lapse as in cholera—great exhaustion, hollow cheeks, cold hands and feet, feeble pulse and weak voice. If diarrhœa is long continued, there is loss of body-weight, and the skin becomes unnaturally dry. This kind of diarrhœa is caused by errors in diet, many poisons, intestinal worms, hard fæces retained in the bowels, effluvia from various sources, fevers, and other causes of impurity of the blood.

Errors in Diet.—Simple over-eating is quite sufficient to bring on diarrhœa. Unripe or fermenting fruit, raw or stale vegetables, sausages, pork, veal, goose, duck, shell-fish, tainted meat, and decayed cheese, are also frequent causes.

With regard to some of these, great differences exist among different people, "one man's food being another man's poison." Then again, the food may be suitable, but not properly prepared. Half-cooked rice, peas, or oatmeal often cause diarrhœa. In infants a common cause is sour milk, or a taint derived from neglect of the feeding bottle or its tube. But still more common is the provision of starchy and other food, unsuited to the children's age. *See* INFANT-FEEDING.

Then in regard to *beverages*, over-indulgence in fermented liquors often brings on diarrhœa. With some people taking cider, even in moderation, has a similar effect. Impure water is probably the cause of the *summer diarrhœa* so common in England during the hot part of the year, and so fatal to children. In this variety the stools are liquid, brown or greenish, action of the bowels is urgent, and causes much exhaustion. Water may be tainted by sewage, or by decomposing animal or vegetable matter of various kinds. Marsh-water sometimes causes diarrhœa. *Poisons* also frequently give rise to diarrhœa and vomiting. Powerful irritants cause inflammation of the bowels. A connection may usually be traced in poisoning between the taking of food or drink and the onset of the symptoms; but these may be delayed for some hours (especially if the stomach be full of food), and the poisoning may arise in other ways. *See* POISONS AND POISONING; BOWELS, INFLAMMATION OF.

Of *intestinal worms*, round worms are most liable to cause diarrhœa.

It should also be remembered that *constipation* is a cause of apparent diarrhœa, hardened fæcal matter being retained and irritating the bowel. Many attacks of diarrhœa are best treated with castor oil or rhubarb. *Effluvia* or bad smells from sewers, decayed refuse, dissecting rooms, knackers yards, or overfilled churchyards, may give rise to persistent diarrhœa. They may also cause sore throat and boils; there is usually much depression of strength. *Infectious fevers* are sometimes complicated with diarrhœa. In cholera, enteric fever, and dysentery, diarrhœa is a very prominent symptom. (*See these.*) In the same way, those suffering from *Bright's disease*, *diabetes*, or *goutiness*, are liable to looseness of the bowels. This tendency is increased by exposure to cold weather.

CONGESTIVE DIARRHŒA arises from determination of blood inwards from exposure to cold and wet, from a sluggish circulation through the heart or liver, or suppressed menstruation in women. The portal vein is fed by branches from the bowel, and sends its blood to the heart through the liver. If the latter is congested by indulgence in alcohol or any other cause, the bowel follows suit and diarrhœa results. Piles and bleeding from the bowel are often present. The motions are usually liquid and bilious, unattended with griping. When the kidneys are unsound, a chill sending the blood inwards cannot relieve itself by increase of the urine, so that discharge takes place from the bowel instead. Such forms of diarrhœa should not be rashly stopped. Those who live in hot countries or who perspire freely find it advisable to wear flannel in order to prevent the risk of diarrhœa and liver disorders.

NERVOUS DIARRHŒA sometimes affects students going up for examinations, or sensitive women at puberty or the change of life. Over-fatigue, fear and other powerful emotions bring on these attacks, while diet has little influence. There is little pain as a rule, unless neuralgia is present. The diarrhœa of teething is often nervous in origin.

DEGENERATIVE diarrhœa occurs when the coats of the bowel have lost some of their vitality. One form is found in old age, and is little amenable to treatment, although fortunately quite compatible with good health. Another form arises from starvation. Many infants fed with unsuitable food are virtually starved. In such cases loss of weight precedes the diarrhœa. Another variety is of more serious import, and occurs in those who have been long subject to discharge of matter from diseased bone or other sources. It is difficult to arrest and calls imperatively for skilled medical attention.

Diarrhœa from CHANGES IN THE BOWEL is also found in those suffering from consumption, ulceration of the rectum, cancer, and other complaints. The motions are often slimy or offensive, containing perhaps streaks of blood mixed with mucus or matter. (*See* RECTUM, ULCERATION OF THE; CANCER; CONSUMPTION.) There is often marked loss of flesh and strength. In consumptive people the stools may be watery and bilious, with little pain; night-sweats are often present, and feverishness towards the end of the day.

The PREVENTION of diarrhœa lies in avoiding or removing the causes. Food must be carefully chosen, suitable to the age and circumstances, and properly prepared. Water must be pure, milk fresh and uncontaminated; if these are suspected, they should be boiled, and the water filtered. The drainage should be above suspicion, and refuse of all kinds promptly removed or destroyed. Suitable clothing should be worn, especially in very hot or very cold or changeable weather.

CURATIVE TREATMENT depends upon the cause. Where an irritant exists in the bowel, it should be removed by a dose of castor oil or of *Pr.* 10, 24. (*See* WORMS, INTESTINAL.) Diarrhœa from chill is best treated with 3 minims of strong spirits of camphor on sugar, every hour for five doses; the same remedy is suitable for choleraic diarrhœa, which comes on suddenly with much depression, also for diarrhœa from drain-smells. Nervous diarrhœa and that of old age call for tonics, good food and rest.

In obstinate watery diarrhœa astringents may be given, or starch and opium injections, but they are best avoided until other remedies have been tried. (*Pr.* 23.)

For lienteric diarrhœa, where food-taking provokes an immediate action of the bowels, *Pr.* 48 is useful.

For dysenteric diarrhœa, *see* DYSENTERY.

Diarrhœa from blood-disorders and in Bright's disease or gout should not be checked with astringents, but the cause treated. Where fever or early marked loss of flesh are present, or the stools contain blood, tarry liquid or matter, there is usually a more serious disease behind the diarrhœa. *See* RECTUM, DISEASES OF.

As regards *diet*, milk and farinaceous foods are most suitable. Stimulants, meat, stiff puddings and indigestible articles should be avoided. Milk and lime-water (equal parts) may suit better than milk alone. Cinnamon, which is slightly astringent may be used as a flavouring agent. Gruel made of acorn-meal or chestnut-meal, mixed with other farinaceous articles, is also useful. For the thirst, rice-milk is good, or, in time of cholera, lemonade with sulphuric acid. (*See* BEVERAGES.) The diarrhœa of pregnancy and of infancy is treated elsewhere. *See* INFANTILE DIARRHŒA; PREGNANCY, AILMENTS OF; TEETHING.

Diastase.—A ferment existing in malt, capable of converting starch into grape sugar. *See* FERMENTATION.

Diathesis.—A constitutional state predisposing to certain diseases, such as gout or scrofula. *See* CONSTITUTION.

Diet. I.—It has already been explained (FOOD) that substances used as food are mixtures of different food-stuffs which may be classified under five or six heads. It is found by experience that all these different classes — nitrogenous, fatty, carbohydrate, salts, and water—must be represented in a dietary if life and health are to be permanently maintained. Fat may, it is true, replace starch, but the digestive organs are apt to rebel; and the converse is not equally correct. Where much meat is taken, a smaller proportion of non-nitrogenous food is re-

quired. But such a highly nitrogenous diet throws extra work on the kidneys, and is apt to cause gout and allied diseases. Of the two nitrogenous groups, gelatin will to some extent replace albumen, but not entirely. The daily average needs of the body may be determined in several ways: (1) The excretions may be carefully weighed and analysed, and a calculation made of the amount of contained nitrogen and carbon. (2) The dietaries found by experience to be suitable for large numbers of people—as in barracks, schools, or prisons—may be analysed; or similar analyses may be made of the food which will maintain the health and weight of individuals experimented upon. These analyses may be made in terms of nitrogen and carbon, or of the various foodstuffs. (3) It has been proposed to take milk as the standard, since it suffices to support the infant during the first year of life. But the conditions are so different from those of adult life that we should expect an equal difference in the food suitable in the two cases: and experience shows that this is so. Milk is admirably adapted as a food for the growing organism, and during convalescence from acute illness; but is too highly nitrogenous for ordinary requirements. The results of calculations show that an adult doing a moderate amount of work requires about 300 grains of nitrogen and 4,800 grains of carbon per day; corresponding with about $4\frac{1}{2}$ oz. nitrogenous, $3\frac{1}{2}$ oz. fatty, and 14 oz. carbohydrate food, weighed dry. Add to this 1 oz. salts. and 60 to 80 fl. oz. water (20 oz. in the food), and we get a fair average dietary. Where these proportions are widely departed from, the body gains or loses weight, or the excretions show that an excess of one or other food is being taken. The minimum on which life may be sustained is about $2\frac{1}{3}$ oz. albumen, 1 oz. fat, and 12 oz. carbohydrates. This is when no work is done. There is no food which taken singly furnishes the right proportions of nitrogen and carbon. Oatmeal probably comes nearest, but contains relatively too much starch. Were we to live on bread alone, we should require $3\frac{1}{4}$ lbs. in order to obtain enough nitrogen; with meat alone, we should require nearly 3 lbs. in order to obtain enough carbon. And in the first place we should be taking too much carbon, in the second too much nitrogen. But a mixture of $\frac{3}{4}$ lbs. meat and 2 lbs. bread will exactly furnish the required amounts of nitrogen and carbon. With the aid of a table showing the composition of foods, a suitable dietary may easily be constructed.

The following is from Parkes :—

In 100 parts.

	Water.	Albuminates.	Fats.	Carbohydrates.	Salts.
Meat of the best quality with little fat	74·4	20·5	3·5	—	1·6
Uncooked meat of fattened cattle (Lawes & Gilbert) . . .	63	14	19	—	3·7
Roast meat, no dripping lost	54	27·6	15·45	—	2·95
Salt beef (Girardin) .	49·1	29·6	0·2	—	21·1
Salt pork „ .	44·1	26·1	7	—	22·8
Fat pork (Letheby) .	39	9·8	48·9	—	2·3
Dried bacon „ .	15	8·8	73·3	—	2·9
White fish „ .	78	18·1	2·9	—	1
Poultry „ .	74	21	3·8	—	1·2
Wheaten bread, av. quality	40	8	1·5	49·2	1·3
Wheat flour . . .	15	11	2	70·3	1·7
Biscuit	8	15·6	1·3	73·4	1·7
Rice	10	5	0·8	83·2	0·5
Oatmeal (Letheby) .	15	12·6	5·6	63	3
Maize (Poggiale) . .	13·5	10	6·7	64·5	1·4
Peas (dry)	15	22	2	53	2·4
Potatoes	74	1·5	0·1	23·4	1
Carrots (without woody matter) . .	85	0·6	0·25	8·4	0·7
Cabbage	91	0·2	0·5	5·8	0·7
Butter	6	0·3	91	—	Say 2·7
Egg (deduct 10 per cent. for shell) . .	73·5	13·5	11·6	—	1
Cheese	36·8	33·5	24·3	—	5·4
Milk, sp. gr. 1030. .	86·7	4	3·7	5	0·6
Cream (Letheby) . .	66	2·7	26·7	2·8	1·8

The quantity of different foodstuffs is however not the only thing to be considered in forming a dietary. The quality and mode of preparation of the food is equally important; and it is essential to obtain some *variety* both in the kind of

foodstuffs and in the way they are cooked. Even the lower animals suffer from too great monotony of diet; and this is still more true of man. The civilized races of mankind are remarkable for the complexity and variety of their diet. Not only is the food varied from day to day, but each meal differs from the others. And this variety appears to decidedly increase the value of the food which is taken. Other things being equal, tasty food is more readily digested than that which is badly prepared: the cook in olden times was regarded as almost or quite as important as the doctor, and there is much to be said for this view. Some people diminish their field of choice by restricting themselves to vegetable food. The arguments for and against such a course are alluded to under VEGETARIANISM. Diet requires to be modified according to age and sex, state of health, occupation, climate, and season. Different RACES of mankind have their special customs as regards food-taking, some due to climate and the character of available materials, some possibly to other causes. Individual peculiarities are alluded to under the head of IDIOSYNCRASY. WOMEN usually require about one-tenth less food than men, unless they are doing heavy physical work. During pregnancy a more highly nitrogenous but digestible diet is required. (*See* PREGNANCY.) AGE: For the diet of *infancy and childhood*, *see* INFANT-FEEDING; CHILDREN'S DIET. About the time of puberty, much nourishing food is also required; and a fair proportion of this should consist of meat, in order to supply the materials for making red blood. (*See* MENSTRUATION; PUBERTY.) *Young men* up to 25 years of age require a full allowance of food, especially if they are working hard physically. After 35 or 40 years of age, a spare diet is advisable. In *old age*, the food must be suited to the failing powers of mastication and digestion. Food must be soft, easily digestible, and taken in small quantities at a time. It may with advantage be given partially pre-digested, or pepsine taken with it. Only the more digestible vegetables are permissible, because of the tendency to flatulence. Pepper and other digestive stimulants are needed. Cayenne pepper may be taken in a bread pill. There is usually a tendency to diarrhœa or constipation, which should be considered in forming the dietary. With regard to OCCUPATION, more nitrogenous food is required whenever it is necessary to do much hard work in a short space of time. Although nitrogenous food is not directly the source of energy for muscular exertion, more is needed to make up for wear and tear, and for the transformation of other kinds of food. Routine work is far less trying than work "against time," and may be readily performed on a less stimulating diet. Sedentary occupations have a tendency to render the liver sluggish and give rise to constipation, so that the diet should not be a rich one, and should contain a full allowance of stewed fruit and other articles which assist the action of the bowels. (*See* CONSTIPATION.) In cold CLIMATES, more fatty food is needed. The Esquimaux babies voraciously devour whales' blubber, and will not touch sugar. On the other hand, in hot countries, juicy fruits and unstimulating kinds of food are needed. Similar changes, though on a smaller scale, may be made to correspond with different seasons of the year. The CONSTITUTION and physical build have also to be considered in forming a dietary. People with square frames are able to digest large meals at long intervals, whereas those more slimly built need little and often. Those of sanguine temperament should choose an unstimulating diet, those of lymphatic temperament, a stimulating one. Where the digestion is weak, the stomach should never be overburdened, nor indigestible things taken. If the digestion is very rapid, other things being equal, more frequent meals are required. *See* MEALS.

II. FEVER DIET.—In fever there is little power of digesting food, while the waste of substance in the body is more than usual. It is therefore important to supply the body with easily digestible liquid food, or better still with food that has already been digested outside the body. (*See* PRE-DIGESTED FOODS.) Dr. Fothergill has pointed out that beef-tea,

as usually made, is stimulant, but contains very little nourishment. By the addition of malt extract or of biscuit-powder, with some pancreatic fluid, it may be rendered both stimulating and sustaining. Several methods of preparing beef-tea or meat-extract are now in common use, in which the nourishment is retained in solution instead of being thrown down as a sediment. Veal-broth and chicken-broth are also suitable in fever cases. One of the most useful foods in fever is peptonised milk. During the height of the fever, food should be given every hour or two. As the fever diminishes, jellies and farinaceous foods may be added to the dietary, and the intervals lengthened between meals; and still later, during convalescence, white fish or chicken or boiled mutton may be given once a day. To relieve the thirst in fever, there are many simple drinks which may be prepared with the juice of lemons, apples, black currants, tamarinds, etc. (*See* BEVERAGES.) The following is the fever-diet (milk diet) at Guy's Hospital: 12 ozs. bread, 1 oz. butter, 2 pints milk. Barley-water or gruel at discretion of officers. *See also* MEAT-EXTRACTS; BEEF-TEA; FARINACEOUS FOODS; MILK; STIMULANTS.

III. DIET IN TYPHOID OR ENTERIC FEVER must be stricter than in other fevers. *See* ENTERIC FEVER.

IV. DIET FOR DYSPEPTICS should consist of easily digestible things taken in small quantities, so as not to overload the stomach. Since the digestion is usually stronger in the early part of the day, greater liberties may often be taken at breakfast and early dinner or lunch. But heavy or late suppers must always be avoided. The following articles are *suitable* for dyspeptics: chicken, game, white fish, sweet-bread, boiled mutton, or a steamed mutton chop, lightly boiled eggs, farinaceous foods, malted foods, stale bread, toast or plain biscuits, stewed fruits, seakale, asparagus, artichoke, broccoli and Brussels sprouts, and mashed potatoes. The following are *to be avoided:* veal, pork, duck, goose, salmon, oily fish—such as herrings, anchovies, pilchards, sardines, mackerel, or eels—shellfish, lobsters, and the like, kidneys, liver, sausages, rich greasy "made" dishes, hashes, stews, and fried things, pastry, sweets, and heavy puddings, new potatoes, cabbages, peas and beans, salads, raw fruit, cucumber, nuts, cheese, cream, fried or baked eggs, new bread, tea-cakes, hot rolls, rich cakes, and insufficiently cooked farinaceous food. Fried soles are more digestible if very hot fat is used, as this does not soak in to the same extent as warm fat. Farinaceous food is often better digested before than after meat. With regard to beverages, tea is usually objectionable, and coffee may also disagree. Some of the lighter kinds of cocoa are safe. (*See* BEVERAGES; STIMULANTS.) Simple soups are usually easily digested, excepting by those with a sluggish circulation through the veins—as in some of the subjects of heart disease.

V. Dyspeptics who are *gouty* are recommended to abstain from red meat, stimulants, and all hot, sweet, or strongly flavoured kinds of food. Where cane sugar disagrees, it may be replaced by malt-extract or saccharine. The acids of stewed fruit may be neutralized with a little carbonate of potash without spoiling the flavour.

VI. Where the *stomach* is very *irritable*, and rejects all ordinary food, nothing should be given but iced milk and soda-water, peptonised milk, milk and Vichy or Vals water, or malt extracts, all in very small quantities at a time. Thirst may be relieved by sucking ice, or by frequently rinsing the mouth with warm water. If there is diarrhœa as well as vomiting, a little prepared chalk may be added to the milk instead of soda-water—as much as will lie on a sixpenny-piece to half-a-pint. If there is constipation, light magnesia is better. *See* CONSTIPATION.

VII. DIET IN CONSTIPATION. *See* CONSTIPATION.

VIII. DIET IN DIARRHŒA. *See* DIARRHŒA.

IX. DIET FOR STOUT PEOPLE. *See* OBESITY.

X. DIET IN DIABETES.—In this disease all starch and sugar must be avoided, and articles substituted which are free from these ingredients. *Permissible*

articles are: butcher's meat of all kinds, excepting liver; ham, bacon, and other preserved meats; poultry, game, fish, meat soups, beef-tea, broth and meat-extracts, specially prepared bread (*see* BREAD FOR DIABETICS), eggs, cheese, butter, cream, cod-liver oil, greens, spinach, salads, spring onions, jellies or blanc-manges, if made without milk or sugar (cream may be used). For drink, tea, coffee, or cocoa from the nibs; claret, dry sherry, unsweetened spirits with plenty of water, soda-water, and other unsweetened effervescing table-waters. The following *must not be taken:* sugar in any form, ordinary bread, farinaceous foods, potatoes or root-vegetables, peas, French beans, cabbage, Brussels sprouts, asparagus, seakale, pastry or puddings of any kind, jams and marmalade, fruit, milk (except very sparingly), malt liquors, sweet wines, liqueurs and sweetened spirits, cocoa containing starch or sugar.

Digester, Papin's.—A strong airtight vessel for boiling bones and other substances under high pressure. The boiling-point of a liquid depends upon the atmospheric pressure. At the top of a high mountain, water boils at so low a temperature that eggs cannot be properly cooked. On the other hand, by heating in a powerful, airtight vessel water may be raised much above the ordinary boiling-point (212° Fahr.) without conversion into steam. Bones put with water into such an apparatus yield much more gelatine than if boiled in the ordinary way. A digester for domestic use is sold by ironmongers.

Digestion in the Body.—By this is meant the conversion of food into substances capable of absorption. In the *mouth*, starch is transformed into sugar, and the food prepared by mastication for swallowing and further changes. In the *stomach*, proteids and gelatin (which form the greater part of meat and of the gluten of flour) are converted into diffusible peptones. In the *small bowel*, both starch and proteids are more completely transformed, while fat is prepared for absorption. For further details, *see* ABSORPTION; BOWELS; MOUTH; STOMACH. *Digestion is aided* by (1) substances which directly assist in the transformation of food, such as pepsin, pancreatin, etc.; (2) substances which stimulate the digestive organs to do their work more thoroughly, such as spices, pepper, mustard, etc.; (3) tonics and other remedies acting on other than the digestive organs of the body. *See* DIGESTIVE AGENTS.

Digestive Agents.—The most important of these are diastase, pepsin, and pancreatic extract. Diastase is the ferment of malt, and converts starch into sugar (*see* MALT EXTRACTS; MALTED FOODS). Pepsin is the ferment of gastric juice; it converts gelatine and albuminoids into peptones in an acid medium. (*See* PEPSIN; PEPTONISED FOODS.) Pancreatic extract made from the pancreas or sweet-bread has a much greater range of action, as it converts starch into sugar, and gelatine and albuminoids into peptones; and also emulsifies fats. It requires an alkaline medium, so that it is useless in the stomach after the beginning of a meal.

Digestive agents may be used by invalids who are incapable of properly digesting their food, or in whom the digestive organs require rest; or by those who without being invalids are unable without assistance to indulge in the luxuries of the table. It must however be remembered that they afford little or no assistance to the liver, which has to transform the products of digestion into substances capable of assimilation by the tissues. More half-digested food may be brought to the liver than it is capable of dealing with, in which case the urine will contain sugar or excessive quantities of urates, or the patient will become gouty or develop kidney disease. It should also be remembered that unexercised organs lose their power, and an exclusive diet of pre-digested foods may therefore render the digestive organs incapable of digesting any other kind. (*See* MALT EXTRACT; PEPSIN; PANCREATIC EXTRACT; PREDIGESTED FOODS; RENNET.) To use pepsin and pancreatin together is unscientific, as one requires an acid, and the other an alkaline medium, and one or other is necessarily destroyed or wasted.

Digestive Organs.—The alimentary canal or passage through which the food

passes from the mouth to the anus, together with salivary and other glands, liver and pancreas.

Digitalis, *Foxglove*, is well known as one of our native wild flowers. The leaves are used medicinally in heart disease and kidney disease. They speedily remove some kinds of dropsy; and if used in *small doses* strengthen and regulate the action of the heart. The plant is however a powerful poison, and is not suited for domestic use. Symptoms of POISONING are faintness, giddiness, feebleness of pulse and depression of the heart action, with nausea and sometimes diarrhœa. The best treatment would be to quickly empty the stomach by a stimulant emetic (a table-spoonful of mustard in warm water, or *Pr.* 27, with a teaspoonful of sal volatile), and give brandy, ammonia, ether, or strong coffee, keeping the extremities warm.

Dill.—Like caraway and fennel, is the fruit of an umbelliferous plant, and has carminative properties. Dill water may be given in doses of 1 to 2 fl. ozs., or for infants, 1 to 2 fl. drachms. *See* AROMATICS.

Diluents.—Fluids taken to increase the secretion of the skin and kidneys, and thereby to purify the blood. *See* BEVERAGES.

Dinner. *See* MEALS.

Diphtheria.—An infectious disease, causing sore throat with membranous exudations, and great depression of strength. It is far more common in some places (such as Paris) than in others, and may appear in epidemics or in apparently isolated cases. Those who live under bad hygienic conditions, or who are recovering from scarlatina, measles, or whooping-cough, or have been recently confined, are especially liable to take the disease. Filth, insufficient ventilation, and want of good food are predisposing causes, although those in good circumstances may suffer from the disease. Some epidemics have been traced to defective drains or infected milk. One attack of diphtheria does not protect against a second. The *symptoms* usually appear after a few days' incubation. There is perhaps a slight sore throat and a tickling cough, enlargement of the glands of the neck, and a little feverishness; the patient feels languid, drowsy, and wanting in energy, and suffers from chilliness, loss of appetite, or diarrhœa. The weakness gradually increases, and the voice becomes hoarse and muffled; and if the throat is examined, it is now found to be red, with adherent patches of yellowish white colour on the tonsils or some other part. Breathing becomes increasingly difficult, and if unrelieved the patient may die suffocated, or be carried off by extreme weakness or paralysis of the throat, or some other complication. Diphtheria is met with in all degrees of severity; there may be a scarcely noticeable sore throat, with a little weakness and discomfort, or a destructive process with mortification and extreme depression of strength. The amount of fever or of sore throat is no measure of the danger, for death may happen from some complication in a slight attack.

PREVENTION.—During an epidemic, attention should be paid to the sanitary condition of the house, and all milk or water boiled before use. The slightest sore throat should be immediately attended to. As regards TREATMENT, the disease imperatively calls for skilled medical advice. The patient should be put into a large, well-ventilated room, with plenty of fresh air, but no draughts. He must have abundance of liquid food, and be kept warm. It is common to surround the bed with a sort of tent of sheets, and keep a bronchitis kettle steaming into it. The ordinary methods of isolation and disinfection should be carried out, all the sputa and other matters coming from the patient being received into some disinfectant and speedily destroyed. It is especially in the material coughed up from the throat that danger of infection exists, so that nurses should, as far as possible, avoid breathing the breath of the patient. Small pieces of ice to suck may be given from the first. For other details, the doctor in attendance must be consulted. *See* CROUP; DISINFECTION; ISOLATION; TRACHEOTOMY.

Dipsomania. *See* INTEMPERANCE.

Discharge.—Matter or some other mor-

bid substance cast out of the body. *See* ABSCESS; EAR; NOSE; RECTUM; URINE; WHITES.

Disease.—Some change in the condition of mind or body, causing pain or discomfort, or tending to shorten life. It is a common mistake to regard a disease as something which has been introduced into the body and can be taken out again; whereas it is rather a disturbance of the natural working of the body. Diseases are variously classified, according to their nature, the part of the body attacked, their causes, and so forth. One common division is into *structural* or *organic* diseases, in which some physical change may be recognised during life or after death; and *functional* diseases, in which no such change can be discovered. The latter however sometimes pass into the former; and some of them may ultimately be transferred into the other division.

Another classification is into *local*, and *general* or constitutional diseases, according as only a part or the whole body is affected. But very few local diseases exist in which the whole body is not to some extent affected; and many general diseases show themselves chiefly in one part of the body, or begin as local diseases. Some general diseases, such as scarlatina or small-pox, are communicable from one to another; others, like gout or scurvy, cannot be transmitted in this way. *Infectious* or communicable diseases sometimes affect isolated individuals, in which case the disease is called *sporadic*. At other times they appear in outbreaks affecting a large number of persons, when they are called *epidemic*. If a disease always prevails in certain places, it is said to be *endemic* there. The causes of disease are often divided into *predisposing* and *exciting*. Thus the inherited constitution may be a predisposing cause of gout, while a public dinner may act as the exciting cause. Or debility from overwork may predispose to neuralgia, and a cold draught may be the exciting cause of an attack. Knowledge of the causes of disease is of the utmost importance to every one—prevention is better and easier than cure.

Many diseases arise from neglect of the laws of health (*see* HYGIENE); many also depend upon causes outside the individual, such as poisons, parasites, and contagia, atmospheric conditions, climate, season, and place of residence. The influence of the foregoing is also modified by age, sex, race, and constitution. Further information will be given under these heads.

Before attempting the treatment of disease, it is necessary to determine its exact nature, or to form a *diagnosis*. Until this has been done treatment will be haphazard, and liable to do harm instead of good. Every competent physician is not satisfied with this, but endeavours to forecast the probable course of the disease, or form a *prognosis*. Remedies may then be chosen to combat the dangerous tendencies, and, if possible, to cure the patient. Some diseases have a natural tendency to recovery. Others are curable by particular remedies, while yet others are incurable, although the number of these is steadily diminishing.

The causes of disease being of many kinds, it is obvious that there must be many different ways of combating it, so that no system of medicine which recognises only one principle of treatment can be free from objection. It is well to remember that the bodily health is largely influenced by the mind, so that cheerful co-operation on the part of the patient will often greatly assist the efforts of the physician; and, on the other hand, it is the duty of the latter to favourably influence the mind while he applies his remedies to the body of his patient.

Disinfectants are things capable of destroying the contagion of infectious complaints. Probably some act by killing the minute living organisms which are believed to cause these diseases, or by preventing their growth; while others destroy the poisons which they produce, or counteract their influence on the body. (*See* CONTAGION.) When acting in the first of these ways, they may also be called *germicides*. Many disinfectants are also *antiseptics*, or prevent putrifaction. Some also act as *deodorants*, destroying bad smells. CLEANLINESS is

a valuable aid to disinfectants, as filth affords a soil in which microscopic organisms flourish. HEAT, especially that of superheated steam, is one of the most efficient disinfectants of clothes and bedding. *See* DISINFECTION.

The following is a list of the chief disinfectants: ATMOSPHERIC DISINFECTANTS: (1) Sulphurous acid gas and solution; (2) Chlorine, euchlorine, and chlorinated lime; (3) Nitrous acid vapour; (4) Iodine vapour; (5) Sanitas fluid, oil, and powder; (6) Terebene solution, cupralum, and ferralum. All these give off volatile substances, and may be used for disinfecting the air. OTHER DISINFECTANTS must, for this purpose, be used in the form of a spray, or volatilized by heat. Among these may be mentioned (1) Carbolic acid solution and powder; (2) Creosote, Jeyes' disinfectant; (3) McDougall's disinfectant; (4) Condy's fluid; (5) Chloralum; (6) Burnett's fluid; (7) Sulphate of copper; (8) Sulphate of iron; (9) Cooper's salts; (10) Corrosive sublimate; (11) Chromic acid and bichromate of potash; (12) Charcoal.

It must be remembered that different disinfectants often interfere with one another. Thus sulphurous acid antagonizes the chlorine group, Condy's fluid, and probably terebene and sanitas. Carbolic acid and chlorine also interfere with one another. Other peculiarities will be noticed in the description of each disinfectant, and under DISINFECTION.

Disinfection (*see* CONTAGION, DISINFECTANTS) is of the greatest importance in preventing the spread of infectious fevers, and is under some circumstances enforced by public sanitary authorities under a penalty. "The owner or occupier of a house may be required to cleanse and disinfect any house or room, and the articles contained in it—where infectious disease has existed—under a penalty not exceeding 10*s*. a day for neglect. Any person who without previous disinfection, gives, lends, sells, or exposes any bedding, clothing, etc., which have been exposed to infection, is liable to a penalty not exceeding £5. Any person who lets a house or room in which there has been an infectious disease, without having it disinfected to the satisfaction of a medical man, is liable to a penalty not exceeding £20" (Newsholme's "Hygiene").

Disinfection may be practised in the sick room, or after removal of the patient, different methods being suitable in each case.

IN THE SICK ROOM.—The patient may be washed with disinfectant solutions. For this purpose sanitas fluid (a wineglassful to a quart), sanitas soap, or carbolic solution (1 in 40) are most convenient. Where there is a rash or peeling of the skin, it is advisable to anoint the body with ozonised lard (*see under* LARD), sanitas oil (1 to 20 olive oil), carbolised oil (1 to 40), or carbolised vaseline (5 per cent.). This prevents diffusion of contagious particles. For a mouth-wash, sanitas fluid (tablespoonful to a wineglass), or Condy's fluid of a faint pink colour, may be used. Everything coming from the patient should be at once received into disinfecting solution. Rags should be used instead of pocket handkerchiefs, and burnt immediately afterwards. Cups, plates, and spoons should be cleansed with weak Condy's fluid, and no more food brought into the room than can be soon disposed of. Underlinen, sheets, etc., should be steeped in carbolic solution (5 per cent.), or chloride of zinc (2 grains to 1 oz.), or chloride of lime (2 ozs. to 1 gallon), and remove for further disinfection. The room itself may be cleansed with soft soap and hot water, containing a few drops of sanitas oil, carbolic or coaltar soap, or some other disinfectant. Where there is a polished floor, washing may be partially dispensed with, and the boards thoroughly rubbed with beeswax and turpentine. This prevents dampness of the air, which is an advantage to the patient. Furniture may be anointed with sanitas furniture cream; or this may be left until the patient has been removed.

Outside the room there should always be hung a sheet dipping into a solution of disinfectant. It should be so arranged as to completely close the opening, and act as an antiseptic valve to the room. Scrupulous cleanliness and plenty of fresh air are essential in the sick-room.

Typhus fever is virulently infectious in a confined space, but with free ventilation loses this quality at a little distance from the patient. There is reason to believe that the noxious matter of contagion is to a large extent oxidised and rendered harmless in presence of pure air, especially if there is in it much ozone or hydrogen peroxide. A spray of carbolic acid, sanitas solution, or eucalyptus solution is refreshing to the patient and helps to purify the air.

Disinfection of Clothes and Bedding is best done by steam heat. This requires a special apparatus, such as Lyon's. There are some people who arrange to take away and disinfect clothing; and the sanitary authority will usually do the same service.

Where steam heat is not available, the clothes may be baked, either in a special apparatus (Ransome's, Scott's) or in an ordinary oven shielded with wood. Another plan is to boil them for two hours with washing soda or some disinfectant. Where the clothing is very dirty and of little value, it is best to burn and replace it with new. Books may be disinfected by dry heat. A fire is the most efficient preventive of infection, as was exemplified in the great fire of London which swept away the remains of the plague.

Disinfection of W.C. Drains and Sinks.—Cupralum or chloralum solutions (1 lb. to 1 gallon), or copperas (3 lbs. to 1 gallon), are convenient for this purpose. *Excreta* should always be disinfected previous to being put down the w.c. For this one of the above preparations may be used, or Burnett's fluid (1 to 4), McDougall's powder, carbolic solution (1 to 20), or carbolic powder; or a solution containing $\frac{1}{2}$ oz. corrosive sublimate, 1 fl. oz. hydrochloric acid, and 5 grains of aniline blue in 3 gals. of water (Ballard).

It is a mistake to suppose that disinfection of w.c.'s will take the place of efficient sanitary arrangements. When the "drains are out of order" they should be seen to, and not treated with disinfectants. Where cesspools are in use, the excreta should be covered with 1 to 20 hydrochloric acid, or powdered with chloride of lime in a covered stoneware vessel; after a few hours they may be thrown into the cesspool.

Disinfection of Dead Bodies.—Wash with strong carbolic solution (1 in 20), or Burnett's fluid (1 in 15), place early in a coffin and sprinkle with cupralum or McDougall's powder. Or pack with sawdust sprinkled with sanitas oil, or with carbolic powder. If the body is very offensive it should be wrapped in a sheet wet with the carbolic solution, or with 1 in 40 chloride of lime, and packed with sawdust impregnated with the same. Burial should not be delayed, and any linen not buried should be burnt.

Disinfection of Empty Rooms.—Scrub the floors with soft soap, wash with chloralum solution (3 ozs. to 1 gal.), or with water containing sanitas oil or carbolic acid (1 in 20). Tear down the papers, brush the walls and ceiling, wash all metallic things with carbolic solution, and remove them from the room. Wash the furniture with chloralum solution or sanitas soap, and remove and boil with disinfectant all textile fabrics. Then paste up all cracks about windows, chimney, etc., cover with grease or vaseline all metal-work that cannot be removed, and disinfect by burning sulphur. This is done by placing a tub of water in the middle of the room, and over it an iron saucepan or a shovel, supported on a pair of tongs coated with vaseline. Stick sulphur, in pieces, is put into the saucepan and shovel (2 lbs. for each 1,000 cubic feet of space), and set fire to with a live coal or spirit and a match. The door is then carefully closed and pasted up, and the room left for a day. Then open doors and windows and ventilate for twenty-four hours, after which the ceiling may be whitewashed, and the walls limewashed or repapered, and woodwork painted. Chlorine, euchlorine, or nitrous acid are also suitable for disinfecting empty rooms; but they possess no special advantages over sulphurous acid from sulphur. Sanitas oil and carbolic acid are also used; they may be volatilized by heating in an open saucepan.

Streets and courts are disinfected by means of Burnett's fluid, chloride of lime, McDougall's salts, or Cooper's salts.

Dislocation.—A displacement of a bone at a joint. It usually causes pain and deformity, and interferes with the movements of the part. *See* ELBOW, FRACTURE, HIP, JAW, KNEE, SHOULDER.

Distilled Water. *See* WATER.

Diuretics.—Remedies which increase the flow of urine. This class includes broom, dandelion, gin and other spirits, coffee, acetate, citrate, bitartrate, and nitrate of potash, sweet spirits of nitre, and squills. (*Pr.* 7, 15, 26, 30, 32.)

Doctor.—The choice of a medical adviser must always be governed by many considerations, such as his qualifications and reputation for experience or skill, his social and moral qualities, or his accessibility. Roughly speaking, medical men fall into one of two classes—general practitioners and consultants. Nearly all have now-a-days at least two qualifications, or a double qualification, covering medicine, surgery and obstetrics. Many general or family practitioners are exceedingly well-educated, both medically and generally, although, as a rule, they do not hold the higher qualifications in medicine and surgery. The old-fashioned "Bob Sawyer" type of doctor is all but extinct. It is usual in case of illness to call in a general practitioner, or to consult him at his house. (*See* MEDICAL ADVICE.) If there is any special difficulty, or an operation is needed, a consultant is resorted to. Consultants are usually attached to some hospital, and restrict their practice to either medicine or surgery, or to some special branch, such as the eye, or ear, or diseases of women. They prescribe, but do not supply medicines, whereas a general practitioner often dispenses his own medicines. Consulting physicians are fellows or members of one of the Royal Colleges of Physicians, and usually have also a university degree in medicine. Consulting or operating surgeons are fellows of one of the Royal Colleges of Surgeons, and perhaps graduates in surgery of some university. The best class of specialists also have one of the higher qualifications in medicine or surgery; but many arrogate to themselves the title without having obtained the qualifications. Consultants do not usually go to see patients at their homes, excepting in consultation with a general practitioner. They may be seen at their own consulting rooms in the morning and sometimes late in the afternoon. General practitioners usually arrange to be at home until 10 or 11 a.m., and then go their rounds during the rest of the morning and afternoon, with a break in the middle of the day for lunch. They undertake accouchements and ordinary surgical operations. Their fees may be paid quarterly or half-yearly, whereas consultants always expect to be paid at the time of the visit.

Registrable QUALIFICATIONS are given in this country by the Royal Colleges of Physicians of London, Edinburgh, King and Queen's College of Physicians of Ireland; The Faculty of Physicians and Surgeons of Glasgow; the Royal Colleges of Surgeons of England, Edinburgh, and Ireland; the Societies of Apothecaries of London and Dublin; and the Universities of Aberdeen, Cambridge, Dublin, Durham, Edinburgh, Glasgow, London, Oxford, St. Andrew's, the Royal University of Ireland, Trinity College (Dublin), and the Victoria University (Manchester). The Colleges grant lower diplomas of Licentiate and higher diplomas of Fellow; the chief exceptions being the Royal College of Surgeons of England and the Royal College of Physicians of London, of which the former gives a lower diploma of Member and a higher one of Fellow, while the College of Physicians grants three diplomas in medicine, Licentiate Member, and Fellow, the last being conferred by election on the more distinguished Members. The two Societies of Apothecaries give a diploma of Licentiate. The Universities grant degrees in medicine of Bachelor and Doctor, and in surgery of Bachelor and Master. Only the holders of a doctorate in a recognised university have a legal right to the title of Doctor, although in popular estimation every medical man is a doctor. The different degrees and diplomas differ considerably in value; but it would be an invidious task to compare them. Many of the examining bodies also give degrees or diplomas in Midwifery (or obstetrics), State Medicine, and Sanitary

Science; and some also give certificates to midwives. In addition to the above-mentioned bodies, the University of King's College of Aberdeen, the Marischal College and University of Ireland, and the Queen's University of Ireland formerly granted registrable degrees. Some foreign degrees are also registrable as additional titles, but not alone. *See* CONSULTATIONS; FEES; HOMŒOPATHY; PRESCRIPTIONS; QUACKERY.

Dormitories at schools should only be used for sleeping in. They should be large and well ventilated, of a size to accommodate ten or a dozen beds each. Cubicles, in which each boy's bed is separated from the rest by partitions, are not to be recommended.

Doses will vary according to age and other circumstances. Under 1 year, the dose should be $\frac{1}{12}$ of the adult dose, under 2 years $\frac{1}{8}$, under 3 years $\frac{1}{6}$, under 4 years $\frac{1}{4}$, under 7 years $\frac{1}{3}$, under 14 $\frac{1}{2}$, under 20 $\frac{2}{3}$. Children are, however, extremely sensitive to some drugs, such as opium, so that these must be given to them in very small doses, or not at all.

Douche. *See* BATHS AND BATHING.

Dover's Powder, *compound ipecacuanha powder*, consists of 1 part of opium, 1 of ipecacuanha, and 8 of sulphate of potassium, powdered and well mixed. It causes free perspiration. Dose, 5 grains. It is not suitable for children. *See* OPIUM; DIAPHORETICS.

Drainage.—There is little need to emphasize the importance of an efficient drainage system. Enteric (or typhoid) fever, diphtheria, ulcerated throats, diarrhœa, and cholera are well known to be caused by sewage contamination; and these diseases have repeatedly diminished or disappeared when bad drains have been replaced by better ones. In some places the *same set* of sewers carries off both the rain and surface water and the sewage. The advantages of this plan are that only one system is required, and the rain-water helps to flush the sewers. On the other hand, the sewers have to be made unnecessarily large, the sewage is diluted, and in heavy rain-storms the sewer gas may be forced into the houses. In all new drainage schemes therefore the *separate system* is adopted, new pipe sewers being laid for the sewage, while old brick drains (if such exist) carry off the rain and surface water. *Street sewers* should be well ventilated, or they become offensive and dangerous to health. A single ventilator may cause a nuisance when a dozen will cause none. There should be about eighteen to every mile of sewer; they may take the form of tall shafts or of gratings in the road. Ventilating shafts are usually placed at the highest point. Where, in spite of these precautions, there are offensive smells, the sewer is probably leaking or badly constructed. Sewers are usually built egg-shaped in cross-section, with the small end downwards. *See* HOUSE DRAINAGE; SOIL.

Drawsheets are best made of old sheeting, doubled and sewn together. They may be placed under the middle of a patient in bed, and shifted according as they become soiled.

Dreaming is due to imperfect activity of the brain, and does not happen in deep sleep. In dreaming we have no power over the succession of ideas as when awake, and cannot correct them by the evidence of the senses; hence the incoherence or improbability of most dreams. They are usually suggested by the experiences of the day, but are sometimes excited by present sensations, as when uncovering the feet causes a man to dream of Arctic travelling. Nightmare is usually excited by indigestible food, as is well known. Unnoticed occurrences during the day sometimes gives rise to vivid dreams at night. This is the probable explanation of some strange dreams. *See* SLEEP-WALKING.

Dress. *See* CLOTHING.

Dressings for wounds are of many different kinds. DRY dressings consist of lint or some other unirritating absorbent material. WATER dressings consist of a double layer of lint soaked in pure water or antiseptic solution, covered with oil-silk to keep it moist, and retained by a bandage or strapping-plaster. The oil-silk must project on all sides beyond the lint or the latter will get dry. Where the wound is inflamed, the oil-silk may be omitted, and the lint

frequently wetted with cold water. Sometimes warm water dressings answer still better. In OIL DRESSINGS carbolized oil is substituted for water or lotion. In OINTMENT DRESSINGS the ointment is spread on lint. Whenever a dressing is applied, whatever be the kind, the skin surrounding the wound should be carefully cleansed by wiping away from it with clean rag. The raw surface itself may be lightly syringed, but must not be irritated by too energetic cleaning. A channel should be left for the escape of matter, either by means of a "drainage-tube" or several strands of catgut or silk. Elastic support by means of carbolized tow or similar materials often assists the healing process. In removing dressings they should never be torn off so as to pull off new skin or make the wound bleed. The lint should be detached first at the edge, and drawn off towards the centre; if it sticks it must be bathed with warm water. ANTISEPTIC dressings consist of specially prepared medicated gauze or lint, applied in several layers, and covered with medicated cotton wool or tow, and a piece of waterproof material, in such a way that air can only reach the wound after being filtered through the dressings. Whenever the discharges begin to soak through the dressing, or the temperature of the patient rises, or even earlier, the dressings must be renewed. Antiseptic solutions are freely used during the dressing of a wound. The chief antiseptics used at present are carbolic acid, boric acid, thymol, and sal alembroth or corrosive sublimate; but new ones are continually being introduced. Whichever kind is used, the strictest cleanliness must be observed, all things, including instruments and the surgeon's hands, being thoroughly soaked in antiseptic solution. For small wounds a fairly antiseptic dressing may be made with friar's balsam on a piece of lint. *See* ANTISEPTIC SURGERY; LOTIONS 14, 15, 17; OINTMENTS.

Drinks. *See* BEVERAGES; WATER.

Dripping is an excellent substitute for lard or butter in cooking and on bread. If received into newly glazed dishes, lead poisoning may follow, as the leaden glaze is soluble in the fat. With copper it produces verdigris.

Dropped Wrist. *See* LEAD POISONING; WRIST-DROP.

Dropsy. — Accumulation of watery fluid in the tissues or cavities of the body. It may be confined to a small part of the body, such as an arm or leg or a single joint, in which case it usually arises from obstruction to the circulation or from injury; or it may be widely distributed, and caused by diseases of the heart, lungs, liver, or kidneys, which interfere with the circulation of blood or with the natural loss of water. It is easily recognised by painless swelling of various parts of the body, which show a distinct dent when pressed upon by the finger. When first seen *in the face* and other lax parts of the body, it is usually due to kidney disease Appearing first *in the ankles*, it may be due to heart or lung disease; to simple weakness or poorness of blood; to varicose veins, pregnancy, or tumours pressing upon the blood-vessels. Dropsy from liver disease appears first in the *abdomen*. Internal organs may also become dropsical, and cause shortness of breath and other serious symptoms. The distribution of fluid often varies according to the position of the body, sinking to whatever parts happen to be lowest. Fluid is also thrown out in inflammation of serous membranes or joints. This is not, strictly speaking, dropsy.

TREATMENT.—Dropsy is not an ailment which can be safely treated domestically. Until a doctor is obtained, keep in bed, open the bowels (*Pr.* 11, 14, 24) if they are confined, and give easily digestible food (DIET, II.). *See* BLOOD, POORNESS OF; HEART DISEASE; KIDNEY DISEASE; LIVER DISEASE.

Drowning.—In this accident death is not always caused by suffocation. Not uncommonly the shock resulting from submersion in cold water, or fainting from fright, or even apoplexy, is the real cause of death. If the body has been only a short time in the water, the face may be pale or livid, with foam at the mouth and nostrils. The tongue is often swollen and marked by the teeth,

and weeds or stones are often clenched in the hands. Later on signs of decomposition appear. (*See* DEATH.) Complete submersion for two minutes is sufficient to cause death; but instances of recovery are recorded after a much longer time, chiefly where the patient has fainted, and the water has not been drawn into the lungs by the efforts at breathing. Whenever there is any doubt whether life is still present, persistent attempts at restoration should be made. The TREATMENT falls naturally under three heads: to restore the breathing, to promote warmth and circulation, and, later on, to sustain the strength and prevent complications. The Royal Humane Society have issued some useful directions, which will be made the basis of the following remarks:

1. Send immediately for medical assistance, blankets, and dry clothing; but lose no time in restoring the breathing. To CLEAR THE THROAT AND STOMACH, place the patient on the floor or ground with the face downwards, and one arm under the forehead, wiping away all froth or foreign bodies from the mouth. Remove all tight clothing from the neck or chest, including the braces; strip the body to the waist, and expose the face, neck, and chest to the wind, excepting in very severe weather. Make a roll of the clothes, place it under the stomach, and press the body against it to expel the water that has been swallowed.

2. If natural breathing commences, use the treatment for promoting warmth and circulation. If the breathing is feeble or absent, try ARTIFICIAL RESPIRATION without a moment's delay. Place the patient on his back on a flat surface, if possible a little inclined upwards from the feet, raise and support the head and shoulders by the roll of clothes under the shoulder blades and a smaller one under the head. Draw forward the patient's tongue, and keep it projecting beyond the lips, fixing it by means of an elastic ring under the chin

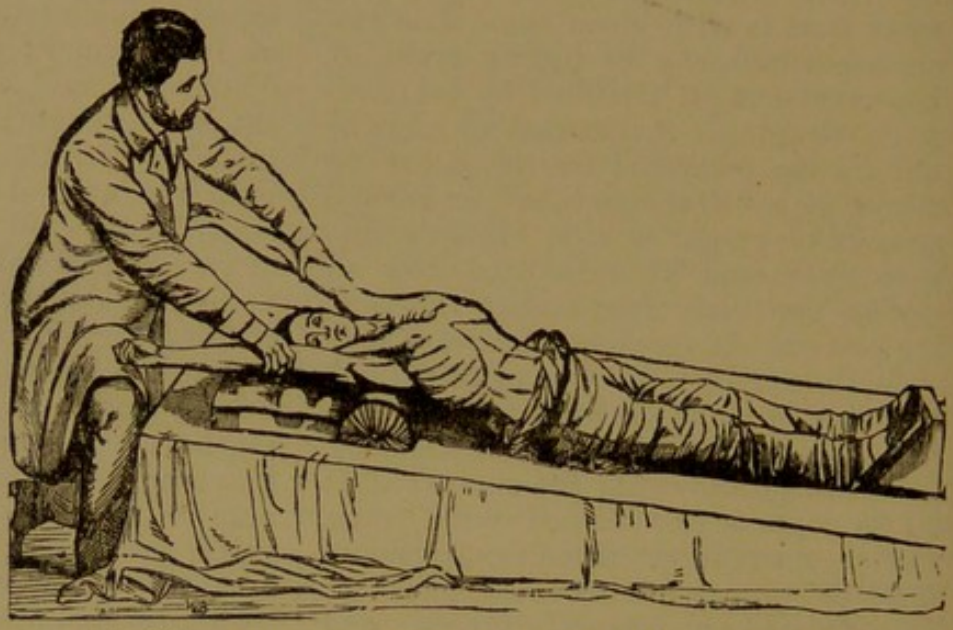

FIG. 21. ARTIFICIAL RESPIRATION: EXPANDING THE CHEST.

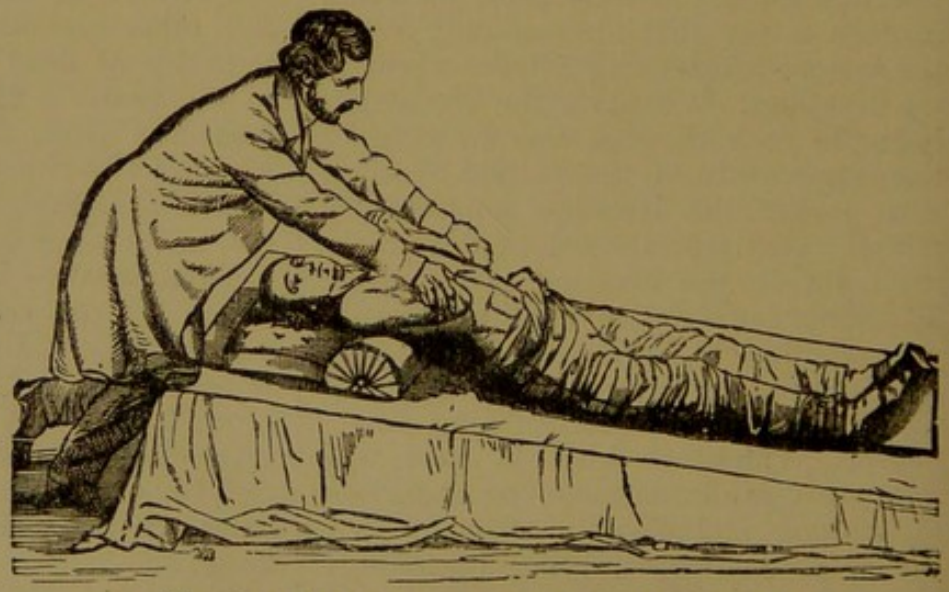

FIG. 22. ARTIFICIAL RESPIRATION: EMPTYING THE CHEST.

or a piece of stout string or tape. The neck should be well extended, and the head turned a little to one side. Then, standing at the patient's head, grasp the arms just above the elbows, draw the arms gently and steadily upwards above the head, and keep them stretched upwards for two seconds (*Fig.* 21). This opens the chest. Then turn down the patient's arms, and press them gently and firmly for two seconds against the sides of the chest, so as to press the air out of the lungs (*Fig.* 22). Repeat these movements about fifteen times a minute, and continue until natural breathing is established. Recovery has been known after an hour or more of artificial respiration.

3. To promote warmth and circulation: Wrap the body in warm blankets, put hot bottles or warm bricks to the feet, armpits, pit of stomach, and between the thighs. Rub the limbs upwards towards the heart, grasping them firmly. As soon as the patient can swallow, give him a teaspoonful of warm water, followed later on by small quantities of hot brandy and water or hot coffee. Apply smelling-salts to the nostrils, put the patient in a warm, well-ventilated room, and keep him quiet and free from excitement. If he has fasted for some time, small quantities of hot milk or broth should be given on recovery. The chief danger after breathing and circulation have been restored is that of congestion of the head or lungs, which must be prevented by suitable measures.

Drowsiness arises from a variety of causes, such as long-continued exercise in the open air, fatigue from other causes, insufficient sleep at night, the effects of narcotic poisons or of impure air, and other conditions in which the brain is imperfectly supplied with blood. It is exceedingly common after meals in dyspeptics, and even without dyspepsia in those who are anæmic or who indulge in very large meals. Those who are middle-aged or elderly often become drowsy after every meal, as the blood-vessels are inelastic and the circulation insufficient for both stomach and brain. Under such circumstances there is no advantage in struggling against the drowsiness, which may often be dissipated by a short nap. Unaccustomed drowsiness in elderly people is occasionally a sign of approaching apoplexy. Obviously the *treatment* of this ailment depends upon the cause.

Drugs are obtained from many different sources and from all parts of the globe. Some are from the mineral or inorganic kingdom, others of a vegetable nature, and a few are derived from animals. Of *minerals* used as drugs may be mentioned charcoal, sulphur, mercury, salts of potash, soda, lime, iron, lead, etc. The drugs obtained from *animals* include cantharides, musk, and cod-liver oil. Of *vegetable* drugs there are a vast number. All parts are utilized: root, leaves, flowers, seeds, wood and bark of trees, juice and other exudations. The active principles are often extracted by chemical means. A few have been prepared artificially from other sources. For instance, salicin, originally obtained from willow bark, has been prepared from coal-tar. The science of drugs, describing their nature, sources, preparation, and adulterations, is called *Materia Medica*. The methods of preparation or combination into medicines suitable for administration belong to the art and science of *Pharmacy*. The mode of action of a drug on the body comes under the science of *Pharmacology*, while its use in disease belongs to *Therapeutics*. *See* Medicines.

Drum of the Ear. *See* Ear.

Drunkenness. *See* Intemperance.

Dugong Oil was introduced into this country by Dr. MacGregor Croft as a substitute for cod-liver oil. It has a more agreeable taste, but requires further trial to determine its value.

Dulcamara—bittersweet or woody nightshade—is a well-known plant, with flowers like those of the potato, and in autumn with brilliant red berries. The twigs are used medicinally. The infusion has some action on the skin. It is unsuitable for domestic use. In case of poisoning give an emetic (*Pr.* 27, 28), followed by stimulants (*Pr.* 4, 5) when the stomach has been emptied.

Dumb. *See* DEAF-MUTES.

Duodenum.—The first part of the small intestine. *See* BOWELS.

Dura Mater.—The outer membrane surrounding the brain. *See* BRAIN.

Dust contains representatives of all three kingdoms of nature: animal, vegetable, and mineral. It includes particles from the surface of the streets, unburnt smoke, particles from some manufacturing processes, such as knife-grinding, corn-grinding, flax-dressing, pearl-cutting, and the like, particles from clothing and furniture, organic particles from the lungs and skin of man and animals, pollen of flowers, spores of fungi, bacteria, eggs of flies and other living things, and fragments of dead insects. No air is absolutely free from dust, as may be seen by passing through it a beam of electric light. Dust is objectionable partly for its irritating qualities, partly because the organic matter it contains is liable to decompose and afford a suitable soil for the growth of noxious bacteria. (*See* BACTERIA.) Coal-smoke and fog are very apt to cause inflammation of the eyes and air passages. Millers, stonemasons, hairdressers, and others who follow a dusty trade are far more subject to consumption than others differently situated. The organic particles from the lungs, and from the bodies especially of sick people, are very poisonous, and apt to give rise to disease. Probably flies do some mischief by carrying about and inoculating putrescible substances. For these reasons, whatever diminishes the amount of dust in our streets and houses is likely thereby to diminish the tendency to ill-health. *See* HOUSE-CLEANING.

Dusting-powders usually consist of rice-starch or wheat-starch, mixed with powdered orris root and scented. Some also contain oxide or carbonate of zinc, oxide of bismuth or French chalk. Violet powder should really be entirely composed of powdered Florentine iris-root, which makes a soft yellowish powder, with odour of violets. Much that is sold is merely starch scented with attar of bergamot. Fuller's earth and kaolin also make good dusting-powders. *See* PERSPIRATION.

Dwellings. *See* HOUSE.

Dysentery is a disease of hot climates. When it occurs in temperate regions it is chiefly in camps and armies, or in hand-fed infants. It is often found in malarious districts; and 200 years ago London used to suffer terribly from it. The immediate cause appears to be traceable to sewage, so that it is usually introduced by means of bad water. Habitual constipation, unwholesome food, and exposure to cold and wet also appear to determine attacks.

Symptoms.—After a few days of digestive disorder, with furred tongue, loss of appetite, dry skin, chilliness, or feverishness, diarrhœa comes on, together with griping pain and tenderness in the course of the large bowel. The motions at first are composed of fæcal matter, but soon consist of blood-stained mucus, and later on may be offensive and like the washings of meat. The bowels act very frequently, with continual straining, so that the patient scarcely dares to leave the night-stool. There is usually great weakness. Bad cases may prove fatal; slighter attacks often become chronic.

TREATMENT.—Give 20 grains of ipecacuanha in as little water as possible. Keep in bed, and give no food or drink for three hours after. Ice may be sucked if thirst is very troublesome. If the purging continues, repeat the dose after eight hours. This usually nearly or quite cures the patient. If it fails, give *Pr.* 47, a teaspoonful every hour. When there is a malarious tendency, quinine will be needed (*Pr.* 39), which may be given one hour before the ipecacuanha. If there is much blood, *Pr.* 33, 8 will be useful to restrain bleeding. *Diet* is of the utmost importance. So long as the purging continues, nothing should be given but chicken-broth, beef-tea, meat-essences, and well-cooked sago, arrow-root, or tapioca, with milk. If there is a taint of scurvy (*which see*), give lemon-juice. Otherwise carefully avoid vegetables and fruit. In later stages, when a little ordinary diarrhœa remains, *Pr.* 23 may be given, or a pill containing 5 grains of acetate of lead. For *chronic* dysentery injections containing 10 to 20 grains of sulphate of copper in a pint of

water are useful: a sea voyage or change to a healthier neighbourhood is often necessary to complete the cure. The patient need not be kept in bed, but must wear warm woollen clothing, and rest on a couch. Throughout the disease everything that comes away from the bowels must be disinfected. *See* DISINFECTION.

For DYSENTERY IN INFANTS give ipecacuanha, 1 grain more than the number of years, night and morning. Withhold food for five or six hours, giving cold water in small quantities to relieve thirst. When the purging diminishes, substitute veal-broth or chicken-broth in hand-fed children for the ordinary food until there is decided improvement.

Dysmenorrhœa. *See* MENSTRUATION, PAINFUL.

Dyspepsia. *See* INDIGESTION.

Dysphagia. *See* SWALLOWING, DIFFICULTY IN.

Dyspnoea. *See* BREATH, SHORTNESS OF.

Dysuria.—Difficulty in passing urine. *See* BLADDER; URINE.

Ear.—Three parts are distinguished—outer, middle, and inner. The outer includes the auricle or cartilaginous projecting shell, and the passage leading from it to the drumhead or tympanic membrane (*C*, *Fig.* 23). The middle is the drum cavity, which is crossed by a chain of delicate earbones, and communicates with the throat by the eustachian tube (*I*, *Fig.* 23). The inner ear or labyrinth consists of a series of complex bony and membranous canals filled with fluid, and containing the expansion of the nerve of hearing. Waves of sound set in motion the drumhead, whose vibrations are transmitted by the chain of earbones to the fluid of the inner ear, thus acting upon the nerve of hearing. The AURICLE (*A*, *Fig.* 23) is firmly attached to the outer tube of the ear, so that a violent pull may set up inflammation, which may travel inwards to the drumhead. The skin of the auricle is provided, like other parts of the body, with sweat-glands. These are especially numerous on the hinder surface, so that this is apt to become sore in infants if the ear is kept closely pressed against the side of the head. The auricle is apt to become frostbitten in very cold climates. In professional boxers, and in the insane it may be permanently enlarged and deformed. The OUTER PASSAGE or meatus (*B*, *Fig.* 23) is highest and narrowest in the middle of its course. Being partly composed of gristle it may be straightened in syringing by drawing the auricle upwards and backwards. It is provided with hairs and waxy secretion as a protection against insects. The wax naturally tends to roll out of the ear when sufficient has accumulated, partly because of the course taken by the canal, partly because the skin lining the latter grows outwards and carries the wax with it. It is therefore unnecessary to clean out the ear with hairpins, ear-scoops, or screwed-up towels, and may be positively injurious, as all such measures irritate the sensitive skin and cause it to inflame, while they press back the wax towards

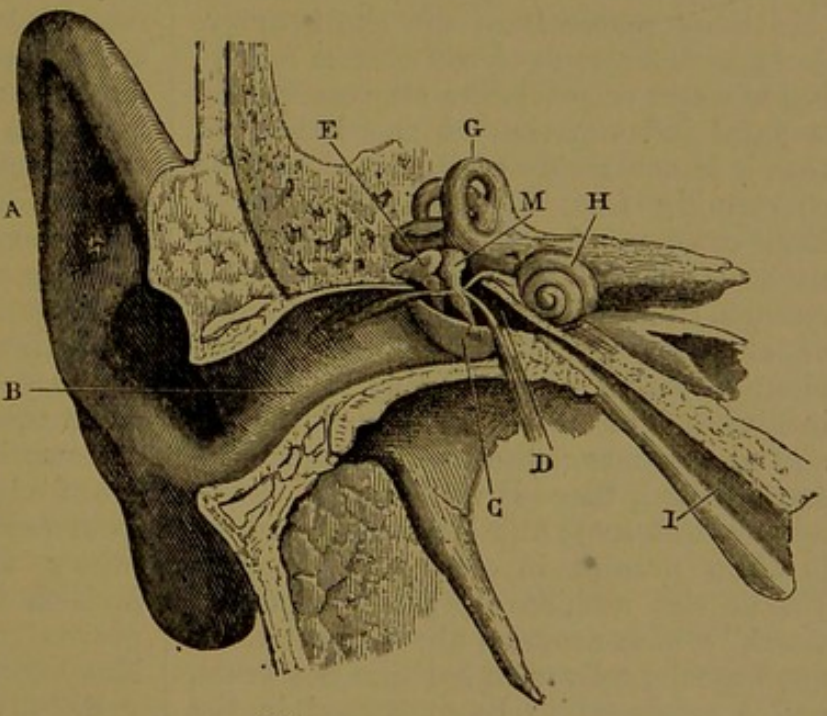

FIG. 23.—SECTION OF THE EAR.

A, auricle; *B*, outer passage; *C*, drumhead; *D*, drum cavity; *E*, *M*, two of the ear-bones; *G*, semicircular canals; *H*, cochlea; *I*, Eustachian tube.—*Robertson's "Elementary Physiology."*

the drum. (*See* EAR-WAX.) Sea-bathing is also apt to injure the drum, unless a plug of cotton wool be worn. The DRUM-HEAD (*C*, *Fig.* 23) is a delicate membrane about the thickness of gold-beaters' skin, so that it may easily be ruptured by a smart box on the ear. (*See* DEAFNESS.) It is attached to the earbones, which are called handle, anvil, and stirrup respectively, from their shape. The largest (hammer) is ¼ inch long. The facial nerve passes through the MIDDLE EAR or drum, so that inflammation there may cause paralysis of the face. The eustachian tube (*I*, *Fig.* 23) is opened every time we swallow, when air rushes in or out, to equalize the pressure on both sides of the drumhead. If the tube is blocked, there is deafness or singing in the ear. Both middle and inner ear are situated in the substance of the temporal bone, and separated by thin bony plates from the skull-cavity. A neglected attack of ear disease following measles or scarlatina may easily lead to fatal inflammation of the brain; so that it is never safe to disregard earache or running from the ear. The INNER EAR consists of a "cochlea" or snail-shell (*H*, *Fig.* 23) and of three "semicircular canals," united by a "vestibule" or entrance (*G*, *Fig.* 23). The semicircular canals are probably concerned in giving information as to the position and movements of the body. When they are diseased, there is well-marked giddiness (*which see*); and the same symptom is often present in other ear diseases. Inside the cochlea is the "organ of Corti," which contains about three thousand special cells with hairlike processes, and is supposed to be concerned in the perception of musical notes. The fluid inside the internal ear is everywhere kept in by bone excepting at two membranous "windows," one of which is pressed out whenever the other is pressed in by the stirrup-bone.

Earache may be due to inflammation in the outer or middle ear, or to neuralgia. The latter is often caused by decayed teeth; it is characterized by darting pain, and the absence of any deafness or singing in the ears. It is usually severe from an early stage, unlike inflammatory earache. (*See* NEURALGIA.) The auricle is sometimes affected with eczema (*which see*), which may spread to the outer passage. Small boils inside the passage cause severe throbbing pain until they have burst. In early stages the inflammation may sometimes be subdued by applying two or three leeches in front of the ear, and by fomenting the skin around the ear. Poultices should never be applied to the ear. As a rule there is no relief to the pain until the boil has been lanced, as the tissues are so dense that the matter will often lay bare the bone in trying to escape. The ear may be syringed with a very little laudanum and hot water in equal parts.

Boils in the ear are apt to recur. The general health usually needs attention. Inflammation of the passage may also be excited by cleaning or scratching with pins and other articles. (*See* EAR, DISCHARGE.) Inflammation *inside the drum* usually causes excruciating pain with deafness and singing or throbbing noises. The pain is usually deeper seated than in inflammation of the outer passage, and the auricle is not necessarily swollen, but these tests are not reliable without inspection of the drumhead. The affection is common during and after measles, scarlatina, diphtheria, and other general diseases, often spreading up the eustachian tube from the nose and throat. It is sometimes caused by the injudicious use of nasal douches. Sometimes it arises from exposure to cold and wet, or from injury to the drumhead. A timely incision to let out the matter will often prevent more serious consequences. *See* EAR-DISCHARGE.

Ear-discharge, or running from the ear, often arises from irritation by pins, ear-scoops, and other articles. Sometimes beads are pushed in by children, and in the efforts to remove them, the skin or drumhead is injured. Sometimes the mischief is done by "drops" introduced for the cure of earache. Fungi are apt to grow on these sore patches, causing still more swelling and inflammation. If sweet oil or fatty substances are then applied, they encourage the growth of the fungus. Exposure to cold and wet may cause a discharge from the ear.

Delicate children are apt to suffer in this way, and the discharge once started may be obstinate. After measles and other fevers this is especially likely to happen, so that great care should be taken during convalescence. Some earache is usually present, but it may not be very noticeable. Discharge also follows the bursting of boils and abscesses. (*See* EARACHE.) The most serious kind of discharge is that arising from inflammation in the drum. This begins with severe pain and feverishness, suddenly relieved when the matter bursts through the drumhead and appears outwardly. After such an accident there is usually more or less permanent deafness, and attacks of earache come on from time to time, especially when the discharge is least. So long as such a condition remains there is danger of bone-disease and brain-fever. Surgical assistance is essential. Until this can be obtained, the ear should be syringed twice a day with warm boric lotion (*Lotion* No. 15), and kept protected with clean cotton-wool regularly changed. Later on, if the inflammation has been cured, and a perforation of the drumhead remains, hearing may be greatly improved by using an artificial drumhead of cotton-wool. Where, however, the matter has been let out by the surgeon's knife, the opening usually heals without any trouble. A longstanding discharge from the ear often causes polypi to form, which, by blocking the passage, increase the liability to decomposition of the discharge. Such foul-smelling discharge not uncommonly leads to blood-poisoning.

Running from the ear is never "outgrown," and is not dangerous to cure. On the contrary, it is itself a source of danger. Abscess in the middle ear sometimes causes pain and swelling of the bony knob behind the ear, as there are air-spaces in this part which communicate with the cavity of the drum and increase its powers of resonance.

Ear, Foreign Bodies in the.—Children sometimes poke beads or bits of slate-pencil into the ear. In such a case the ear should be gently syringed with warm water until the bead comes out. On no account must attempts be made to draw it out or scoop it out, as they would probably only drive it farther in and injure the drum. Where the foreign body is of a vegetable nature and liable to swell with moisture (as, *e.g.*, a bean or pea), the syringe should not be used, but a competent surgeon consulted, if the substance does not soon drop out. Insects sometimes get into the ears and cause much pain and discomfort. It is well to know that they cannot get into the brain, and if the drumhead is sound can usually be easily removed by filling the ear with warm water or warm sweet-oil. This first kills them, and then floats them out. Where a discharge from the ear has been long neglected, flies have been known to lay their eggs in it, which has been proved by the appearance of maggots. With reasonable care this should never happen. If it were to do so, the maggots would have to be removed by careful syringing before they did any mischief.

Ear, Noises in the, may be caused by almost any affection of the outer, middle, or internal ear, and sometimes occur where the ear is healthy but the nerves or circulation deranged. Quinine, salicin, and a few other drugs cause ringing in the ears and deafness. Noises in the ears may be most variable in character, being sometimes humming, at others bell-like, or whistling like steam escaping from an engine, or clanging or pulsating. Search for the cause, and direct the treatment against this. *Pr.* 18 and 35 may be of use in noises from nervous disorders.

Ear, to Syringe.—Protect the clothes with a thick towel over the shoulder and neck, and let the patient or an assistant hold an empty basin or soap-dish close against the skin under the ear. See that the syringe works easily, and have ready hot and cold water with two basins—one to hold the clean water, the other the washings from the ear. Let the patient bend his head a little over towards the side which is being syringed. Fill the syringe with water, and hold it for a moment with the point upwards while you expel the last bubble of air. Straighten the canal of the ear by drawing the auricle upwards and outwards, and then, introducing the point of the

syringe, direct the stream of water along the roof of the passage and a little forwards and inwards. The water should never be used cold, but comfortably warm. When the canal has been cleared, it should be dried with a little cotton-wool, and a plug of dry cotton-wool inserted. This should be changed after half an hour, to avoid the risk of catching cold. The syringe may be an india-rubber "ball-syringe," with a bone point, or of glass, brass, or vulcanite, with a piston. Care must be taken not to injure the canal with the point, or the drum-head with violent syringing. A little self-retaining trough or ear-channel with a spring to go over the head is sold by instrument makers; this will replace the little basin under the ear. Syringing the ear sometimes causes faintness and giddiness, or even sickness. This is not dangerous, and may be relieved by a dose of stimulants.

Ear-trumpets.—Many different forms and sizes are sold by surgical instrument makers. Other kinds of apparatus for the same purpose go by the name of conversation tubes and ear-cornets, the latter retained by a spring over the head. Modifications of the microphone have also been made in the shape of fans, etc., which may be placed on the teeth, so as to conduct the sound through the skull-bones.

Ear-wax is secreted by special glands near the outer opening of the ear, and, as already mentioned, is naturally carried outwards, so that there is no need to scoop it out or wash it out with screwed-up towels, or "aurilaves." In old people the wax becomes harder and drier than earlier in life, and is more apt to accumulate and close the passage. A lump of hard wax pushed up against the drum-head will often cause noises in the ear as well as deafness. In younger people a similar condition may be caused by attempts to clean out the ear. In all such cases the passage should be syringed out with warm water. If the wax is very hard, it may first be softened by a few drops of glycerine diluted with ten times as much water, or by a little carbonate of soda in warm water (15 grains to 1 fl. oz.). *See* EAR, TO SYRINGE.

Early Rising. *See* SLEEP.

Earth Closets, first introduced by the Rev. Henry Moule, are provided with a box for dry earth, of which a measured quantity is discharged on to the excreta in a galvanized-iron pail, whenever the closet is used, either on pulling a handle, or by rising from the seat. One and a half pounds of dry earth are sufficient to deodorize each evacuation. Loamy earth is best; chalk, gravel, or sand being useless. A mixture of peat and earth may be used. The earth must be finely sifted, and quite dry, and no slop-water or chamber-urine must be poured into the closet. A stove is often supplied for the purpose of drying the earth. Where space is no object, a shed will answer the purpose. The earth may be used about three times if desired, allowing six weeks or more to elapse each time. In this way the product becomes more valuable as a manure. Earth closets should not be placed inside a bedroom. If outside the house, the ground should be raised and dry. They may be emptied once in three months as a rule. In country places with a limited water supply, earth closets have been found of great service. Charcoal or sawdust has also been used instead of earth. In *Stanford's Charcoal Closet*, charcoal prepared from seaweed is used. This absorbs 147 per cent. of water, instead of only 45 per cent., like dry clay. The product may be burnt in a retort, various useful products being distilled over.

Eating. *See* DIET; DIGESTION; FOOD; INDIGESTION; MEALS.

Eczema is probably the commonest skin disease which exists. It is a form of inflammation in which, after more or less general redness and swelling, little red pimples appear, and become converted into vesicles; and these, bursting, leave a raw surface, from which oozes a thin watery fluid, capable of stiffening linen, or of drying into crusts. The disease may be arrested in any of these stages, so that there is great variety in its appearance. Sometimes the fluid in the vesicles is converted into matter, in which case the disease is called pustular eczema. This is liable to be the case in hairy parts, or where

the constitution is weak, or the itch-mite is present. In long-standing eczema hard crusts may form, which crack, and leave fissures. As a rule there is much itching, and in early stages there is burning and smarting. The disease may attack any part of the skin, but especially affects the soft skin at bends of the joints. It is apt to be tedious and liable to recur, but is not contagious (excepting, possibly, in the pustular form), and seldom dangerous. The *causes* are numerous—local irritation of the skin by heat and moisture (*see* PRICKLY HEAT; SUNBURN), rubbing and chafing, the application of poultices, irritating lotions and dressings, dirt, contact with some chemicals, moist sugar, washing soda, or various parasites (such as the itch-mite, bugs, or lice). Varicose veins predispose to eczema. It is common in gouty people, and may alternate in them with indigestion or bronchitis. Another common cause is scrofula, or general debility. Children are often attacked while teething, and women during menstruation or pregnancy. Some people inherit a tendency to eczema, in which case very slight indiscretions in diet may bring it on.

The TREATMENT, to be successful, must be adapted to the cause. If there is constitutional weakness, tonics will be required (*see* TONICS), together with good plain food, fresh air, and other aids to health. Where gout is or has been present, a different treatment will be necessary. (*See* GOUT.) In all cases, the state of the bowels, digestion, and urine must be attended to. Locally, in early stages, soothing lotions usually answer best (such as lead lotion, No. 4). When angry redness has disappeared, starch and zinc powder, or zinc ointment, or boric ointment, may answer. Washing in water should be avoided, a size bath (1 oz. to 1 gal. of hot water) being substituted, or a bran bath used. (*See* BATHS AND BATHING.) In later stages stimulating lotions and ointments are usually needed, such as a little diluted liquor carbonis detergens carefully rubbed on, or ammoniated mercury ointment, or tar ointment mixed in various proportions with simple ointment. Coal-tar soap is often useful at this stage. The treatment of eczema needs some experience, and must be varied according to circumstances. It is usually best to consult a regular skin doctor.

H. D. M.

Education, as conducted in many establishments, does much harm to the health of the child. The methods of work and choice of subjects are frequently injudicious. Children learn easily through the senses, especially at an early age, when there is a strong inclination to examine and handle everything within reach. Instead of encouraging this natural tendency by object lessons, the usual practice is to force them to acquire knowledge solely through books, or by the senseless repetition of phrases. Children suffer if forced to apply themselves for long at a time. The younger the child, the shorter the time during which it should have to pay attention to any one subject. For a young child, half a dozen lessons of a quarter of an hour each are far better for the health than two of an hour, and more likely to be remembered. At 7 to 8 years of age not more than 12 hours per week should be given to schooling; at 8 to 10, 18 hours; at 10 to 13, 24 hours; at 13 to 15, 30 hours; at 15 to 17, 36 hours (Dukes); and not more than $1\frac{1}{2}$ hours at a time should be given to one subject. The custom of imposing the hardest work (preparation) on children during the evening hours is not to be recommended. This is a time when the bodily and mental powers are weakest, and should be least taxed.

In poor neighbourhoods children are sometimes sent to school without any breakfast. Work under such conditions will do no good, either physically or mentally; and it is fortunate this is beginning to be recognised. Physical education is still far too much neglected in most schools. It is forgotten that the first condition of success is a good physique. An interval in the course of the morning's work devoted to drilling or outdoor games will be found to improve the quality of the head-work done afterwards. The importance of physical education is especially lost sight of in the case of girls. Fortunately this is being partly corrected by the growing practice of sending girls into the tennis-court,

gymnasium, or cricket-field. A future generation will reap the benefit of such wise innovations. The subject of "overpressure" has been engaging much attention of late. Many children are sent to the doctor on account of headaches, nervousness, St. Vitus's dance, and other nervous disorders. Probably most of such ailments are due to the persistent neglect of simple rules like the foregoing. A rapid forcing process is being applied to the brains of the rising generation. This is sure to be irksome and trying to the health, but will do less harm if such matters as the ventilation of the schoolroom be attended to. Children often become languid and incapable of mental application when they are growing fast. At such times it is advisable to give them a complete rest from school work. This is especially applicable to girls at the time of puberty. In either sex decided loss of weight should be an indication for a holiday. Attention to this point will probably sometimes prevent the appearance of consumption. *See* SCHOOLROOMS; CLOTHING.

Eel. *See* FISH.

Effervescence.—The rapid evolution of gas from a liquid. Most effervescing drinks are charged with carbonic acid gas; recently they have also been prepared with oxygen. Effervescing medicines frequently contain bicarbonate of soda, which gives off carbonic acid gas on addition of an acid (citric or tartaric). Many active drugs (such as caffeine, bismuth, quinine, magnesia, and lithia) are now sold in granular form in combination with soda and an acid, so as to cause effervescence on the addition of water. Such medicines should be kept in well-closed bottles in a dry place. When effervescing powders are prescribed, they should be mixed dry in a clean glass, and water slowly added. This prevents too rapid escape of gas. When lemon-juice is used, it should be mixed with water. Those subject to asthma, flatulence, or heart disease often find effervescing medicines inconvenient. It is not advisable to lie down immediately after taking an effervescing medicine, as the horizontal position prevents escape of flatus. Effervescing draughts are especially useful in irritable states of stomach with nausea and foul tongue. Effervescing magnesia is a useful, mild aperient. It is convenient to remember that 10 grains of bicarbonate of soda are neutralized by 8 grains of citric, or nearly 9 grains of tartaric acid, or by 2 fl. drachms of lemon juice (Griffiths). If carbonate of potash is used, the quantities should be $\frac{1}{8}$ less; if carbonate of ammonia, half as much again. *See Pr.* 30.

Effluvium. *See* SMELLS, OFFENSIVE.

Effusion.—Pouring out of fluid, as in pleurisy, rheumatism. The usual cause is inflammation, or interference with the circulation or kidney action. *See* DROPSY.

Eggs, when beaten up or lightly boiled, are very nourishing and digestible; when fried or baked, they become tough and leathery. Hence, in making puddings for invalids, eggs should not be added until cooking is nearly complete. White of egg is chiefly albumen. Yolk of egg contains, in addition, a large proportion of highly phosphorized fat. Eggs are usually eaten with bread-and-butter, because they are deficient in carbonaceous food stuff; the addition of salt renders them more digestible. Eggs are somewhat constipating. Castor oil may be given in beaten-up egg. *See* FOOD.

Elaterium.—A powder obtained from the juice of the squirting cucumber from the South of Europe. It is a powerful purgative, valuable in cases of dropsy, but not suited for domestic use.

Elbow-joint.—This is a hinge-joint between the humerus or upper arm-bone, and the ulna or inner bone of the forearm. The outer bone (radius) forms a pivot-joint with the ulna just below the true elbow-joint, and only comes into contact with the humerus when the forearm is bent up. *See* SKELETON, *Fig.* 43.

Electricity.—Three kinds have been used as curative agents—that of the electric spark, the silent, or continuous, or Galvanic current, and the interrupted or Faradic current. Although a valuable means of curing neuralgia, paralysis, and other ailments, it cannot be safely used excepting under proper advice. People have done themselves much harm by resorting to ignorant quacks, or by attempting to cure themselves without

sufficient medical knowledge. An electrician, unless also a medical man, cannot be regarded as competent to deal with this powerful agent in the treatment of disease. Many so-called "electric" appliances are quite inoperative.

Electuary. *See* CONFECTION.

Elephantiasis.—A term applied to two very different diseases; one (E. of the Greeks), properly called leprosy, the other (E. of the Arabs) causing enormous enlargement of the legs and other parts, from thickening of the skin and swelling of the lymphatics. This latter disease has been traced to the presence of parasites (*filariæ*) in the vessels of the body.

Elm Bark.—A decoction has been used in skin diseases. It contains much mucilage, and is said to be tonic and astringent.

Emaciation. *See* WASTING.

Embrocation. *See* LINIMENT.

Emergencies. *See* ACCIDENTS.

Emetics. — Substances which excite vomiting, either by directly irritating the stomach or by indirectly affecting its nerves. They are given in poisoning and indigestion, and (in children) to empty the bronchial tubes of the lungs. In poisoning, *Pr.* 27 is most convenient; in bronchitis, *Pr.* 28 is better. When vomiting has begun, half a pint or so of bland fluid, such as warm water, gruel, chamomile tea, etc., may be given. When no emetics can be obtained, vomiting may be induced by tickling the back of the throat with a feather or the finger. If there is unconciousness, an emetic is sometimes injected by medical men under the skin. Those of a full habit, or who are badly ruptured or subject to falling of the womb or bowel, should, if possible, avoid the use of emetics. The same is true of pregnant women.

Emigration should not be undertaken without duly considering beforehand the nature of the country in which it is proposed to live. Many countries are unhealthy, while others require powers of endurance not possessed by every one. On the other hand, emigration to a suitable climate has often been the means of restoring to health those who have shown tendencies to consumption. No malarious district or land visited by yellow fever or intermittent fever should ever be chosen to live in. Other advantages are dearly bought at the cost of a shattered constitution. Sufficient provision of pure water is of the utmost importance to all emigrants, and should be seen to at the earliest opportunity. Useful information may be obtained from the various Emigrants' Guides (Chambers', etc.); from the Emigration Commissioners, 31, Broadway, Westminster, S.W.; and from various colonial agents. *See* AGUE; CLIMATE; CLOTHING; DIET; DRAINAGE; FOOD; HOUSE, SITE OF; VENTILATION; WATER; and other articles.

Emmenagogues.—Medicines to bring on the menses. *See* MENSTRUATION.

Emotions have a great influence on the health. Pleasurable emotions within reasonable limits often assist recovery from illness. A piece of good news will be of more benefit than the best physic in the world. Depressing emotions, such as grief and anxiety, may lead to melancholia. Sudden fright is often the starting point of epileptic fits, so that all foolish practical jokes on children, or the practice of leaving them in the dark as a punishment, or of terrifying them with ghost stories, should be strictly forbidden. In heart-disease all violent or sudden emotions, whether pleasurable or otherwise, do harm. The emotions have great influence over digestion and secretion, and necessarily cause expenditure of nervous energy; so that convalescents and others in a weak state of health should not be severely tried in this way. A piece of bad news or a sudden alarm will take away the appetite and dry the mouth. A sad but curious tale is told of a woman who separated two fighting men, and on giving her breast immediately after to her child, it dropped down dead, the milk being apparently poisoned by the violent emotion.

Emphysema.—(1) A blown-out state of the lungs, arising from violent or long-continued coughing, or a defective state of health. It occurs in children from whooping cough, and in those who are subject to winter cough, asthma, or consumption. The chest becomes permanently distended with air, of a barrel

shape, with rounded back, high shoulders, and small powers of movement. (*See* ASTHMA; BRONCHITIS; WHOOPING COUGH.) (2) Another form of emphysema consists in distension of the subcutaneous tissue with air, from wounds, fractured ribs, etc. In this disorder there is a crackling sensation when the skin is pressed upon, and in extreme cases the features may be altered and the whole body greatly swollen. A surgeon will be required.

Empyema.—A collection of matter in the pleural cavity. *See* PLEURISY.

Emulsion.—A mixture of an oily with a watery fluid by means of sugar, gum, yolk of egg, or similar material, which prevents the oily particles from running together. Milk is a natural emulsion. Salad-dressing made with mustard, oil, and vinegar, is another example. Cod-liver oil is sometimes given in emulsion. *See* MIXTURES.

Enamel. *See* TEETH.

Endemic Diseases are such as are habitually found in certain localities. Thus ague is endemic in marshy districts, yellow fever in New Orleans and the neighbourhood. *See* CLIMATE; EPIDEMIC.

Enema or *Clyster.*—Fluid injected into the lower bowel. An enema may be aperient, astringent, nutrient, or medicated in other ways. APERIENT enemas may consist of plain warm soap and water, salt and water (1½ oz. to 1 pint), gruel or olive oil; and to these may be added other substances (such as 1 fluid oz. castor oil, 2 fluid ozs. compound decoction of aloes, 1 oz. Epsom salts, or 1 fluid oz. infusion of senna to each pint), to render them more active. Where enemas are often required, mucilaginous fluids should be used. The quantity will vary according to the age. In infancy 1 oz. is enough; from 1 to 5 years, 3 or 4 ozs.; at 10 to 15 years, 6 or 8 ozs.; while an adult will require a pint or more. Where there is much flatulence, an enema of 30 grs. asafœtida rubbed up with 4 fluid ozs. water will be useful. Numerous forms of *apparatus* are sold, but some of the simplest are the best. The common 6 oz. india-rubber bottle is convenient, and unlikely to get out of order. Another favourite kind is Higginson's enema syringe in one of its numerous modifications. It is usually provided with two slightly flexible mounts, for vaginal and rectal use respectively, each with a shield. *In giving an enema*, let the patient lie down on the left side with the head low, knees drawn up and buttocks brought to the edge of the bed, over which a piece of waterproof sheeting may be spread. The syringe is then filled with fluid, air being expelled (as it would cause pain), and the nozzle well greased and carefully introduced into the rectum as far as the shield. It will be more easily passed in if the patient bears down a trifle, and the point is directed slightly towards the backbone and a little to the left or under side. No force or roughness should be employed, or the skin or coats of the bowel may be injured, or even perforated, with fatal consequences. The fluid must be injected very slowly, or the bowel will expel it before it has gone far enough. For *self-administration*, if the plain bottle syringe is not used, an enema may be given with a syphon douche, or with Walters' hydro-pneumatic syringe. The syphon douche may be improvised with a piece of half-inch india-rubber tubing and an ordinary bone mount. The tubing must be weighted at one end (which is put into a jug), and have inserted a piece of looped gas-pipe where it rests on the edge of the jug. The more the latter is raised, the greater the force of the stream. As with other syphons, the tube must be filled with fluid before the stream will flow. This may be done by putting the whole tube into the water, and pinching the lower end while it is being removed.

ASTRINGENT ENEMAS are used to arrest diarrhœa or bleeding from the bowel. It is not always right to use these, and, excepting in extreme conditions, medical advice should first be obtained. These enemas must be small in quantity: two ozs. of starch mucilage are usually injected, with ½ fluid dr. laudanum, or, for bleeding, ice-cold water with or without hamamelis (1 fluid dr. of the tincture) or other astringent. In an emergency, strong tea might be used.

STIMULANT ENEMAS may be prepared

with a tablespoonful of brandy to half a tumbler of gruel.

MEDICATED ENEMAS of other kinds are also prepared. As a rule they should only be used under doctor's orders.

NUTRIENT ENEMAS are required when, from obstinate sickness or other cause, food cannot be taken by the mouth. The following formula may be used: Strong beef tea or pressed out beef juice, 4 to 6 fluid ozs.; cream, 1 fluid oz.; carbonate of soda, 10 grs.; Benger's pancreatic fluid, 1 dessert-spoonful. Not more than 3 or 4 ozs. at a time should be injected.

Enteric Fever or *typhoid fever*, is an exceedingly common disease, although its frequency has considerably diminished in England and Wales during the last few years. It is popularly known by the names "low fever" or "slow fever," or, less appropriately, "gastric fever"; while on the Continent it is usually called "abdominal typhus" or "dothienenterie." "Infantile remittent fever" and "bilious fever" of French physicians are varieties of the same disease. Formerly it was confused with typhus fever, until Sir Wm. Jenner and others showed how different it is. As a matter of fact, it is much more nearly related to cholera and dysentery than to typhus, and should never be mistaken for the latter.

Causes.—It is essentially a "drain and cesspool fever," as the excretions from the bowel are the source of infection. Fæcal matter from healthy persons will not cause the disease, nor even the fresh motions from one suffering with the fever; but the smallest trace of such matters gaining access to a cesspool or sewer will speedily contaminate the whole mass, especially in hot, dry summer weather; and if wet weather follows, the fever-poison will be washed into wells or churned up with the "sewer-gas," and probably cause an epidemic. A serious outbreak occurred a few years ago in one of the large colleges at Cambridge, which had recently been rebuilt, but in such a way that its pipes acted as ventilating shafts for the town sewers. In a large town in the south of England an epidemic was traced to a sick workman who was engaged in repairing one of the wells which supply the town with water. Other epidemics have been caused by washing out the vessels at a dairy farm with contaminated water; and the disease has also been caught by washing the soiled linen of a fever patient. The late Dr. Budd, of Clifton, investigated some outbreaks in which one fever patient infected a number of others through a stream of water passing behind the houses, those up stream escaping. In all such cases it is the fæcal matter from patients already suffering from the fever which causes it to spread; and it is doubtful whether it can be caught from the breath. There is therefore no danger in nursing a case of enteric fever, provided everything coming from the patient is promptly disinfected, the room well ventilated, and cleanliness observed. It is quite exceptional for doctors or nurses to catch the fever from their patients, and when this happens, special reasons are always to be found. In general hospitals enteric fever patients are put in the general wards without isolation, and yet they do not infect their neighbours. Enteric fever is most common among young people, becoming rarer as age advances. Strong people are quite as often attacked as invalids, and rich as often as poor. Prince Albert died of this fever in 1861, and the Prince of Wales was seriously ill with it in 1871. It is especially common in autumn. Second attacks in the same person are not rare. It has been shown by Klebs and others that a bacillus is present in the bowel and stools, believed by many to be the real cause of the fever. *See* BACTERIA.

Symptoms. — Nothing characteristic happens for about three weeks after infection. Then gradually or rapidly increasing weakness comes on, with headache and fever at night, and pains in limbs and back. Sometimes at first the patient merely feels out of sorts, and loses appetite. When fever comes on, it is usually possible to recognise the disease. The temperature is quite characteristic, and a physician can nearly always tell from the chart alone what is the matter. During the *first week* the temperature rises in "steps," being al-

ways greater towards evening and low in the morning. If at this period the same degree of heat is found on two successive mornings or two successive evenings, or the temperature is as high as 104° on the second day, it is not likely to be enteric fever. The tongue is not often thickly coated, and the bowels may be confined or relaxed. Bleeding from the nose is common. In the *second week* the patient is weaker; his cheeks are flushed, tongue coated and red at edges. There is tenderness and often distension of the abdomen, a little cough, and more or less wandering or delirium towards night. The bowels are relaxed with motions like peasoup in appearance, offensive and alkaline. Small pink spots of the size of a large pin's head come out in crops on the chest and abdomen. The temperature remains high at night, falling every morning. After this the patient becomes dull and half unconscious, often delirious; the urine and motions are passed involuntarily in bed, the tongue is dry and glazed, or brown, hard and cracked, and the body wasted. In favourable cases improvement takes place during the fourth week, the temperature falling first in the morning, then in the evening; and after a convalescence of from one to three months the patient is able to resume his work. Not rarely, however, dangerous complications occur, or relapses during convalescence, so that the fever may last longer or terminate fatally. Ulceration of the bowel is always present, and fatal bleeding or rupture into the abdominal cavity may follow a slight effort, coughing fit, rough nursing, or taking of unsuitable food. Death may also happen from exhaustion or inflammation of the lungs.

PREVENTION during an epidemic.—Boil and filter all water used for drinking, or for washing cups or dishes; boil all milk, especially if the dairy is suspected. See to drains and water-closets, and avoid the ventilation shafts and gratings of sewers. Remove all decomposing animal matter, see to ventilation, and keep rooms scrupulously clean. Other precautions are mentioned under next heading.

TREATMENT of the disease must obviously be under medical direction. Very slight attacks of enteric fever may be met with; but even these are by no means free from danger. Medicines cannot be safely given: especially dangerous is it to give aperients. Directly enteric fever is suspected, the patient must be made to keep his bed. To "fight against the disease" by staying up greatly increases the danger. A railway journey at this time would also be full of risk. Choose a suitable room. (*See* SICK-ROOM.) Isolation is not so important as in measles or scarlatina, because there is little risk of catching the disease, excepting from the excretions. A bed pan should be used from the first, and the patient not allowed to sit up. Any difficulty in relieving the bowels while lying down is soon overcome. Disinfectants should be placed in the utensil and strewn on the motions; if these are kept for the doctor to see, they should be placed outside in the open air, or in a well-ventilated water-closet; but it is safest as a rule to promptly get rid of them. In towns they have to be thrown down a water-closet, followed by plenty of disinfecting solution; and other people should, if possible, avoid using the same water-closet. In the country it is best to bury the disinfected stools in deep trenches some distance from the house, and away from the wells or water supply. The trenches should be used for not more than two days, and then carefully filled up. Anything which is soiled by the patient must also be promptly disinfected or burnt. The patient himself may be sponged night and morning with weak Condy's fluid or a solution of sanitas. This promotes sleep, while it keeps the skin in good condition. The attendants should also use disinfectants for their hands. Beyond these measures, the chief points to be attended to are to give the patient suitable food, and to spare his strength as much as possible. He must be kept very quiet, no conversation or reading, worry or effort, being permitted. His wants should be anticipated, and his questions briefly answered. Visitors should be excluded, and none but the nurses (amateur or professional) allowed in the room. It is convenient to have

two beds in the room, to allow of more thorough cleansing and more frequent change. By putting them side by side the patient can be made to slide across without any effort on his part. The sheets must be well looked after, as there is a great tendency to bed sores.

DIET.—So long as fever is present, or even a little longer, solid food must be absolutely forbidden. Neglect of this precaution has cost many a patient's life, and relapses during convalescence often occur from too early a return to ordinary diet. Milk and water, beef tea, mutton broth, barley water, and thin oatmeal gruel are suitable for such a patient. They may with advantage be peptonised. (*See* PEPTONISED FOODS.) About 2 to 3 pints of milk and 1 to 1½ pints beef tea or broth are enough for every 24 hours. They may be given alternately every three hours with a feeder. The patient should not be trusted to feed himself. Should the milk be more than can be digested, curds will appear in the stools. Less must then be given at a time, or the total quantity reduced, or lime water or barley water added. Too much beef tea sometimes causes diarrhœa. If perforation occurs, it will be necessary to still further limit the supply of food, if the patient survives the accident. For *drink*, pure water, toast water, or thin barley water may be given, either iced or plain. The fruit syrups make a pleasant variety. Effervescing drinks are not advisable, and stimulants only when ordered by the doctor. The nurse should take the temperature every four hours, and make a careful record of the symptoms. If a sudden rise or fall of temperature occurs, or sudden faintness, or severe diarrhœa, the doctor must at once be informed of it.

Enteritis.—Inflammation of the bowel. *See* BOWELS.

Entozoa.—Parasites inhabiting the interior of the body. *See* WORMS.

Enuresis.—Incontinence of urine. *See* URINE, INCONTINENCE OF.

Epidemic diseases are such as attack large numbers of people about the same time and place. Influenza, cholera, scarlatina, and other infectious fevers are all epidemic at times. *See* EPIDEMIC DISEASES; FEVERS; INFECTIOUS FEVERS.

Epidermis. *See* SKIN.

Epigastrium.—The pit of the stomach. *See* ABDOMEN.

Epiglottis. *See* LARYNX.

Epilepsy, or falling sickness, is closely related to convulsions of children, which are sometimes its starting-point. Epileptic fits vary greatly in severity and in frequency. They may come on every day or many times a day, or only at intervals of months or years; and may show themselves as mere momentary loss of consciousness, or as severe and prolonged convulsions. They usually first occur during teething or at puberty. The night is a common time for the seizures, but they may happen at any hour. In at least half the cases the fit is preceded by some unusual sensation, such as a feeling of numbness, tingling, or constriction in an arm or leg, travelling up to the trunk, or giddiness, or noises in the ears, or a sense of movement, or of inability to speak. Then comes sudden unconsciousness, the sufferer falls down with a piercing scream, the body becomes stiff, eyes or head often turned to one side, arms bent and legs stretched out. As a consequence of this stiffness the face becomes purple and the pulse full and frequent. After a few seconds the limbs begin to jerk, the tongue is thrust out between the teeth and may be bitten, and the head may be knocked violently against the floor. Then comes a gradual recovery, the patient passing usually into a heavy sleep with loud snoring, or else waking up dazed and stupid. During the fit the urine and motions may be passed unconsciously, and when there is no scream, this may be the only evidence of a fit happening in bed. In slight attacks, or so-called minor epilepsy, there may be little more than a momentary loss of consciousness. Trousseau, the French physician, tells of a violinist who would lose consciousness for a few bars, and then go on as if nothing had happened. Epileptic patients are always in danger of their lives; for although it is rare for a fit to be directly fatal, they may burn themselves by falling into the

fire, or be drowned, or killed by a fall from a height during an attack. Occasionally epileptic fits are replaced by violent assaults on unoffending persons. Some brutal murders have been done during such attacks.

Causes.—Epilepsy is often hereditary, but may be acquired. Drunken parents often have epileptic children, and in some families epilepsy, insanity, and other nervous diseases replace one another in different individuals. Rickety children are especially liable to convulsions, and may become confirmed epileptics. Among other causes may be mentioned blows on the head, fright, mental overwork, teething, sexual excesses, worms, and other sources of irritation. There is also a tendency for epilepsy to spread by imitation; so that young women and children should never, if possible, be allowed to witness a fit.

TREATMENT.—During a fit, the clothes should be loosened round the neck and chest, the tongue protected by putting a piece of cork or wood or india-rubber between the teeth, and the limbs and head protected by gentle restraint. The sufferer should be laid down on the ground, plenty of fresh air admitted, and no attempt made to force him to swallow. When there is known to be a tendency to epilepsy the patient should never be left alone, and should not be allowed to undertake any work which might lead him into danger. For such a man, travelling on horseback or working on a scaffold would be unsafe, and railway journeys should not be taken alone. For *medicinal* treatment a doctor should be consulted. Epilepsy untreated is apt to end in loss of memory and mental feebleness; but there are several remedies which have great power over the disease. If there is kidney disease or lead-poisoning, the treatment must be directed to their removal. In other cases, *Pr.* 18 may be tried. The dose very often needs to be successively increased, but this would not be safe in non-medical hands. The bowels and digestion should be regulated, and all causes of irritation removed. It is especially important to avoid excesses of any kind. Alcoholic liquors have a notable tendency to increase the severity of the disease. Fits can sometimes be arrested by tying a string tight round the limb where the premonitory sensation is first felt. Chapman's spinal icebag has also been useful in some cases. Epilepsy is sometimes feigned by impostors. Such people, however, generally take good care not to hurt themselves in falling, and often overact their part. A real epileptic during an attack is insensible to pain, and does not flinch if a pin be run into him, or sneeze if snuff be applied to the nostrils. However, in all doubtful cases it is well to act as if the real disease were present. *See* HYSTERIA, CONVULSIONS.

Epispastics.—Blistering agents. *See* BLISTERS.

Epistaxis. *See* NOSE-BLEEDING.

Epithelium.—The outer layer of skin and mucous membranes. It consists of closely packed cells, and has no blood-vessels. *See* SKIN; MUCOUS MEMBRANE.

Epsom Salts, Sulphate of Magnesium, exists in sea-water and in many mineral waters. It is sold in the form of bitter, needle-shaped crystals, readily soluble in water. It is an active aperient, especially if combined with vegetable purgatives. (*See Pr.* 11.) Given alone, it is apt to cause griping and distension without proper evacuation. This is avoided by combination with rhubarb or senna and a carminative. *Dose.*—1 drachm in combination, or 2 to 4 if taken alone. Give in half a pint of water before breakfast. *Caution.*—Sulphate of zinc and oxalic acid, both poisonous substances, resemble Epsom salts, and have been mistaken for it. The taste of the first is metallic, that of the second intensely acid; while that of Epsom salts is bitter and salt. Carbonate and sulphate of magnesium taken together form an insoluble mass. *See* MINERAL WATERS; and *Pr.* 11, 14, 35.

Ergot of Rye.—A diseased condition of the rye-grain caused by the presence of a fungus. Another name is spurred rye, as the grain becomes curved and deep purple or brown and covered with a bloom. Ergoted rye used as food causes dry gangrene of the extremities. Ergot is a valuable remedy for flooding

and other diseases of the womb, which it causes to contract and expel its contents. It is unsafe to use it in pregnancy. It should only be given under medical advice, or when there is danger of death from flooding after childbirth, or miscarriage. Dose: ½ teaspoonful of the liquid extract in a wineglassful of water. *See* DIABETES; FLOODING.

Eructations. *See* FLATULENCE; DYSPEPSIA.

Eruptions on the skin may consist of red spots or blotches, raised or not, or of vesicles or pustules. Some form part of an infectious fever; others are not catching. Amongst the former are measles, rötheln, scarlatina, enteric fever, typhus, erysipelas, chicken-pox, and small-pox; amongst the latter, nettlerash, purpura, and erythema. *See* INFECTIOUS FEVERS, etc.

Erysipelas, St. Anthony's Fire, is an inflammatory disease caused by infection. It is especially favoured by dirt, want of ventilation, bad food, intemperance, and impure water. It is only feebly infectious excepting where there are open wounds or cracks, or after recent childbirth, when childbed fever may be caused by it. Women are more liable to erysipelas than men. It is apt to recur.

Symptoms.—After a sudden attack of chilliness, loss of appetite, headache, nausea, and other symptoms of oncoming fever, a bright red, hot, and tender patch of skin appears, usually near a scratch or near the junction of skin and mucous membranes. The patch is sharply defined and raised, and fades on pressure. When the face is attacked, there is great swelling about the eyelids. The part soon becomes tense and painful, and perhaps blistered, and, in severe attacks, matter forms under the skin, and may burrow extensively. The nearest lymphatic glands are swollen. At the height of the disease there may be delirium and great exhaustion. If no complications appear, the disease subsides as a rule at the end of a week, or later; but where matter forms, the patient may be seriously ill for weeks, or die of blood-poisoning.

TREATMENT.—Open the bowels with a pill or draught. (*Pr.* 10, 11, 46, 53, 54.) Put cotton wool over the affected part, and send for a doctor. If one cannot be obtained, give *Pr.* 34 every hour. During early stages the fever may be reduced by giving aconite (*Pr.* 31) for the first 24 hours alternately with the tincture of steel. Constipation must be avoided by simple aperients. Plenty of nourishing liquid food will be required, and, as a rule, stimulants. If there is much pain, apply locally equal parts of extract of belladonna and glycerine. Should the affected part become tense, incisions may be necessary to prevent gangrene. They should be made antiseptically. If the throat is affected, the patient may die of suffocation. *See* ERYTHEMA.

Erythema.—A skin-disease resembling erysipelas, but not infectious, and far less dangerous. It especially attacks those who are rheumatic, and may appear in the form of numerous raised spots, patches, or rings, especially on the backs of hands and arms, feet and legs. One variety, which is found especially in children who are out of health, forms raised, pale-red, tender patches from the size of a pea to that of a hen's egg, which, as they disappear, leave marks behind as of bruises. There is far less fever than in erysipelas, and no tendency to form matter.

TREATMENT.—See to digestion and action of bowels. (*See* APERIENTS.) Give tonics (*which see*) and good plain food; pay attention to the usual rules of health, and locally apply soothing lotions. (*Lotions*, 2, 3, 4.)

Eschar.—Tissue killed by the action of caustics or cautery.

Escharotics. *See* CAUSTICS.

Ether, *Sulphuric Ether*, is well known as an anæsthetic. It is a colourless liquid with a disagreeable smell and burning taste, and is obtained by the action of sulphuric acid upon alcohol. The vapour inhaled causes insensibility. (*See* ANÆSTHETICS.) Several preparations are used in medicine.

METHYLATED ETHER is applied externally to freeze the skin and render it insensible for small operations. *See* SPRAY PRODUCERS.

SPIRIT OF ETHER contains one part

ether with two rectified spirit. It is given as a stimulant, and to diminish intestinal pain and spasm. Dose, ½ fluid dr. well diluted with water. (*Pr.* 5.) Large doses are poisonous.

Compound Spirits of Ether, *Hoffmann's Anodyne*, contains heavy oil of wine or ethereal oil, a yellow, aromatic liquid of uncertain composition. Dose and action same as spirits of ether.

Acetic Ether.—A fragrant, fruity-smelling liquid. The properties are much the same as those of spirits of ether, but it is much more pleasant to take. Dose, 10 to 30 minims in water.

Spirits of Nitrous Ether, *sweet spirits of nitre*, a pale, yellowish liquid, with an agreeable, apple-like smell and sweetish, cooling taste. It increases the perspiration and urine, and relaxes the arteries. Dose, ½ fl. dr. in water. (*Pr.* 7.)

Chloric Ether, *spirits of chloroform*. *See* Chloroform.

Eucalyptus.—The leaves of several species of eucalyptus or blue gum tree, natives of Australia, but introduced and cultivated in Algeria, California, and Southern Europe. It yields an essential oil, which is a powerful antiseptic, disinfectant, and deodorant. A solution of one part of the oil in five parts of alcohol, mixed with fifty parts of water, has been used to impregnate gauze dressings for wounds; but the gauze is rather irritating. An ointment is prepared (oil one part, hard paraffin two parts, soft paraffin two parts). Also from the leaves, a fluid extract (dose 10 minims) and an infusion. The latter forms a pleasant spray for the sick-room, and has been recommended in colds and coughs. Eucalyptus oil is useful as an inhalation in bronchitis and other chest diseases with plentiful and offensive secretion. (*See* Inhalations.) It has also been useful in blood-poisoning and in ague (Brunton). The trees are remarkable for hardness of the wood, rapidity of growth, and great power of absorbing moisture. Malarious districts planted with them have been rendered quite healthy.

Euchlorine is an irritating compound gas formed by dropping crystals of chlorate of potassium into hydrochloric acid. It is an efficient disinfectant, rather more agreeable than chlorine; chiefly useful for disinfecting w.c's. and other small compartments. *See* Disinfectants.

Euonymin.— An oleoresin obtained from the American spindle-tree, used for its action on the liver. Dose as an aperient, 1 to 3 grs. in a pill, combined with other drugs; less will often suffice.

Eustachian tube leads from the ear to the throat. It equalizes the pressure on the two sides of the drum. *See* Ear.

Exanthemata. Eruptive fevers, such as scarlatina, measles, or chicken-pox.

Excitement. *See* Emotions; Stimulants.

Excoriation. *See* Abrasions.

Excretory Organs are those which cast out of the body the *excretions* or waste products resulting from its activity. The chief excretory organs are the skin, kidneys, lungs, liver, and intestines. Where one of these is inactive, others may sometimes be induced to do its work. Thus in cold weather, when the skin is inactive the kidneys excrete more urine, and in kidney disease some relief may be obtained by making the skin and bowels more active. Where excretion is imperfectly performed, the blood becomes impure and the whole body poisoned, just as a fire may be choked by its own ashes. This often is the cause of languor and loss of energy, so that these symptoms must not always be treated with "strengthening medicines." *See also* Absorbent System.

Exercise.—Perfect health is impossible without a certain amount of exercise every day; and many of the ailments of town-dwellers arise entirely from their sedentary occupations. Exercise quickens the circulation and respiration, assists the flow of bile, helps to prevent constipation, and improves the digestion. During exercise more oxygen is used up in the body, so that waste products are more fully burnt up. Thus during a four-mile walk five times as much air is inhaled as when lying down. This increased consumption of oxygen diminishes the tendency to gout, bilious attacks, gallstones, gravel, and other kindred complaints. Exercise favours the proper development of the chest, as well as of bones and muscles in other parts of the

body. Ill-developed muscles are apt to give way when most needed, and either become "strained" or allow deformities to appear. (*See* SPINAL CURVATURE; DEFORMITIES.) Moreover, it is highly probable that the muscles manufacture substances which induce healthy sleep, so that exercise in the open air is one of the best preventives of sleeplessness. Much of the nervous irritability of city men arises from insufficient exercise or want of fresh air. Exercise keeps the skin in order, failing which the kidneys are overworked and may become diseased. (*See* OBESITY.) It has been calculated that the *amount* of exercise required for health is equal to 150 foot-tons per day, *i.e.* 150 tons raised one foot. Walking three miles an hour is equivalent to lifting the body through one-twentieth of the distance walked. Hence for a man weighing 160 lbs., an eight-mile walk at three miles an hour would be about equal to 150 foot-tons. There are, of course, individual differences, but this may be taken as the average amount necessary. Growing children and youths should avoid excessive or violent exercise. Training for races before growth is finished stunts the frame and enfeebles the health. There is, of course, not the same objection to less violent exercise or games, which are not likely to be indulged in to excess. Violent exercise is especially bad for middle-aged and elderly people, who may perhaps strengthen their muscles, but run the risk of overtaxing the heart and blood vessels. Training for athletic sports is seldom safe after thirty. All forms of moderate exercise are probably health-giving; but other things being equal, those are best which bring most muscles into play, which are pleasurable, and are taken in the open air. Rowing, riding, cricket, tennis, and (under rational conditions) football are especially useful, and have no doubt largely contributed to maintain the physique of the British races, counteracting the rapid growth of our cities, the artificial life spent by so many now-a-days, and the widespread disregard of the rules of health. Cycling is also conducive to health, unless extreme distances are attempted, or riding very steep hills, or record-breaking. Bicycles which are too high for the rider, or have badly constructed saddles, will do harm. Many old-fashioned machines were hurtful from their extreme weight, excessive vibration, or faulty construction; but such machines are rapidly going out of use. It has been stated that cycling is bad for ladies. There is, however, no evidence of it, provided they do not overtax their strength. Long-continued exertion of any kind is unsuitable for women, whether on the tricycle or in any other way. As winter substitutes for the foregoing sports, skating and dancing are both admirable. Ventilation must in the latter case be attended to, and precautions taken against chills. (*See* CLOTHING; VENTILATION.) Active exercise should never be suddenly undertaken by those unaccustomed to it, but they should prepare themselves by gradually increasing exercise. Were this done, more good and less harm would result from the annual holiday of city men and the like. Young men who are suspected of unsoundness, or who suffer from breathlessness, giddiness, palpitation, or faintness on exertion, should undergo a medical examination before training for athletic sports. What is not too much for one may be injurious to another; in this, as in other things, individual differences must be attended to. Over-exertion may cause nervous exhaustion and wasting of the overtired muscles; and in addition there may follow heart-strain, aneurism, varicose veins, or emphysema of the lungs. For delicate people croquet or singing and reading aloud are convenient substitutes for more active exercise. Invalids often find carriage exercise quite sufficiently fatiguing. The best time for exercise is in the forenoon. To exert one's self on a full stomach or an empty one is alike injurious. *See* HORSE EXERCISE; TRAINING.

Exfoliation.—The casting off of a piece of dead by living bone.

Exhalation. *See* PERSPIRATION, SMELLS, OFFENSIVE.

Exhaustion may affect the whole or a part of the body, and may be caused by anything which stops the supply or increases the expenditure of food and

energy. On the one hand, we may get exhaustion from starvation, or disease of the digestive organs; and, on the other hand, it may be brought on by overwork, nervous shock, or anxiety, extreme cold or heat, dissipation, loss of blood, or copious discharges. Where the blood is in an impure state, as in those who live in ill-ventilated rooms, take insufficient exercise, or are intemperate in eating and drinking, exhaustion comes on much more readily. A fire may go out because it is choked with ashes, just as much as for want of fuel. Exhaustion may also arise from fever or long-continued illness.

Symptoms.—*General* exhaustion may show itself by sleeplessness, loss of energy and power of application, headache, a feeling of oppression, failure of eyesight, singing in the ears, etc. The digestion usually suffers, and the liability to other diseases is increased. Throbbing of bloodvessels and palpitation are common symptoms; also a liability to sudden flushing. *Local* exhaustion of groups of muscles leads to wasting or loss of control. (*See* CRAMP, PARALYSIS.) Such exhaustion commonly arises from excessive use of a few muscles—such as those of the arm in blacksmiths, or those of the forearm and hand in violinists, pianists, or shorthand writers. In the same way staring at the electric light may cause blindness and inflammation of the eyes, or the noise of cannonading give rise to deafness. In TREATMENT of general exhaustion, the cause must be removed, and the ordinary rules observed as to food and drink, fresh air, rest and exercise, and attention to the excretory organs. Regular hours should be observed, and the occupation varied as far as possible. Stimulants should be avoided, as they increase the tax upon already exhausted organs. (*See* STIMULANTS.) If the digestive or excretory organs are out of order, these should first be seen to. Food should be chosen for its digestibility rather than for its "strength." Afterwards tonics may be useful. (*See* TONICS, SLEEPLESSNESS.) *Local* exhaustion calls for rest of the affected parts.

Expectorants.—Remedies which assist the bringing up of phlegm from the breathing tubes. In the early stage of a cold, ipecacuanha is the most useful expectorant (*Pr.* 19, 21). Later on when there is free secretion and the cough is "loose," squills, acid preparations, balsam of tolu, and some of the gum-resins are suitable (*Pr.* 20, 61, 62). Opium and other sedatives are often combined with expectorants, but they should not be given to children, and must be used very cautiously even by adults. One of the chief objections to the use of secret remedies ("patent medicines") for coughs and colds is the presence of an uncertain quantity of opium in them. *See* BRONCHITIS; COLD; COUGH; LINCTUS.

Expectoration.—The act of coughing up matter from the lungs; or the matter or phlegm so coughed up.

Expiration.—Breathing out from the lungs. *See* INSPIRATION.

Extracts.— Medicinal preparations made by removing the active ingredients of a drug by means of water, spirit, or other solvents, and then concentrating. There are two kinds, solid and liquid. *See* PILLS.

Eye-ball.—An almost spherical globe attached to the optic nerve, like an apple to its stalk. It is embedded in the fat of the orbit and is moved by six muscles. The front (*cornea*) is more curved than the rest, and is transparent to admit light to the sensitive part at the back. The pupil is a perforation in the movable screen (*iris*, 5 *Fig.* 24), which forms the coloured part of the eye. Behind this screen is placed the crystalline lens, which focusses the rays on to the back of the eye-ball (*retina*). The lens is separated from the cornea by watery fluid (*aqueous humour*, 6 *Fig.* 24), and from the retina by a more jelly-like substance (*vitreous humour*, 8 *Fig.* 24), which helps to preserve the roundness of the eye-ball. Three coats surround the interior of the eye-ball—an outer tough fibrous coat (*sclerotic*, 1 *Fig.* 24) seen in front as the white of the eye—a middle (*choroid*) coat (2 *Fig.* 24) containing bloodvessels and dark colouring matter to absorb stray rays of light; and an inner sensitive coat, *retina*, which is an expansion of the optic nerve lining the back of the eye-ball. The sclerotic is continu-

ous in front with the cornea ; the choroid ends in front in the iris, and behind this are a number of radiating ridges (*ciliary processes*).

It is to these ridges that the suspensory ligament of the lens is attached. The retina ends in front as a delicate membrane behind the ciliary processes. Lining the front of the eye-ball is a sort of mucous membrane (*conjunctiva*) which also lines the lids. Thus it appears that the eyeball resembles a photographic camera, in which a picture of external objects is focussed by a lens on to a sensitive plate at the back of a dark box.

ACTION OF THE IRIS.—The amount of light entering the eye is regulated by the iris, which contains muscular fibres as well as bloodvessels and colouring matter. In a bright light the pupil contracts, in a dull light it expands. A similar change should occur in looking away from a near to a distant object. In opium poisoning the pupil is contracted to a pin's point ; on the other hand atropine (the alkaloid of belladonna) paralyses the iris and expands the pupil, so that it is used in examining the interior of the eye-ball with the ophthalmoscope. Advice should always be obtained when the pupils are unequal or sluggish.

ACCOMMODATION.—Rays of light from distant objects are naturally focussed on to the retina ; but those from a nearer object would be focussed behind it but for a change in the lens, which by becoming more curved is able to bring the rays sooner to a focus. This change ("accommodation") requires a slight muscular effort ; hence minute work which requires to be brought near the eye is fatiguing. In old age accommodation is imperfectly performed. In short sight, the eye-ball is too long, so that distant objects are focussed in front of the retina, and are not clearly seen. In long sight, the eye-ball is too short, so that the lens has to be accommodated even for distant objects. (*See* SIGHT, DEFECTIVE, and *Figs.* 41, 42). In cataract, the lens becomes opaque and prevents the passage of light. *See* CATARACT.

Eye Diseases.—In consequence of the delicate structure of the eye-ball, and the extreme importance of the sense of sight, domestic treatment of eye diseases will seldom be advisable. The following remarks are made chiefly with a view to prevention, and for emergencies when medical advice cannot be obtained. Diseases of the *eyelids* are considered in a separate article, and defects of sight without obvious changes in the eye are described under BLINDNESS ; COLOUR-BLINDNESS ; SIGHT ; and SQUINT. The remaining eye diseases are mainly inflammatory.

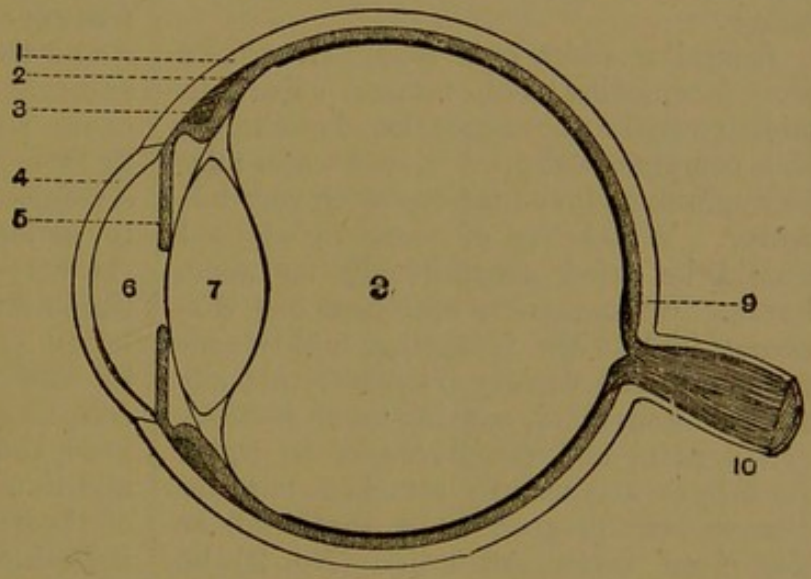

FIG. 24. SECTION OF THE EYE-BALL.

1. Sclerotic. 2. Choroid. 3. Ciliary body. 4. Cornea. 5. Iris. 6. Anterior chamber with aqueous humour. 7. Lens. 8. Posterior chamber with vitreous humour. 9. Retina. 10. Optic nerve. (From Newsholme's "School Hygiene.")

INFLAMMATION OF THE EYE is of several different kinds. Those in which the outer lining membrane (*conjunctiva*) is affected, are called ophthalmia ; in addition to this we may have inflammation and ulceration of the cornea, and inflammation of the iris (*iritis*) and neighbouring parts. *Newly born infants* are sometimes attacked with ophthalmia, in which the eye swells up, and about the third day after birth begins to discharge a fluid like turbid whey, which soon becomes yellow and creamy. The lids are swollen, hot, and red. If this condition is neglected, sight will probably

be damaged or destroyed. Both eyes are usually affected; and the discharge will cause a similar disease in others if it gets into their eyes. Not an hour should be lost before treatment is begun; the eye must be syringed every hour with tepid water, followed by an astringent lotion (*Lotion* No. 9). In emergencies weak tea may be used. The cleansing is best done with a clean new glass syringe with a rounded point, care being taken not to injure the globe of the eye. Any discharge which oozes from between the lids should be removed with bits of soft rag, which may then be burnt. The edge of the lid should be smeared with simple ointment. If a surgeon can be obtained, he will probably use stronger applications, which would be unsafe in non-professional hands.

A similar disease is found *in adults* from inoculation with matter. Here, in addition to the above-mentioned measures, thin compresses dipped in iced water may be applied. or fomentations with very hot water. Whichever of these is adopted should be tried continuously for some hours. Inflammation *with mucous discharge* is, like the foregoing, highly contagious. One variety frequently attacks a whole household, causing much redness, gritty pain, and sensitiveness to light. Both eyes are usually attacked, but the disease usually goes in a fortnight or less if an astringent lotion (No. 9) be applied. Another variety, occurring in ill-fed school children or people in overcrowded workhouses, is much more obstinate. The lids become permanently thickened, causing scarring and eversion (*blear eyes*), or displacement of the eyelashes. Ophthalmia may also appear during convalescence from measles. There is usually not much discharge, but great sensitiveness to light. Other causes are irritation by dust, smoke and fog, cold winds, or bright sunshine. Over-use of the eyes, especially when there is short sight or other defect, will also cause inflammation. Little elevated spots of the size of a millet seed, and surrounded by a leash of blood-vessels are often visible near the cornea. In such a condition the eyes must be rested, a large shade being worn over both eyes while out of doors. Plenty of exercise in the open air should be taken if the weather is reasonably fine. Good nourishing food will be needed, and possibly tonics (*which see*). Goulard water is often recommended for sore eyes, but is not safe, as the lead is apt to form opaque patches if there are any scratches or ulcerated spots on the cornea. It is far better to bathe the eye in early stages in warm water or milk and water, or to apply wet compresses under oilskin; and later on to use a weak astringent lotion (No. 9). Any contributing cause, such as imperfect ventilation or optical defects in the eyes should of course be remedied. Inflammation *of the cornea* causes steaminess and loss of transparency. It is often due to constitutional diseases, or to diseases of deeper parts of the eye. Bloodvessels are visible round the edge of the cornea, and may encroach upon it. Ulcers of the cornea cause redness, pain, and intolerance of light, especially in children and those of scrofulous constitution. They may lead to perforation or permanent opacity of the cornea. Beyond using a large eye-shade and bathing with hot belladonna lotion (No. 3), little can be safely done by the unskilled. Inflammation *of the iris*, like the foregoing, causes pain, redness, and sensitiveness to light; but in addition there are changes in the colour of the iris, which often looks muddy and indistinct, and sluggishness of the pupil, which either contracts imperfectly when a bright light is brought near, or expands irregularly in the shade. There is usually a narrow pink ring of radiating bloodvessels round the cornea; and there may be neuralgic or throbbing pain down the nose. The usual causes of iritis are rheumatism, gout, and other constitutional diseases, wounds of the eye, or exposure to wet and cold. When one eye is badly wounded, the other not infrequently inflames, and is only saved by removing the first. Iritis is a somewhat serious disease, and requires early and careful treatment. A couple of leeches may be applied to the temple if there are much pain and redness, the eyes rested in a dark room, and the affected one kept warmly tied up with cotton wool. A surgeon must be consulted.

Eye, Injury to.—Gritty particles sometimes enter the eye and lodge under the eyelids. These may be everted over a bodkin, and the particles carefully removed with a soft handkerchief. After this, a drop of castor oil may with advantage be put between the lids, and if much soreness continues, a cold wet compress applied. If lime is splashed into the eye, wash with weak vinegar and water. Pure water aggravates the mischief. A blow on the eye may not cause a "black eye" only, but may also injure the deeper parts of the ball. A wet compress is a good and easy remedy. The eyeball sometimes becomes suddenly bloodshot from an epileptic fit at night.

Eye, Pain in the, may be due to neuralgia, gout, or rheumatism, megrim, optical defects, or overwork. It should be ascertained whether inflammation is present. *See also* GLAUCOMA; SIGHT, DEFECTIVE.

Eye, Watery, may be a sign of inflammation or irritation; or it may be caused by stoppage of the tear-duct leading to the nose. (*See* TEARS.) This usually arises from long-standing disease of the eyelid or of the nose.

EYE, WEAK. *See* SIGHT, DEFECTIVE; EYELIDS, DISEASES.

Eyelids are folds of skin inclosing thin plates of fibrous tissue or gristle. Along the edge are the eyelashes, together with the openings of a number of small glands (*meibomian*) which are affected in a "stye." A circular muscle in the eyelids closes the eye. The upper lid has a special muscle to raise it. The modified skin lining the inside of the lid (*conjunctiva*) is reflected over the front of the eye-ball forming a fold above and below. Little particles of grit entering the eye often remain in these folds. (*See* EYE, INJURY TO.) The tear-glands open by a number of ducts under the outer end of the upper lid. From them the tears pass to the inner angle of the eye, where two fine ducts in the lids carry the tears to the lacrymal sac and duct. (*See* TEARS, and *Fig.* 53.) The little pink fold at the inner angle of the eye is a rudimentary third eyelid, more perfectly developed in birds.

The chief DISEASES of the lids are inflammation and its consequences, cysts, warts, and ulcers. A *stye* is an abscess in one of the glands of the lid. It may sometimes be cut short by applying citrine ointment with an equal quantity of almond oil to the edge of the lid. If this fails to check it, foment with hot water until it bursts, or consult a surgeon. *Inflammation of the edge* of the lid is chiefly found in sickly and ill-fed people. When it is severe, the lashes are best pulled out, after which the lids may be soaked for a quarter of an hour night and morning in warm weak alkaline lotion (such as 5 grains of carbonate of soda to 1 oz. of water), and smeared along their edges with white precipitate ointment diluted with an equal quantity of simple ointment. Good food and tonics are usually required. *Cysts* require opening with the surgeon's knife, otherwise they may burst and cause much disfigurement. *Warts and ulcers* about the eyelids should never be neglected in middle-aged and elderly people, as they are sometimes the beginning of cancer.

Face.—This furnishes to a skilled observer many important indications of the state of health. All pronounced or long-continued disorders alter the features, complexion, or expression; so that a practised physician can often tell at a glance what is the matter. Allowance must of course be made for age and sex, and for racial and other inherited characters. A full description of such changes, however, is not called for here, as medical knowledge and experience are necessary to appreciate their value. Marked alterations without obvious cause often give warning of coming illness. For changes of colour, *see* COMPLEXION. General puffiness is often due to dropsy, or merely to deposit of fat. Local swellings may result from gum-boils, swollen glands, or mumps. Thick lips are found in scrofula and heart disease. Over-indulgence in fermented liquor also often gives rise to puffiness and flabbiness of the cheeks. Rapid shrinking of the features occurs in cholera, and in collapse or shock after serious accidents. Slower wasting is usually due to fever, consumption, or cancer. Changes in expression may be caused by

either bodily or mental disease. Want of symmetry in the face is often a sign of paralysis. *See* NOSE, LIPS, etc.

Faceache. *See* NEURALGIA; TEETH.

Fæces. *See* MOTIONS.

Fahrenheit. *See* THERMOMETER.

Fainting is caused by diminished circulation of blood through the brain. During the approach of a fainting fit, it is common to get nausea, giddiness, singing in the ears, and failure of sight. The other symptoms are too well known to need description. Fainting fits may last from less than a minute to over an hour, ending in recovery or death. It is sometimes difficult to distinguish them from a slight epileptic fit. *See* EPILEPSY; HYSTERIA; SHOCK.

Causes.—Young women are particularly subject to fainting fits. A personal or family tendency also sometimes exists. Apart from these, many other causes are met with, some acting directly on the heart, others indirectly through the nerves. Fatigue, exhaustion, want of food, general debility, anæmia, dyspepsia, and heart disease may all cause faintness. So also may pain, sudden emotions, accidents, loss of blood, and disagreeable or distressing sights, sounds, or smells. People may faint at the receipt of sad or joyful news, or exceptionally from the sight of blood, frogs, or black-beetles, the smell of apples or hyacinths, and the like. Fainting is common in the foul atmosphere of crowded ball-rooms and churches. Those who are naturally nervous, or but lately recovered from severe illness, will often faint from very slight causes, such as stooping or relieving the bowels. Indigestion and constipation may also cause fainting, as also will many poisons and drugs. Fainting is common during the first three months of pregnancy, and at the time of quickening. The *danger* of a fainting fit depends upon the cause. Very often there is no danger at all; but an opportunity should be taken to have the patient examined by a physician, in case there should be anything seriously amiss.

PREVENTION.—Attend to the general health, take plenty of exercise in the open air, see to the digestive organs, get rid of constipation, and avoid the causes as already mentioned. Poorness of the blood and debility, if present, require suitable treatment. Overwork and absence of regular occupation are alike bad.

TREATMENT.—During an attack loosen the clothes, lower the head and body to horizontal position on floor or couch, sprinkle face with cold water, rub limbs and chest briskly with a little spirit or eau de Cologne or with the bare hand, apply smelling salts, ammonia, camphor, or musk to the nose, and in prolonged fainting put hot-water bottles to the feet and a sponge wrung out of very hot water to the region of the heart. When the patient can swallow, give brandy and water, or ammonia or ether (*Pr.* 4, 5).

Cautions.—If there is profuse bleeding, this must be stopped, and stimulants given very cautiously, as they tend to increase it. Bandaging the limbs firmly is useful after great loss of blood, as it allows more blood to go to the brain. While the patient is unconscious, strong smelling-salts must not be too freely used, as the delicate lining of nose and air passages might be injured. *See* HÆMORRHAGE.

Faith in remedies, or in the doctor who prescribes them, is a powerful aid to treatment. The mind has considerable influence over the state of the body, both in health and in disease, and apparently miraculous cures have sometimes been effected by acting on the body through the mind, especially in nervous diseases. An alarm of fire once enabled a bed-ridden and paralytic lady to get out of bed and rush downstairs; and less energetic mental medicines are sometimes equally successful. Probably some of the cures by mesmerism, "homœopathic" remedies in infinitesimal doses, and harmless domestic remedies, are to be explained in this way. Bread pills, together with suitable regulation of the manner of life, have often cured patients suffering from no imaginary ailments, and it is difficult to avoid the conclusion that the mental influence had something to do with the cure. Patients who discover that they have been cured in this way are sometimes needlessly indignant with their medical attendant. While unnecessary deception is wrong and inexpedient, it is

obviously the first duty of a doctor to cure his patient, whether by bodily or 'mental" medicine. Some very curious results have been obtained in France by the use of magnets attached to the paralysed limbs of patients; and in England the similar application of unmagnetised iron, or even of pieces of wood, have had a similar effect, so long as the patient believed them to be magnets, and that they would effect a change in the symptoms. In a London hospital a man who for long could not sleep without a morphine injection under the skin, was cured of his sleeplessness by the use of an injection of pure water, he believing it to contain the usual narcotic. *See* HOMŒOPATHY; MEDICAL ADVICE; MEDICINE; MESMERISM; QUACKERY.

Falling Sickness. *See* EPILEPSY.

Falls. *See* BRAIN, CONCUSSION OF THE; BRUISES; DISLOCATIONS; FRACTURES; SHOCK.

False Membrane.—A coat of inflammatory and other matters over a serous or mucous membrane. *See* DIPHTHERIA; PLEURISY; INFLAMMATION.

False Pains. *See* CHILDBIRTH.

Famine. *See* STARVATION.

Faradism. *See* ELECTRICITY.

Farcy. *See* GLANDERS.

Farina.—Flour from corn and other cereals. The term is also applied to meal from other vegetable products, such as potatoes, peas, and beans.

Farinaceous Food includes the cereals, together with some more starchy foods, such as arrowroot. They all contain starch, while the cereals also yield more or less gluten. When suitably prepared they are easy of digestion, and eminently adapted for the dietary of invalids. Uncooked starch is, however, very indigestible, and may cause much irritation of the stomach and bowels. In the process of cooking, the impermeable coating of the starch grain bursts and exposes the interior to the action of the digestive juices. Farinaceous foods may be rendered highly digestible if they are put dry into a well-heated oven for an hour or two without scorching, and then made up in the ordinary way into puddings, etc. All farinaceous food should be well chewed, as it is digested first by the saliva and next by the pancreatic juice in the small bowel. The custom in some parts of the country of serving pudding before meat has some physiological basis, as the digestion of starch ceases when the stomach begins to freely secrete the acid gastric juice, while meat is digested in an acid medium. Where the natural digestive juices are deficient, malt extracts or pancreatic extracts may be used to prepare the food. (*See* DIGESTIVE AGENTS; PREDIGESTED FOODS.) Besides the cereals (which are dealt with elsewhere), the chief starchy foods are sago, tapioca, arrowroot, salep, potatoes, and chestnuts. Sago, tapioca, arrowroot, cornflour, and maizena contain about 83 per cent. of starch; chestnuts about 30 per cent., with 40 per cent. of sugar and gum; potatoes 18 per cent., the rest being chiefly water; sweet potatoes 15 per cent. *See* CEREALS; PEAS AND BEANS; STARCH.

Fasting can only be regarded here from a medical point of view. The term is indifferently applied to complete abstinence from all food for many hours or even days, and to the avoidance of certain articles of diet. An absolute fast of more than six or eight hours is likely to try the endurance of even a strong constitution, and if often repeated by those in ordinary health, or still more by growing young people, will ruin the digestion and increase the liability to illness. Doubtless much may be done by training to enable people to fast habitually without harm, especially if the length of time is very gradually increased; but even this cannot be regarded as entirely free from danger. The power of endurance is greatly affected by external cold, exposure to weather, or hard work. (*See* STARVATION.) Fasting for the cure of indigestion or other diseases belongs to quite a different category, and may be very beneficial, although a spare diet is often still better. The cases where it is likely to be most useful are those in which the digestive organs are unequal to their work, and nausea exists without great depression of the bodily powers. Those who habitually live freely will often be

the better for an occasional fast. The fasting men and girls who from time to time have gained a short-lived notoriety, have almost invariably been proved to take small quantities of food and drink during their fast. Their feats are of very little value, as the conditions under which they are accomplished have no resemblance to those of shipwreck or famine. Abstemiousness, and the avoidance of certain kinds of food, are far less objectionable than absolute fasting, and are often of great service in restoring the tone of an overworked stomach, or inefficient liver or kidneys. Even a spare diet should contain representatives of each class of foodstuffs. *See* DIET; FOOD; INDIGESTION; STARVATION; STOMACH.

Fat in the Body. *See* OBESITY.

Fatigue.—Is within certain limits a natural and a salutary state, and only becomes noxious when excessive or too easily induced. Every part of the body requires alternate rest and activity, and the sensation of fatigue leads people to take the needed rest. Where this is disregarded, the health sooner or later breaks down. Overwork usually means injudicious distribution of work, or persisting for too long at a time. This should especially be remembered in the case of women and children, who are naturally unfitted to work for many hours consecutively without a break, although they may work all day without harm, provided that the work is varied and interrupted at suitable intervals. Over-fatigue in women is apt to cause miscarrage, displacements of the womb, or profuse menstruation. In children frequent over-fatigue arrests the growth and checks the development. To remove the sense of weariness after prolonged exertion, a warm bath is useful, followed by a cold sponge down. Massage rapidly removes the sense of fatigue, and the Turkish bath with ordinary shampooing acts very similarly, though to a lesser extent. After a short rest some easily digestible food should be taken. *See* EXERCISE.

Fatty Foods include the fat of meat, that of butter, milk, and cream, cod-liver oil, dugong and other fish oils, nuts and oily seeds—olive, almond, poppy oil, rapeseed oil, etc. Some of these must be included in every dietary if life is to be maintained (*see* DIET); but the proportion of fatty food required depends on circumstances. In cold countries much solid fat is consumed, sugar and starch being less needed. In hot countries a smaller proportion of fatty food is required, which is usually taken in the form of clarified butter or vegetable oils. Fat is not digested in the stomach, and its presence there rather hinders the digestion of other kinds of food. Goose flesh is difficult of digestion, partly because the fibres are surrounded by fat. The same explanation holds good in the case of pastry, badly fried fish, hot buttered toast, etc. Where the stomach is easily upset, many kinds of fat disagree. As a rule butter fat and cream, bacon fat and cod-liver oil are most easily digested, hard fats being less digestible. A plentiful supply of fatty food is especially important to consumptive and scrofulous people. Consumption is often preceded by a distaste for fat, which may be taken as a timely warning. Finely divided fat—as in milk—is less apt to disturb the stomach and more easily absorbed from the bowels. Where there is a distaste for fat, butter may with advantage be added to each helping of rice and other milk puddings. Of all cereals, oats and maize appear to be the richest in fat. Hence the value of oatmeal porridge in such cases.

Fauces.—The gorge, or entrance from the mouth to the throat. *See* THROAT.

Favus. *See* SCALDHEAD.

Fear is very depressing to the health. In children, epileptic fits and St. Vitus' dance (*Chorea*) often date from a fright, and instances are known where imbecility has followed a silly practical joke. For similar reasons, ghost stories and tales of horror should never be repeated to sensitive young people. It is also unwise to make children afraid of the doctor's visit, as such a course greatly increases the difficulties of his task. Fear is sometimes the consequence rather than the cause of ill-health. Nightmare in adults has its counterpart in night-terrors of children. Both may

be prevented by suitable diet and medicines. (*See* INDIGESTION.) Disease or weakness of the heart renders people more liable to accessions of fear, and more seriously affected by them. On the other hand, a few curious instances are recorded of paralysed people regaining their powers in consequence of a sudden fright, although it is not safe to regard this as an indication for treatment. *See* DREAMING; EMOTIONS; NIGHT-TERRORS; SLEEP; SLEEPLESSNESS.

Febricula.—A feverish attack, not contagious or epidemic, lasting less than three days. *See* FEVER.

Febrifuges.—Remedies against fever. Some act on the cause of the fever, as for instance quinine in ague, salicin in rheumatic fever. Others quiet the heart and nervous system, and thereby diminish the production of heat. Yet others cool the body by acting on the skin, or purify the blood by relaxing the bowels or increasing the urinary secretion, or relieve thirst and other disagreeable symptoms. The choice of a febrifuge requires judgment and experience. Aconite is one of the most useful, but must be used with care, as it is highly poisonous. *See* FEVER, TREATMENT. (*Pr.* 7, 31.)

Feeding-Bottles for Infants should be made to allow of thorough cleansing after each time of using. There should also be an air-hole, or the child will have difficulty in sucking. Those with leaden ball-valves are highly objectionable. The best are those made entirely of glass and india-rubber. A good one is Day's "Ne plus ultra," in which the tube and cork are all of one piece of solid india-rubber. The "Alexandra" is also a good form (*Fig.* 25). A feeding-bottle may be extemporized from a soda-water bottle by fitting it with a sound cork, drilled to admit two glass tubes, a short one for air and a long one passing to the bottom, and provided with an india-rubber tube and nipple. Two bottles should be kept and used alternately, so that each may be properly cleansed. While the child is sucking, the bottle should be held by the nurse; it may with advantage be covered with flannel to keep the milk warm. When the child has finished, throw away what remains, scald at once both bottle and tube, carefully removing every particle, which would, if left, cause the next lot of milk to turn sour. The water for the glass part may be quite hot, that for the rubber parts being a little cooler. The whole may then be put under water, or better still, boracic solution (1 in 30), or carbonate of soda solution, and before being used again should be tested by smelling and by the use of litmus-paper, to make sure there are no acid particles left. If there is any taint, the litmus will turn bright red instead of pale pink when dipped into the milk. Where a cork is used, it must be frequently replaced. Feeding-bottles made to stand upright, or furnished with long rubber tubes, are objectionable.

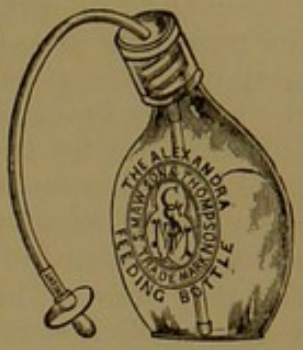

FIG. 25.
THE ALEXANDRA FEEDING-BOTTLE.
By kind permission of Messrs. Maw, Son and Thompson.

Fees.—*General practitioners* usually charge according to the house-rent of their patients. For ordinary visits the fee is from 2*s.* 6*d.* to 10*s.* 6*d.*, including or not including medicine. Special visits, which are unusually prolonged or of which notice is not given before the morning round, or where a particular hour is specified or immediate attendance requested, may be charged a fee and a half. Night visits, from 10 p.m. to 7 a.m., entitle to a double fee. Where the patient is more than a mile from the doctor's house, he is entitled to charge extra, and the same for every half-hour of detention. When two or more members of the same family are seen at the same visit, half fees are charged after the first patient. General practitioners frequently charge the same fee, whether the patient is seen at home or calls on the doctor; but there are exceptions in this respect. Letters of advice call for a larger fee than ordinary visits; and where the doctor has to meet another practitioner in consultation, he charges

not less than a double fee. All-night visits are charged from one to three guineas. Midwifery fees are from one to seven guineas, including a few visits during the first week, but not including the treatment of any serious independent ailment. For a miscarriage the fee is the same as for childbirth. Vaccination fees are from 5*s.* to 21*s.*, if not done at a public vaccination station. Certificates, other than those for insurance or insanity, are charged the same as for an ordinary visit. Those practitioners who supply medicines may charge separately for them. It should, however, be remembered that the most valuable part of a doctor's services consists not in supplying drugs, but in using his skill and judgment on the patient's behalf. Surgical fees for reducing dislocations or performing operations are usually much higher than those for ordinary advice, and may range from one guinea up to thirty or more, exclusive of subsequent attendance. General practitioners usually send in their accounts twice a year.

Consultants charge from one to three guineas for advice at their consulting rooms, or within a mile. Beyond this larger sums are charged according to distance. These fees are expected to be paid at the time of the consultation.

For the above-mentioned particulars the writer is largely indebted to a small work by Dr. Styrap, which is highly esteemed in the profession. Under special circumstances higher charges may sometimes be fairly expected, and on the other hand it is extremely common for medical men to make a reduction for those who are not well off: but this must be regarded by such as a courtesy, not a right.

Fennel is chiefly imported from Malta. The fruit has an aromatic taste and smell, and yields an essential oil. Powdered fennel is contained in compound liquorice powder; it is said to drive away fleas. Prep.: fennel water, dose 1–2 fl. ozs. *See* AROMATICS.

Fermentation causes the transformation of carbon compounds at moderate temperatures into other substances, usually of a simpler nature. Thus starch may be transformed into sugar by boiling with dilute acids for several hours, whereas it is rapidly transformed at blood heat by a little malt extract. The "ferments" which cause such transformations are present in very minute proportions: for instance, the diastase of malt will transform 40,000 times its own weight of starch; and the milk-curdling ferment of rennet will throw down in cheese-making as much as 200,000 times its own weight of casein. Ferments are of two kinds, living and inanimate. Whether the former act by means of inanimate ferments is not yet certain; but probably all protoplasm has some fermentative properties. *Living* ferments are concerned in the production of fermented or alcoholic liquors, in vinegar making, and in making bread with yeast. They are the cause of butter turning rancid and milk turning sour, which can be prevented if the living ferments are excluded. They are probably the true causes of most infectious fevers. They belong for the most part to the "bacteria" (*which see*); but some are related to yeast-fungi or mould-fungi. In putrefaction of organic matter there are similar transformations; but the products are more mixed. *Inanimate* ferments, unlike the foregoing, have no power of self-multiplication. All our digestive processes depend on such ferments; *e.g.* transformation of starch in the mouth into sugar, or of albuminates in the stomach into peptones. (*See* DIGESTION.) Many practical applications have been made of these facts in medicine and surgery, such as the predigestion of food (*see* MALTED FOODS; PEPTONISED FOODS), the use of antiseptics in surgery, and of disinfectants and deodorants in fever. *See* ANTISEPTICS; BREAD; DISINFECTION; FERMENTED LIQUORS.

Fermented Liquors (*see* ALCOHOL) may be divided into (1) Malt liquors, (2) Wines, (3) Distilled Spirits, (4) Sundry fermented drinks.

MALT LIQUORS include stout, porter, and ale, which are made by fermenting malt and hops. They contain a notable quantity of sugar and other nutritive substances, as well as bitter principle from the hops, acids, and salts. Their

alcoholic strength is 4–8 per cent.; so that from 1½ to 2 pints per day may be safely taken. (*See* ALCOHOL.) Lager beer contains still less alcohol, about 2 per cent. London porter owes its colour to roasting of the malt. Stout is a stronger form of porter; bottled ale is also stronger. The hops in beer act as a bitter digestive tonic, and have narcotic properties. Malt liquors are apt to cause obesity and gout. Lager beer seems to be less open to this objection. Beer used at one time to be extensively adulterated with *cocculus indicus*, salt, copperas, and other substances.

WINES are made by fermentation of grape-juice. Enormous quantities of artificially prepared wine are however said to be imported, manufactured from bad spirits, coloured and flavoured. Real wine varies greatly in alcoholic strength. *Strong Wines* (port, sherry, Malaga, Madeira, Marsala, etc.) contain from 12–24 per cent., so that about 6 oz. would be a safe daily quantity. *Light wines* from France and Germany contain from 8–12 per cent., and of these ½ pint may be safely taken. In still wines the fermentation has been completed before bottling, while in effervescing wines (such as champagne) the process is allowed to continue in the bottle. Where nearly all the sugar is destroyed by fermentation, a dry wine is produced (hock, Moselle, Bordeaux, Burgundy). In red wines the skins of the dark grape are allowed to remain in the fermenting vat; while in white wines they are removed. Red wines also contain a notable proportion of tannin, and are therefore astringent—hence port wine is often used as a gargle for relaxed throats; and claret or Carlowitz are suitable where there is diarrhœa. Wine contains a variable amount of acid — chiefly tartaric and acetic—together with tartrate of potash, various volatile ethers, etc. It is to the latter that the "bouquet" or odour as well as much of the dietetic value are due. Much of the wine sold in England is really potato spirit doctored with elder-berries, aniline dyes, and other substances, and is very bad for the health. The stronger wines (sherry, port, etc.) sold in England are nearly always "fortified" with brandy. Sweet or strong wines, such as Burgundy, Marsala, port, sherry, and champagne, are liable to cause gout in those predisposed to it.

DISTILLED SPIRITS contain from 30–50 per cent. of alcohol, or even more, so that as a rule not more than 3 oz. should be taken in 24 hours. They should always be well diluted with water, and should not be taken habitually by healthy persons. Brandy, which (when good) is made by the distillation of French wine, contains tannin and volatile ethers, and is somewhat astringent. Gin and hollands are made from barley and flavoured with juniper berries, so that they increase the secretion of urine. Whisky is made from malt, rum from molasses or sugar-canes, arrack from rice. From the potato is made a cheap and unwholesome spirit, which (like new whisky) contains fusel oil or amyl alcohol. This causes headache, and sometimes has a maddening effect on those who drink it.

ABSINTHE, which contains a bitter principle derived from wormwood, has reached a bad pre-eminence on the Continent for its poisonous effects.

LIQUEURS are made with brandy, flavoured with various aromatic substances, and more or less added sugar.

CIDER made from apples, and PERRY from pears, contain from 5 to 7 per cent. of alcohol, with much malic acid and other substances; they are somewhat aperient.

BRITISH WINES are made by fermenting the juice of gooseberries, currants, rhubarb, parsnips, and other articles, cane-sugar and spirit being added.

Fern. *See* MALE FERN.

Ferralum.—A disinfectant powder containing terebene, sulphate of iron, and alum. *See* DISINFECTANTS.

Ferruginous.—Containing iron (*which see*).

Festering. *See* ABSCESS; WHITLOW.

Fetor. Offensive smell, usually due to decomposition of animal or vegetable matter. Some gases (*e.g.* phosphoretted hydrogen) have an offensive smell. *See* BOWELS; BREATH; DISCHARGES; DEODORANTS; FERMENTATION; MOTIONS; PERSPIRATION; PUTREFACTION.

Fever.—A state in which body-heat and pulse-rate are increased, and the digestive and other organs out of order. The heat of the body is naturally produced by the oxidation of food, just as that of a furnace is by the burning or oxidation of fuel. In health this heat production is regulated by means of the skin and nervous system; more heat being lost and less being formed whenever the body is getting too hot, and *vice versâ*. In fever the regulating mechanism is out of gear, the blood gets overheated and nearly every tissue suffers. The tongue is coated, the appetite poor; there is thirst and often constipation. The urine is usually scanty and high-coloured. Headache, weariness, muscular pains, restlessness, and wakefulness are common; and in high fever, delirium or unconsciousness (*coma*). The skin in early stages acts imperfectly, and the patient shivers and feels hot and cold by turns. Later on the skin may be hot and dry, or hot and perspiring. Since little food is taken and digestion is imperfect, it is not surprising that wasting should occur in fever; and as the extra heat cannot be derived from the transformation of the food, it must result from the burning up of the tissues themselves. To determine the degree of fever it is necessary to use a clinical thermometer; the hand is a very unreliable guide. Shivering does not necessarily show that the body is cool, it is often associated with a high state of fever. *See* THERMOMETER.

Many febrile diseases are contagious or infectious. These are probably all caused by the presence of special living organisms in the body. (*See* INFECTIOUS FEVERS; BACTERIA; CONTAGIOUS DISEASES.) In other cases fever is caused by local inflammation or irritation—such as that of abscess or teething. Fever may be *continuous*, *remittent* (with marked fluctuations), or *intermittent* (with recurring intervals of freedom).

TREATMENT; GENERAL DIRECTIONS.—Find out the cause, and if possible remove it. Encourage perspiration, give simple drinks, at first hot, later on cold, and easily digestible food, little at a time at short intervals. (*See* BEVERAGES; DIET; INFECTIOUS FEVERS; SICK-ROOM; SKIN.) Medicine is given to lower temperature (*febrifuges*), to assist excretion (*aperients; diaphoretics; diuretics*) and to relieve special symptoms. Extreme thirst is best treated with ice to suck, cooling draughts, and fever drinks. (*See* REFRIGERANTS; BEVERAGES.) When the stomach is loaded, an emetic may be given. (*Pr.* 27, 28.) If there is constipation, an aperient or enema will be required. Smearing the lips and tongue with glycerine will prevent their becoming too dry. In the headache of fever, cold to the head is often grateful. *See* COMPRESSES; ICE.

Fibrin.—The filamentous part of blood clot. Chemical composition resembles that of albumen. A similar substance is found in wheat, etc. *See* ALBUMEN; BLOOD; FOOD.

Fibro-cartilage.—A form of cartilage or gristle containing fibrous tissue. Two kinds exist: *yellow* or elastic, found in the outer ear, eustachian tubes, and larynx; and *white*, in the knee and other joints, lining some bony grooves, etc. *See* TISSUES; CARTILAGE; SKELETON.

Figs are imported in a dried state from Asia Minor, but ripen in some parts of the south of England. They are very nourishing, containing much sugar and gummy matter. The seeds, however, are woody, and the rind tough and indigestible. Figs are somewhat laxative, and form an ingredient of lenitive electuary (*confection of senna*). They may be taken stewed in sweet-oil, which increases the aperient effect. Given in large quantities, when sharp-pointed things have been swallowed, they protect the bowels against injury. Heated and split open they form convenient poultices for gumboil, etc.

Filberts. *See* NUTS.

Filix Mas. *See* MALE FERN.

Filter.—An apparatus for separating solids from liquids. In CHEMICAL work, white blotting paper is used, supported by a funnel, or tundish, of glass or porcelain, preferably ribbed inside. The blotting-paper should be moderately thick and white, and should leave little or no ash when burnt. The fluid which first

passes through the filter is often turbid, and should be passed through again. Where the fluid is fairly clear to begin with, it may be quickly filtered through linen or flannel. Filters for DRINKING WATER are of many kinds, some of which soften hard water or remove liquid impurities as well as solid particles.

The *materials* commonly used in filters are: sand, gravel, powdered glass, porcelain, powdered charcoal, charcoal in block, spongy iron, manganous carbon, silicated carbon, carbide of iron, carferal, asbestos cloth, sponge, etc. The last is highly objectionable, as it soon becomes dirty and is apt to become overgrown with microscopic growths. The first four act purely mechanically, but if carefully used are reliable for removing small particles. They may be purified by washing with boiling water. A filter used by M. Pasteur in his laboratory is sold in several forms convenient for domestic use under the name of *Pasteur-Chamberland* filter. In this the water passes through the walls of a solid porcelain tube, leaving the impurities outside. To cleanse the tube it may be brushed with a stiff brush, or if necessary heated. *Charcoal* removes not only suspended particles, but also some dissolved impurities. Purified animal charcoal has more purifying power than vegetable; but the phosphates it contains encourage the growth of fungoid organisms. Its purifying action is partly due to the power of condensing oxygen gas in its pores. It requires renewal from time to time—about every three or four months. If in the *block* form, it may be cleansed by brushing with a stiff brush, and then passing through it a mixture of 2 or 3 ozs. Condy's fluid, the same quantity of water, and 10 drops strong sulphuric acid, followed by 1 oz. pure hydrochloric acid in 2 or 3 gallons of water, and finally about as much pure water alone. If *in small pieces*, wash, but with Condy's fluid, and dry in an oven. *Manganous carbon* is made by mixing granular animal charcoal with oil and black oxide of manganese, and heating strongly out of contact with air. According to Dr. Bernays, it possesses more oxidising power over organic impurities than pure animal charcoal. This material is used in several of Messrs. Doulton & Co.'s filters. Another charcoal combination, used in Maignens' "Filtre Rapide," goes by the name of *carbo-calcis*. The charcoal is in the form of a granular powder, mixed with lime, and softens as well as purifies the water. In Maignens' filters every part is easily accessible for cleansing. The perforated china filtering frame is covered with asbestos cloth, tied with cords of the same material. Over it is a layer of fine "carbo-calcis," deposited by mixing with water and pouring in; and over this coarse granular carbo-calcis is packed, covered with a china screen or breakwater. The materials are inexpensive, and can be easily renewed. *Spongy iron* is obtained from hæmatite ore in a porous and finely divided condition. It is a most valuable filtering material, and remains active for at least a year. The so-called *magnetic carbide of iron*, obtained by heating hæmatite ore with sawdust, is also a valuable purifier. *Silicated carbon*, consisting of three-fourths charcoal and the rest chiefly silica, with a little oxide of iron and alumina, has been shown to be efficient by Mr. Wanklyn's analyses. *Carferal*, a mixture of charcoal, iron, and clay, is also highly spoken of.

A cheap *domestic filter* may be made from an ordinary garden flower-pot by covering the hole with broken "crocks," putting over them 3 in. of small garden gravel; over this again about 4 in. animal charcoal, well-pressed down, and finally a layer of clean silver sand or fine gravel. The sand or gravel should be thoroughly cleansed by boiling in water. The animal charcoal should have boiling water poured several times over it. If a large pot is used, about 2 lbs. of charcoal will be required. All filters should be allowed to run dry occasionally, so as to introduce fresh air into the crevices. The water should never be allowed to stagnate in them. *See* WATER.

Fingers. *See* ARM, SWOLLEN; NAILS; RHEUMATISM; WARTS; WHITLOW; CHILBLAINS; FRACTURES; DISLOCATIONS; RING, FIXED.

Finger-stalls are made of leather or indiarubber. The latter affords more

perfect protection, but is apt to render the part swollen and sodden.

Fire. (*See* WARMING; VENTILATION.) The risk of fire may be greatly diminished by using fire-guards, especially where there are children. Candles placed near bed-clothes, swing gas-brackets on the walls, and badly constructed paraffin lamps are common causes of conflagrations. With regard to dress, linen and cotton are much more liable to catch fire than woollen garments. Crinolettes and long trains are also dangerous; and in children long cotton pinafores, if the fire-place is unguarded. Muslin and other materials may be rendered non-inflammable by using "fire-proof starch," containing sodic tungstate. In arsenals sodic molybdate is used for the workmen's clothes; and other substances have also been used more or less successfully; but most of these are heavy and easily washed out, and do not stand ironing. In some dangerous occupations, asbestos clothes may be required. When clothes catch fire, lay down on the floor and roll up in a rug, blanket, or overcoat. If the air is kept away from the burning garment, the flames are soon quenched. In a *house* on fire, besides the danger of being burnt, there is considerable danger of being suffocated. This may be diminished by wrapping a wet flannel or worsted scarf over the face, and keeping the head low, as the hot fumes tend to rise. Whenever fire breaks out, doors should be carefully shut, so as to prevent draught and hinder the spread of the flames. *See* GAS.

Fire Damp.—Light carburetted hydrogen gas, a highly inflammable gas, found in some coal-mines. When it explodes, "choke damp," or carbonic acid gas, is produced. *See* POISONOUS GASES.

Fire-place. *See* VENTILATION; WARMING.

Firwood Oil, from the Scotch fir, has a pleasant aromatic smell and biting taste. It is used as a liniment for rheumatism, and inhalation in hoarseness.

Fish is, with the exception of the salmon, a more watery food than butchers' meat. There are two groups of fish—one of which contains much oil or fat in the flesh, while the other has very little excepting in the liver. The group of fatty fish includes sprats, herrings, pilchards, eels, and mackerel. These are not suitable food for invalids or dyspeptics; but the white fish, such as soles, plaice, whitebait, whiting, and the like, are very digestible and suited both to people with feeble digestive powers and to those who lead a sedentary life and are inclined to eat too much meat. As a rule boiled fish is more easily digested than fried; but a sole quickly fried in hot fat is a most digestible dish. All fish must be eaten very fresh; when stale they are apt to become poisonous. *See* SHELL-FISH.

Fissure. — A crack. *See* ANUS; CHAPPED HANDS; LIPS; NIPPLE.

Fistula.—By this is meant an abnormal passage by the side of the rectum, communicating with its interior, or running up from near the anus with a blind ending. As a rule it originates in abscess, ulceration, or stricture; but it is often associated with tendency to consumption. It usually causes pain or discomfort during the passage of the motions, and more or less discharge of matter, mucus, or wind and fæces. The only cure is by operation, which if done in an early stage is a comparatively trifling one. Fistulous communications are also met with between the rectum and bladder or vagina. They are sometimes due to congenital malformation, more often to ulceration, or to injury during child-birth. They may often be remedied by operation. The term fistula is also applied to similar passages in other parts of the body. *See* BLADDER; GALL-BLADDER.

Fits.—Loss of consciousness with or without convulsions. *See* APOPLEXY; CONVULSIONS; EPILEPSY; FAINTING; HYSTERIA; TRANCE.

Flannel. *See* CLOTHING.

Flat-foot, splay-foot, or falling of the arch of the foot, is often due to long standing or carrying of heavy weights during the period of growth, or at other times in weak and ill-developed people. Knock-knee and rickets are often also present. Knock-knee by throwing out the leg necessarily leads to walking on the inner edge of the foot, so that the

arch is flattened; and rickets causes softening of the bones and looseness of the joints. The first *symptoms* of flat-foot often are, pain in the instep and across the arch of the foot, worse on standing and when tired. In time the arch falls, and the front of the foot gets broader.

TREATMENT. — Remove the causes mentioned above. If possible, take a week's rest in bed. After this, support the arch by means of a pad of cork, sponge-rubber, or other similar material fixed inside the boot, or by a steel spring between the soles. These supports are at first irksome, or even painful, but by perseverance the pain disappears. Walking without boots or shoes on the outer edge of the foot, or on tiptoe, helps to replace the bones and strengthen the overstretched and weakened muscles. It should be done several times a day, for a quarter of an hour at a time. In bad cases, an operation will be required to replace the arch. *See* CLUB-FOOT.

Flatulence.—An accumulation of wind or gas in the stomach and bowels, often accompanied by griping pain, shortness of breath, faintness and fluttering of the heart. It is usually due to indigestion, but may depend upon more serious disease of heart, liver, and other organs. In hysterical women enormous accumulation of wind sometimes rapidly takes place. Such an accumulation is sometimes mistaken for a tumour.

TREATMENT.—Rub with camphorated oil, gently kneading the distended parts. Apply cloths wrung out of hot water and sprinkled with turpentine. Take a carminative mixture, with an aperient if necessary. Where the wind is chiefly in the bowels, a compound pill of aloes and asafœtida, or an enema with turpentine or asafœtida is likely to be useful. *See Pr.* 4, 5, 9, 10, 12, 13, 46; AROMATICS; ENEMA; TURPENTINE.

PREVENTION.—Those subject to flatulence should avoid warm fluids, cabbage, turnips, and other vegetables difficult of digestion, and eat sparingly of all starchy and sweet foods, as these when ill-digested undergo fermentation. *See also* INDIGESTION.

Flea. *See* BITES AND STINGS.

Flesh.—The muscular substance of the body. *See* MEAT; MUSCLES.

Flesh Brush.—A brush for cleansing and stimulating the skin. *See* SKIN.

Flesh, Loss of. *See* WASTING.

Flooding.—Excessive loss of blood from the womb. It is a most formidable accident, requiring prompt and energetic treatment. It usually arises from abortion, child-birth, or menstruation; very often, however, other causes are present, such as inflammation, ulceration, and other diseases of the womb. Congestion of the pelvic organs from liver or heart disease favours flooding; as also do scurvy, infectious fevers, and some other general diseases. Not uncommonly, however, it occurs in apparently healthy women, whom it rapidly brings to death's door.

TREATMENT.—Get the patient to lie down perfectly quiet with hips well raised and very lightly covered. Apply clothes wrung out of cold water to the lower part of the body, syringe with ice-cold water or vinegar and water, or in case of extreme urgency, with a solution of perchloride of iron. In flooding after child-birth, the womb should be compressed by hand or by a firm pad tied on with a binder, placed low down over the abdomen. A pin-cushion or book wrapped in a towel will answer the purpose. (*See* CHILD-BIRTH.) No stimulants should be given unless the pulse cannot be felt. Alcoholic drinks increase the bleeding. Internally the best remedy is a drachm of liquid extract of ergot, in a wineglassful of water. *See* MISCARRIAGE.

Flower. *See* FARINACEOUS FOOD.

Flowers of Sulphur. *See* SULPHUR.

Flowers in the Sick-room are valuable for their cheering influence; but should be removed at night, as they then use up the fresh air.

Fluctuation.—A wave-like motion produced by the surgeon's finger in abscesses and other collections of fluid.

Fluke.—A parasite occasionally inhabiting the ducts of the liver in man. It is far more common in sheep.

Flux.—An unnatural discharge from the body.

Fœtus.—The unborn infant after the

fourth month. Before this time it is called an "embryo."

Fomentations are a means of applying moist heat to the body. They are useful in subduing inflammation, and in soothing pain and spasm. The best way to foment is to dip a large folded piece of coarse flannel in boiling water, dry it in a large towel by twisting the ends, and apply it to the skin as soon as it can be borne by the patient. In hospitals, "wringers" are employed to dry the flannel; they consist of a piece of stout canvas fastened to two wooden rods. Fomentations may be covered with oil-skin or mackintosh sheeting to retain the heat. Turpentine is often sprinkled on to the hot flannel. This forms a very useful counter-irritant. Another method of fomenting is simply to bathe the affected part with hot water, or hot medicated solution (belladonna, opium), with a sponge. *See* LOTIONS, Nos. 2, 3.

Fomites.—Literally fuel or touchwood —a term applied to infected articles of clothing, rags, etc.

Fontanelles.—Gaps between the bones of an infant's skull, closed in with tough membrane, through which the pulsation of the brain may be felt. Their object is to facilitate birth and to allow for rapid growth of the brain. They usually remain open until the age of 2 or $2\frac{1}{2}$, or longer if the child is subject to rickets. A depressed or bulging fontanelle is a sign of illness.

Food is intended to renew the tissues of the body, and to supply it with fresh energy. Some knowledge of the composition of various kinds of food is of great importance, as probably fully half of the lesser ailments and many of the greater ills to which flesh is heir are due to a badly chosen dietary. Most of the articles taken as food are variable mixtures of substances which one may call *food-stuffs*, and which have more definite composition and properties. Thus flour contains starch, gluten, and other food-stuffs; milk contains casein (the cheesy constituent), butter fat, and milk-sugar, all of which may be called food-stuffs. There are five chief groups of food-stuffs, two containing nitrogen, while the rest are non-nitrogenous. Food-stuffs have often been classified as heat-forming or respiratory foods and flesh-forming or tissue foods. Liebig formerly taught that food-stuffs containing nitrogen were flesh-formers, while non-nitrogenous food-stuffs were merely heat-formers, resembling the fuel in the engine furnace, which is a source of energy but of no value in repairing the engine. It is now, however, recognised that most food-stuffs at one time or another act in both of these capacities. Of *nitrogenous* food-stuffs there are two classes, one having the composition of white of egg (*albuminoids*), the other that of gelatin (*gelatinoids*). The following represents their average percentage composition:

Dry	Carbon.	Hydrogen.	Oxygen.
Albuminoids	51·5—54·5	6·9—7·3	20·9—23·5
Gelatinoids	50 —52·5	6·6—7·0	20·9—25·1

Dry	Nitrogen.	Sulphur.	Phosphorus.
Albuminoids	15·2—17·0	6·3—2·0	trace
Gelatinoids	18·2	trace	

Albuminoids are present in meat, milk, eggs, cheese, peas and beans, flour, etc. The chief varieties go by the names of albumin, myosin, casein, legumin, and fibrin, together with peptones, into which the others are converted by digestion in the body. Albuminoids form an essential part of every dietary. Small quantities act as flesh-formers; larger proportions also act as heat-formers. They promote tissue-changes, and the transformation of other kinds of food, so that a diet containing a large proportion of lean meat is less fattening than one in which starch and fat predominate. (*See* OBESITY.) The digestibility of albuminoids depends largely upon their mode of preparation: lightly boiled eggs are usually easily digested, whereas hard boiled or fried, they are exceedingly indigestible. *See* NITROGENOUS FOODS.

Gelatinoids include gelatin, chondrin, and glutin. They are useful as heat-formers, 2 parts gelatin being in this respect said to be equivalent to 1 part of albumen. A gelatin diet causes a great flow of urine, and may in this way give rise to thirst. Gelatin is a very useful addition to invalid dietaries, as it increases the bulk of food taken, is easily digested (if not prepared too stiff), and

does not excite tissue-changes. *See* GELATIN; GLUTEN.

Non-nitrogenous food-stuffs include fats and oils, amyloids or carbo-hydrates, salts and water. Both fats and oils, and carbo-hydrates (starch and sugar), consist of carbon, hydrogen, and oxygen; in the carbo-hydrates the hydrogen and oxygen exist in the same proportions as in water. Fats contain relatively more carbon and less oxygen than amyloids.

Percentage composition of	C	H	O
Carbo-hydrates (starch)	77	12	11
Fats (stearin)	44½	6	49½

(*See* FATTY FOODS; FARINACEOUS FOODS; SUGAR.) Among *carbo-hydrates* are found starch, gum, and various kinds of sugar. A starch-like substance (*glycogen*) exists in considerable proportion in the liver. Milk contains milk-sugar, and flesh another kind of sugar, but most of the carbo-hydrates are of vegetable origin. *Fats and oils* consist chiefly of stearin, palmitin, and olein; the former found in greatest proportion in hard fats such as mutton fat, the latter in softer fats such as lard and butter fat. Olive oil is almost entirely composed of olein. (*See* GLYCERINE; SOAP.) *Dietetic uses:* fatty foods and amyloids act largely as heat-formers; probably also to some extent as tissue-formers. When fat is taken in the food, less albumen is required. Fats diminish tissue-changes; carbo-hydrates have no such power. Both classes if taken in excess are liable to cause obesity. Fatty foods are rather less digestible than carbo-hydrates, and are resented by an irritable stomach. Seventeen and a half parts of starch are said to be equivalent as heat-formers to ten of fat; but starch cannot entirely replace the fat in a dietary. Starch is digested in the mouth and bowel.

Salts include chlorides, phosphates, sulphates, and carbonates of sodium, potassium, calcium, magnesium, and iron. These substances are absolutely necessary to preserve the due composition of the blood. Without them, the digestion is enfeebled, and after a while death follows. Speaking of common salts, Liebig has said that "a diet free from salt is, for purposes of nutrition, no better than eating stones." Salts are obtained partly from the juices of meat, partly from vegetables, especially green vegetables and fruit. As the blood is rejected in the preparation of meat, common salt has to be added.

Water is the universal solvent of nutriment and of waste products in the body. It equalizes and distributes the store of material and of energy, and promotes tissue change. Every natural food contains water.

See also DIET; COOKING; FOOD, PRESERVATION OF; CONDIMENTS; BEVERAGES; WATER; STIMULANTS.

Food, Preservation of.—Since most articles of food are perishable, they have to undergo special processes in order to prevent their decomposition. At the same time they are often rendered more portable by driving off water. Putrefaction is encouraged by the presence of water, warmth, and the access of air loaded with minute forms of life. Hence food may be preserved by drying, cooling, driving off and excluding air, or the addition of preservatives, such as salt, sugar, boracic acid, etc. Fish is often preserved by rapid drying; and pemmican is prepared from meat by a similar process. The use of ice and of refrigerators is well-known, as applied to fish and Australian meat. Preserving by pressure is not so good a method as regards meat, since the nourishing juices are lost; but for vegetables, drying and compression seem to answer well. M. Masson, of Paris, has in this way satisfactorily preserved cabbage, spinach, peas, carrots, potatoes, and other articles; and it is stated that a cubic yard contains as much as 16,000 rations, which when soaked in water are found to be tender, and of good colour, appearance, and flavour. Other methods of driving off the air are canning, and coating with fat or gelatine. Tinned meat is prepared by driving off the air by means of heat, and hermetically sealing while the gravy boils, and the tin is full of steam. As a rule the meat is overcooked, and should therefore be merely warmed through or else eaten cold. Besides this drawback and

the dangers of imperfect exclusion of air, there is a possibility of contamination with lead, from the solder being acted upon by the meat juices; but when carefully prepared, these provisions are quite wholesome. (*See* MILK.) Canned fruit is preserved in this way on a large scale. Air may also be excluded by addition of oil (as in sardines) or syrups (as in some canned fruits), or by coating with gelatine or fat (as with potted meats). Among antiseptics used for preserving food, may be mentioned salt and saltpetre, creasote from wood-smoke (as in smoked hams), boro-glyceride and sugar. The chief objection to salted meat is that it has been deprived by the brine of much of its nutritious juice, and its fibres hardened. The presence of so much salt is also a drawback. (*See* SCURVY.) Imperfectly preserved food undergoes decomposition or fermentation. Flesh which goes bad sometimes develops *ptomaines* or animal alkaloids, which may cause poisoning. Over-ripe and fermenting fruit is one cause of violent choleraic diarrhœa. *See also* MEAT EXTRACTS.

Foot.—The chief *deformities* of the feet are due to club-foot, flat-foot, bunions, gout, or rheumatism. *Pain* in the foot may also be caused by badly fitting boots, corns, bone disease, ingrowing toe nail, sprains, and other injuries. *Swelling* of the feet, if painless, is probably dropsical; if painful it may be due to sprains or blows, gout, rheumatism, disease of the bone, inflamed bunion, etc. *Offensive perspiration* probably more often affects the feet than any other part of the body, owing to the thickness of skin, and the wearing of boots which confine the secretions. It may be diminished by extreme cleanliness, and the use of digitated socks, with compartments for each toe; or by applying belladonna liniment, or *lotion* No. 15 or 17, or a dusting powder containing 10 per cent. of powdered boric or salicylic acid, and 40 per cent. oxide of zinc. These applications should be used night and morning. *Sore feet*, from walking long distances, may be relieved by the same powder freely applied to the sock or stocking. Another method is to freely soap the stocking. *See* BONE INFLAMMATION; BOOTS; BUNIONS; CLUB-FOOT; CORNS; DROPSY; FLAT-FOOT; GOUT; NAILS; RHEUMATISM.

Footling.—A child born with the feet foremost. *See* CHILD-BIRTH.

Forceps. — Instruments shaped like pincers, used for various purposes. Some are used in dressing wounds; others to stop bleeding from cut vessels; others to remove foreign bodies from the nose, ear, throat, etc.; while several forms are used in child-birth.

Fore-arm.—The part between elbow and wrist. *See* ARM; SKELETON.

Forensic Medicine.—That relating to the law-courts.

Foreskin or Prepuce, the hood of skin attached to the penis. *See* CIRCUMCISION.

Forests. *See* VEGETATION.

Formication.—A sensation as of ants crawling over the skin; often caused by irregular circulation. When a limb is long compressed during sleep, formication is felt on waking.

Found Dead. *See* DEATH.

Fusel Oil.—Amyl alcohol, a poisonous spirit existing in potato spirit, new whisky, etc. It has a penetrating, oppressive smell and burning taste, and causes severe headache.

Fowls. *See* BIRDS.

Fowler's Solution. *See* ARSENIC.

Foxglove, *Digitalis*, a valuable remedy for heart-disease, dropsy, etc. It is however intensely poisonous, and quite unsafe for domestic use. The plant, which is familiar to most country people, has large, coarsely veined leaves, and a flowering-stem 2 to 4 feet high, with handsome purple or pink bell-shaped flowers. Every part is poisonous. SYMPTOMS OF POISONING: giddiness, faintness, vomiting.

TREATMENT.—Lay on back, give stimulants (brandy and water, *Pr.* 4, 5) freely, and send for a doctor. If vomiting is absent, give an emetic (*Pr.* 27, 28); this is however not usually required.

Fractures. — Broken bones usually result from external violence; but where the bones are brittle from disease they may be broken by even slight muscular efforts. In a simple fracture the limb is usually changed in shape; movement is painful, and occurs where no joints

naturally exist. By contraction of the muscles the pieces are drawn up over one another, so that the limb is shortened; and their ends if rubbed together yield a grating sound and vibration. It is not however advisable for unskilled hands to attempt to get this grating, as much damage might be done by the sharp ends of bone. The flesh in broken limbs is usually more or less torn, and swelling or inflammation may come on later. When the bone end shows through the broken skin, the fracture is called "compound." When there is damage done to large vessels or nerves or other important organs, it is a "complicated fracture"; where the bone is in several pieces, a "comminuted fracture." All these are more serious than a "simple" fracture. An ordinary fracture is easily recognised; but where the broken bone is firmly supported by other structures —as in the ribs—or the ends are driven firmly into one another ("impacted fracture"), or the fracture is incomplete, it may be difficult to distinguish from a bruise or dislocation. In case of doubt, it is always safest to treat the accident as a fracture.

TREATMENT.—Send for a surgeon. Fix the limb with a splint or some substitute, in order to prevent further movement of the pieces, taking great care not to increase the damage to the soft parts. Then remove the patient on a stretcher, if the lower limb is broken; if the upper, he can usually walk. In putting to bed, the patient's clothes should be cut off, to avoid moving the fragments of bone. The bed must be a firm one, perfectly flat, with a low pillow. A board put underneath the bedding is very often an improvement. A *compound* fracture must be treated like a wound, and then splinted like an ordinary fracture. *See* AMBULANCE; BANDAGES; BEDS AND BEDDING; BED CRADLES; RIBS; SKULL; SLING; SPINE; SPLINTS; WOUNDS.

Frankincense.—A form of solid turpentine obtained from North America.

Freckles.—Yellow or brown spots upon the skin, commonest in people of fair complexion and on parts exposed to sunlight and heat. Cooks and others who work near a hot fire will often have similar spots on the legs and arms. They are best left alone, as remedies are uncertain, and may spoil the complexion more than the freckles. Among the least mischievous applications are lemon juice, with twice the quantity of water; nitre in powder, slightly moistened; friar's balsam with twenty parts of rose-water. Washing with soft soap and brisk friction will sometimes disperse freckles.

French Chalk.—A silicate of magnesia, used as a dusting powder (*which see*).

Friar's Balsam.—Compound tincture of benzoin, tincture of Benjamin or Commander's Balsam, is made from benzoin, storax, balsam of tolu, and aloes. A soft clean rag dipped in friar's balsam is an excellent application to cuts and sores, as it excludes air and keeps the wound sweet. Internally, it may be taken for long-standing winter cough with much expectoration. *Dose*, one fluid drachm, beaten up with milk. The inhalation is useful in hoarseness and colds upon the chest. *See* INHALATIONS.

Friction. *See* RUBBING.

Friedrichshalle Water. *See* MINERAL WATERS.

Fright. *See* EMOTIONS; FEAR.

Frostbite. — This condition usually occurs in the ears, nose, toes, or fingers. The affected part becomes pale and without feeling, and may become blistered. The circulation should in such a case be gradually restored by gently rubbing with snow. To expose the parts to the heat of a fire is a sure way to make them inflame. *See* COLD, EFFECTS OF.

Fruits are useful for the salts they contain, and for their laxative properties. There is usually in fruit much cellulose or woody fibre, and a large proportion of water. The direct food-value of fruit depends chiefly upon the sugar they contain. Stone-fruit are as a rule less easily digested than other kinds, but are valuable as laxatives. The skins and stones or pips of grapes and currants are irritating to the bowels, and may cause diarrhœa. The peel is objectionable for the same reason. Cucumbers and melons are also apt to upset the digestion; they are less hurtful when quite fresh and

quickly grown. (*See* SALADS.) Vegetable marrows are rather vegetables than fruits. Garden rhubarb, although not strictly a fruit, has similar properties. Stewed fruits are as a rule more digestible than raw. Where the fruit is very acid, the need of much sugar may be avoided by adding carbonate of soda or potash, as much as will lie on a shilling to each pound of fruit (Fothergill). This is especially useful for gouty people. Dried and preserved fruits are more apt to disagree than fresh. Many fruit-juices are useful in making cooling drinks for fever patients. *See* FRUIT-DRINKS.

Fruit-drinks may be made with the juice or pulp of the fruit, or with jelly or preserve. By the addition of malt extract or Mellin's food in the place of sugar, the drink may be rendered nourishing as well as cooling (Fothergill). Aërated waters may be added. The following are suitable in fever:

APPLE WATER.—Slice three or four large clean apples, pour over them a quart of boiling water; let it stand for some time, strain and boil up for five minutes with the juice of half a lemon and a little sugar or malt extract. Use when cold. A little white wine may be added.

CURRANT WATER may be made by mixing 1 quart of red currants, a cupful of raspberries, ½ lb. sugar, and 2 quarts of cold water, simmering in a preserving-pan, straining, and cooling.

MULBERRY WATER.—Crush 1 lb. ripe mulberries, add 1 pint of cold water, press through a sieve and flavour with sugar to taste.

STRAWBERRY WATER.—Rub up ½ lb. ripe strawberries with a teacupful of cold water, and a little finely powdered sugar. Strain through a fine sieve, add the strained juice of half a lemon and a pint of cold water. Keep for an hour in a cool place, and serve iced.

TAMARIND WATER.—Boil 2 ozs. tamarinds with three pints of water and a little lemon peel for half an hour. Strain and serve cold.

BEVERAGES FROM PRESERVES.—For this purpose apple jelly, quince jelly, black currant jam or jelly, raspberry jam and red currant jelly are suitable. A dessert-spoonful may be stirred up with a tumblerful of warm water, and served when cold.

FRUIT-SYRUPS *and* FRUIT-VINEGARS are also convenient for making pleasant beverages. The following may be used: blackberry syrup, raspberry syrup, mulberry syrup, raspberry vinegar, mulberry vinegar.

See also LEMONADE; IMPERIAL; ORANGEADE.

Frying. *See* COOKING.

Fullers' Earth and *Kaolin* are composed (like clay) of silicates of aluminium. Kaolin is a pearly white powder, greasy to the touch, and free from grittiness. Fullers' earth is gray and less pure; it was formerly much used in cleaning clothes. Both these powders are used as dusting powders for pill-making and other purposes.

Full-throat. *See* GOITRE.

Fumigation. *See* DISINFECTION.

Function.—The mode of action of any organ of the body. Thus the function of the stomach is to digest food, that of the kidneys to excrete urine; that of the muscles to contract.

Functional Disorders.—Those in which no structural change can be discovered; *e.g.* indigestion.

Fundament. *See* ANUS.

Funerals. *See* DEAD, DISPOSAL OF THE.

Funis. The navel-string. *See* CHILDBIRTH.

Fur. *See* CLOTHING; TONGUE.

Furniture for Invalids.—Several large firms now devote themselves entirely to the production of appliances for invalids. Chairs are made of several kinds—some for carrying, some for the patient to propel himself, others for ordinary use in the sick-room. Bed-tables, bed-rests, and bed-lifts may also be obtained. See BED; NURSING; SICK-ROOM.

Galbanum.—A gum-resin obtained from a member of the parsley family growing in India and the Levant. It is used locally in the form of a plaster for inflamed joints; and given internally for winter cough where there is much production of phlegm.

Gall. *See* BILE; OXGALL.

Gall-bladder.—The receptacle for bile on the under surface of the liver. It is

about the size and shape of a pear, and receives its bile from the liver, discharging it into the duodenum by the common bile-duct (*Fig.* 36). The contents of the gall-bladder sometimes harden into gallstones (*which see*).

Gall-stones. — Concretions formed in the gall-bladder, or more rarely in the liver, consisting of cholesterine with small quantities of bile-pigment, lime-salts, etc. They vary in colour from pearly white to almost black, and in size from minute grains to that of a hen's egg. When solitary they are usually rounded; where several are present, smooth facets are formed by mutual pressure. When dried they float in water. *Causes.*— Gall-stones are seldom found before the age of thirty, and become increasingly common with advancing age, especially in women. Want of exercise and indulgence in rich diet favour their production. The habit of taking only one meal a day increases the tendency to gall-stones, as the gall-bladder is not emptied sufficiently often, and retained bile is liable to become thick. *Symptoms* may be altogether absent, so long as the stones are retained in the gall-bladder; but if they pass into the bileduct, "biliary colic" is set up. This begins as a dull aching pain in the right side and shoulder, with perhaps nausea and flatulence. The pain increases, and attacks of agonising severity come on from time to time, the pain often radiating upwards and backwards from the pit of the stomach. At first it is relieved by pressure, but after a while the liver region becomes very tender. Shivering and vomiting and cold perspirations are common; and there is usually jaundice, while the motions are pale and chalky. (*See* JAUNDICE.) When the stone escapes into the bowel, sudden relief of pain is felt, and the health gradually returns. Sometimes, however, more stones are passed, or the stone becomes fixed in the duct and causes permanent jaundice or ulceration with fever. Where gall-stones are suspected to be present, the motions should be carefully strained through muslin or a sieve until the stones are found. This should be done for several days during and after the attack, as it is a great satisfaction to the patient when the stones are found, and suitable changes in diet and mode of life are more readily submitted to when the necessity is proved.

TREATMENT during the attack.—Hot bath, hot bran poultice to the right side and pit of stomach, or equal parts of belladonna liniment and chloroform liniment under oilskin. Internally, take large draughts of hot water containing two drachms of bicarbonate of soda to the pint. This may be vomited, but notwithstanding gives relief, as the hot water acts like an internal fomentation, while the soda counteracts the acidity commonly present. Twenty-five drops of laudanum may be added to the first draught, and repeated after two hours. Common remedies for colic, such as hot gin and water, ginger and sal volatile, also give some relief. The greatest relief however is obtained by hypodermic injection of morphia. For this a doctor will be necessary, as in some states of health the remedy is dangerous to life. It is also necessary to be cautious in using laudanum.

PREVENTION of recurrence.—A course of treatment at Carlsbad, Marienbad, Homburg, or Vichy, is beneficial where circumstances permit. Where absence from home is not possible, take every morning one hour before breakfast some Carlsbad salts dissolved in two or three pints of hot water. The dose should be sufficient to produce one slightly relaxed motion. Plenty of out-door exercise is necessary. Diet should be simple and plain, and habits regular (DIET, IV.). Smoking allowable only in strict moderation. After thirty days the treatment may be slightly modified. Other treatment for indigestion may be required. *See* INDIGESTION.

Gallic Acid is obtained from oak galls by fermentation of the tannin. It forms silky, needleshaped crystals. Its properties are like those of tannin; but it is chiefly given for bleeding from internal organs. Dose 2–10 grs. in water. *See* ASTRINGENTS; HÆMORRHAGE.

Galls. — Globular swellings on small twigs of the gall oak (Asia Minor) caused by the prick of an insect which deposits its eggs there. Two kinds are used, blue

and white, the former being official. They contain much tannic and gallic acids, and are valuable for their astringent properties. *Preparations.*—Ointment (galls in fine powder, 80 grains; benzoated lard, 1 oz.). Compound ointment contains 32 grains of opium to 1 oz. of the above. Both of these are used in piles. A tincture is used for chemical testing. *See* GALLIC ACID; TANNIN.

Galvanism. *See* ELECTRICITY.

Gamboge, the well-known pigment, is a gum-resin obtained from a tree growing in Siam; an inferior kind comes from Ceylon. It is a powerful purgative, not fit for domestic use. The compound pill (B.P.) is said to be an imitation of Morrison's pills.

Game. *See* BIRDS.

Games. *See* EXERCISE.

Ganglion —(1) A nerve ganglion. (*See* NERVOUS SYSTEM.) (2) A ganglion in surgery is a swelling on the sheath of a tendon; it usually causes a feeling of weakness in the part, and is often found about the wrist in pianists, or on the foot near the ankle. Where ganglia are small, they may be dispersed by firm pressure or by a blow. Consult a surgeon.

Gangrene. *See* MORTIFICATION.

Gaping or yawning is usually caused by insufficient aëration of the blood. In listening to a lecture or sermon, the breathing is apt to become shallow, and the circulation slow. The room may also be imperfectly ventilated. From these causes the blood becomes impure; then yawning introduces more air into the lungs, and gives a push to the blood-stream. Those who are habitually anæmic often gape repeatedly during digestion. Gaping is also common in diseases of heart or lungs, or in extreme fatigue where the circulation is sluggish.

Gargles.—Liquid applications to the back of throat and mouth. In gargling, a mouthful of fluid is taken, the head thrown back, and air from the lungs allowed to bubble through the fluid. Several classes of gargles are used: (*a*) *Soothing* gargles, such as warm water, or milk and water. (*b*) *Astringent* gargles, *e.g.* those containing alum, tannic acid, chlorate of potash. (*c*) *Stimulant* gargles, *e.g.* those with capsicum. (*d*) *Antiseptic* and other medicated gargles, *e.g.* Condy, carbolic acid. The following may be used:

(1) Alum, 2 drs.; honey, 1 fl. oz.; water, 1 pint.
(2) Borax, 5 drs.; water, 1 pint.
(3) Chlorate of potash, 2½ drs.; water, 1 pint.
(4) Glycerine of tannin, 2 fl. ozs.; water, 1 pint.
(5) Tincture of capsicum, 3 fl. drs.; vinegar, 1 fl. dr.; water, 1 pint.
(6) Sanitas fluid, 1 fl. oz. to 1 pint of water.

In using these gargles, about one ounce (two tablespoonfuls) should be taken into the mouth at a time, and the process repeated three or four times a day. *See* INHALATIONS; MYRRH; SORE-THROAT; VOICE.

Garlic. *See* ONION.

Gas. *See* POISONOUS GASES. For "laughing gas," *see* ANÆSTHETICS.

Gastric Fever. *See* TYPHUS.

Gastric Juice.—An acid, watery fluid, with mawkish taste, secreted by the stomach during digestion. It contains a ferment (*pepsin*) capable of changing albuminous foods into peptones, which are more easily absorbed through the coats of the stomach. Gelatin is also transformed into peptones in the stomach. Milk is first curdled, and then digested in the same way. (*See* INFANTS, FEEDING OF.) Secretion of gastric juice is excited by the entry into the stomach of food, saliva, and other alkaline fluids, moderate quantities of alcoholic drinks or bitter tonics. On the other hand ice diminishes the secretion. About twenty-four pints are said to be secreted every day. Gastric juice which is deficient in acidity or in pepsin has feeble digestive powers. Large doses of alkalis, by neutralizing the natural acidity, probably retard or interfere with digestion. So also do tea, strong coffee, malt liquors, heavy wines, strong spirits (over 20 per cent.), whey, or beef tea. Light wines, and spirits as usually diluted, have little influence. (Roberts on Dietetics and Dyspepsia.) *See* DIGESTION IN THE STOMACH; INDIGESTION.

Gelatine is obtained from bones or connective tissues by boiling; more may

be extracted by using a digester. Isinglass is almost pure gelatine from the swim-bladder of the sturgeon; glue is an impure form obtained from horns and hoofs. Calf's head, calf's feet, sheep's trotters, and the Chinese "bird's nest soup," all yield much gelatine. Solutions of gelatine in warm water have the property of solidifying into a jelly on cooling, as little as 1 per cent being sufficient for this purpose. Chemically, it resembles albumen; but it will not entirely replace this as a food. (*See* FOOD.) Gelatine is an exceedingly useful addition to the dietary of invalids, as it increases the bulk of the food, is easily digestible (when suitably prepared), is unstimulating, and without pronounced flavour. Soups made from bones contain, in addition to gelatine, notable quantities of phosphate of lime and other minerals which increase its food-value. The stiffness of a jelly is no guide to its nourishing powers. A stiff jelly is with difficulty penetrated by the digestive juices, and correspondingly indigestible. Jellies usually require flavouring with salt, sherry, fruit syrups, and the like. Gelatine-water, made by dissolving small quantities of isinglass in warm water, is a convenient substitute for linseed tea. Gelatine is used as a soothing external application in some skin diseases, and in the manufacture of plasters. Discs of gelatine are also prepared containing measured quantities of powerful drugs for local or hypodermic use. *See* GLUTEN; CARRAGEEN MOSS.

Gelsemium.—The rootstock of Gelsemium nitidum, or the yellow jasmine of America, a handsome climber belonging to the same family as nux vomica. It is a valuable remedy for neuralgia and rheumatism, but not suitable for domestic use. *A poisonous dose* causes giddiness, dimness of sight, and paralysis of the voluntary muscles and breathing apparatus. In case of poisoning, give an emetic (*Pr.* 27, 28), followed by stimulants (*Pr.* 4, 5), and persevere with artificial respiration. This is described under DROWNING.

Gentian.—The root of Gentiana lutea, the yellow gentian of the Alps and other mountainous parts of Southern Europe and North America, much used as a bitter tonic. It may be given in pill (3 grs. of the extract) or in fluid form. (*Pr.* 12, 15). *See* BITTER TONICS.

German Measles.—An infectious fever resembling ordinary measles, but really distinct from it. After an incubation period of nearly a fortnight, slight sore-throat, general pains, headache, and feverishness appear, and within twenty-four hours a rash comes out on the face, body, and limbs, consisting of bright-red raised spots separated at first by healthy skin. The eyes may be watery, but usually there is far less "cold in the head" than in ordinary measles. After two or three days the rash fades and the fever diminishes. German measles has been mistaken for a slight attack of scarlatina; the throat however is far less red and sore, and the fever less pronounced. The spots are more prominent than in scarlet fever, and at first more distinct. There is usually little or no peeling after German measles. Infection continues for about a month, although the patient is usually convalescent within a week. Second attacks are unusual; but German measles afford no protection against scarlatina or ordinary measles. Non-infectious rose-rash sometimes closely resembles German measles. In doubtful cases it is best to act as though the disease were infectious.

TREATMENT.—Keep in bed for three days, and indoors for a week. Diet as in fever (Diet, II.); tonics (*which see*) during convalescence. Disinfect rooms and patient as in other infectious fevers, and avoid mixing with susceptible persons for a month. *See* MEASLES; SCARLET FEVER; ROSE RASH; DISINFECTION; ISOLATION.

Germ Theory of Disease.—This is a somewhat inaccurate expression for the theory which attributes the infectious fevers and other similar disorders to the presence of microscopical living organisms, such as bacteria. *See* BACTERIA; CONTAGION; INFECTIOUS FEVERS; ZYMOTIC DISEASES.

Gestation. *See* PREGNANCY.

Giddiness, dizziness, or vertigo may be due to many different causes. Some

people in riding in a railway train or an omnibus are always seized with giddiness. In others it may be a sign of indigestion, or accompany faintness or sea-sickness. Our sense of stability depends upon impressions made upon our eyesight and on a part of the internal ear (*semi-circular canals*), so that giddiness may arise from disease of the eye or ear. Any interference with the circulation through the brain may also give rise to giddiness. It is therefore common in heart disease and anæmia, and in elderly people may be a forerunner of apoplexy. Slight epileptic fits are sometimes mistaken for, or replaced by, giddiness. *See* Blood, Poorness of; Indigestion; Ménière's Disease.

Gin. *See* Fermented Liquors.

Gin-drinker's Liver. *See* Liver, Gin-drinker's.

Ginger.—The rootstock of Zingiber officinale from the tropics; familiar as a spice and as a remedy against flatulence. Good ginger is plump, yellowish-white, but not chalky, readily breaking across, mealy in texture, with a biting and aromatic taste. Bad qualities are dark, shrivelled, tough, or hard, with little flavour. Ginger should be but sparingly used by those who have a full habit and a tendency to piles or constipation. *Pr.* 1, 4, 10, 36, 44, 46. *See* Aromatics.

Glacial Acetic Acid. *See* Vinegar.

Glanders, or *Farcy.*—A contagious disease affecting horses, asses, or mules, but capable of communication to man. In animals suffering from the disease, ulcers are found inside the nostrils, from which comes a yellowish bloody and offensive discharge. Should this be brought into contact with an abraded skin or mucous membrane, a similar ulcer appears, together with "rheumatic" pains and fever. Small swellings then form in various parts of the body, followed by ulceration and discharge of matter. The disease is usually fatal, but is fortunately rare. Severe cases may run their course in a fortnight or less; at other times the disease may last for several months. Glandered animals should be promptly destroyed, and great care be taken not to receive any of the discharge. In man, the chance of recovery is best when the disease develops slowly. Early skilled treatment is essential.

Glands are of two kinds, one with ducts, the other without. The first kind manufacture some secretion from the blood, and discharge it through their ducts. Where the secretion is cast out of the body and is of no further use, it is called an excretion, the gland being termed excretory. The simplest glands consist of mucous membrane or skin pushed inwards and forming a simple tube. Of this kind are the sweat glands and the tubular glands of the bowel. In other glands the duct may be branched, or branched and pouched, each branch ending in a swollen extremity (as in the salivary glands). These are called *racemose glands.* It is the epithelium lining the pouch or deeper part of the tube that is the active secreting agent. *Ductless glands* alter the blood or lymph, and then return them to their natural channels. Of this kind may be mentioned the absorbent glands, spleen, thymus, thyroid body, and suprarenal bodies.

Glauber's Salts. *See* Soda, Sulphate of.

Glaucoma.—A disease characterized by distension of the eyeball with fluid. When this comes on gradually, there is a gradual failure of sight; when rapidly produced, there is in addition pain in the eyeball, temple, and nose, and often also some redness. To save the sight it is necessary to consult an ophthalmic surgeon without loss of time.

Gleet. *See* Venereal Disease.

Glottis.—The entrance to the larynx or voice box. *See* Voice; Larynx.

Gluten.—The tenacious substance obtained by washing flour. It is a mixture of glutin or vegetable gelatin, and vegetable fibrin with a little fat, and in the grain is chiefly found immediately beneath the woody or branny coat. Hence brown bread and bread from "seconds flour" contain more than that made from the very whitest flour. Gluten is largely produced as a bye-product in the manufacture of starch. Gluten bread is prepared for diabetic persons, to avoid the ill effects of starch; it is however rather unpleasant in flavour, and moreover often

contains an appreciable quantity of starch. *See* BREAD; CARRAGEEN MOSS; CEREALS; DIABETES; FOOD; GELATINE.

Glycerine.—A sweet liquid obtainable from fats and oils, chemically related to alcohol. It is largely produced in candle factories and soap works, and is useful medically as an outward application, sweetening agent, and laxative; and has been used as a substitute for cod-liver oil, although not very satisfactorily.

Applied to the skin it renders it lissom and prevents cracking or chapping. It is also used as an ingredient in various ointments and lotions. Pure glycerine must not be used where the skin is irritable, but diluted with water. It may be usefully applied to sore nipples, and cracks in the tongue or lips, or mixed with an equal quantity of fresh yolk of egg, to the skin where bed-sores are threatening to appear.

Internally, in doses of two drachms it is laxative; it may be combined with castor oil, or used as an injection. In this case a very small quantity will often be sufficient. Glycerine injections are used in piles to cause them to shrink. Glycerine may be added as a sweetening agent to medicines for gouty or diabetic people.

GLYCERINE OF CARBOLIC ACID relieves itching and acts as an antiseptic.

GLYCERINE OF BORAX is better than the old-fashioned honey and borax, and may be used in the same way for sore tongue or throat. (*See* THRUSH.) It is made by rubbing together 1 part borax with 4 of glycerine.

GLYCERINE OF ALUM, Glycerine of GALLIC ACID, and Glycerine of TANNIC ACID are all useful astringents in relaxed throat. *See* SORE THROAT.

GLYCERINE OF STARCH is an excellent remedy for chapped lips. It is made by thoroughly rubbing together 1 part of starch with 8 parts of glycerine, and then gradually heating to temperature of boiling water in a porcelain dish, stirring constantly until a uniform translucent jelly is formed. *See* BORIC ACID for BOROGLYCERIDE; GUM TRAGACANTH.

Goa-powder.—The powdered pith of an Indian tree, used as a remedy for ring-worm and other skin diseases. In its purified form it is called chrysarobin. It stains the skin and clothing of a purple or violet colour. It is not suitable for domestic use.

Godfrey's Cordial.—A secret remedy, containing opium together with carminatives. Like other opiates it is unsafe as a domestic remedy, especially for children.

Goitre, *Bronchocele*, Derbyshire neck, or full-throat, is characterized by an enlargement of the thyroid gland situated in front of the wind pipe. It is common in certain parts of Switzerland and the Tyrol, in Derbyshire, Nottinghamshire, Hampshire, Sussex, and other parts of England and some other countries. It usually appears about puberty, although it may be found in quite young children. Slight degrees of enlargement cause little or no inconvenience, but extreme enlargement may cause breathlessness and obstruction to the veins of the neck, and occasionally proves fatal by pressure on the windpipe low down. The enlargement may be of the two lateral lobes of the thyroid body, or of the central isthmus; in either case the swelling moves upwards when the patient swallows. It is more common in women than in men, and swells up at the catamenial periods. The *cause* is still uncertain, but it has been plausibly attributed to the use of some kinds of water, and undoubtedly is due to residence in certain localities. Many cretins are the subjects of goitre.

As regards TREATMENT, the main point is removal to a more healthy locality. Iodides and bromides, arsenic and strychnine, appear to be of value. *See* GRAVES' DISEASE; CRETINISM.

Goose. *See* BIRDS.

Gooseberry. *See* FRUIT.

Goulard Extract.—A solution of sugar of lead, containing about 24 per cent. It can be made by boiling 5 ozs. sugar of lead with $3\frac{1}{2}$ ozs. litharge in a pint of distilled water for half an hour, stirring frequently, and then filtering, and when cold making up to a pint.

Goulard Water consists of 2 fl. drs. goulard extract with 2 fl. drs. rectified spirit, and distilled water to 1 pint. It is a soothing astringent lotion, useful

as an application to inflamed surfaces, bruises, sprains, chilblains, skin diseases associated with itching, etc. Although a favourite and often exceedingly useful remedy for sore eyes, it is not a safe one for general use, as it forms an opaque white patch on the transparent front of the eye (*cornea*) if this is at all ulcerated or scratched. Both the preparations become cloudy on keeping or exposure to air.

Gout.—A painful disease of the joints and other parts of the body, due to the presence in them of imperfectly transformed nitrogenous matter. Substances containing nitrogen gradually undergo a transformation in the body into urea, which is cast out with the urine. In gout this change is incomplete, and uric acid and other complex substances are formed, less easily excreted by the kidneys, and liable to be deposited as "chalkstones" in the tissues.

An attack of gout usually begins with agonizing pain in the ball of the great toe, or more rarely round other joints. The affected part is red, hot, swollen, and tender, and the veins near it enlarged. As a rule the patient is feverish, and passes urine which is high-coloured and small in quantity, and deposits a reddish sediment in standing. The attack usually begins about three in the morning, and lasts four or five days, or longer if untreated, gradually wearing itself out. After an interval of months or years, another attack comes on, unless changes have been made in the habits of the patient, and the intervals become shorter and shorter until he is scarcely ever free from discomfort.

The Gouty State. Those subject to gout usually suffer from a number of minor ailments between the attacks, all due more or less to the same cause. Thus indigestion is very frequent, and skin disease, neuralgia, and bronchial catarrh often met with. It is sometimes by no means easy to recognise the gouty nature of such attacks; but sometimes this is evident, as when they alternate with true gout or disappear under treatment directed against gout. Some forms of kidney disease, gravel, and stone are due to the same bodily condition. Before an attack, irritability of temper is very common, and there may be diarrhœa, constipation, flatulence, asthma, or palpitation. Afterwards, the subject usually feels in decidedly better health, with greater elasticity of mind and body. How far this is due to changes in diet, and how far to purification of the blood by the internal storm, is difficult to say; it is probably due to both.

Chronic gout. Where gout has been long in the system, deposits of urate of soda (or chalkstones) are found around the fingers and toes, in the margin of the ear, and in other parts. Extreme deformity, stiffness, and helplessness may follow; or open sores may form, discharging matter mixed with mortary stuff. It is said that some gouty people have used their knuckles to chalk the game on the table when playing cards.

Irregular gout is the name given to attacks which begin in a joint, but suddenly transfer themselves to the stomach or some other part of the body. By the application of cold water to a gouty foot, dangerous internal complications have sometimes been induced; and the same may result from a chill. The gouty attack itself is not usually fatal, but its complications often are so. The earlier in life, and the more frequent the attacks, the greater the danger.

Causes of gout. The tendency to gout is strongly hereditary. Women seldom have an acute attack before the age of forty-five, and frequently escape altogether. In men it is far more common, and may begin earlier. Boys of sixteen have been known to suffer from gout where there has been a strong hereditary tendency. Of much greater importance than inheritance is the manner of life. Excessive indulgence in animal food, malt liquors, and strong wines, with insufficient exercise in the open air, are very liable to end in gout. Hence it is common in wealthy and self-indulgent people, in butlers, brewers' draymen, commercial travellers, butchers, London porters, and publicans; rare among total abstainers and hardworked abstemious men. Spirits and light wines, such as claret, have far less ten-

dency to induce gout than malt liquors and strong wines; hence on the Continent, and until lately in Scotland, gout has been uncommon. Lead poisoning tends to produce gout, or to aggravate its attacks; so that painters, plumbers, and compositors are liable to get it. An acute attack is often brought on by a chill, by depressing emotions or over-fatigue: cabinet ministers at the end of a session are proverbially liable to such attacks. On the other hand, warm, dry climates such as that of Egypt or Malta, by keeping the skin in good order, help to prevent attacks.

The Prevention of Gout is therefore very largely in the patient's own hands. By great abstemiousness the disease may in an early stage be completely cured. *Diet* should be plain, with a fair proportion of the more digestible vegetables, oranges, grapes, stewed apples or pears, and farinaceous foods. Made dishes, rich and highly spiced food, pork, veal, salted and potted meats, sugar, sweet things, and pastry, should be avoided. Meat should be taken only once a day; heavy or irregular meals, late dinners, and suppers are not advisable; and great care must be taken in chewing the food. For *drink*, where the subject is young, he should take no alcohol, but use water (plain or aërated) instead. Cocoa, and tea or coffee, if not too strong, are usually harmless. Where the health demands a little alcohol (a matter to be decided by the doctor), the least injurious are good claret, Sauterne, or other light dry wine, or *very* weak brandy and water in great moderation. With some patients, however, no red wines agree. (*See* Alcohol.) *General directions.*—Take plenty of exercise in fresh air, avoid over-fatigue, worry, late hours and ill-ventilated rooms, wear warm clothing, and where possible flannel next the skin. Sponge baths and in some cases Turkish baths are useful (*see* Baths), and where the means permit, residence in a warm, dry climate.

Treatment *of an attack of gout.*—Envelop the joint in cotton wool covered with oil silk, raise it well on a pillow in bed in a warm room, open the bowels (*Pr.* 10, 11), and give fever diet with plenty of bland fluids. Where medical advice is not available, give *Pr.* 51 until the pain is gone; and then *Pr.* 15.

Granulations.—Small red projections on the surface of a healing sore. They each contain a loop of bloodvessel, and should be fairly uniform in size. When pale and large, they are known as "proud flesh." *See* Ulcers.

Grapes are rich in sugar and tartrate of potash. In some parts of the Continent many diseases are treated by the "grape-cure," which consists in eating large quantities of grapes in addition to a simple digestible general diet. At first one or two pounds of grapes are eaten daily, the amount being gradually increased to from three to eight lbs. The treatment is recommended for habitual constipation, obesity, gout, scurvy, bronchial catarrh, diseases of the bladder, and some others; but it may cause serious irritation of the stomach and bowels.

Grate. *See* Stoves; Ventilation; Warming.

Gravel. *See* Urine.

Graves' Disease, or *Exophthalmic Goitre*, is known by the concurrence of three symptoms: palpitation, enlargement of the thyroid body, and prominence of the eye-balls. (*See* Goitre.) It is quite a different complaint from ordinary goitre, and is independent of soil and climate. It occurs chiefly in young women, especially if the uterine functions are irregular. There is often a change in the temper, which becomes peevish and irritable. A tendency to sudden flushing or perspiration, or to pulsation of the arteries in other parts of the body, is also frequently met with. Sometimes the eyeballs project so far as to become injured by exposure. Belladonna seems to be useful as a remedy. (*Pr.* 22.)

Graveyards. *See* Dead, Disposal of.

Graze. *See* Abrasion.

Greengage. *See* Fruit.

Green Sickness or *Chlorosis*, a form of poorness of blood occurring chiefly in young women of sedentary occupations. *See* Blood, Poorness of.

Gregory's Powder.—A mixture of 2 ozs. rhubarb root, 6 ozs. light magnesia, and 1 oz. ginger, powdered and passed

through a sieve. Dose, 5 to 10 grs. for a child, 20 to 60 grs. for an adult. *See* RHUBARB; MAGNESIA.

Grey Powder. *See* MERCURY.

Grilling. *See* COOKING.

Grinders. *See* TEETH.

Griping. *See* COLIC.

Groats. *See* CEREALS.

Groin.—The angle between the thigh and the trunk. Swelling in the groin may be a glandular swelling, an abscess, or some other affection. Consult a surgeon.

Grocer's Itch.—A form of eczema caused by handling sugar. *See* ECZEMA.

Growth of Children.—An infant at birth weighs as a rule about 7 lbs. (5 to 8 lbs). It trebles its weight during the first twelve months, gaining about 14 lbs. During the second year the gain is about half as much. The weight at the seventh birthday will be about double that at the second, and again be doubled by the fifteenth birthday. Children often lose weight a little on first beginning to run about. The condition should be judged not only by the actual weight, but also by the firmness of the muscles. A child may be fat, heavy, and flabby, which is not a healthy condition. As regards *height*, at birth this will be about 18–19 inches. The gain during the first year will be about 8 inches, and half this during the second year. The height should at the end of the fourth year be double that at birth (Ashby and Wright). After this, in the most favoured classes, growth is at the rate of about 2–3 inches per year. If under or over this, the health is probably not satisfactory. Growth should be fairly regular; a sudden "growing fit" calls for more rest and less schoolwork. From twelve to sixteen years of age, boys usually grow rapidly, whereas girls begin to develop in other ways, adding little each year to their stature. When over 4 feet in height, a boy should gain $2\frac{1}{2}$ lbs. in weight for every inch in height. During illness, there is often a rapid increase of stature. Severe school work, and violent muscular exertion during the growing period of life, may arrest the development. A sudden arrest of growth may also indicate commencing lung disease. Rickety and scrofulous children are often stunted. The children of the artisan class as a rule increase more slowly, both in height and weight, than those of the more favoured classes.

Gruel.—Mix smoothly in a basin 1 tablespoonful of Robinson's Patent Groats with 2 tablespoonfuls of cold water. Pour in 1 pint of boiling water, stirring all the time; and boil for 10 minutes. May flavour with lemon-peel, nutmeg, or wine.

Guaiacum.—A resin obtained from a West Indian tree, used as a remedy for rheumatism, sore-throat, etc. The B. P. lozenges are the nicest way of taking guaiacum. Dose, 3 to 6 per day. *See* RHEUMATISM; QUINSY.

Guarana.—A dried paste prepared from the powdered seeds of a Brazilian plant (*Paullinia sorbilis*). It contains a large proportion (4–5 per cent.) of theine, and is very useful as a remedy for sick headache. Dose of the powder, 1 drachm stirred up in gum-water three times a day, or 15 grs. every three hours for neuralgic headache. An infusion may be prepared.

Guinea Worm. — A tropical parasite which burrows under the skin, chiefly about the foot and calf of the leg. The early part of its life history is passed inside a minute aquatic crustacean (*Cyclops*). After this it finds its way into the human body, and grows to the length of five or six feet, and the thickness of a violin string. The mode of introduction is uncertain; possibly it is swallowed with drinking water. After a while a small boil forms, out of which the head of the worm protrudes. The natives of India and the West African coast are skilled in extracting the worm by gradually winding it round a small stick. If broken, it causes much local irritation.

Gullet or *Œsophagus.*—Extends from the throat (*pharynx*) to the stomach. *See* SWALLOWING; CHOKING.

Gum Arabic (*Gum acacia*) is obtained from the stems of a species of acacia growing in Northern Africa. It should contain no starch (no blue colour formed on addition of tincture of iodine). Mucilage may be made by dissolving 10 ozs. of the powder in a pint of water. It is

used as a soothing agent in sore-throat, coughs, etc.; also to suspend in water insoluble medicines, such as chalk or magnesia. It has some value as a food, although not commonly used as such.

Gum Tragacanth, obtained from another leguminous or pod-bearing plant (*Astragalus gummifer*), a native of Asia Minor, is sold in semi-transparent flakes with concentric markings. It is not so soluble in water as gum arabic, but forms a thicker mixture. One part is said to be more than equivalent to 25 of gum arabic. *Mucilage of Tragacanth* is made by adding 2 fl. drachms of rectified spirit, to 1 drachm of tragacanth, and half a pint of water. *Compound Tragacanth powder* contains 1 oz. each of gum arabic, tragacanth, and starch, with 3 ozs. sugar. Both of these preparations are used for suspending insoluble substances in water. *Glycerine of Tragacanth* forms a translucent jelly, and is useful as a soothing agent for sore throats, and as an outward application to burns and irritable sores and eruptions on the skin. It is made by mixing 3 parts of tragacanth with 12 fl. parts of glycerine in a mortar, adding 2 fl. parts of distilled water, and rubbing to a translucent uniform jelly. Tragacanth, with hot water and prepared chalk, may be made into an excellent material for setting broken limbs. The composition is spread between two layers of coarse flannel. *See* SPLINTS.

Gum Resins are mixtures of gum, with resinous substances. *See* RESINS.

Gums are fleshy masses surrounding the sockets of the teeth. Tenderness and bleeding from the gums is frequently due to insufficient vegetable food (*see* SCURVY), or to abuse of mercury. They may be hardened by friction with the finger, and the application of tincture of myrrh, or of solution of alum (2 drachms to a pint of water). Treat the cause.

Gum boils.—Small abscesses connected with the root of a decayed tooth. They should be encouraged to burst inside the mouth, by fomenting with mouthfuls of water as hot as can be borne. Very often it is necessary to remove the offending tooth or stump. The application of poultices and fomentations to the outside of the cheek is bad practice, as the abscess is thereby tempted to burst externally, and the wound may remain open for a long time, or in healing form a disfiguring scar.

Gunshot Wounds. *See* WOUNDS.

Guttapercha.—The hardened juice of *Isonandra gutta* and other trees, natives of Borneo, etc. It is much used for insulating telegraph wires, and in surgery for making splints and (as guttapercha tissue) for dressing wounds. Dipped into boiling water it becomes soft as wax, and may be moulded to the shape of a limb. Air and light in time render it brittle and useless.

Gymnastics like other kinds of exercise are favourable to health, and promote habits of self-control. The chief objection to them lies in the great tendency to overtry the strength from a spirit of rivalry. *See* EXERCISE.

Habit.—The formation of good and useful habits economizes the strength of the body. Actions done mechanically without active attention are less exhausting than those requiring an effort of will. On the other hand, bad habits are proverbially difficult to overcome; so that the formation of habits should be carefully watched. Especially important is this in the case of children and young people, in whom impressions are particularly active and lasting. Habit is a sort of "body memory," which stereotypes actions several times repeated, and reproduces them later on. Mental and bodily habits have an enormous influence for good and evil over bodily health. *See* PERIODICITY; HYGIENE.

Hæmatemesis. *See* BLOOD, VOMITING OF.

Hæmaturia. *See* URINE, BLOOD IN.

Hæmoptysis. *See* BLOOD-SPITTING.

Hæmophilia.—A condition in which slight wounds bleed freely and may endanger life. Thus a "bleeder" may lose enormously after the drawing of a tooth, or a mere scratch or bruise. The joints are apt to swell in bleeders. The tendency is hereditary, being chiefly transmitted through mothers to their sons. Strange to say, the mothers themselves may not suffer from the disease; and men are less likely to transmit it.

Hæmorrhage, or loss of blood, differs

in character according to its source. When from an artery, the blood is bright red and spirts out in jets, which pulsate with each heart-beat. When from a vein, it is purple and flows in a steady stream; and when from capillary vessels, it is bright in colour, but oozes out in smaller quantity. The *causes* of hæmorrhage are, briefly, changes in the blood, circulation, or bloodvessels. Where the arteries are brittle (as in old age or kidney disease), exertion or excitement may cause bleeding. In some people, from the earliest age, severe bleeding follows the slightest wound. *See* HÆMOPHILIA. Bleeding is common as a complication of scurvy, fevers, and kidney disease, partly owing to changes in the blood. It also frequently occurs in congested, inflamed, relaxed, or ulcerated tissues. In obstruction to the circulation (as in piles) relief is often obtained by a flow of blood. The *effects* of loss of blood depend upon its extent, seat, and cause. Copious bleeding causes pallor, faintness, giddiness, dimness of sight, noises in the ears, great restlessness, weakness, thirst, and perhaps convulsions. It is said that the sudden loss of about five pounds of blood is sufficient to cause death. Small repeated bleedings are followed by the symptoms of anæmia, or poorness of blood. Bleeding into the substance of the brain is the cause of apoplexy. Bleeding from the lungs, it is said, sometimes leads to consumption; more often it is a consequence of that disease. Active bleeding from congested organs, if moderate in amount, often relieves the patient, as also does the "vicarious" bleeding from the stomach or other parts which occasionally replaces the monthly flow in women. On the other hand, repeated bleeding, especially in feeble constitutions, is very weakening.

TREATMENT.—*Where the bloodvessel is accessible:* (1) Apply *pressure* over the wounded spot, temporarily with the finger, later on with pad and bandage. Pressure on a wounded artery on the heart side of the cut helps to stop the bleeding. In a wounded vein this increases the bleeding, unless pressure is also applied below the wound. (*See* BANDAGE.) (2) *Raise* the bleeding part. (*See* POSITION.) (3) Apply *cold* in the form of cold water or ice, and avoid warm, loose wraps. (*See* ICE.) (4) *Hot water* at 120° F. will also stop bleeding; warm water rather encourages it. (5) The application of alum, tincture of steel, etc., is not usually to be recommended, excepting in the case of leech bites and other slight wounds. (*See* STYPTICS.) Other remedies, such as tying or twisting the artery, or applying the cautery, must be left to a surgeon.

Internal bleeding: (1) Perfect rest and quiet; (2) avoid too heavy covering, hot rooms, hot food, and stimulants; (3) give astringents internally (*Pr.* 8, 33); (4) apply icebag externally; or (5) hot water bag to spine; (6) treat the cause. *See also* APOPLEXY; BLOOD-LETTING; BLOOD, VOMITING OF; FLOODING; GUMS; HOT BOTTLES AND BAGS; ICE; MOTIONS; NOSE-BLEEDING; URINE.

Hair is found in almost every part of the body excepting soles and palms. Structurally, it consists of a shaft, and a root ending in the "bulb," and embedded in a jug-shaped bag or follicle. Into the neck of the follicle open the ducts of one or two sebaceous glands, which lubricate the hair with natural grease. Muscular bands are attached to the follicle, by which the hair is made to "stand on end." Growth takes place from the bulb, which is provided with a papilla, or nipple-like centre. The hair is made up for the most part of small flattened cells, packed closely together. The colouring matter is found partly in these cells, partly in the cement joining them together. Hairs are not hollow, so that the practice of singeing is quite unnecessary, if not hurtful. Grayness may be due to defect in colouring matter or to the presence of air-bubbles in the substance of the hair. In Europeans the hair shaft is oval in section, curly hair being more flattened and straight hair more circular. Removal of the natural oil, or of the moisture which hair usually takes up, will cause it to curl. Curling irons act by drying one side more than the other. If used too freely they injure the texture of the hair. Hair on the head grows at the rate of about half an inch a month. When it has reached its greatest length (which varies from one

to six feet), the hair is replaced and pushed out by a new one growing from the bulb. If the hair is left too long uncut, the ends are liable to split. Hair should be cleansed once a week with soap and water, or some substitute. For daily cleansing, it is better not to use soap, for fear of rendering the hair brittle. (*See* HAIR-WASHES.) To remove the scales from the surface of the scalp, a soft brush should be used; stiff brushes and tooth combs irritate the skin, and cause it to shed more scurf. Where the natural secretion is not sufficiently abundant, some kind of hair-oil or pomatum is necessary. (*See* POMATUM.) The use of curl-papers is objectionable, as the strain on the hair interferes with the natural growth, and may cause baldness, neuralgia, headache, or in children restless nights. Some modes of wearing the hair are inadvisable for similar reasons. The natural secretions should not be confined by tight and heavy hats or bonnets, as this leads to irritation of the scalp and baldness. Light and air favour the growth of hair. (*See also* HAIR-DYES.) To prevent hair from blowing about, "bandoline" or a stiff pomade may be used. In this case extra care will be needed in cleansing. *See* BALDNESS; RINGWORM.

HAIR-WASHES.—In addition to plain soap and hot water, yolk of egg or quillaia bark may be used. A small piece of the latter stirred in hot or cold water produces a copious lather. The addition of spirit causes the scalp to dry more quickly. The following may be used in shampooing the head: Borax, ½ oz.; camphor in powder, ¼ oz.; boiling water, ½ pint. Cool and filter, and add rectified spirits, ½ pint. *See* DANDRUFF.

HAIR-DYES are, as a rule, objectionable, containing lead, silver salts, or other poisons. A weak solution of peroxide of hydrogen is used to turn dark hair to a golden tint. One of the least noxious brown hair-dyes is Naquet's (*see* "Book of Health," p. 911), which contains bismuth.

Hallucinations. — False perceptions without external cause. Thus Sir Walter Scott tells of a gentleman who, during ill health, often saw a little woman with a red cloak, the appearance being entirely a phantom of the imagination. This was a "hallucination." If there had been some real object which his imagination distorted, it would have been an *illusion;* and had he believed in the reality of the appearance, it would have been a *delusion.* Hallucinations and illusions of sight and hearing are common in ill health. Delusions are a sign of insanity or delirium.

Hamamelis. — The North American witch-hazel, is the source of "hazeline." It is a valuable remedy for bleeding, and appears to have some power over the coats of the veins. It may be applied externally to relieve bleeding piles, bruises, or varicose veins, or given internally (*Pr.* 33) for internal bleeding of all kinds. In piles a small pledget of cotton-wool soaked in hazeline may be inserted into the rectum just before and after a motion. Small doses taken internally are stated to diminish the size of varicose veins. If the remedy causes throbbing pain, reduce the dose. In severe internal bleeding, larger doses may be required.

Hammocks are convenient for the transport of the sick and wounded, and for the use of convalescents. A net hammock, weighing a couple of pounds, may be slung between trees, or attached to stout bamboo poles four feet long, steadied by cords and tent-pegs. In a carriage or railway-van it may be attached lengthwise to stout hooks in the roof, or to poles crossing from side to side. *See* AMBULANCE.

Hand. *See* ARM, SWOLLEN.

Hanging may cause death by suffocation from compression of the windpipe; by apoplexy from compression of the veins in the neck; or by dislocation of the spine. Recovery is improbable if the breathing has been interrupted for four minutes.

TREATMENT.—Cut down at once, loosen the clothes and other things round the neck, dash cold water into the face, and let blood from a distended vein of the head or neck. (*See* BLOOD-LETTING.) Artificial respiration, as described under drowning, may be useful. Notice the position and surroundings of the body, together with any other circumstances likely to throw light on the mode in

which the hanging was accomplished—whether it was suicidal, accidental, or done by others. The man may have been killed in some other way, and then suspended to suggest suicide. *See* DEATH.

Hard Water. *See* WATER.

Hare. *See* MEAT.

Harelip.—A deformity dating from birth, caused by imperfect formation of the upper lip. The lip is originally in three parts, one central and two lateral. The clefts in harelip correspond with the junction of these parts. The palate is often also cleft. Consult a surgeon.

Hartshorn. *See* AMMONIA.

Harvest-bug. *See* BITES AND STINGS.

Hats. *See* HAIR; CLOTHING.

Hay-asthma or Hay-fever.—A form of catarrh or of asthma produced by inhalation of the pollen of certain plants, more especially those of grasses and fir trees. Pollen of roses, the bloom of peaches, dust of streets, emanations from powdered ipecacuanha, hare skins, cat skins, etc., may in susceptible persons cause similar attacks. The first *symptom* is usually violent itching of the nose, followed by sneezing, running from the eyes and nose, oppression of breathing, cough, and frontal headache. The disease affects men more than women, and the educated more than the labouring classes; and usually comes on in May or June during dry weather.

TREATMENT.—Avoid hayfields and the country generally during haymaking time; go for a voyage, or to a seaside place sheltered by high cliffs and well exposed to the sea breezes; or, failing these, inhabit the centre of a densely populated town or city. Keep indoors as much as possible during the middle of the day. Take tonics, and if an attack threatens, apply to nose and throat a spray of carbolic acid, sulphate of quinine, or sulphurous acid, or inhalations of camphor or creasote (10 minims to 1 pint boiling water). Wearing cotton wool in the nostrils sometimes prevents attacks. Tobacco-smoking is also efficacious. It is advisable that persons subject to the disease should only smoke to ward off an attack, as otherwise the system gets used to the tobacco. *See* INHALATIONS, *Nos.* 5, 8, 10, 11, 4; TONICS.

Hazeline. *See* HAMAMELIS.

Head. *See* BRAIN; SCALP; SKULL.

Headache.—Many varieties are met with of this distressing complaint. Sometimes it is dull, aching, or throbbing, sometimes sharp and neuralgic; it may be continuous or paroxysmal, and may affect almost any part of the head. The following are a few of the principal types.

CONGESTIVE headache is usually dull, heavy, or throbbing, increased by stooping, coughing, excitement, or exertion, and diminished by rest and by raising the head. It affects the forehead or the back of the head, and is often associated with pulsation in the ears, flushed face, and glittering eyes. It chiefly attacks robust, middle-aged, full-blooded men, or women of a similar constitution and with deficient menstrual discharge. It is best *treated* with rest, cold to the head, low diet, and a saline aperient (*Pr.* 14). Aconite (*Pr.* 31) is also useful. Those who are subject to such headaches should take very little red meat, and no fermented liquors; be careful to avoid constipation, and take plenty of exercise in the open air. *Another form* of congestive headache is found in weak and debilitated people, who have been pulled down by over-fatigue, loss of blood, or profuse discharges; or in those who are subject to heart disease, asthma, or winter cough. Here it is rather the veins than the arteries that are overfull, and the circulation is weak and sluggish. The pain is often dull, heavy, throbbing, or like pressure at the top of the head. It is increased by sitting up, by movement and abstinence from food, relieved on lying down. Such a headache often follows excessive indulgence in alcohol. It is best *treated* by rest, quiet, diffusible stimulants (*Pr.* 4, 5), and light, digestible food at moderately short intervals. If there is nausea and furring of the tongue, alkalis with bitter tonics are often useful (*Pr.* 15), and a gentle aperient (*Pr.* 9, 10) if there is constipation. To prevent the return of such attacks, take regular meals of nourishing, but digestible food (DIET, IV.), with plenty of exercise in the open air, but avoiding over-fatigue; keep regular hours, and

when the digestion is good, take a course of tonics. (*See* TONICS.)

NERVOUS headache often comes on under similar circumstances to the foregoing, especially in sensitive, overworked, excitable people. It is sometimes brought on by atmospheric or electrical changes, such as those preceding thunder or rain. It varies in its seat, but is usually one-sided and more or less paroxysmal, waxing and waning, and perhaps suddenly disappearing under favourable conditions. The best *treatment* is to lie down in a quiet, darkish room, apply hot bottles to the feet if they are cold, and take a glass of light wine with a biscuit, or *Pr.* 4, 5. If there is nausea, it may be useful to suck little pieces of ice, and take *Pr.* 16 or 17. A mustard poultice to the pit of the stomach is sometimes useful, and warmth or ice to the head, according as one or other is most grateful. If there is inability to sleep, *Pr.* 18 should be given. In one-sided headache without nausea, *Pr.* 38 and 39 are valuable. Other useful remedies are, strong tea or coffee, effervescing bromo-caffeine, or chloride of ammonium in large doses (30 grains in milk, or 6 of the black currant lozenges, every four hours). The latter remedy soon relieves, if it does so at all, so that not more than three doses need be taken.

Another kind of nervous headache is SYMPATHETIC headache from decayed teeth, dyspepsia, or uterine disorders. Here the cause must be removed. Where menstruation is deficient cimicifuga is sometimes useful, or in robust women aconite. (*Pr.* 31.)

MEGRIM is a well-marked variety of headache, which comes on more or less regularly at intervals of a week, or a month, or longer, beginning about the time of second teething, or in girls at puberty. The tendency is often inherited, or one member of a family may suffer from megrim, while another is asthmatic, or possibly epileptic or insane. The attacks are readily excited in those who are subject to them, by fatigue, excitement, worry, irregularity in meals or in retiring to bed, constipation or indigestion. Any cause of debility, such as over-suckling, diarrhœa, or long hours in an impure atmosphere, increases the tendency to megrim. Sudden changes of temperature, either to heat or cold, will also bring on an attack. This begins with paleness, languor, nausea, and slight headache in the forehead or temple, which is increased by movement, stooping, loud noises, or a bright light. There is more or less inability to work, and want of energy. The headache gradually increases as the day goes on, and is usually relieved by vomiting or by a night's rest. The attack may last a few hours, a day, or several days. In the latter case it may not completely disappear, so that several attacks are linked together. During the height of the attack it is common to have giddiness, numbness, and tingling in the limbs, and flashes of light or persistent patterns before the eyes (*spectra*). The attacks usually return at irregular intervals, in spite of treatment, and gradually decline after thirty years of age. In women they may become worse for a time at the change of life.

Treatment.—Give one of the following remedies: Indian hemp, butyl chloral, guarana, chloride of ammonium, oxide or valerianate of zinc. Diet must be plain and unstimulating. If the digestion is feeble, *Pr.* 15 may be required after the attack.

NEURALGIC headache is severe, shooting or darting, running along the course of certain nerves, and coming on in fits. It may be started by bad teeth. Sometimes it is due to malaria, in which case it usually appears above one brow. Neuralgic headache is also common in those who are overworked or otherwise pulled down in health. *Pr.* 38, 39, 18, 3; or butyl chloral, citrate of caffeine, or phosphorus, may be tried. In malarious headache (*brow ague*), quinine (*Pr.* 39) and arsenic (*Pr.* 48) are valuable. Menthol rubbed into the skin sometimes relieves the headache, or brushing the scalp with a moderately hard brush.

Headache also accompanies STRUCTURAL disease of the brain or its membranes. In this case the pain is nearly continuous, increased by stooping, excitement, or alcohol, and accompanied by vomiting without indigestion. There is also fre-

quently giddiness, confusion of mind, or disturbance of sight or hearing; but none of these symptoms are characteristic. One form of headache which is usually curable is felt chiefly in the bones at night (*Pr.* 41). OTHER CAUSES are, rheumatism, gout, fever, lead-poisoning, the use of iron or opium, kidney disease, chronic constipation, or exposure to a foul atmosphere. The treatment will be that of the cause.

Health Resorts.—It will be impossible to do more here than to mention a few of the chief health resorts. (*See* CLIMATE.) Fuller information may be obtained from the section on climate by Dr. Weber in the "Book of Health," where other authorities are referred to.

MARINE HEALTH RESORTS.—Madeira, the Azores, and the Canaries are damp and warm. The Hebrides, Orkneys, and Shetland Islands damp and cool. The watering-places on the Mediterranean shores and islands are, generally speaking, warm and comparatively dry; Mogador, on the west coast of Africa, is rather more moist. Of the *British* seaside places, those on the west coast are warm and moist, on the east coast dry and cold. The south coast west of Sidmouth is like the west coast; east of St. Leonards it resembles the east coast, but is rather warmer. The intermediate region, including Bournemouth, the Isle of Wight, Worthing, Brighton, and Eastbourne, is the warmest and driest coast region in England. The most frequented winter stations on our coasts are Undercliff (Isle of Wight), Bournemouth, Torquay, Dawlish, Sidmouth, Salcombe, Newquay, Ilfracombe, Lynmouth and Lynton, Penzance, Falmouth, St. Leonards and Hastings, Llandudno in Wales, Rothesay in Scotland, Queenstown and Glengarriff in Ireland. Summer seaside resorts are too numerous to be conveniently mentioned here.

On the west coast of *France*, Biarritz is damp and warm, but bracing, Arcachon milder, and more nearly resembling Bournemouth. The north-west coast of France resembles the south-western coast of England; the northern coast being somewhat drier.

INLAND HEALTH RESORTS are divisible into mountain and lowland. On the continent, Davos and the Engadine are much frequented in winter by consumptives. There are a number of other mountain stations in Switzerland and the Tyrol. Those of Germany and France are less elevated. (*See* MINERAL WATERS.) In the British Isles, the moors of Yorkshire and Scotland are bracing, but not so dry as the continental resorts. Braemar and Ballater, Pitlochrie, Blair Athole, Inversnaid, the Trosachs, Crieff, Moffat, and Strathpeffer, in Scotland, are well known. The Bridge of Allan has a milder climate than the foregoing. In England, Buxton, Harrogate, and Ilkley are bracing, Great Malvern somewhat milder. In the south, Tunbridge Wells, Sevenoaks, Leith Hill, Dartmoor, and Clifton are also bracing and elevated. Mountain resorts are found in America in the Rocky Mountains and Cordilleras. Elevated plains are also to be found in South Africa and the Indian hill stations. *Lowland* resorts are chiefly chosen for their dry climate. Egypt and Nubia, Algeria, Pau, and the Italian lake-stations, are among the most frequented. Of low-level resorts, with a damper climate, there are innumerable examples both in England and on the continent.

AUSTRALIA has a great variety of climate, corresponding with its enormous extent. The interior is hot and rainless, with comparatively equable climate. The coast region is more changeable and damper. Consumptive patients are often advised to settle in Australia. For such, the coast towns are hardly suitable, the tableland of New South Wales, or the Darling Downs of Queensland, being preferable. As would be expected, Northern Queensland has an almost tropical climate. Melbourne is much cooler, and Tasmania in winter is cold.

NEW ZEALAND has a considerable range of climate. The northern island is warm; the southern mild and bracing, but very windy, and cold in winter.

AFRICAN health resorts are partly in the north, partly in the south. *Algiers* has a warm climate, but is liable to occasional heavy rains, and sudden changes of temperature. By spending part of

the time in Algiers and the rest at Hammam R'Ihra, the winter and spring may be passed in a dry and equable climate. *Upper Egypt* has a very dry and moderately bracing winter climate. The season is from October to March. *Cape Colony* is warm and generally dry, but very variable, and liable to sudden storms. *Natal* is warmer; the summers are hot and wet, the winters dry and clear. There are sometimes high winds from the S.E. and N.W. The soil is chiefly sandstone and granite. *Orange Free State* has been recommended for people with consumptive tendencies. Much depends on the part chosen. *See* CLIMATE; MINERAL WATERS.

Heart.—The central organ of circulation, rests upon the midriff between the two lungs. Roughly conical in shape, it

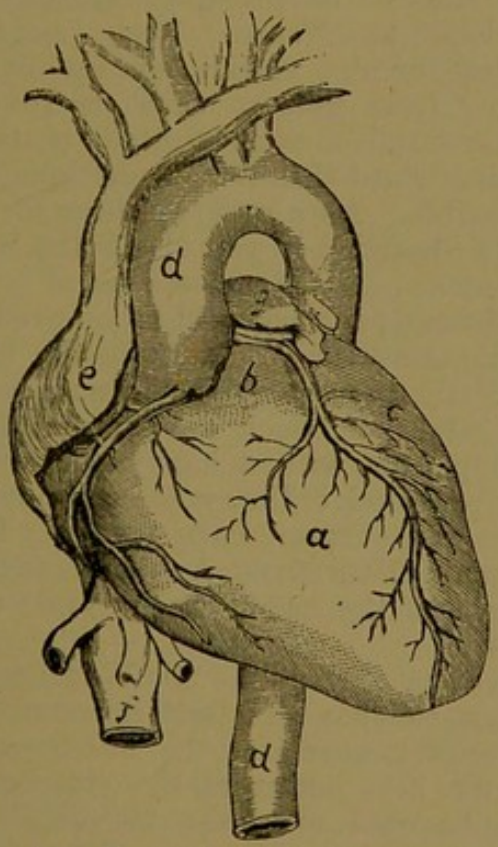

FIG. 26.—THE HEART AND AORTA.

a, right ventricle; *b*, right auricle; *c*, left ventricle; *d*, aorta; *e*, right auricular appendage; *f*, lower vena cava; *g*, left auricular appendage.

is placed obliquely in the chest, the point or apex touching the left side a little below and inside the nipple, while the base looks towards the top of the right shoulder blade (*Fig.* 26). The position of the heart varies a little according to that of the body, and the fulness of the lungs and stomach. Distension of the stomach and bowels with wind is apt to push up the heart, and cause palpitation. Surrounding the heart is a closed bag (*pericardium*), lined inside with a very smooth, moist membrane, which is also carried over the outside of the heart. (*See* SEROUS MEMBRANES.) This diminishes friction and allows the heart to move freely. The heart is a hollow muscular organ, about the size of the closed fist. It consists of two roughly symmetrical halves, of which the right receives blood from the veins of the body and sends it to the lungs, while the left receives the purified blood from the lungs and sends it to the other parts of the body. Each half contains two cavities, a thin-walled auricle which collects the blood from the veins, and a stronger ventricle which pumps it into the arteries. Between the auricle and ventricle on each side, and between the ventricle and the large arteries (*pulmonary artery* and *aorta*), there are sets of valves which prevent the blood from flowing the wrong way. Contraction of the ventricle closes one set of valves and opens the other set. The two sides of the heart act together in a state of health. When the ventricles contract, the point of the heart strikes the chest wall and produces the *impulse* which can be felt, and sometimes seen, between the fifth and sixth ribs. On listening to the heart, with or without a stethoscope, two *sounds* are heard, the first accompanying the closure of the first set of valves (between auricle and ventricle) while the second is caused by closure of the second set. These sounds are a guide to the state of the heart. When the valves are diseased, the sounds are obscured or altogether replaced by sawing, whistling, or other murmurs. The condition of the heart can also be judged by the character of the impulse, by "percussion," and by the character of the pulse and circulation. The heart's action is regulated by a complicated nervous mechanism, situated partly in the heart walls, partly in the *medulla oblongata*. Muscular exertion or excitement will increase the heart-action, while great pain, indigestion, or mental

or bodily shocks interfere with it. *See* COLLAPSE; FAINTING; PALPITATION.

Heart-action is also affected by the amount and quality of the blood, and the resistance to its passage through the bloodvessels. *See* PULSE.

Heart-ache. *See* CHEST, PAIN IN THE.

Heart-burn. *See* INDIGESTION.

Heart-disease is of many kinds. Sometimes the inner lining-membrane (*endocardium*) and the valves are affected, sometimes the outer lining-membrane (*pericardium*), while at other times the substance of the heart walls may be weakened. The heart is sometimes malformed from birth; at other times it is attacked with inflammation; and at others it is weakened by degeneration. The common cause for disease of the valves is rheumatic fever, but scarlatina, measles, erysipelas, or blood-poisoning (*pyæmia*) may lead to the same result. Where the heart is overworked by violent exertion, or hampered by an imperfect valve, it becomes dilated, which weakens it still further. As a compensation, its walls are thickened (or hypertrophied), if the general health is sufficiently good. Dilatation and hypertrophy are very common as the result of repeated pregnancies, Bright's disease, and lung diseases interfering with the passage of blood through the lungs.

The common *symptoms* of heart-disease are pain in the left side and arm, palpitation and shortness of breath, made worse by exertion or excitement; faintness or actual fainting fits, and swelling of the feet. None of these symptoms, however, are necessarily caused by heart-disease; and people often fancy they are suffering from it when their troubles are due to much more trifling causes. Pain in the chest is far more often due to dyspepsia, palpitation to flatulence or nervousness, or to the abuse of tobacco. Children sometimes get their hearts affected by rheumatism which merely causes slight pains in the joints. In this case the first noticeable symptom may be a little blueness about the lips, or shortness of breath. But after childhood there is little risk of heart-disease, excepting from regular rheumatic fever, if the other organs of the body are sound.

TREATMENT.—Any one who has had rheumatic fever, or who knows on good authority that his heart is feeble, should avoid all exceptional exertion, lifting of weights, raising of the arms above the head, bending down to button boots, running upstairs, or hurrying to catch trains. He should take plenty of rest at regular intervals, and live a quiet life, free from worry and excitement. Where the circumstances of life cannot be altered, much may be done by training the temper, so that small difficulties may be met with equanimity. Great attention should be paid to the action of the bowels, avoiding violent purgatives, but also carefully removing all necessity of straining. Violent cough or indigestion should be promptly attended to medicinally. Tonics, such as iron, quinine, or nux vomica, are usually required from time to time (*see* TONICS), and in suitable cases digitalis or belladonna. Food should be nourishing and digestible. As a rule it is best to consult a physician if you think the heart is diseased. In nine cases out of ten, it is all fancy, and you will be relieved by simple remedies. But should the heart be really diseased, there is no need to lose all hope. Such an ailment is not incompatible with a happy and a long life, provided ordinary precautions are taken. *See* CHEST, PAIN IN THE; PALPITATION; FAINTNESS; ANGINA PECTORIS.

Heat of the body. *See* FEVER; COLLAPSE.

Heating of Houses. *See* WARMING.

Heat relieves pain and inflammation. Moderate heat relaxes the bloodvessels; greater heat contracts the vessels, and may be used to arrest bleeding. *See* HÆMORRHAGE; CLIMATE; POULTICES; FOMENTATIONS; SPINAL BAG.

Hectic Fever.—A form of intermittent fever which occurs in consumption and other wasting diseases. The feverish attacks come on in the evening, flushing the cheeks and quickening the pulse. In the early morning profuse perspirations take the place of the dry heat, causing much exhaustion.

Hellebore.—Two kinds are used in

medicine, white and green. They are powerful emetics and purgatives, and depress the heart-action. Small doses of the medicinal preparations have been given in fever, gout, and other diseases.

Hemicrania. — Megrim. *See* HEADACHE.

Hemidesmus. — Indian sarsaparilla. The root is used in preparing a syrup, chiefly prescribed as a flavouring agent. (Dose, 1 fl. dr.) A decoction is also made—dose 1 to 4 fl. oz. *See* SARSAPARILLA.

Hemlock belongs to the parsley family. The leaves and unripe fruit are used medicinally. They contain conine and other poisonous alkaloids. Hemlock poultices are used to relieve pain; inhalations to quiet cough; the drug is given internally as a sedative. A poisonous dose paralyses the heart, muscles, and breathing organs. Treatment of poisoning: an emetic (*Pr.* 27, 28), followed by stimulants (*Pr.* 4, 5), and artificial respiration as described under DROWNING.

Hemp, Indian. *See* INDIAN HEMP.

Henbane.— A plant with pale-green, wavy, sticky leaves, and dingy yellow flowers veined with purple. It has a disagreeable smell, and grows two or three feet high. The fresh leaves and flowers are used in medicine. They contain several poisonous alkaloids, and have an action resembling that of belladonna. The extract is added to aperient pills, to prevent their griping; the tincture is used as a sedative. An overdose causes dryness of the throat, dimness of sight, with expansion of the pupil, delirium, and loss of control over the bladder. The same symptoms appear in poisoning with the leaves or fruit. TREATMENT, *see* BELLADONNA.

Hepatic.—Relating to the liver (*which see*).

Hereditary Tendency. *See* INHERITANCE.

Hernia, commonly called "rupture," is the protrusion of some internal organ, such as the bowels, through the walls of the body. There are three common kinds of hernia—inguinal and femoral at the groin, umbilical near the navel. Anything which increases the pressure inside the body, or diminishes the resistance of its walls, may cause hernia. Consequently pregnancy, internal tumours, or extreme stoutness may lead to rupture. Other causes are violent exertion, severe cough, lifting heavy weights, or straining at stool. Probably the condition of the bowel and its attachment have much to do with its protrusion. Hernia usually comes through naturally weak spots, pushing the skin before it. INGUINAL hernia first appears above the fold of the groin, working its way down into the purse in men, and into the labia in women. It follows the course of the inguinal canal, through which in boys the testicle descends from the abdominal cavity into the purse. FEMORAL hernia appears below the fold of the groin, coming through by the side of the great vessels of the thigh. It is more common in women than in men.

Symptoms of hernia.—On examining the neighbourhood of the groin a swelling is found, increased by coughing and usually disappearing on lying down. A distinct push is felt on coughing, and by manipulation the bowel can be returned into the abdomen. There is often a feeling of weakness in the part, and dragging pain in the back. Such a swelling should be supported by an efficient truss. (*See* TRUSSES.) If neglected, or if it slips past an ill-fitting truss-pad, the bowel may be unable to empty itself, or may become "strangulated." This is a serious condition, which if not quickly relieved inevitably causes death, as the bowel mortifies from interference with its blood supply. Strangulation usually causes pain in the part, soon followed by vomiting and perhaps obstinate constipation. The vomiting becomes urgent, at first the contents of the stomach being brought up, later on those of the bowel (which have a fæcal smell). The patient becomes extremely weak and collapsed, but the pain may be less when the bowel has begun to mortify, so that diminution of the pain and vomiting is not necessarily a good sign. Whenever vomiting comes on in a patient who is "ruptured," it should be remembered that there may be a connexion between the two conditions. If the bowel is

reduced in time (which a surgeon can often accomplish), the patient recovers with little further treatment; if not, an operation affords the only chance of saving life. In bad hernias which are not strangulated, but cannot easily be retained by a truss, an operation is also sometimes recommended to cure the rupture; but opinion is divided in the profession as to the advantages of such an operation. Hernia in young children if properly looked after is often cured by a truss alone.

Umbilical hernia is found in infants soon after birth, and in very stout people, especially of the female sex. In infants the swelling is at the navel itself, whereas later in life it is by the side of the navel. If discovered at birth, it should at once be supported by a suitable pad. A cork should be chosen half as large again as the swelling, and a slice cut off one-eighth inch thick. This should be flatly padded, covered with soft linen, and fixed by stitches to two crosspieces of "strapping," or stout sticking plaster, eight inches long and one inch wide. These are then fastened to the body. (*See* Plaster.) If the skin becomes chafed under the pad, a water-dressing covered with oilskin may be put underneath. Such a contrivance, if properly put on, is perfectly efficient, but inconvenient for bathing and apt to chafe the skin. When it is being changed, the rupture should be carefully supported with the hand. The child should, as far as possible, be kept from screaming, coughing, or crying, as this forces out the bowel. Much more convenient india-rubber bands with fixed pads are sold by surgical instrument makers under the name of "umbilical bands." Hernia at the navel in adults requires a well-fitting belt and pad to support it. The pad is made of various shapes to suit the requirements of the case, sometimes flat or slightly hollow, sometimes with a nipple-shaped projection. It may be loose or attached to the belt. In bad cases trusses are sometimes applied, but are difficult to keep in place. *See* Belts; Trusses.

Herpes.—A skin disease in which small blisters appear in groups near the mouth and nose, or in other parts of the body. It is often seen in inflammation of the lungs. *See* Shingles.

Herring. *See* Fish.

Hiccup is caused by spasm of the diaphragm. It is usually an unimportant, though troublesome affection, often caused by indigestion, especially in hysterical or nervous individuals. It may then be cured by an emetic, or by other remedies for indigestion. Sipping cold water slowly, or slowly counting one hundred, will sometimes control it. Nerve sedatives and tonics (*Pr.* 18, 37, etc.) are also useful. Hiccup in enteric fever and other serious illnesses is of graver import, as it may then indicate great exhaustion. *See* Tonics.

Hiera picra. *See* Canella.

Hip-joint.—A ball and socket joint, in which the head of the thigh-bone is received into a deep cup formed by the pelvic bones. A "round ligament" unites the ball to its socket, together with a capsular ligament which covers in the joint. *See* Joints; *Fig.* 43.

Hip-disease is commonly found in scrofulous children who have received a slight injury from a jar, or blow, or jump. The earliest symptoms are usually pain in the knee and a slight limp in walking. The pain is increased by jarring, and the child draws up the foot, so as to walk on tiptoe on that side without resting its weight upon the limb. This gradually leads to deformity, and at the same time the muscles waste. The leg is stiff and more or less drawn up, so that the big toe rests upon the opposite ankle; the fold of the groin is flattened out, and the buttock of that side appears flatter and broader than the other. There is often some spinal curvature, so that the nature of the disease may be mistaken. A smart tap to the heel of the affected side causes pain, and there are often startings at night. If the disease is neglected, matter forms in the joint, and burrows among the muscles in finding its way to the surface. The discharge of matter gradually undermines the constitution, and the child may possibly die after a year or two of miserable existence. Taken in time, such cases may

completely recover; in a later stage, recovery is only possible with a stiff joint or useless limb, and many operations may be required to let out matter or to take away diseased bone. The most important point in early treatment is absolute rest for the joint. The leg must be bandaged to a suitable splint, and the little patient kept in bed with a weight attached to the affected foot, and a band to the body to prevent slipping. Splints are often used which reach from the armpit to below the foot. They may be of wood or iron. Another mode of treatment is to put the limb into a stout wire cage, which will keep the joint at rest, while allowing the patient to walk about with crutches and a high boot on the sound leg. The choice of apparatus will of course be left to the surgeon in attendance. Good food, tonics, and fresh air are of great importance; and to complete the cure, a stay at the seaside is often advisable. *See* SCROFULA.

Hives. *See* CHICKENPOX.

Hoarseness. *See* VOICE.

Hollands. *See* FERMENTED LIQUORS.

Home-sickness, or *nostalgia*, causes sleeplessness, melancholy, and loss of appetite. It is especially common among natives of mountainous countries. To prevent this distressing condition it has sometimes been found necessary to prohibit for a time the playing of national music by Scotch troops on foreign service.

Homœopathy.—A system of treatment by small doses of medicines which, in larger doses, cause symptoms resembling those of the disease. Thus a teaspoonful of ipecacuanha wine causes vomiting, whereas a hundred times less will cure some kinds of vomiting. This method of treatment has been known since the time of Hippocrates, although little employed until advocated by Hahnemann, at the end of the last century. He was not content with using hundredths or even thousandths of a grain of powerful drugs, but taught that the curative power of a medicine increased in proportion as the dose was diminished, so that among his followers doses of a millionth of a grain were considered to be exceedingly active, and many homœopaths made use of inconceivably minute doses, both of powerful and of feeble remedies. Recently it is stated that many homœopaths have returned to the use of more sensible doses, even in some cases larger than those employed by ordinary practitioners. This introduces a considerable difficulty in deciding as to what constitutes homœopathy. In the present state of medical knowledge it is very unsafe to trust to universal theories, which are sure to need fanciful interpretations of facts. That this is the case, is borne out by an examination of some of the received homœopathic text-books, which contain much that is far-fetched and illogical.

H. D. M.

Honey consists chiefly of grape sugar and water. It may be purified by melting over a water bath, and straining through warm moist flannel, after which it keeps better. It is sometimes adulterated with starch. This may be detected by dissolving in hot water, and when cool, adding a few drops of tincture of iodine, which will turn it blue if starch is present. Honey is chiefly used as a flavouring agent. It is also slightly laxative and soothing to a sore throat.

Hops.—The dried scaly fruit of the hop-plant, which yields an aromatic volatile oil, and a bitter tonic principle.

Hops were first used for brewing on the Continent, and long regarded in England as an adulteration, their use being forbidden by statute in the reign of Henry VIII. Hops act as a bitter tonic, and are said also to possess narcotic properties. (*See* BITTER TONICS.) An infusion may be made by pouring half-pint boiling water over half-oz. hops. Dose, 1–2 fl. ozs. A tincture and extract are also prepared.

Horse Exercise is especially useful to those who suffer from a sluggish liver, as the jogging movement assists the expulsion of bile, by causing frequent descent of the diaphragm. It has been said that "the best medicine for the inside of a man is the outside of a horse." *See* EXERCISE.

Horseradish root is used in its fresh state as a condiment, and slowly chewed to cure hoarseness. It develops a volatile oil identical with that of black mustard. The root is most active in

autumn and early spring, before the leaves appear. Aconite root has been mistaken for horseradish, although the two are very different. (*See* ACONITE.) *Compound spirit of horseradish* also contains nutmeg and orange peel. Dose, 1 fl. dr. It is given in indigestion, chronic rheumatism, and dropsy.

Hospitals may be divided into general and special. The smaller hospitals often go by the name of cottage hospitals. The following GENERAL HOSPITALS in London have schools of medicine attached to them: Charing Cross, *Guy's, King's College, London, Middlesex, St. Bartholomew's, St. George's, St. Mary's, *St. Thomas', University College, Westminster, and the Royal Free, which has attached to it the London School of Medicine for Women. Other general hospitals are: Blackheath and Charlton Cottage Hospital; Ealing Cottage Hospital; Great Northern Central (Holloway Road); Metropolitan (Kingsland Road); Mildmay Mission (Bethnal Green); *Mildmay Park Cottage; Miller Hospital and Royal Kent Dispensary (Greenwich); *North-West London (Kentish Town); *Norwood Cottage; Queen's Jubilee (Richmond Road); Seamen's (Greenwich); West London (Hammersmith). The St. Raphael's Hospital (Fulham) is for R. C. men only; in the London Temperance Hospital (Hampstead), patients are treated without alcoholic liquors. The hospitals specially for foreigners are: The French (Leicester Place), *German (Dalston), and Italian (Queen Square). The Central London Sick Asylum (Cleveland Street), the Poplar and Stepney Sick Asylum (Bromley), and the *Establishment for Gentlewomen (90, Harley Street), may perhaps be classed with general hospitals.

CHILDREN'S HOSPITALS: Belgrave Hospital (Gloster St., S.W.); *Cheyne Hospital (Chelsea); East London (Shadwell); Evelina (Southwark Bridge Road); Great Ormond Street (also at Highgate); North-East Hospital (Hackney Road); Paddington Green; Victoria (Chelsea and Margate); St. Gabriel's Hospital for Infants (Grosvenor Road); and the Home and Infirmary for Sick Children (Sydenham).

Surgical Children's Hospitals are—Alexandra, for hip disease (Bloomsbury); All Saints', chiefly for chronic joint diseases (Margaret Street and Mortimer Street, W.); and the *Cripples' Nursery (Park Place, Regent's Park, and Margate).

HOSPITALS FOR WOMEN AND CHILDREN: *Grosvenor (Vincent Square); Royal (Waterloo Road); and Samaritan Free (Lower Seymour Street, W.).

HOSPITALS FOR WOMEN: *Chelsea (Fulham Road); *Soho Square; and *New Hospital (Marylebone Road).

Strictly SPECIAL HOSPITALS are exceedingly numerous:

ACCIDENT HOSPITALS: Lady Gomm Memorial (Rotherhithe); Poplar (Blackwall).

CANCER HOSPITAL (Brompton).

CONSUMPTION AND CHEST HOSPITALS: Brompton; City of London (Victoria Park); Infirmary for consumption and diseases of the chest (Margaret Street); *North London (Mount Vernon, Hampstead, and Tottenham Court Road).

DEFORMITIES. *See* Orthopœdic.

EAR. *See* Throat and Ear, Ophthalmic.

EPILEPSY. *See* Nervous Diseases.

FEVER HOSPITALS: Eastern (Homerton); *London (Liverpool Road); North-Western (Haverstock Hill); Northern (Winchmore Hill); South-Eastern (New Cross); South-Western (Stockwell); Smallpox (Highgate Hill); Western (Fulham).

FISTULA. *See* Rectal Diseases.

HEART AND PARALYSIS. Soho Square.

INCURABLES: *British Home (Clapham Road); *Women's Home (Whetstone); Royal Hospital (Putney and St. Leonards); Invalid Asylum (Stoke Newington); St. John and St. Elizabeth (Great Ormond Street).

LOCK HOSPITALS: Female (Westbourne Green); Male (Dean Street, Soho).

LUNATICS. *See* Lunatic Asylums.

LYING-IN HOSPITALS: British (Endell Street); City of London (City Road); General (York Road, Lambeth); *Lying-in House of St. John the Divine (Gunters Grove, Chelsea); *Queen Charlotte's (Marylebone Road); St. John's

House (Queen Anne Terrace, Battersea); and the *Farringdon Lying-in Charity (Bartlett's Buildings).

NERVOUS DISEASES: *Epilepsy and Paralysis (Regent's Park); *Paralysed and Epileptic (Queen's Square); West End (Welbeck Street). *See* Heart.

OPHTHALMIC HOSPITALS: Central London (Gray's Inn Road); Eye and Ear (Wells Street, W.); Royal London (Bloomfield Street); Royal South London (St. George's Circus); *Royal Westminster (King William Street, Strand); *Western (Marylebone Road).

ORTHOPŒDIC (for deformities): City (Hatton Garden); *National (Great Portland Street); Royal (Oxford Street). *See also* under Children's Hospitals.

PARALYSIS. *See* Nervous Disease; Heart.

PILES. *See* Rectal Diseases.

RECTAL DISEASES, Piles, and Fistula: *Gordon (Vauxhall Bridge Road); St. Mark's (City Road).

SKIN: British (Great Marlborough Street and Newington Butts); Central London (Gray's Inn Road); London (Cranbourne Street and Leicester Square); *St. John's (Leicester Square); *Stamford Street (Blackfriars).

SPEECH AND EAR: (Henrietta Street, Covent Garden).

STONE. *See* Urinary Diseases.

THROAT AND EAR: *Central London (Gray's Inn Road); Metropolitan Ear and Throat Infirmary (Howland Street, W.); *London Throat Hospital (Great Portland Street and Bolsover Street); Municipal Throat and Ear Infirmary (City Road); Royal Ear Hospital (Soho Square); *Throat Hospital (Golden Square).

URINARY DISEASES: *St. Peter's, for Stone (Henrietta Street, Covent Garden).

The foregoing particulars are chiefly obtained from the Medical Directory, in which further details are given. The full names and addresses have not been given, for economy of space; thus under Fever Hospitals "London" stands for "London Fever Hospital." All dispensaries have been omitted for the same reason. The * indicates that paying patients are received. Of PAY HOSPITALS which receive none but paying patients, may be mentioned the Bolingbroke House (Wandsworth Common); Burfield House (Highgate); Fitzroy House (Fitzroy Square); Hampstead Home Hospital (Parliament Hill Road); Medical and Surgical Homes (3, Manchester Street, W., and another at 94, Charlotte Street, Fitzroy Square); St. Thomas' Home (adjoining St. Thomas' Hospital); South Hampstead Private Hospital (Primrose Hill Road); Surgical and Medical Home (6, Holles Street, W.). In most of the above, the patient makes his own arrangements for medical attendance; in several there is a Resident Medical Officer.

Hot Bottles and Bags are constructed of metal, stoneware, and india-rubber. The former should be cased in flannel. If very hot water is used with the india-rubber bags they soon wear out. On the L. & N.W. Railway foot-warmers are supplied which are filled with hot, saturated solution of sulphate of soda. This, on crystallizing, gives out heat continuously for some time. Where hot bottles are not available, a heated Bath brick, wrapped in flannel, may be substituted. The hot-water bag is applied to the spine to check profuse menstruation. Applied to the heart, it is a powerful remedy in fainting fits.

House. — In choosing a house it is necessary to look to its site and aspect, construction, drainage, and water supply. The *site* should be dry and well drained (*see* SOIL), on a higher level than stables, water-courses, and sheets of water in the immediate neighbourhood, and preferably on a hill or gentle slope. It should be raised so that the ground slopes away from the house on all sides. Trees are objectionable close to the house, as they interfere with free circulation of air, and possibly intercept the sunlight; but at a little distance they help to shelter against wind, and dry the soil. The neighbourhood of a marsh, or of ground covered with rank vegetation, is unhealthy. As regards the *aspect*, this should preferably be southerly or south-easterly, as these allow of most heat and sunlight, while they are not so exposed to wet as the south-west in this country. A northerly aspect is always bleak and

cold, and often damp. The surrounding houses should not intercept the light. Invalids should avoid the north and east sides of a house. A sick-room should always be on the sunny side. For a breakfast-room an easterly aspect is good; store-rooms, dairies, larders, and work-rooms requiring a steady light should face north. In the *construction* of a house the most important points, after the sewerage, are those which render it dry and well-ventilated. Every house should have a concrete foundation at least 6 inches beyond the walls on every side, and 18 inches thick; or a similar but thinner layer of asphalte. There should be an air-space under the ground-floor

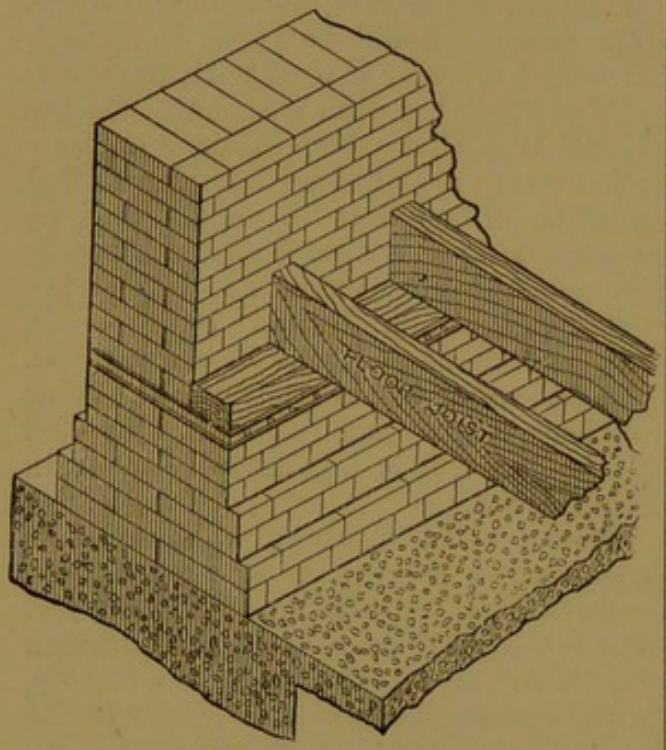

FIG. 27. HOUSE FOUNDATIONS.

Showing concrete base, damp-proof course, and arrangement of joists (from Newsholme's "School Hygiene").

communicating with a dry area round the house. The walls below the ground-level should be of damp-proof materials, such as concrete, and provided with a "damp-proof course" just above the level of the ground (*Fig.* 27). This must extend through the whole thickness of the wall, as otherwise the damp rises up like water in a sponge. The course may be of asphalte $\frac{3}{4}$ inch thick, two layers of roofing-slate set in cement, perforated glazed stoneware slabs, or some equally impervious material. Bad plaster containing vegetable mould is sometimes used in the construction of walls; this is highly objectionable. The roof, water-spouts, window-sills, etc., should be so arranged as to throw off the moisture, weak points being guarded with coping-stones. In very exposed situations the walls may require covering with slates, glazed tiles, or Portland cement. Brick and cement are warmer than stone, and cement is far more resistant to fire than either of the other two. New brick houses, being porous, absorb an enormous quantity of water, which must be evaporated before the house is properly dried and healthy to live in. *See* HOUSE DECORATION; HOUSE DRAINAGE; VENTILATION; WATER.

House Decoration. — The chief principles to be attended to in this matter are, that the wall-decorations should allow of thorough cleansing, not catch the dust, nor interfere with ventilation, and of course be free from all poisonous matters. In sick-rooms and nurseries it is especially important to attend to these details, and it is highly desirable, if possible, to have at least one room which may be easily isolated and disinfected in case of illness. This might be on a top-floor, or in a separate wing. (*See* SICK-ROOM.) Wall-papers are very apt to absorb impurities, and if laid several layers thick, or with putrid size, may cause illness. Arsenical wall-papers and flock-papers are both highly objectionable. The fashion of using a dado of washable material, such as the "Lincrusta Walton," is a good one. Distemper, paint, or some of the harder cements are all preferable to wall-papers. Newly painted houses often cause illness; but much discomfort may be prevented by using plenty of driers, and thoroughly ventilating with good fires and open windows. Zinc paint and some other pigments not containing lead have been used with advantage in house-decoration. The floors of all rooms should be made of hard and closely fitting boards. It is a good plan to stain them, and polish every week with bees-wax and turpentine, as this prevents the necessity of frequent scrubbing, and they are then less apt to catch the dirt than carpeted floors. If carpets are used, they

should only cover the centre of the floor. *See* NURSERY; SICK-ROOM.

House Drainage (*see* DRAINAGE).—An efficient system of house-drainage should provide for the rapid removal of sewage and house-slops, without permitting the entry of foul air from the sewers. Where water-carriage is adopted, it is necessary to consider (1) water-closets, (2) soil-pipes, (3) the house-drains, (4) rain-water pipes, (5) pipes from bath-rooms, lavatories, cisterns, and sinks. A WATER-CLOSET should be placed against the outside of the house, preferably in a projecting part, and on the side nearest the street-sewer. It should be separated from the rest of the house by a passage and double doors. It should never be placed on the same floor as the kitchen, nor anywhere near dwelling or bed-rooms. Where several are present, they may be placed over one another. They should be light and well-ventilated; defects are apt to escape notice, and dirt to accumulate where the place is dark. A perforated brick is useful where there is only one window. A separate cistern, with a syphon waste-preventer, should be provided for each closet, the drinking-water being obtained from quite another source. A full sudden flush of water is necessary to cleanse the closet; continual trickling is of no use, and wastes the water, rendering the offending person liable to £5 penalty. (*See* WATER-CLOSETS.) The SOIL-PIPE, which carries the contents of the W.C. into the house-drain, should be of 4-inch diameter, of drawn lead without seams, or of glazed earthenware, or of Barffed iron, with well-made joints. It should be placed outside the house (*Fig.* 67), where, if necessary, it may be protected against frost by Smith's patent felt. Where several W.C.'s are present, the junctions with the main soil-pipe should form a gentle curve, not a right angle. Every soil-pipe must be ventilated by a stench-pipe of about the same diameter continued up above the roof, away from all windows. Otherwise a rush of foul air from the sewer may force the traps of the W.C., and enter the house. Ventilating cowls are sometimes placed at the top of the stench-pipe, in which case an inlet is necessary in the house-drain. In another (Mineard's) system, a constant down-draught is induced in the soil-pipe and stench-pipe, a second ventilating-shaft being provided with a chamber in which a small gas-light is burning. This plan has been adopted at Sandringham, and is perfectly efficient.

THE HOUSE-DRAIN should be of not more than 6 inches diameter, with 4-inch branches, and have a fall of at least 1 in 30. It should be of hard glazed earthenware, with sound joints, and bedded in cement. A man-hole is advisable, to allow of inspection and cleaning. The drain should not pass under the house, and must be disconnected from the street-sewer by an efficient trap (*Weaver's*, or a similar one). There should be an inlet on the house-side of the trap (*Fig.* 28), and there may also be a second opening beyond the trap, provided with a ventilating shaft. *Rainwater pipes* should never be used as ventilating shafts for the soil-pipe or house-drain. They should end over a syphon gully trap with galvanised iron grating (*Fig.* 29). *Bath-room waste and overflow pipes* should end in the same way, either joining the rainwater pipe, or being carried down separately to end over a gully-trap. The same is true of the pipe from the leaden

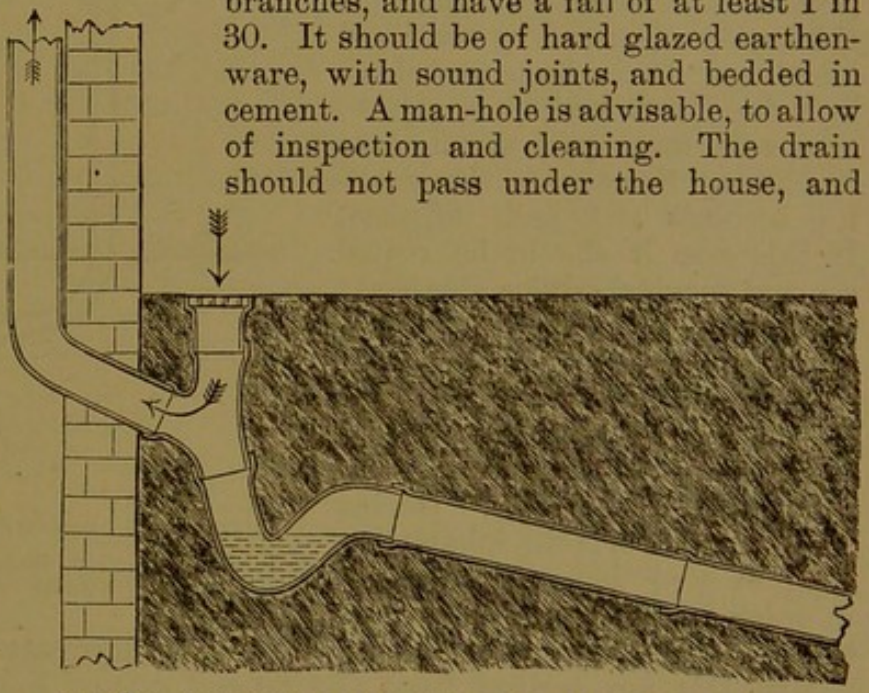

FIG. 28. SOIL-PIPE INTERCEPTOR FOR INSIDE SOIL-PIPE.
(From Parkes' "Hygiene and Public Health.")

safe under the bath, of the overflow pipes from *cisterns*, and the pipes from *lavatories and sinks*. None of these should be directly connected with the house-drain or sewer. (*See* DRAINAGE; TRAPS; WATER-CLOSETS.) Much useful information on this subject may be obtained from Teale's "Dangers to Health," Vacher's "Defects in Plumbing and Drainage Works," "The Book of Health" (Cassell & Co.), "Our Homes" (same publishers), Galton's "Healthy Dwellings," Newsholme's "Hygiene," and "School Hygiene," and other works on Hygiene.

Housemaid's Knee consists of a prominent rounded swelling over the knee-pan, caused by continual kneeling. It is best prevented by using a soft cushion or pillow, or a soft large pad attached to the knee. Sometimes the swelling becomes red and inflamed. In this case it should be rested up, and surgical advice obtained.

Humour. *See* ABSCESS; EMOTIONS.

Hunger is referred to the stomach, and later on to the bowels. Indigestible substances will for a time appease hunger. During the siege of Paris the inhabitants used to gird themselves tightly, in order to diminish the pangs of hunger. *See* APPETITE.

Hydatids are derived from the tape-worm of the dog. The eggs, being swallowed with food or drinking water, are hatched, and the embryos bore their way through the coats of the bowel, and become encysted in the liver and other organs. As a rule a hydatid tumour may be cured by tapping, but sometimes it causes death. Hydatid disease is particularly common among the Icelanders and the Australian squatters, both of whom live in great intimacy with their dogs.

Hydrobromic Acid. *See* BROMIDES.

Hydrocele.—A transparent accumulation of watery fluid inside the scrotum. It usually requires surgical treatment.

Hydrocephalus. *See* BRAIN, WATER ON THE.

Hydrochloric Acid. — Spirit of Salt. *See* ACIDS.

Hydrocyanic Acid. *See* PRUSSIC ACID.

Hydrogen Gas.—The lightest substance known, one of the ingredients in coal-gas, and chemically combined with oxygen in water.

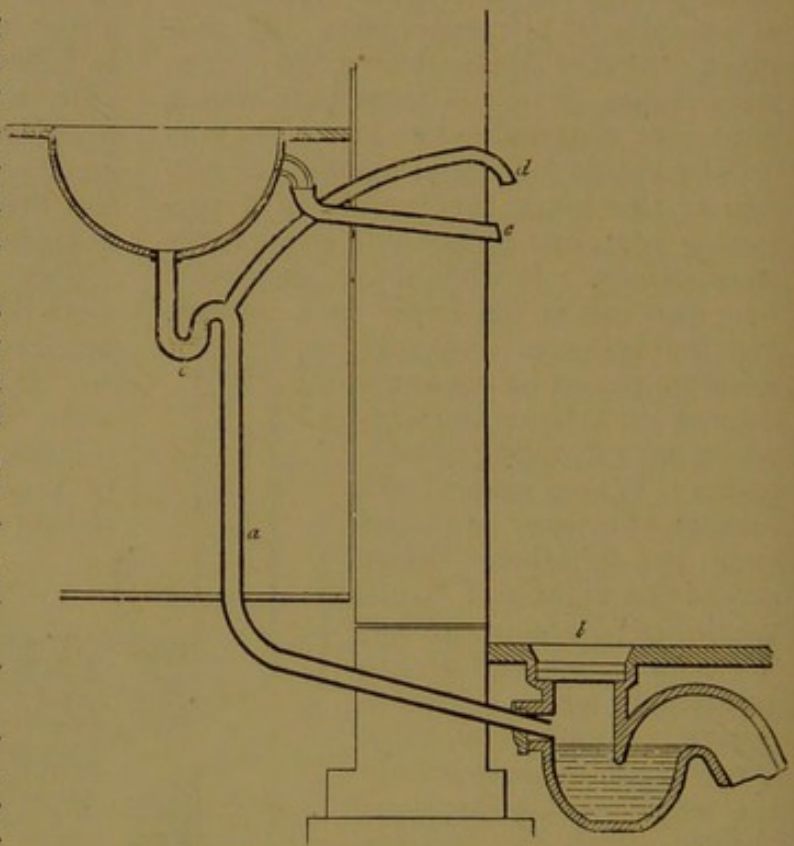

FIG. 29. DISCONNECTION OF LAVATORY-PIPES.

c, syphon-trap; *d*, ventilator for the same; *e*, overflow-pipe; *b*, side-gully (from Newsholme's "School Hygiene").

Hydrogen Peroxide. — An unstable, syrupy liquid, present in minute quantities in the air, and given off by pine-trees and many aromatic plants. It is antiseptic and deodorant, with similar properties to those of ozone, with which it is often confused. *See* SANITAS.

Hydropathy.—The water-cure of disease. Water taken as drink increases the activity of tissue-changes in the body, washes out its waste products, and enables it to use up more food. Applied externally in the form of wet-packs, douches, baths, and fomentations, it is stimulant or calming, according to the mode of application and the state of health. (*See* BATHS AND BATHING; FOMENTATIONS; WET-PACK.) Hydropathic treatment has been too much regarded as a form of quackery, but there is no

reason why it should be so; and applied with judgment it is capable of curing many different ailments. Most of the well-known hydropathic establishments have a qualified resident medical officer, so that there is no difficulty in obtaining directions for treatment in suitable cases.

Hydrophobia.—A disease caused by the bite of a rabid dog, wolf, cat, fox, or other animal. A dog suffering from RABIES first shows a change of disposition, becoming suspicious or surly, dull or languid, and disinclined for society. His appetite is often depraved, and he may attempt to eat dirt, sticks, or other strange things. After one or two days he becomes restless and excited, attacking both living and inanimate objects. In this stage he often roams, and travels on heedless of food. He shows no fear of water, but laps it greedily, although unable to swallow it. Then the hind legs become paralysed; the saliva hangs in tenacious chains from the mouth, and the bark is high-toned and croupy, between a bark and a howl. Within a week or ten days the animal dies. Sometimes the stage of excitement is wanting. The disease is probably always due to infection by the saliva of a rabid animal. Universal muzzling out of doors would probably do much to prevent it.

HYDROPHOBIA in man does not necessarily follow the bite of a rabid animal, as many that are bitten escape, especially if bitten through the clothes. In those who are infected, the symptoms begin after an incubation period of uncertain length, varying from less than a month to many months or possibly years. Then appears some mental depression with discomfort about the throat, and possibly pain in the scar of the wound. There is soon a difficulty in swallowing liquids, any attempt causing a convulsive attack like a "catch" in the breath. Very soon these attacks are excited by the mere sound of water, or by a breath of air. There is great mental distress, and after a time often more or less delirium, which may be noisy and violent. The patient usually dies within four or five days, from exhaustion or suffocation. A mock "hydrophobia" is also met with, due rather to the fear of it than to actual inoculation, and not necessarily fatal. Until the introduction of M. Pasteur's treatment by inoculation, hydrophobia was considered an invariably fatal disease. Recovery seldom happened, and it was doubtful whether these cases were true hydrophobia. His method of inoculation by attenuated virus has been marvellously successful when applied early, and has gone far to remove the worst terrors from this fearful disease. It is well to thoroughly cauterize without loss of time any bite of a rabid animal. For this purpose a white hot knitting needle may be used, or a stick of caustic potash. *See* CAUSTICS.

Hydrostatic Bed.—A water-bed. *See* BEDS.

Hydrothorax.—Water in the chest. *See* DROPSY.

Hygiene.—The art and science of preserving health. It is often divided into personal and public hygiene, although the two shade into one another. The chief subdivisions of this subject are found under the headings ABLUTIONS; AIR; BEVERAGES; CLIMATE; CLOTHING; DIET; DISINFECTION; DRAINAGE; EXERCISE; FOOD; HOUSE; ISOLATION; REST; SLEEP; SOIL; VENTILATION; WARMING; WATER. Newsholme's "Hygiene" and "School Hygiene," the works of Parkes, De Chaumont, Wilson, Corfield and Galton, may also be consulted.

Hyoscyamus. *See* HENBANE.

Hypertrophy.—Unnatural increase of a part of the body.

Hypnotics.—Remedies for sleeplessness (*which see*).

Hypochondriasis. *See* INDIGESTION; INSANITY.

Hypodermic or subcutaneous administration of drugs is done by injecting them under the skin with a syringe provided with a fine hollow needle. It is seldom right for a non-professional person to attempt this method of treatment without advice, and where it is necessary a practical demonstration will teach far more than verbal description of the method.

Hypophosphites of soda or lime are used as nervine tonics in debility and consumption. Dose, 5 grains in milk.

Hyposulphites and *Sulphites* are given

internally for vomiting, flatulence, eruption of boils, and blood-poisoning. Dose, 5 grains in glycerine and water.

Hysteria is a many-sided disease, usually found in young women, but occasionally in men or boys. It mimics more serious diseases in the strangest possible manner, and transforms character in such a way that the truthful girl becomes deceptive, and the modest one anxious for notoriety. It is often difficult to decide whether a given disorder is hysterical or not. Hysterical fits are more easily recognised. They usually come on after fatigue, or as the result of emotion, with a sense of oppression or faintness, and a feeling as of a ball rising in the throat. Then the patient falls down screaming, struggling, or excitedly talking, or else stretched out stiff. The eyes are usually closed and the eyelids tremulous, but consciousness is retained sufficiently to prevent awkward falls. The attack often ends with sobbing or crying; and large quantities of watery urine are passed soon after. Hysterical subjects are usually emotional and readily upset. The attacks may often be cut short by a little firmness on the part of bystanders, or by dashing cold water over the face. Regular, healthy employment, plain food, fresh air, and early hours are probably the best means of preventing the development of hysteria. Girls who cultivate the imagination, fall into self-indulgent habits, and have no regular duties, are more apt to become hysterical than others more fortunately situated.

Ice is applied *outwardly* to check bleeding, to prevent or diminish inflammation, and to deaden sensation; applied to the spine it has also a far-reaching influence over body-heat, secretion, and muscular action. It is frequently applied to the body in a bladder, or, better still, in india-rubber bags made for the purpose. Whatever kind of receptacle is used, the ice should be broken up into small lumps, and the bag only half filled, else it will not lie flat against the body. A thin layer of ice closely applied is just as cooling as a thick one, provided it be replaced as it melts. Ice may be used with advantage in the treatment of bruised or wounded limbs, for the head in some kinds of headache, and in brain fever. If left too long, the part may completely lose its sensibility, or even become gangrenous if the circulation be feeble. This should especially be remembered in applying ice to young children and old people. The risk is still greater where freezing mixtures or the ether spray are used. Rheumatic people are apt to suffer pain after using an icebag. Applied to the spine, the icebag diminishes cramps, pain, and various secretions, and increases the body-heat, in parts supplied by nerves from the region to which the ice is applied. This gives a means of checking excessive perspiration, diarrhœa, or vomiting, of preventing cold feet, and restoring menstruation. As it is a somewhat powerful remedy, it should not be applied too freely. Special rubber bags (Chapman's) are made for application to the spine. Each of these is divided into compartments, and is closed above with a clamp. It is fastened with tapes, and may be worn under the clothes. Each bagful of ice (2 to 3 lbs.) will last about 2 hours. Children's sizes are made from 8 to 18 ins. long; those for adults up to 26 ins. It is a valuable remedy for sea-sickness and the vomiting of pregnancy, but should not be applied below the middle of the back, for fear of inducing miscarriage. (*See* HOT BOTTLES AND BAGS.) Ice is also given *internally* to check bleeding from the mouth, throat, stomach, or lungs, and to quiet sickness. Small pieces slowly sucked are very grateful in quinsy. The use of ICES *or* ICED DRINKS as articles of diet is not usually to be recommended, as they hinder digestion, and have been known to cause death where the circulation is feeble. Large quantities of iced milk form solid lumps in the stomach, which greatly depress the heart-action. Ices probably do least harm when slowly taken by robust people after a full meal, with a biscuit or other farinaceous article.

Iceland Moss.—An olive-green lichen growing in the north of Europe. It contains a form of starch, mucilage, a bitter principle, etc., and has been largely used as a food for invalids. The bitter

principle is removed by soaking in water, after which the moss may be used like carrageen moss (*which see*). Iceland moss cocoa is to be had; and the moss may be mixed with flour for bread-making. According to a report of the Saxon Government published a few years ago, "six pounds eleven ounces of lichen meal, boiled with fourteen times its quantity of water, and baked in this state with 39½ lbs. flour, produced 111½ lbs. good household bread," instead of only 78¾; the additional weight is, however, chiefly water. (*Thomson.*)

Ichthyosis.—A disease in which the skin becomes thick and scaly, like that of a fish or reptile. The whole body, or a part only, may be affected. The disease is sometimes hereditary, and always difficult to cure. Vapour baths or Turkish baths, followed by thorough rubbing with glycerine and water (1 to 4) or with oil, sometimes do good.

Idiocy.—Mental weakness dating from birth or childhood. All degrees exist, from that in which the child is unable even to feed itself, and pays no attention to what goes on around it, to a degree in which the lack of mental power is only noticeable on careful examination. Most idiots are so from birth, owing their condition to intemperance, dissipation, or constitutional weakness on the part of the parents, or sometimes to fright or anxiety affecting the mother during pregnancy. Sometimes idiocy arises from disease or accidents after birth, such as ear disease, epilepsy, fever, or blows on the head. Marriage of near relatives is apt to give rise to mental weakness in the offspring if there is a tendency to nervous diseases on both sides. Idiocy is not always incurable. By careful training in suitable institutions, where they can associate with others not too painfully different from themselves, great improvement may be obtained. The least satisfactory cases are those who, otherwise comely and well formed, owe their misfortune to disease or injury. *See* IMBECILITY; INSANITY.

Idiopathic diseases are those in which the cause is not discoverable.

Idiosyncrasy. — An individual peculiarity, whereby one person is affected by certain drugs or articles of diet quite differently from the majority of mankind. For instance, people have been known to be purged by a dose of opium, poisoned by a strawberry or a mouthful of mutton, or made to faint by the smell of hyacinths or apples. Some people suffer severely from asthma if a cat be in their neighbourhood. Others invariably suffer from nettlerash after eating shellfish. Besides such extreme peculiarities, of which many more instances might be given, slighter idiosyncrasies are every day met with by a busy physician; and it is the knowledge of such peculiarities which gives the advantage to the "family doctor" over a stranger, however gifted. To combine the advantage of personal knowledge with that of superior skill and experience, consultations are rightly resorted to in all doubtful cases. *See* MEDICAL ADVICE.

Ignatia.—A drug nearly related to nux vomica, with similar properties. *See* NUX VOMICA.

Illusions. *See* HALLUCINATIONS.

Imbecility.—Mental feebleness. *See* IDIOCY; INSANITY.

Imitation.—Nervous diseases, such as epilepsy, hysteria, and St. Vitus' dance, are sometimes transmitted by this means. Sufferers from such diseases should therefore be kept out of the sight of susceptible young people. The dancing and flagellating manias of the Middle Ages were probably largely caused by force of imitation.

Imperial.—A drink made by pouring a quart of boiling water on to an ounce of cream of tartar, and flavouring with the outer peel of two lemons, the juice of four lemons, and sugar according to taste. The crystalline sediment deposited on cooling should be removed. Imperial acts as a mild diuretic. *See* BEVERAGES.

Impetigo.—A pustular skin disease. *See* ACNE.

Incontinence of Urine.— *See* URINE, INCONTINENCE OF.

Incubation.—Infectious fevers commonly produce no symptoms after infection for a time which varies from a few hours to several days or weeks.

This period, in which the fever is "hatching," goes by the name of incubation. In diphtheria the incubation period is from two to five days; in scarlatina, about four days as a rule; in measles, German measles, whooping cough, and chickenpox, typhus fever and smallpox, it is usually about twelve to fourteen days; while mumps and enteric fever may come on as long as three weeks after infection. *See* DISINFECTION; INFECTIOUS FEVERS; ISOLATION.

Incubus. — *Nightmare.* *See* DREAMING; SLEEP, DISORDERS OF.

India-rubber, or *Caoutchouc*, is obtained from the juice of several kinds of trees growing in South America and India. In its original condition it grows hard on cooling. The combination with sulphur, which goes by the name of vulcanised india-rubber, is not open to this objection, remaining soft and elastic at all ordinary temperatures. This combination is used in the manufacture of innumerable contrivances, such as water and air-cushions, icebags, special bags, railway conveniences, bandages, bedpans, waterproof sheeting, aprons, gloves, slippers, elastic stockings, pessaries, etc. India-rubber articles keep best in the dark, and under water.

Indian Hemp.—*Cannabis indica*, the source of haschisch or bang, is the same plant as our own hemp, but grown under a warm eastern sky. In such a climate resin exudes from the stem and leaves, and is collected by men rushing through the hemp-fields clad in leathern dresses, to which the resin adheres. This drug has been used from the earliest times to produce intoxication. For this purpose it is sometimes smoked, at other times taken internally in the form of a syrupy decoction, made by boiling the leaves and flowers with water and butter. The taste is disagreeable, so that spices are usually added. The effect of the drug is to produce a kind of delirium with hallucinations of sight and hearing, and apparent abolition of the sense of time and space. The haschisch devotee fancies he sees visions, gay or fantastic, or sometimes disagreeable; he seems to possess the power of instantaneously travelling immense distances, bathed with vivid light and rainbow colours, regaled with intensely delightful music and perfumes, and a succession of vivid ideas. This period of delirium ends in deep sleep. Indulgence in haschisch, as in other stimulants and narcotics, produces loss of strength and appetite, with mental weakness. The effects vary to some extent according to race and climate, Europeans being frequently disagreeably affected from the first. The word haschisch is the origin of the term assassin, as the latter were frequently drugged with Indian hemp to render them indifferent to death and pain. *Medicinally*, Indian hemp is used for some kinds of headache, especially megrim and the kind which continues for many weeks, and is aggravated by fatigue, anxiety, or change of life. The drug is also useful in profuse or painful menstruation. An extract is made, of which one-third of a grain may be given in the form of a pill three times a day.

Indigestion, *Dyspepsia*, is probably more frequently met with than any other malady, and is due to a great variety of *causes*. Thus it may be caused by injudicious food or food-taking; by insufficient mastication; interference with digestion by mental or bodily work; by abuse of tea, coffee, alcohol, tobacco, and a few drugs; or by digestive feebleness due to poorness or impurity of blood, a feeble circulation, or general debility. Indigestion is a common accompaniment of more serious diseases, such as fevers, consumption, or Bright's disease. This should be borne in mind whenever the digestive trouble cannot be readily removed by simple remedies or rules of diet. A little more detail with regard to the common causes of simple indigestion will be useful. *Food.*—Some kinds of food, such as toasted cheese, are known to be difficult of digestion, although there are people who can take anything with impunity. Very often the mode of preparation is more at fault than the kind of food: fried eggs are indigestible, whereas lightly boiled they are easy of digestion. The quality of our food should be above suspicion. Serious outbreaks of disease have been traced to the use of tainted sausages and the like.

Indigestion may also arise from an excessive quantity of food, or injudicious proportions of the various food-stuffs. *Food-taking.*—Too frequent meals prevent the stomach from obtaining its proper share of rest. On the other hand, meals taken at long intervals require to be large, and therefore tax the digestive organs. Meals taken during extreme fatigue, or mental anxiety, or preoccupation, are apt to be ill-digested; and the same result may arise where people get to work immediately after a heavy meal. Grief, fear, and anger have a similar disturbing influence on the digestion. *Mastication.*—Those who chew their food insufficiently, whether from bad teeth, or from mere habit or stress of business, are sure to suffer sooner or later from dyspepsia. The food should be chewed until it is moist and well broken down—not washed down by draughts of water or other beverages. During the early part of a meal, drinking unnecessarily dilutes the gastric juice; but later on it is useful in assisting absorption of digested food. *Stimulants and Drugs.*—Tea and coffee powerfully retard the digestion, and should therefore not be taken with or after a full meal. A cup of coffee after a dinner of many courses may, however, be occasionally useful, by preventing the too rapid entrance into the blood of digested materials. Cocoa and chocolate have very little retarding influence on digestion, but may disagree because of the large proportion of sugar, or of fat, which they contain. Alcohol in large quantities retards digestion. Abuse of stimulants inflames the coats of the stomach, and in other ways interferes with digestion. Tobacco sometimes causes dyspepsia; and the habitual use of opium or other narcotics has a most pernicious influence on the stomach. *Blood and Circulation.*—Girls suffering from poorness of blood, and those whose circulation is feeble, often suffer from indigestion. The stomach requires plenty of red blood to enable it to do its work, and an insufficient supply, or defective quality, almost invariably causes digestive discomfort. Those whose blood, from sedentary occupation or other causes, is not properly purified, are usually habitual dyspeptics. Constipation, sluggish liver, inactive skin or kidneys, are all liable to upset the digestion. Without regular exercise in the fresh air, and proper ventilation of dwelling and bedrooms, it is almost impossible to keep a good digestion. *See also* ALCOHOL; COOKING; DIET; FOOD; FOOD-PRESERVATION.

The *symptoms* of dyspepsia are almost as numerous as its causes. Two classes must be distinguished, in one of which an attack rapidly comes on after an indiscretion in diet, or some other disturbing cause; while in the other there is habitual or long-continued digestive weakness or irritability. The *first* or *acute* form shows itself in pain, nausea, and vomiting, and frequently also diarrhœa. The pain is crampy, and, if severe, may cause faintness. The vomited matters consist of food, or bile, or acid liquid, with perhaps some mucus. Attacks of this kind have to be distinguished from poisoning and some forms of colic. (*See* BILIOUS ATTACKS; COLIC; VOMITING.) *Chronic* or long-continued dyspepsia may show itself, like the preceding, by pain, nausea, and vomiting; or by waterbrash, heartburn and acidity, loss of appetite, a bitter taste, foul breath, coated tongue, flatulent distension or belching, and palpitation; or merely a sense of weight and discomfort or sleepiness after food. Constipation is a common symptom, sometimes resulting from the dyspepsia, at other times aggravating it. Diarrhœa may replace or alternate with constipation. Headache, irritable temper, or loss of energy, may arise from a weak digestion. The influence of digestion upon character has often been commented upon. Liver disorder often accompanies indigestion of which it may also be a cause. (*See* CONSTIPATION; GOUT; LIVER DISORDER.)

The TREATMENT of indigestion requires a careful study of the probable causes. In infancy, the food is usually at fault, and requires alteration. (*See* INFANT-FEEDING.) Dyspepsia may rapidly reduce a healthy infant to a pitiable state of weakness; so that it should never be neglected, and if at all severe, it is always wisest to get skilled advice.

Young adults sometimes suffer from severe pain immediately after taking food, so that they dread to take food at all, while relief comes with vomiting. In such a case there may be ulceration of the stomach, which always requires careful medical treatment. *Vomiting* of blood, or of altered blood resembling coffee-grounds, also removes the case from the category of domestic treatment. Vomiting and colic may be due to several other causes. (*See* COLIC; VOMITING.) Excluding these cases, an *acute* attack of indigestion is best treated by fasting, and removal of the offending matters by an emetic or a purge (*Pr.* 28, 11). After these have been taken, soothing remedies, such as *Pr.* 16, 17, are useful. (*See* DIET, IV.) In *habitual dyspepsia* it is also important to discover and remove the cause, whether constitutional or local. Where pain, nausea, and vomiting or waterbrash are prominent features, give *Pr.* 16, 17. Where there is *dull pain* or *feeling of weight*, remedies are required to assist the digestion, such as *Pr.* 1, 12, 13, or pepsine. For *acidity*, *Pr.* 13, 15. For *flatulence*, *Pr.* 9, 13, 15. If there is constipation, take an aperient pill at bedtime; if there is also a bitter taste in the mouth and a sallow complexion, or the motions are too dark or too pale, a "liver pill" will be better. (*See also* DIARRHŒA; VOMITING.) In the treatment of dyspepsia, the state of the general health must always be taken into account. Thus in anæmic individuals dyspepsia will often be cured by iron tonics, while in a gouty or "livery" subject these would make matters worse. *Diet* is always of the greatest importance. Where certain articles of diet invariably disagree, it is usually good policy to abstain from eating them; but it is sometimes better to improve the condition of the digestive organs, rather than to diminish their work by too great a restriction of diet. People sometimes fancy that one thing after another will not digest, until their daily dietary is reduced to a most inconvenient extent. Indigestion in old or elderly people should never be neglected, as it is sometimes a sign of organic disease in some important organ.

Inebriants are substances which cause intoxication. They give rise to mental excitement, followed by loss of control over bodily movements, and later by sleep or insensibility, and paralysis of respiration. Besides alcoholic liquors, there are included in this class the anæsthetics (ether, chloroform, and nitrous oxide), carbolic acid, creasote, benzole, nitro-benzole, aniline, coal naphtha, wood naphtha, oil of turpentine, and fusel oil. In POISONING with such substances, the stomach should be emptied with an emetic; artificial respiration and other measures are then required to restore the breathing. *See* DROWNING for *artificial respiration;* FERMENTED LIQUORS; INTOXICATION, ETC.

Infants. *See* CHILDBIRTH; CHILDREN; INFANCY.

Infancy.—A new-born infant weighs on an average 7 lbs., and is 18 to 19 inches long, although, of course, there are great variations. The face and scalp are usually swollen, and a little distorted by the uneven pressure received during birth; but they soon assume a more natural appearance. The skin is thickly covered with an unctuous material, which is removed on first washing the child. (*See* CHILDBIRTH.) The chief immediate needs of a new-born babe are to be washed and dressed, provided with fresh air and warmth, and allowed to go to sleep.

Washing is best performed in warm water at 98° F., with soap and flannel, at a moderate distance from a fire. As the skin is very delicate, care must be taken not to chafe it: and unirritating soap should be used. (*See* SOAP.) The face should not be washed in the same water as the rest of the body. It is a good plan to carefully syringe the eyes with pure, warm water. The child may be dried on a large pillow, covered with several napkins, on the nurse's knees. Starch-powder should be applied to armpits and groins, the stump of the navel-cord suitably covered, and the child dressed. During this process it should also be carefully examined for any injuries or deformities.

Dressing the Navel-stump. — This should be wrapped up in a piece of clean, soft linen, dusted with boric acid powder,

held in position by a five-inch flannel binder, passed twice round the body, and fastened by stitching. If the binder is too loose, it will get displaced, or cause chafing; and if too tight, the child will be unable to breathe freely. The navel-stump usually comes away after the fourth day, but may take fourteen. It should not be meddled with, beyond keeping it sweet and dry with boric acid and clean linen. In unhealthy infants, inflammation may occur, or there may be bleeding from the navel, both of them serious matters. The navel often remains a weak spot, allowing the bowel to bulge through. (*See* HERNIA, UMBILICAL.) It is well to support it in all cases for six months.

The chief *deformities* are hare-lip and cleft palate, club-foot, tongue-tie, and closure of the anus, or of the vagina in girls. A contracted foreskin is also rather common in male children. (*See* CIRCUMCISION.) Supernumerary toes or fingers are sometimes found; such conditions may be hereditary. Of *injuries* received during birth may be mentioned fractures and dislocations, and occasionally paralysis. *Other blemishes* to be looked for are inguinal hernia and nævus.

The infant's *clothing* must be loose and easy, and fastened without pins. At first it should consist of linen covered with flannel. Later on, woollen garments may be worn next the skin. The clothes should be changed daily. Napkins are provided to receive the urine and motions (see farther on, under *Discharges*). Caps are objectionable, as they make the child's head hot.

Sleep.—After washing and dressing for the first time, the child should be placed in a cradle or cot in a warm place, and allowed to sleep. It should not sleep with the mother, or any other grown up person. A healthy infant spends nearly all its time in feeding and sleeping. After the first month, it will only require sleep during the day between 11 and 1, and again between 3 and 4, in addition to a long night's rest. The *cradle* should have no curtains; it should have a horsehair or flock mattress, covered with waterproof sheeting. The pillow must not be so soft or large as to heat the head. Blankets are the best covering; sheets are unnecessary.

Fresh air is very important to young children. In the Dublin Lying-in Hospital, some years ago, an alarming mortality among the new-born children (1 in 6) was traced to inefficient ventilation, and disappeared when this was remedied. At the same time it is necessary to avoid draughts, and to *keep babies warm*, as they rapidly lose heat on exposure.

Food.—Nothing whatever should be given during the first four or five hours after birth; and the child should then be put to the breast, even if there are no signs of milk being present, as this will excite both secretion of milk and contraction of the womb. The mother's first milk is thin and laxative, so that there is no necessity to dose the child with butter and sugar, or other messes, which are far more likely to cause indigestion, griping, and restlessness than to do any good to the unfortunate baby. If the milk is delayed longer than six hours, the child should be fed as in hand-rearing. (*See* INFANT FEEDING; SUCKLING.)

Discharges.—The bowels usually act within 24 hours of birth. Should they not do so, 6 or 8 drops of castor oil may be given in warm milk and water. (*See* CONSTIPATION IN CHILDREN.) If there is straining and discomfort, the child should be examined, to see whether the anus is closed up. The first motions are usually olive-green and slimy; afterwards they are like thin mustard in appearance. The bowels at this period usually act three times a day. The child's napkins should be regularly changed, and never allowed to remain soaked with urine or motions, or the skin will be sure to become sore. Each time the napkins are changed, the skin should be anointed with olive oil or washed lard. Napkins must never be reapplied until they have been washed as well as dried. They should not be washed with soda. At least a dozen will be needed every day, as a young infant passes water ten or twelve times in 24 hours.

Cleanliness is of the utmost importance to the child's health. Every part should be thoroughly cleansed twice a

day in warm water. Soap need only be applied to parts which are apt to become dirty. A child may be taken *out of doors* about ten days or a fortnight after birth, if there be warm weather and no east wind about. In winter, a month or six weeks should first pass, or even longer if the weather is damp. In either case the child should be gradually prepared; on the first occasion it should be well wrapped up, and carefully protected against sun and glare, while it is taken for quite a short, brisk walk.

To carry an infant, grasp the back of the thigh with the hand, while the body and head are supported in a horizontal position by the arm and breast. As the spine is weak for some time after birth, the child must not be made to sit up until after the third month, nor without support to the back until it is six months old. Gentle swaying movements are useful, as they give exercise to the muscles. All rough and violent jerking is injurious. A healthy infant, while awake, is continually in motion, and should be systematically allowed to kick about at will on a bed or sofa.

Later Infancy. — After about four months the clothing may be changed for a short costume, if the weather is warm; soft, warm socks or stockings being provided, and, a little later, soft, pliable shoes. The first year of life is a time of rapid development, the muscles and senses being trained, and the mental and moral powers educated. Children are wonderfully observant long before they can talk, so that those around them should be careful in their speech and behaviour. Teething usually begins about the seventh month in healthy children, though a little delay need cause no anxiety. Towards the end of the first year the child will probably begin to "feel its feet," and make the first attempts at walking; this should, however, not be encouraged, as much harm may be done if the child is made to stand before the bones are sufficiently hardened. (*See* Rickets.) For the care of children *over one year old*, *see* Children.

The Ailments of infancy are chiefly due to errors in diet, want of fresh air, exposure to cold, neglect of cleanliness, teething, or infectious fevers. A "cold in the eye" coming on soon after birth should be promptly brought to the doctor's notice, or it may cause permanent blindness. Medicines should be given very sparingly in infancy, dietetic and other treatment being first tried, unless the child is decidedly ill. At the same time, it should be remembered that young children are very quickly pulled down by small ailments.

The skin in infancy does not usually perspire freely. Feverishness is easily excited by trivial causes. When young children are very ill, they should not be constantly moved about or lifted, as this is very exhausting.

Calomel should never be given to infants without advice, nor repeated doses of grey powder. Leeches and blisters are equally to be condemned. Opiates, such as laudanum, syrup of poppies, paregoric, Dover's powders, black drop and most "soothing syrups," are particularly deadly to young children. A single drop of laudanum has been known to kill a child one week old. Neglected infants are apt to suffer from soreness of the buttocks and privates, which may develop into eczema and other eruptions. A somewhat similar condition may be caused by debility, or a bad constitution. *See* Bronchitis; Colic; Constipation; Convulsions; Diarrhœa; Eczema; Flatulence; Infantile Paralysis; Infectious Fevers; Ophthalmia; Skin; Teething; Thrush; Vomiting.

Infants, Feeding of.—Every infant should, if possible, be brought up at the mother's breast, no other food being given during, at all events, the first six months. Sometimes, however, the mother's milk is insufficient, and has to be supplemented by other food, and sometimes the mother is unable to nurse the child at all, in which case the choice lies between wet-nursing and hand-feeding. (*See* Wet-Nurse.) It is quite a mistake to suppose that harm will arise from "mixing the milks," and that hand-feeding alone is better than partial breast-feeding. (*See* Suckling.) The mortality among hand-fed infants is exceedingly high, and "half a loaf" in this case "is better than none." Of the deaths of

children under one year of age, three-fourths are of those who have been hand-fed. Human milk differs from cow's milk chiefly in being richer in sugar and poorer in casein, and in the nature of the clot which the casein forms in the stomach. Whereas cow's milk forms a solid clot which is not easily digested, human milk forms a finely divided clot. Infants with strong digestion will thrive on diluted cow's milk; but for others it may be necessary to provide ass's, mare's, or goat's milk, or some other substitute. Cow's milk should be boiled before using, as it is liable to be contaminated if there is infectious illness about. During the first two or three weeks, 5 ozs. may be diluted with 1 oz. cream and 9 ozs. water, a little sugar being added. After the first few weeks there should be about as much water as milk; at two months three parts of milk to one part of water, and at six months the milk may be given pure. A new-born infant's stomach holds little more than an ounce, so that frequent meals are necessary. During the first week, it will probably require to be fed every $1\frac{1}{2}$ to 2 hours. Then, up to the end of the first month, every $2\frac{1}{2}$ hours; to the end of the third month every 3 hours; then every $3\frac{1}{2}$ hours till it is 6 months old. The intervals may be half an hour longer at night, and after the first month most children will do quite well without food from 10 p.m. till 4 or 5 a.m. The quantity of food required will vary a little, but should be not less than 3 ozs. at every meal under three months of age, and about 6 ozs. in an older child. At first about 12 ozs. milk will be required every day, increasing at the rate of 4 ozs. per month. To give more than the child can digest is sure to cause trouble, and the motions should be carefully watched for signs of undigested milk, in which case either the quantity or the nature of the food will need changing. The food should always be given warm (98° F.), in a bottle with a short tube (*see* FEEDING-BOTTLES), the nurse or mother holding it in order to prevent the child from taking the food too quickly. If the milk disagree, it may be mixed with barley water instead of pure water, or a teaspoonful of lime-water may be added to each bottleful. Or condensed milk may be used, one heaped up teaspoonful to 6 tablespoonfuls (3 ozs.) of water; or Lœflund's Kinder milch, or Meig's cream mixture. To make the latter, dissolve $17\frac{3}{4}$ drachms of milk sugar in a pint of warm water, and put aside in a cool place. When it is wanted for use, mix 1 oz. cream with $\frac{1}{2}$ oz. milk, 1 oz. lime-water, and $1\frac{1}{2}$ oz. of the sugar-water, warm up, and give as usual. Cane sugar may be substituted for the milk sugar, but is said to ferment more easily, and cause diarrhœa. Another reliable infant's food is Savory & Moore's malted food. Or 3 grains of Benger's peptonising powder may be added to each lot of food, and kept for 10 minutes under a tea-cosy. This digests the food; but if not used at once, it must be boiled up, or it becomes bitter. Where it is wished to give goat's milk a trial, the animal may be fed on grass with some beetroot, and now and then a little hay, trefoil, or a few carrots. After six months old the child may have five meals a day, of which two may consist of some farinaceous food, such as a little arrowroot, or baked wheat flour, or oatmeal, or Robinson's patent groats, or Robb's biscuit, or a rusk boiled with milk. Other suitable foods are *revalenta arabica* (which contains lentil flour and barley meal), Nestle's milk food, Hard's food, Neaves' food, and Ridge's food. When the teeth begin to appear, a well-baked crust may be given to the child to nibble. At eight months old, broth or beef-tea may be given once a day, thickened with biscuit powder, and at twelve months a light milk-pudding. *See* CHILDREN'S DIET; WEANING.

Infantile Diarrhœa is usually due to improper food or teething; epidemics also prevail in warm, damp weather (*summer diarrhœa*), which may be caused by bad water, decomposition of organic matter, or some other condition. Infants naturally have three loose motions, or after three months two motions, per day. (*See* INFANCY.) If the bowels act more frequently, or the stools are curdy, offensive, yellowish-green, or slimy when passed, treatment is required; and the same is true where the child suffers from

colic or vomiting. Diarrhœa is extremely common among hand-fed infants, in whom it often proves fatal. Sometimes it arises from want of care with the feeding-bottle (*which see*), or from the milk having been kept in a hot or dirty place, or allowed to go sour. Sometimes the child is allowed to go to sleep immediately after a meal with drops of milk on its lips or dress. To keep an infant in health the mouth should be wiped out after every meal. The use of prepared foods in early life often causes diarrhœa, as infants under three months are quite unable to digest starch. In breast-fed infants diarrhœa may be caused by ill-health of the mother, or neglect of her nipples. Slight relaxation of the bowels in teething probably does no harm, but directly the motions are offensive, frequent, or accompanied with sickness, the child needs attention. In the first place, it is well to give a small dose of castor oil—20–30 drops in a little milk, or rubbed up with egg and cinnamon water. (*See* CASTOR OIL.) This gets rid of irritating matters from the bowel, and often stops the diarrhœa. If these measures are insufficient, a little chamomile tea may be useful (a tea-spoonful every hour), and the gums may be lanced or scratched with a lump of sugar if they are swollen and tense. Where the motions are greenish and offensive, and the child suffers from griping flatulence and vomiting, give a few doses of the castor oil and cinnamon mixture; and for food, milk and lime-water in equal parts (if the child is not breast-fed), carefully avoiding broth or beef-tea. If the motions are sour-smelling, give bismuth or prepared chalk (1 grain every hour in milk). For pale, clayey or pasty, offensive motions, or for such as contain "lumps of flesh," *Pr.* 47 is useful. Very sudden attacks of watery diarrhœa are best treated with camphor. (*See* CHOLERAIC DIARRHŒA.) In all forms of diarrhœa it is important to keep the body and feet warm. *See* INFANT-FEEDING.

Infantile Paralysis especially attacks infants who are teething, although it also occurs at other ages, and a similar disease is found in adults. The child is usually suddenly attacked with slight feverishness and pain in the back, followed by weakness of some muscle or group of muscles. As a rule the front of the leg is first and chiefly affected, so that the foot drags and the toes catch when the child tries to walk. The afflicted limb wastes, and becomes colder than the rest of the body. Some of the muscles recover, but others remain permanently paralysed, leading to difficulty in walking and various deformities. Something may be done by treatment in an early stage to restore the power. Galvanism, friction, and the application of hot water are among the most useful remedies. A physician should be consulted. Later on, mechanical appliances will be necessary to support the limb, and sometimes tendons have to be cut in order to reduce deformities.

Infection. *See* CONTAGION; INFECTIOUS FEVERS.

Infectious Fevers are such as are communicable through the air. (*See* CONTAGION.) It is highly probable that all such fevers are caused by minute living organisms (*bacteria*) in the body. On any other theory it is difficult to understand how an infinitesimal quantity of infectious material can produce a widespread and lasting disorder, communicable to many people in succession, and each time producing the same disease. The theory has, moreover, been proved to be true of some fevers, while in the case of others the evidence is strong, though not conclusive. Infectious fevers usually have a stage of *incubation* or hatching, during which the patient remains in good health, and after which the fever appears with more or less characteristic symptoms. When convalescent, the patient is often found to be protected against a second attack of the same fever. All these diseases are apt to prevail at times in epidemics. The infection may be derived from the breath, skin, or excreta. Some fevers may be spread in all of these ways, whereas others (such as enteric fever, cholera, and dysentery) are spread almost entirely by the motions. These constitute a link between ordinary infectious fevers, such as small-pox, measles, or scarlatina, and diseases like ague, which are caught from the locality, not from

the person. The chief infectious fevers are scarlatina, measles, German measles, mumps, whooping cough, influenza, diphtheria, small-pox, chicken-pox, typhus, relapsing fever, yellow fever, enteric fever, cholera, and dysentery. To this list may be added the plague, glanders, erysipelas, puerperal fever, pyæmia (blood poisoning), and a few less common diseases. Infectious fevers may be distinguished by the length of incubation, and the mode and date of appearance of characteristic symptoms such as skin rash. The following table gives the incubation period of some of them, counting from the time of exposure to the first appearance of fever, and the date when the rash appears in some:

	Days.	Rash appears—
Diphtheria	2	(2– 5).
Scarlatina	4	(1– 7). 2nd day of fever.
Small-pox	13	(12–15). 3rd „ „
Chicken-pox	13	(10–19). 1st „ „
Typhus	12	(1–21). end of first week.
Measles	12	(6–14). 4th day of fever.
German Measles	14	(10–21). 1st „ „
Whooping Cough	14	(7–14). Characteristic cough 2nd week.
Mumps	18	(10–24).
Enteric Fever	11	(5–21). Rash appears 1st or 2nd week.

TREATMENT.—Isolate the patient in a suitable bedroom (*see* ISOLATION; SICK-ROOM); forbidding visitors and all unnecessary communication with the rest of the house. Ventilate by the window and fireplace; keep the door shut, and hang a sheet outside, kept wet with disinfecting solution. Disinfect everything coming from the patient, or that is brought in contact with him. Rags should be used to wipe up discharges and instead of handkerchiefs, as they can be afterwards burnt. The room, bed, and patient must be kept scrupulously clean, and disinfectants freely used. The nurse should, if possible, have had the disease, and should wear dresses of linen or other washable material. She should disinfect herself whenever she leaves the room, and not mix with other members of the household. The patient should be kept well oiled when peeling begins, and when this is quite ended, thoroughly cleaned by a disinfecting warm bath, and dressed with fresh, clean clothes. The room must then be disinfected. (*See* DISINFECTION.) The importance of such measures cannot be too strongly insisted upon; widespread epidemics have frequently been caused by the entrance of a single infected individual into a town or village. Instances are recorded of small-pox or scarlet fever being caught from infected clothes, which had been forgotten in closets or drawers, and taken out months afterwards. *See* FEVERS, TREATMENT OF, and articles on each kind of fever.

H. D. M.

Inflammation is known by presence of heat, redness, pain, tenderness, and swelling. In addition to this, the functions of the inflamed part are deranged, so that (for instance) muscles contract badly, glands fail to secrete properly. Under the microscope the bloodvessels are found gorged with blood, while the surrounding spaces are filled with fluid containing corpuscles. When the fluid is thin, there is a sort of local dropsy. When thicker, it takes the form of matter or pus. Severe or *acute* inflammation destroys the tissues and causes formation of matter. Slighter and long continued inflammation (*chronic*) leads to the production of fibrous tissue, matting together parts which should be free, and interfering with their functions; or to the formation of a tissue of low vitality, which readily breaks down again. Still slighter inflammation may leave no traces behind it. *See* ABSCESS; ADHESIONS; CONGESTION; MORTIFICATION; SCROFULA; ULCER.

Causes.—Any form of injury, whether from outside or from within. Ill-nourished tissues are liable to inflame on slight provocation. In half-starved people, sore eyes, boils, and inflammation of bowels are very common; and those whose blood is impure, such as the intemperate and the subjects of gout or Bright's disease, are liable to have pleurisy, bronchitis, eczema, etc. Where the veins cannot easily empty themselves, inflammation readily arises: this is why varicose veins and piles are liable to inflame. In some constitutions the least blow or scratch leads to an inflammation, which is difficult to cure. (*See* SCROFULA.) Infectious fever is another cause of inflammation: thus abscesses and running

from the ears are common after measles or scarlet fever. Sometimes inflammation is caused by parasites—as, for instance, in itch, ring-worm, and woolsorter's disease. On the other hand, the inflammation may merely afford a suitable soil for the parasites to grow in. Injuries to nerves, and chills acting on distant parts, may also lead to inflammation.

TREATMENT depends largely on the cause and the part affected. Much may be done by suitable medicines (*see also* FEVER; SCROFULA); but local treatment is always of the greatest importance. An inflamed part should, if possible, be kept at rest, and raised up in an easy position to assist the return of blood. Thus an inflamed leg should be raised on a pillow, an inflamed hand put into a sling. Heat (poultices, fomentations, etc.), or cold (ice-bags, evaporating lotions, cold douche) or soothing lotions are often very useful. When matter forms, it must be let out. (*See* ABSCESS.) For *chronic* inflammation, counter-irritants (blisters, mustard leaves, and the like) may be used, and irritating applications to change the slow process into a quick one. Shampooing or massage, and elastic pressure, are often of great value. *See* different parts of the body.

Influenza, or epidemic catarrh, is an infectious fever prevailing in epidemics over large areas, attacking people of all ages, and even domestic animals. Enormous numbers are affected in a very short space of time, so that it is difficult to determine how the disease spreads. Cities and overcrowded buildings and neighbourhoods usually suffer disproportionately. Atmospheric conditions cannot be proved to favour its occurrence, although the proof has often been attempted. It prevails at all seasons of the year, and is not due to changes of temperature or moisture, or exposure to cold. There has recently (1889–90) been an epidemic supposed to be influenza; before this, the last great epidemic was in 1847. During the 17th century there were as many as twelve. *Symptoms* are those of a severe cold in the head and chest, with unusually marked fever and depression, severe headache, and "rheumatic" pains in the back and limbs. Sometimes the digestive organs are attacked, causing nausea and vomiting, jaundice or diarrhœa. In the recent epidemic the "rheumatic" symptoms have been well marked, the catarrh usually slight. The disease lasts from three to ten days; but relapses are common, and rheumatism and debility may remain for some time after. There is little danger, excepting to the very young, or the old and feeble, or to those already suffering from other diseases of important organs. During an epidemic, the mortality from other causes is considerably increased.

TREATMENT.—If there is much fever, give aconite or salines (*Pr.* 31, 7). If the pains are troublesome, antipyrin is useful; but its effects require watching. Food should be as in fever, but liberal in quantity. (DIET, II.) Constipation, diarrhœa, or cough require suitable remedies. During convalescence, quinine tonics (*see* TONICS) and change of air are required. The main point to attend to is to stay in bed when the disorder begins, and carefully avoid exposure until it is decidedly better. To neglect these precautions is to run the risk of complications. Weaver's powdered periodate crystals have been recommended as snuff during the early stages. It is uncertain how far they influence the attacks.

Infusions are made by pouring water (usually boiling) over some substance. The beverage tea is an infusion, and so is coffee when properly made. Medicinal infusions may be made in an earthenware pot with a strainer. They do not keep so well as tinctures, spirit acting as a preservative. Concentrated infusions are now made by many chemists; they are convenient for travelling, but have less aroma as a rule than the ordinary fresh preparations. Infusions of chiretta and cusparia are made with water at 120° F.; those of calumba and quassia with cold water. *See* BROOM; CALUMBA; CHAMOMILE; CHIRETTA; CINCHONA; CUSPARIA; GENTIAN; HOP; LINSEED; QUASSIA; ROSE; SENNA.

Ingrowing Toe-nail. *See* NAILS.

Inhalations are preparations intended to be drawn into the throat or lungs with the breath. They may be classed under

four heads: steam inhalations, dry gaseous inhalations, atomized spray inhalations, and powder inhalations. A simple way of using a *steam* inhalation is to pour boiling water into a well-warmed, wide-mouthed jug, surround its mouth with a towel, and breathe in deeply through the opening. The steam may be medicated by the addition of various substances, such as creasote, turpentine, or terebene. *Dry gaseous* inhalations consist of volatile substances converted into vapour by heat, or simply applied to a suitable respirator. (*See* RESPIRATORS.) For *atomized spray* inhalations, a spray producer is required. (*See* SPRAY PRODUCERS.) In *powder* inhalations the finely powdered drugs are puffed into the throat with an "insufflator" or through a quill.

The following inhalations may be used:

Steam inhalations.—(1) Friar's balsam, 1 fl. dr. to 1 pint.

(2) Terebene, 40 minims; light carbonate of magnesia, 10 grains; water, 1 fl. oz. Of this put 1 fl. dr. into 1 pint of boiling water.

(3) Eucalyptus oil, 20 minims; light carbonate of magnesia, 10 grains; water, 1 fl. oz. Of this put 1 fl. dr. into 1 pint of boiling water.

(4) Spirits of camphor (B.P.), 1 fl. dr.; rectified spirits, 3 fl. drs.; water, 1 fl. oz. Of this put 1 fl. dr. into 1 pint of boiling water.

Spray inhalations.—(5) Common salt, 5 grains to 1 fl. oz. water.

(6) Sulphate of zinc, 5 grains to 1 fl. oz. water.

(7) Perchloride of iron, 3 grains to 1 fl. oz. water.

(8) Bicarbonate of soda, 15 grains; borax, 15 grains; carbolic acid, 4 grains; glycerine, 45 minims; water, 1 fl. oz.

(9) Tannin, 5 grains to 1 fl. oz. water.

(10) Sulphate of quinine, 2 grains to 1 fl. oz.

(11) Sulphurous acid solution and water, of each $\frac{1}{2}$ fl. oz.

(12) Sanitas fluid, 1 fl. dr.; water, $2\frac{1}{2}$ fl. ozs.

Inhalers consist of a vessel for hot water provided with a mouthpiece. They are made of earthenware or metal. Convenient forms are Martindale's and Bullock's. Inhalers of a different description are used for administering anæsthetics. *See also* INSUFFLATORS; RESPIRATORS; SPRAY PRODUCERS.

Inheritance.—It is not very common for diseases to be transmitted from parents to offspring. As a rule, it is the tendency to disease which is thus inherited. Those who suffer from nervous diseases, such as epilepsy, insanity, chorea, or hysteria, are very apt to transmit similar tendencies to their children. Sometimes one form of nervous disease reappears in another generation under a different form, as when a habitual drunkard with shattered nerves has epileptic children and insane grandchildren. The tendency to gout, rheumatism, consumption, and cancer is also strongly hereditary, as well as minor peculiarities of constitution. There are some families in which cold-catching is extremely common, others in which the digestion is always easily upset, and yet others who show a special tendency to catch infectious fevers, or special powers of resisting them. Some families show a tendency to early degeneration of tissues, whereas others usually live to an extreme old age. The build and appearance of the body are often strongly hereditary, various members of the same family all possessing muscular frames, or all tending to become stout after middle age, or all possessing somewhat similar tastes and mental powers. Francis Galton has published some interesting writings on this subject. Crime is to a large extent a matter of inheritance. The children of habitual criminals are often exposed to similar influences to their parents, but they also inherit similar vicious tastes. Disease which appears to be hereditary is often really due to insanitary surroundings and modes of life. The children of consumptives would show less tendency to the disease were they to live on a dry soil and in plenty of fresh air. Goitre and cretinism are almost certain to be transmitted to another generation if the parents continue to live in the same neighbourhood; whereas, by removal, the chance of healthy offspring is much improved. Where definite tendencies to disease

exist, they may be intensified by intermarriage with people of similar constitution, or by inattention to the laws of health. Gout is often developed by intemperance in eating and drinking; and where there is a predisposition, a small indiscretion may lead to a bad attack. *See* MARRIAGE; CONSTITUTION.

Injections.—The following kinds are used: hypodermic, intravenous, rectal (*see* ENEMA), vaginal, and urethral. *See* DOUCHE.

Inoculation.—The introduction of a poison into the system by means of a wound or prick. Before the introduction of vaccination, inoculation with small-pox matter was practised, in order to produce, by a mild attack, protection against future infection. This was objectionable, both because the attack was of uncertain severity, and because the patient was a source of infection to those around him, which is not the case with vaccination. *See* VACCINATION; HYDROPHOBIA; WOOLSORTER'S DISEASE.

Insanity, unsoundness of mind, is by many supposed to be a condition which all may recognise without difficulty; but this is by no means the case. The line between the undoubtedly insane and those who are merely eccentric is very narrow; and insanity may be partial, affecting only one side of the mind, while leaving it in other respects apparently as acute as ever. It is sometimes stated that genius is even more common among those of unbalanced minds than among the rest of mankind; and undoubtedly many who have become famous for their special aptitudes in music, poetry, or other subjects have at the same time been wanting in common sense, or have at some period of their lives become actually insane. But talent of a high order is by no means common among the inhabitants of lunatic asylums. Insanity may affect only the moral side of the mind, and an undoubted connexion exists between crime and insanity. The physical aspect of a confirmed lunatic closely resembles that of the habitual criminal; each has inherited a mind and body of a low order, or from earliest childhood has been exposed to conditions preventing proper development. This introduces difficulties as to the treatment of criminals: are they to be sent to an asylum, or a prison? Were our system of punishment more curative and less vindictive or deterrent, we should try to reclaim both on much the same lines. The bodily health in the insane is usually imperfect, and their want of mental balance is often due to purely physical ailments. Thus, in one lunatic the cause of insanity may be overlong suckling of her children, or rapidly repeated pregnancies; while another may owe his insanity to want of sleep, business worries, or intemperance; or again, to liver disease, heart disease, gout, or lead-poisoning. The tendency to insanity is often associated with other nervous diseases in the same family. Thus one may be epileptic, another hysterical, and a third insane. Mental unsoundness, beginning early in life, or dating from birth, is usually called idiocy or imbecility, according to the degree of unsoundness. The periods of puberty and childbirth and the change of life are all dangerous for those who inherit a tendency to mental disorder. In advanced life the brain may wear out before the rest of the body, in which case we have the insanity of old age. Women suffer more from insanity than men, but are more frequently cured.

The *symptoms* of mental unsoundness vary enormously. In IDIOCY, there may be all degrees from a state of extreme backwardness—as when a lad of fifteen has the powers of a child of six—to an abject state of debasement, in which the child cannot speak or pay attention, and is dirty, and neglects the calls of nature. In MANIA, there may be a wild state of excitement, in which the patient goes on talking day and night, screaming, gesticulating, and refusing his food. He often has delusions of various kinds, fancies he hears voices, or sees sparks of light, and lets his ideas run riot without any self-control. He may be incoherent, but is not necessarily so. He often reasons acutely, but on mistaken premisses. Maniacs may be able to play chess or discuss politics, and yet be ready to violently assault people around them without cause. Then in

HYPOCHONDRIASIS and MELANCHOLIA there is a state of despondency, the patient fancying that he is hopelessly wicked, or suffering from an incurable disease, or threatened by voices, or persecuted by people at a distance. Very often such a condition arises from mental worry and over-work, digestive disorders, or dissipation. Some of the subjects of melancholia will remain perpetually fixed in one position, or continually repeat some such phrase as "I don't know what to do." Many melancholic patients have a strong tendency to commit suicide; and they may also have sudden outbursts of passion, in which they furiously attack other people. People are met with who are subject to recurring outbursts of insanity, either melancholic or maniacal. Unsoundness of mind does not always come without warning. Very often a slight change of disposition is noticed, so that the generous man becomes suddenly stingy, or the refined mother of a family vulgar or coarse in her expressions. Failure of memory, inability to pay attention, emotional instability, and sleeplessness are common forerunners of insanity. In one form of mental disease (*general paralysis*) an early symptom may be reckless extravagance, or restlessness, or awkwardness in speech, followed by ideas of enormous wealth or notions of personal importance; the patient perhaps fancying that he is the king of England, or is possessed of millions of carriages. Attacks of mania sometimes replace epileptic fits, so that epileptic patients have been known to commit brutal murders without realizing the nature of their act.

The best mode of TREATMENT for the insane will depend very much on the nature of the attack and the condition of life. Some are best treated at home; others do better in an asylum or a licensed house. In this case it is necessary to obtain the certificates of two doctors, who must examine and report separately, and must not be connected in any way with the manager of the asylum, nor in partnership with one another, nor related to the patient. In the certificate must be stated the facts observed by the doctor, and those observed by others, with exact particulars of name, address, etc. The certificate is good for seven days only. Dangerous lunatics may be confined in an asylum by means of one certificate alone, if two others are afterwards sent within three clear days. Severe penalties are inflicted upon medical men who disregard such formalities, and many practitioners refuse to give certificates of insanity for fear of vexatious actions or other expenses. Registered hospitals and licensed houses are under the supervision of the Commissioners in Lunacy, or of visiting justices, who periodically visit them without notice, and see every patient. If a lunatic escapes from an asylum, notice must be given to the commissioners within three days; and if he is not retaken within fourteen days, fresh certificates will be required. Pauper lunatics are admitted under slightly different regulations to the borough or county asylums. In dealing with such cases, the relieving officer or overseers should be communicated with. *See* DELIRIUM; HYSTERIA; INTEMPERANCE; LUNATIC ASYLUMS.

Insect Bites. *See* BITES and STINGS.

Insolation. *See* SUNSTROKE.

Insomnia. *See* SLEEPLESSNESS.

Inspiration.—The act of drawing the air into the lungs; expelling it is called expiration.

Instruments, Use of. *See* CHILDBIRTH.

Insufflators are instruments for blowing fine powders into the throat.

Intemperance, although usually applied to over-indulgence in fermented liquors, is really of much wider significance. A man may be intemperate in eating or drinking, in speech or in work, or in other ways; and all such forms of intemperance, sooner or later, bring their own punishment.

ALCOHOLIC INTEMPERANCE is probably answerable for one-half the misery and three-fourths of the crime of civilized communities. It ruins both health and morals, and its influence is not confined to the offender alone, but is felt by the next generation. There are two very different forms of intemperance, in one of which people obviously take more than is good for them, whereas in the

other form they are continually "nipping," without ever being actually intoxicated. These forms are about equally injurious to the health. Space will not permit the discussion here of the probable causes of intemperance: only its effects on health can be alluded to. One of the earliest consequences of intemperance is a form of dyspepsia, in which the coats of the stomach are irritated, and the liver congested with blood, so that the appetite is lost, the tongue becomes foul and the breath offensive. There is often vomiting in the forenoon of bile, slime, and whatever food has been taken. Intemperance is one of the common causes of loss of appetite for breakfast. (*See* MORNING SICKNESS.) Another common result is disease of the liver, leading to dropsy and jaundice. The heart and arteries are also often diseased, so that apoplexy is common. Another consequence is Bright's disease of the kidneys. Beer-drinkers are apt to become stout, and often appear to be strong and healthy; but their flesh festers on the slightest provocation, and small cuts heal badly, being often followed by erysipelas. Spirit-drinkers are more often sallow and thin, with large bloodvessels on the face. (*See* ACNE, ROSY.) Gout, with all its serious and painful consequences, also frequently arises from over-indulgence in drink. The nervous system is very apt to be affected in the intemperate. Topers often suffer from cramps and neuralgic pains, and are liable to epileptic fits, "delirium tremens," and insanity. They become cowardly and morally degenerate, and often transmit scrofula, idiocy, or nervous diseases to their children. *See* DELIRIUM TREMENS.

The TREATMENT of intemperance is usually difficult and tedious. The most important step is to cut off the supply of liquor, and to substitute easily digestible, stimulating food, such as beef tea, bovril, milk, beaten-up eggs, and soups, of which moderate quantities must be given every two or three hours. If the pulse is weak, ammonia and ether must be given (*Pr.* 5). For the vomiting, lumps of ice to suck, and bismuth mixture (*Pr.* 16, 17), with or without soda. When this is better, calumba mixture will be useful (*Pr.* 13). For the sleeplessness, suitable remedies (such as bromide and chloral) will often be required at first; but they must be administered with caution. (*See* SLEEPLESSNESS.) The patient will require careful watching and nursing, as suicidal attempts are not uncommon. Confirmed intemperance is best treated in a retreat, where stimulants cannot be obtained, and constant medical supervision is possible. Much of the intemperance which exists arises from the hopeless monotony of daily life, and can only be prevented by providing other and more innocent means of enjoyment, and at the same time training people to appreciate them. Workmen's clubs, museums, and picture-galleries, open-air concerts and the like, are powerful aids to temperance. *See* FERMENTED LIQUORS; INTOXICATION; STIMULANTS; TOTAL ABSTINENCE.

Inter-marriage. *See* INHERITANCE; MARRIAGE.

Interment. *See* DEAD, DISPOSAL OF.

Intermittent Fever. *See* AGUE.

Intestines. *See* BOWELS.

Intoxication is sometimes difficult to distinguish from apoplexy, opium poisoning, and a few other disorders. Among the earlier symptoms are usually diminished power of judgment, with an increased liveliness of the imagination and emotions. This renders one man quarrelsome, another unnaturally affectionate, a third ready to burst into tears. There is also loss of control over movements, causing an unsteady gait and trembling hands, and double vision from interference with the muscles of the eyeball. A drunken man can sometimes ride when he cannot walk. Some people are affected in the brain before the limbs, whereas with others it is the reverse. The final effect of a large quantity of fermented liquor is to cause stupor and insensibility, in which the action of the heart or lungs may be interfered with. Such a condition may be brought on without the other symptoms, by taking a large dose of spirits. The quantity required to produce such an effect varies according to the concentration of the liquor, the previous habits of the subject, and other circumstances. (*See* ALCOHOL.) Where

the occupation causes free perspiration, or active exercise in the open air, very large quantities may be consumed without obvious ill-effects. Large doses of concentrated spirits cause inflammation of the stomach.

TREATMENT.—If not insensible, and there is no doubt about the condition, give an emetic (*Pr.* 27, 28). Pour cold water over the head, and put hot bottles to the feet. When the stomach has been emptied, strong coffee is useful. *See* INTEMPERANCE.

Intussusception.—A condition sometimes found in children, in which part of the bowel becomes inverted into the succeeding portion, like the finger of a glove. It causes obstruction of the bowel, and is often fatal. *See* BOWELS, OBSTRUCTION OF THE.

Inunction.—Introduction of drugs by rubbing ointments into the skin.

Invalids, Care of. *See* BEVERAGES; DIET; FURNITURE; SICK-ROOM; TRAVELLING.

Iodide of Potassium forms white cubic crystals like rock-salt, which are very soluble in water. It is a valuable remedy in medical hands for rheumatism, gout, chronic inflammatory thickenings, and many other conditions. Some people are very intolerant of even small doses, which cause in them all the symptoms of a severe influenza cold, together with profusion of saliva. Others can take doses twenty or thirty times greater without inconvenience, or even with marked benefit. (*Pr.* 41.)

Iodine exists in combination in seawater, seaweeds, etc. It is sold in the form of black scales or crystals, with metallic lustre and pungent odour. These scales melt easily when heated, and form a beautiful violet vapour. Solutions in water or spirit are used externally as counter-irritants, and to reduce inflammatory thickening in glands, joints, etc. These preparations stain the skin of a yellowish-brown colour, and cause peeling. Inhalations of iodine are useful in some forms of bronchitis and consumption.

Preparations.—(1) Tincture of iodine. (2) Liniment of iodine, about five times stronger. Preparations of iodine are not suitable for internal administration, and should be kept in "poison bottles." If swallowed by mistake, treat as for IRRITANT POISONS.

Iodoform.—Shining lemon-yellow crystalline scales with a disagreeable, penetrating smell. The drug is used in dressing wounds. It is not suitable for domestic use.

Ipecacuanha. — The dried root of Cephaëlis ipecacuanha from Brazil. The crust only is used in medicine. The woody centre is inert. Powdered ipecacuanha is pale brown, with disagreeable smell and bitter, aromatic, biting taste. Sometimes it is adulterated with almond meal, in which case, if moistened and put aside in a warm place for half an hour, a smell of prussic acid or bitter almonds is given off. Taken internally in large doses, it causes vomiting and faintness. In smaller doses it acts on the mucous membranes of the breathing tubes and digestive canal, and promotes perspiration.

Preparations.—(1) The lozenges (B.P.) contain each $\frac{1}{4}$ gr. (2) Ipecac. wine. (3) Dover's powder, ipecac. and squill pill, ipecac. and morphine lozenges, all contain opium or morphine. *See* OPIUM.

Directions for use.—(1) As an emetic, rub up 10 to 30 grs. of the powder with a little sugar and water, or give 3 to 6 teaspoonfuls of the wine. Action is not so speedy as mustard or zinc-sulphate, and sometimes diarrhœa follows instead of vomiting. Smaller doses may cause faintness without vomiting. Avoid such emetics in pregnancy. (2) As an expectorant, give $\frac{1}{4}$ gr. to 2 grs. of the powder or 5 to 40 minims of the wine. This is useful in the early stage of cold on the chest, when there is oppression without much phlegm being brought up (*Pr.* 19 20, 21).

Iridin.—An oleo-resin obtained from the blue flag of America (*Iris versicolor*); chiefly used to increase the flow of bile. Dose, $\frac{1}{2}$ gr. in pil.

Iris.—The movable curtain of the eye (*which see*).

Iron.—A well-known and widely distributed metal, which forms an ingredient in "chalybeate" mineral waters, and in many tonic medicines. It is present in the hæmoglobin or red colouring matter

of the blood, and is given as a remedy where this is deficient (*see* BLOOD, POVERTY OF THE); also in scrofula, rickets, and debility. Some of its preparations are *astringent*, restraining bleeding or discharges from mucous surfaces. The chief of these preparations are the sulphate and dried sulphate of iron, and the solution and tincture of perchloride of iron (tincture of steel). Dose of the latter, 10 minims in water (*Pr.* 34, 35, 38). The *non-astringent* preparations of iron are very numerous. Of solid preparations may be mentioned (1) Ammoniocitrate of iron, which forms garnet-red scales with sweetish taste. If allowed to become damp it forms a sticky mass. Dose, 5 to 10 grains in water. From it may be made wine of citrate of iron, by dissolving 160 grains in 1 pint of orange wine, shaking occasionally, and after three days, filtering. Dose, 1 fl. dr. (2) Tartarated iron, which forms dull, garnet-red scales. It may be given with alkaline carbonates, but the mixture does not keep well. Dose, 5 to 10 grs. in water. (3) Citrate of iron and quinine; greenish-yellow scales with bitter taste. Dose, 5 grains in water. (4) Saccharated carbonate of iron. Dose, 5 grs. It should be freshly made, as it is liable to decompose. It is present, together with sulphate of potassium, myrrh, etc., in Griffith's mixture (compound iron mixture), of which the dose is 1 fl. oz. (5) Reduced iron; a dark powder, sold in the form of lozenges, each containing one grain. (6) Moist peroxide of iron, made by adding solution of soda to solution of persulphate of iron, and washing in a filter. It is used when fresh as an antidote in arsenical poisoning. Dose, $\frac{1}{4}$ to $\frac{1}{2}$ oz. The following are liquid non-astringent preparations: (7) Tincture of acetate of iron, dose, 10 minims; also solution of acetate, same dose. (8) Dialysed iron—an almost tasteless solution of oxide and chloride, which may be taken in doses of 10 to 30 minims in water or red wine, or on a lump of sugar. Bravais' iron is a somewhat stronger French preparation. (9) Syrup of phosphate of iron—an acid preparation. Dose, 1 fl. dr. in water. (10) Iron wine (or steel wine)—made by macerating 1 oz. fine iron wire in one pint of sherry in a closed vessel, leaving the wire partly exposed to the air, and shaking occasionally with the stopper removed, and then filtering. Dose, 1 fl. dr. (11) Aromatic iron mixture (Heberden's ink), contains cinchona, calumba, and aromatics. Dose, 1 fl. oz. (For Iodide of iron, *see* IODINE; for Arseniate, *see* ARSENIC.) Preparations of iron are apt to blacken the teeth, unless care is taken to clean them after each dose of medicine. The astringent preparations tend to confine the bowels; and all kinds, if given too freely, may cause headache and interfere with the expulsion of bile. As the motions are blackened by iron, this may not be noticed; but on discontinuing the medicine, the motions will in such a case be found to be unnaturally pale. The remedy is to give aperients (*Pr.* 14), and to discontinue the iron for a time. Preparations of iron should never be given to full-blooded people, nor to those who have a much-coated tongue, or are suffering from fever. An exception to this rule is, however, found in erysipelas, which requires large doses of perchloride of iron. *See* MINERAL WATER.

Irritability is usually a sign of debility (*which see*). *See also* GOUT; NERVOUSNESS.

Irritant Poisons.—(1) IRRITANT GASES. *See* POISONOUS GASES. (2) MINERAL IRRITANTS include alum, antimony compounds, arsenical preparations, salts of barium and of bismuth, chlorinated lime and soda, salts of copper and chromium, iodine, salts of iron, lead, lime, mercury, and potash, phosphorus, salts of silver, soda, tin, and zinc, and others mentioned under CORROSIVES. (3) VEGETABLE IRRITANTS include aloes, arum (lords and ladies, cuckoo-pint), bryony, castor oil seeds, colocynth, croton oil, crowfoot or buttercup, and other ranunculi, diseased and decayed vegetable matters, elaterium, ergot, fool's parsley, gamboge, hellebore, hemlock, jalap, laburnum, mezereon, savin, scammony, water hemlock, water dropwort, yew leaves and berries, and many other plants. (*See* Johnson's "British Poisonous Plants.") (4) Among ANIMAL IRRITANTS are found Spanish fly (cantharides), diseased and putrid meat

or fish, and many poisonous fish, shellfish, snakes, and insects.

The *symptoms* of irritant poisoning are described under POISONS. Many belonging to this class have special characters of their own. Whereas some (such as aloes) act almost entirely as purgatives, others (such as sulphate of zinc) are more likely to cause vomiting; some, again (*e.g.* laburnum), act upon the nervous system, causing headache, giddiness, convulsions, or insensibility.

TREATMENT, as a rule, consists in getting rid of the poison by means of an emetic (*Pr.* 27), giving suitable antidotes —barley water, gum water, and other bland liquids—to soothe the stomach; and if there is much faintness or shock, diffusible stimulants (*Pr.* 4, 5). Sometimes artificial respiration is required, as described under DROWNING. *See also* articles on separate poisons.

Irritation. *See* ITCHING.

Isinglass is a pure form of gelatine (*which see*).

Isolation is a most important means of preventing the spread of infectious diseases. Were every child suffering from measles or scarlatina promptly isolated, there would be far fewer deaths under five years of age, far less scrofulous disease, deafness, and tendency to consumption. Whoever knowingly allows his child to mix with other children while suffering from an infectious complaint, and thereby causes fatal illness, is morally guilty of murder, and in a more enlightened state of society will be severely punished. Even now there are penalties which might be, and sometimes are, enforced. Whoever, while suffering from a dangerous infectious disorder, enters a cab or other public conveyance, without informing the driver of his condition, is liable to a penalty not exceeding £5; and the same penalty may be enforced if he similarly exposes himself in any street, school, church, theatre, or other public place, or in any public conveyance; and those in charge of any one so suffering are also liable. (*See* AMBULANCE; DISINFECTION.) Those who are suffering from an infectious complaint should be isolated so long as infection lasts. Those fevers in which a rash appears, followed by peeling, are infectious as long as this lasts. Scarlatina and diphtheria are infectious from the first appearance of sore-throat or fever; but the former is not decidedly infectious until the rash appears. Measles is decidedly infectious even before the rash appears, when there is only a "cold in the head" and feverishness. Whooping cough also is infectious before the characteristic "whoop" begins, which may be three weeks after the beginning of the illness. Diphtheria and mumps remain infectious for two to three weeks from the onset of the fever; German measles for a fortnight, ordinary measles for three weeks or a month, or until the peeling has been completed; scarlatina, so long as there is the slightest trace of peeling, which may be until from five to eight weeks after the onset of fever; and whooping cough for about six weeks after the appearance of the characteristic cough. Smallpox and chickenpox are infectious so long as crusts remain on the body. Typhus so greatly reduces the strength, that a patient may safely mix with others when he is strong enough, and has been properly disinfected. In enteric fever and cholera there is no need to isolate if only the excretions are carefully and promptly disinfected. Isolation is also necessary where there has been *exposure* to infection. In diphtheria and scarlatina isolation should be for a fortnight; in measles and German measles, 16 days; in smallpox and chickenpox, 18 days; whooping cough, three weeks; mumps, 24 days; typhus and enteric fever four weeks (Newsholme's "School Hygiene").

Most large schools require the parents to fill up a form at the end of the holidays, stating whether their children have been exposed to the risk of infection, and if so, of what kind. Should there be a doubt as to infection, the child should be sent to an isolated house in the country until the proper period has passed. (*See* INCUBATION; INFECTIOUS FEVERS.) Fever is often spread by means of goods from tailors' and other shops, dairies and other food-providing establishments. It is, therefore, of the utmost importance to remove at once from all such places both those actually

suffering from fever, and those who have been exposed to infection. *See* ITCH; RINGWORM.

Issue.—An artificial sore, kept open by inserting two or three peas under the skin, or by repeatedly blistering. *See* COUNTER-IRRITATION; SETON.

Itch or *Scabies.*—A disease caused by the presence of the itch-mite, of which the female burrows under the skin to deposit its eggs. The parts usually first and chiefly affected are the soft skin between the fingers, at the bend of wrist and elbow, about the bend of the knee, in the groin, on the lower part of the belly, the buttocks and privates, and in children over the feet and legs. There is usually much itching, increased by the warmth of the bed; and various rashes appear, from a red blush to mattery heads and blisters. Little jagged or zig-zag lines, like old scratches from a pin,

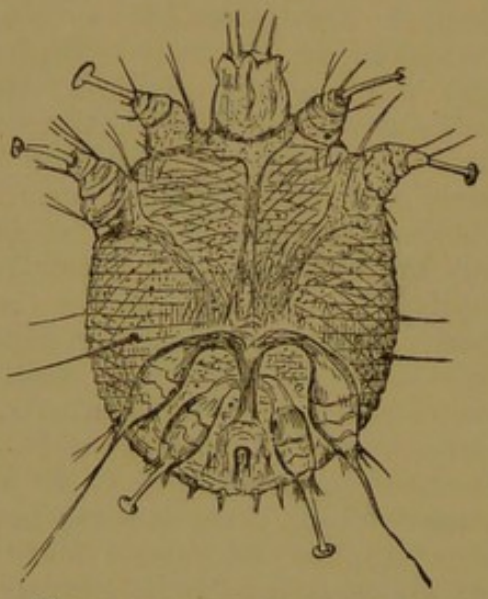

FIG. 30.—ITCH-MITE, HIGHLY MAGNIFIED.
(After Startin, from Newsholme's "School Hygiene.")

may be seen here and there; these are the burrows which contain the creature with its eggs. If a pin be inserted into the burrow, the mite will often fasten on to it, and be in this way drawn out. It is just visible to the naked eye, shaped like a tortoise, but with six or eight legs (*Fig.* 30). The young mites escape from the burrow as they are hatched, but the parent dies when she has laid all her eggs. The disease is readily communicated by contact with the body or underlinen, so that bedfellows are pretty sure to be both affected.

TREATMENT.—Take a warm bath, thoroughly soaping and rubbing the body. Then apply plenty of sulphur ointment to every part of the body, excepting the face and scalp, rubbing it well in. Sleep in your underlinen, and in the morning repeat the warm bath, put on clean clothes and disinfect the underlinen and towels which have been used. Repeat the next night, and then rub in the ointment to the most affected parts for a week. Sulphur ointment (B.P.) kills the itch-mite, but if used too long irritates the skin. In young children an ointment of half strength may be used. Sulphur baths are also used to cure the itch, but cannot be depended upon. If the skin remains sore after this treatment, apply zinc ointment.

Itching may arise from many different causes. It is sometimes caused by rough clothes, want of cleanliness, or parasites in the skin. It is also found in most skin diseases, such as eczema or psoriasis. Irritation in other parts of the body (*e.g.* the stomach, kidneys, or womb) will sometimes cause itching of the skin; so also will disordered nerves, and some poisons in the blood (as in jaundice). A sluggish circulation often causes itching, so that it is a common symptom in piles and in varicose veins. Itching of the lower part of the body, if not due to lice or eczema, is usually caused by "whites" or other discharges, irritating urine (*see* DIABETES), profuse perspiration, worms, piles, or disorders of the womb.

TREATMENT.—Remove the cause, and use one of the following applications: LOTION 2, 3, 4, 5, 6. *See also* ECZEMA; NETTLE-RASH; PSORIASIS; SKIN PARASITES.

Jaborandi.—The leaves of a Brazilian tree, which contain a powerful alkaloid (*pilocarpine*). Several preparations are made, which greatly increase the secretion from the skin and salivary glands, and are used in dropsy and some other diseases.

Jail Fever. *See* TYPHUS.

Jalap is obtained from the root (or rather tubers) of a Mexican plant allied to the convolvulus. The drug itself con-

sists of a resin which is much used as a purgative in dropsy. It has little taste, and is therefore sometimes given to children who suffer from worms. (*See* APERIENTS.) *Compound jalap powder* consists of 5 parts jalap with 9 cream of tartar and 1 ginger. Dose, 20–60 grains for an adult.

James' Powder.—A secret preparation imitated by the pharmacopœial *antimonial powder*, which contains oxide of antimony (1 part) with phosphate of calcium (2 parts). Formerly very popular as a remedy in fever, it is now seldom prescribed, owing to its uncertainty of action. Dose, 3–10 grains. *See* FEVER, TREATMENT OF.

Jaundice.—Yellowness of the skin and eyes from bile pigment. Much of the bile discharged into the bowel is re-absorbed and carried back to the liver by the portal vein; but if it passes into the general circulation, jaundice follows. The same will happen if the bile cannot pass down the duct for any reason, as it must then find its way into the blood instead. Jaundice due to obstruction of the bile duct causes the motions to be pale and clayey, or chalky; it is probably more common than jaundice from other causes. The obstruction may arise from a gallstone blocking the duct from liver disease, inflammation of the bowel, tumours, pregnancy, obstinate and extreme constipation, and other causes. Jaundice apparently independent of obstruction may follow a severe fright, violent rage, great anxiety, a blow on the head, want of fresh air, certain fevers, snake bite, poisoning by phosphorus, and a few other things. Jaundice may easily be recognised in daylight. The skin may be of any colour from lemon-yellow to mahogany-brown or greenish-yellow. The white of the eye turns yellow, and the urine becomes deep yellowish-brown. Other secretions may also be tinged, so that, for instance, the linen may be stained by the perspiration. The skin is often itchy, and there may be eruptions on it. There is a bitter taste in the mouth, and digestion is often disturbed. The bowels may be confined through lack of the natural aperient. Great depression of spirits is not uncommon. Jaundice from gallstones usually follows or accompanies an attack of biliary colic (*see* GALLSTONES); it is apt to recur. Jaundice coming on in young people after slight digestive disturbance is usually free from danger, gradually disappearing under appropriate treatment. Where jaundice comes on slowly in middle-aged or elderly people, especially if there is also dropsy of the abdomen, and the health has for some time been failing, the condition is likely to be more serious. The tests of progress are the colour of the urine and of the motions; if the first is getting lighter and the last darker, the jaundice is disappearing.

TREATMENT depends on the cause. As a general rule, the diet should be light and easily digestible, such as milk and soda water, milk puddings and broth. If there is sickness, *Pr.* 30, 16, 17, may be useful. For flatulence, *Pr.* 4 may be taken; for constipation, a few doses of *Pr.* 9, 11, 14, or an aperient pill. The yellow tinge is sometimes slow in disappearing; warm baths, rubbing, and *Pr.* 30, are likely to be useful. It is well in jaundice to avoid chills; and change of air is usually required after the attack is over. *See* LIVER DISORDERS.

Jaw.—The LOWER JAW is articulated to the base of the skull by a sort of double hinge joint. A piece of cartilage divides the joint into two parts, an upper and a lower, a capsular ligament surrounding the whole joint (*Fig.* 45). *Dislocation* sometimes happens from wide yawning. To reduce the dislocation, pad the thumbs well with a cloth, put them on to the grinders of the lower jaw, and press firmly downwards. The jaw usually goes back with a snap, and the thumbs of the operator, if unprotected, would be badly bitten.

The UPPER JAW is hollowed out, its cavity communicating with the nose. Abscess at the root of a tooth sometimes bursts into this cavity.

Jelly. *See* DIET; GELATINE.

Jelly-fish sometimes cause great discomfort to bathers by their stings, which may give rise to redness, pain, and swelling. (*See* NETTLE-RASH.) The condition usually gets well of itself; but hartshorn

(Lotion *No.* 5) applied early to the part will often give immediate relief.

Jesuit's Bark. *See* Cinchona.

Joint.—The meeting-place of two or more bones. Some bones, such as those of the skull, are jointed immovably, fitting into one another by toothed edges, or by projections. Others, such as the spinal bones, are united by pads of gristle or fibrous tissue, which allow of a little movement; while yet others form true movable joints, in which the joint-surfaces are coated with gristle, and the bones held together by bands of fibrous tissue (*ligaments*), lined inside with smooth membrane (*synovial membrane*), which secretes the joint-oil. There are four common kinds of movable joints; *gliding* joints, such as those of the wrist and instep; *hinge joints*, as at the elbow and knee; *ball and socket*, as at hip and shoulder; and *pivot* joints, as at the top of spine and outer bone of fore-arm. Some joints, such as the knee joint and that of lower jaw, have pads of gristle toughened with fibrous tissue inside the joint, and attached to the ligaments, or to one of the bones.

Diseases of the joints are mostly inflammatory. *Acute* inflammation causes pain, swelling, heat, and redness, with more or less fever. The joint is usually fixed by the muscles, to prevent the pain of movement. This disorder may be due to injury, exposure to cold, inflammation of surrounding parts, gout, rheumatism, and other constitutional diseases. (*See* Gout; Rheumatism.) The swelling may be watery, or contain matter; the latter being far more serious.

Treatment.—Absolute rest in a splint, with the limb raised. If due to injury, apply an icebag or cooling lotion. If there is fever, give aconite (*Pr.* 31). Gout and rheumatic fever require different treatment. *Chronic* inflammations often follow an acute attack, or come on insidiously after slight injuries in bad constitutions. They often lead to stiff-joint, or to formation of matter; but these may be averted by timely advice. A joint may also become stiff through keeping it too long quiet after sprains and other injuries. It is in such cases that bone-setters often obtain wonderful results by their manipulations; although very often, by movement at the wrong time, they light up active and destructive inflammation. Hot and cold douching, Turkish baths, stimulating liniments (*Nos.* 1, 2, 3, 4), and judicious exercise, will often restore useful movement. When the joint is cool, it is safe to try these; if it is heated, they may do harm. When a joint is *wounded*, the joint-oil may escape; it resembles white of egg. Such a symptom would show the need for absolute rest, and treatment as for acute inflammation. It would not be safe to dispense with medical assistance. *See* Dislocations; Sprains; and articles on separate joints.

Joy. *See* Emotions.

Jugular Veins bring the blood from the head towards the heart.

Juniper, Oil of, is distilled from the unripe fruit of the juniper bush. It is an ingredient of hollands or gin, and acts powerfully on the kidneys. *Spirit of Juniper* contains 1 part of the oil with 49 rectified spirits. Dose, ½ fl. drachm. *See* Diuretics.

Kamala.—A red powder, consisting of minute glands and hairs from the fruit of an Indian plant, used as a remedy for tape-worm. It is less nauseous than oil of male fern, and less apt to gripe, although it usually acts freely on the bowels. Dose, 30–120 grains taken fasting, in honey or thick gruel.

Kidneys.—The organs which excrete urine, which are embedded in fat on either side of the spine at the back of the abdomen. The ureter or duct of the kidney is attached to the inner concave border, together with the large blood-vessels. Each ureter begins in a funnel-shaped expansion (*pelvis of the kidney*), and ends below in a slit-like opening at the base of the bladder. If the kidney is cut parallel to the front surface, it is seen to consist of a number of conical portions (*pyramids of Malpighi*) ending inside in nipple-like projections (*papillæ*), and coated outside with a sort of crust (*cortex*), which dips in between them (*Fig.* 31). Examined microscopically, the kidney is found to be made up of numerous hair-like tubes, well supplied with

bloodvessels. The tubes begin in the cortex in little hollow balls (*Malpighian bodies*), into which project tufts of small bloodvessels. In the cortex the tubes are much twisted or convoluted. They end in the pyramids in straight tubes, which unite repeatedly in pairs and finally pierce the papillæ, opening into the pelvis of the kidney. The urine is partly strained off in the Malpighian bodies, partly separated by the convoluted tubes of the cortex. It is continually dropping into the bladder,

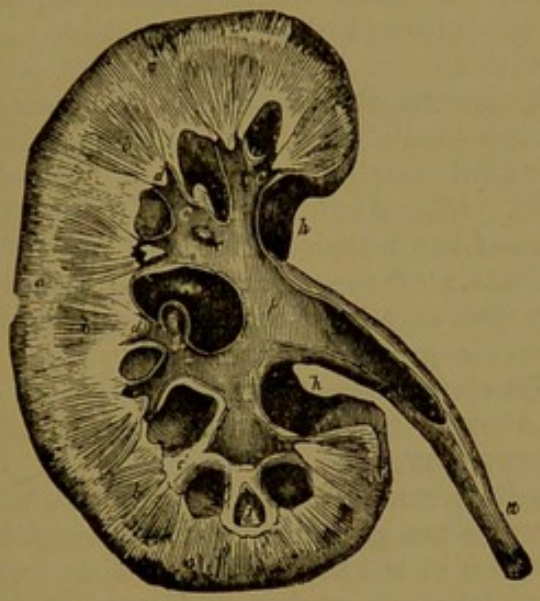

FIG. 31. SECTION OF KIDNEY,

showing *a*, cortex; *b*, pyramids of Malpighi; *d*, papillæ; *c*, calyces; *p*, pelvis of kidney; *u*, ureter.

whence it is periodically discharged through the urethra. *See* BLADDER; URINE.

INJURY TO THE KIDNEYS may be suspected if, after an accident or severe blow in the loins, blood appears in the urine. (*See* URINE.) The kidney sometimes gets loosened as the result of blows, childbirth, or tight-lacing in women. Such an accident causes local tenderness, with sickening, aching pain in the back and side, increased by movement and by the upright position.

DISEASE OF THE KIDNEYS occurs as the result of intemperance, gout, repeated pregnancies, heart-disease, consumption, scarlet fever, and other ailments. The chief forms are inflammation, Bright's disease, and stone in the kidney. *Inflammation* should be suspected if, after scarlet fever or diphtheria, or a chill in an intemperate subject, the urine is scanty and red or smoky in colour, and dropsy appears in the face, feet, and other parts. It is a serious complaint, and requires prompt medical treatment. Until this can be obtained, keep in bed and get the skin into good action; keep the bowels freely open; apply hot poultices to the loins; give milk and broth diet, with plenty of simple drinks (barley water and the like), and avoid stimulants, spices, or other strong flavouring agents. (DIET, II.; *Pr.* 11, 7. *See also* BRIGHT'S DISEASE.) *Stone in the kidney* causes attacks of severe colicky pain in the loins, radiating down towards the groin, increased by exercise or jolting. The pain gives rise to nausea or vomiting; and blood or gravel often appears in the urine. For prevention, *see* STONE. During an attack, hot baths, fomentations, and narcotics will be required. Until medical assistance can be obtained, 20 minims of spirits of chloroform may be taken every hour in a little water.

King's Evil. *See* SCROFULA.

King's Yellow. — A compound of arsenic with sulphur. *See* ARSENIC.

Kino.—The hardened juice of several closely related trees, which grow in India, Africa, and Australia. It is a powerful astringent, less soluble than catechu. Dose of the powder, 10 to 30 grains; of the tincture, ½ to 2 fl. drs. Compound kino powder contains opium. *See* ASTRINGENTS; DIARRHŒA; OPIUM.

Kleptomania. — A form of insanity which causes people, even in good position, to steal.

Knee.—This is usually regarded as a hinge-joint, although it is really not so simple in structure. Two sickle-shaped pieces of cartilage (*semilunar cart.*) are attached to the top of the tibia or large bone of the leg. Two strong ligaments, crossing one another inside the joint, attach the tibia to the femur or thigh-bone, while others form an outside casing. There is a large synovial membrane, reaching several inches up the front of the thigh-bone. In the bend of the knee is the large artery for the leg, together with two important nerves. In front of the joint is the patella or knee-

pan, to which are attached the large muscles of the front of the thigh. The "hamstring" muscles strengthen the joint on either side. INJURIES to the knee-joint are no trifling matters, and should never be neglected. Whether the joint be sprained or wounded, it should be promptly put at rest and kept quiet, with a long side-splint or back-splint reaching from the foot half-way up the thigh. Every day's rest at first will be worth a week's rest later on. If there is a tendency to inflammation, apply cold lotions or an icebag for the first twelve hours.

HOUSEMAID'S KNEE, which is a swelling of the large bursa in front of the knee-pan, sometimes causes inflammation spreading to the joint.

CHRONIC INFLAMMATION of the knee-joint may be of the nature of *White Swelling* (*which see*), or a sort of dropsy of the joint. Other forms are *Gout*, *Rheumatism*, and "*Rheumatic Gout*." A painful affection is sometimes met with, in which there is a *loose cartilage* in the joint. This may be displaced by a sudden movement, causing the patient to fall, with a sickening pain in the joint. *See* GOUT; HOUSEMAID'S KNEE; JOINTS; KNEE-PAN; RHEUMATISM; RHEUMATIC GOUT; WHITE SWELLING.

Knee-pan or *patella*, the flat heart-shaped bone in front of the knee-joint (*which see*). It is sometimes fractured by a blow, or by sudden, violent muscular exertion, as in trying to recover one's self from a fall. The joint should be put quite straight, with a long back-splint from the foot to half-way up the thigh, and an attempt made by bandages to bring together the pieces, which can be distinctly felt under the skin. Recovery is often tedious or incomplete.

Knock-knee is usually due to rickets, flat-foot, excessive standing, or carrying of heavy burdens. It appears, as a rule, either in early childhood or at puberty. In an early stage it is curable by splints or well-adapted surgical appliances ("leg-irons"); later on an operation is the only means of cure.

Koumiss is fermented mare's milk, originally prepared in Russian Tartary, but now supplied by the Aylesbury Dairy Company and other establishments. It is made of three strengths; and a similar preparation is obtained from sweetened cow's milk. In obstinate vomiting, debility, and loss of flesh, koumiss has been found a valuable remedy.

Kousso.—The dried flower clusters of an Abyssinian plant, used to expel tapeworms. Half an ounce of coarsely powdered kousso is infused for half an hour with 8 fl. ozs. of boiling water, and taken without being strained. It often causes nausea or oven vomiting, and requires to be followed by a purgative. *See* WORMS.

Krameria, or Rhatany, is the root of a large shrub growing in Peru. It is a powerful astringent, with a sweetish taste. (*See* ASTRINGENTS; DIARRHŒA.) Dose of the infusion (1 oz. to 1 pint), 1 to 2 fl. ozs.; of the tincture, ½ to 2 fl. drs. The powder is useful as a dentrifice when the gums are spongy.

Kreasote. *See* CREASOTE.

Labour. *See* CHILDBIRTH; EXERCISE; OCCUPATION.

Laburnum.—The seeds and bark of this tree are poisonous, causing vomiting and pain in the stomach, giddiness, headache, delirium, stupor, and more or less collapse.

TREATMENT.—Emetic (*Pr.* 27, 28), followed by stimulants (*Pr.* 4, 5), and warmth to body and extremities. Send for a doctor.

Laceration. *See* WOUNDS.

Lachrymal. — Concerning the tears (*which see*).

Lactation. *See* BREAST; SUCKLING.

Lacteals. *See* ABSORBENT SYSTEM.

Lactic Acid.—A colourless, strongly acid, syrupy liquid, used as a spray to dissolve diphtheritic membranes, and given internally in dyspepsia and diabetes. It is produced in the souring of milk. *See* KOUMISS; MILK.

Lactometer.—An instrument for measuring the specific gravity of milk. A graduated glass is usually sold with it, to measure the volume of cream. The specific gravity of good milk varies between 1·028 and 1·034. The presence of much cream, or of added water, lowers it. *See* MILK.

Lamb. *See* MEAT.

Lancet. *See* BLOOD-LETTING; GUMS; VACCINATION.

Lanolin.—A fatty matter obtained from the skin, used as a basis for ointments. It will mix with water.

Larch-bark.—A tincture has been introduced for the treatment of chronic bronchitis, but is not much used.

Lard, or hog's fat, used as a basis for ointments and liniments, is prepared as follows: The membranes are removed from perfectly fresh hog's lard, which is then exposed to the air for some hours, cut into small pieces, and beaten in a mortar until reduced to a uniform mass. It is then melted by surrounding the containing vessel with warm water, and strained through flannel. If lard is adulterated with starch, it turns blue with weak tincture of iodine; if rancid, it reddens litmus paper. In order to prevent rancidity, $\frac{1}{4}$ oz. of powdered benzoin is added to every pound of melted lard, and the whole strained again (*Benzoated Lard*).

OZONISED LARD is made by mixing 1 part of ethereal solution of hydrogen peroxide with 8 parts of lard. It is useful for anointing the body in infectious disease.

Laryngitis, inflammation of the larynx, may be acute or chronic. ACUTE LARYNGITIS may arise from exposure to cold and damp, irritating gases, measles, scarlatina, etc. The children of poor people sometimes get it through drinking from the spout of the kettle. The *symptoms* are sore-throat, hoarseness, husky or croupy cough, and pain on swallowing. There is also more or less fever, and in bad attacks the breath may be short, so that the lips become blue, and the patient is in danger of suffocation. *Treatment.*—Medical advice should be obtained early, as there is always more or less danger. In the meantime, apply hot poultices to the throat, keep in a warm room, and steam the inside of the throat, or else suck small pieces of ice. Diet as in fever. *Pr.* 31 may be tried. *See* CROUP; DIET, II.; TRACHEOTOMY.

CHRONIC LARYNGITIS arises from overuse of the voice (*Clergyman's sore-throat*), abuse of tobacco or alcohol, exposure to cold and damp, or constitutional disorders. The symptoms are the same as in acute laryngitis, but less urgent. *Treatment.*—Remove the cause. Inhale a spray of common salt, half a teaspoonful to a pint of water, night and morning. (*See* INHALATIONS; SPRAY PRODUCERS.) Constitutional treatment is nearly always required; and this must vary with the circumstances. *See also* SORE-THROAT, RELAXED.

Laryngoscope.—An instrument for illuminating and viewing the inside of the larynx. A small flat mirror on a slender handle is held at the back of the patient's throat, and a beam of light from a lamp is concentrated upon this mirror by another concave mirror fixed upon the doctor's forehead. The laryngeal opening and interior are seen reflected in the small flat mirror. The laryngoscope is of the utmost importance in discovering the cause of hoarseness or loss of voice, and in treating many throat affections. *See* THROAT; VOICE.

Larynx.—The organ of the voice—a short tubular box, which opens above into the pharynx, while below it is continued into the trachea or windpipe. Its walls are strengthened by several cartilages or pieces of gristle jointed and

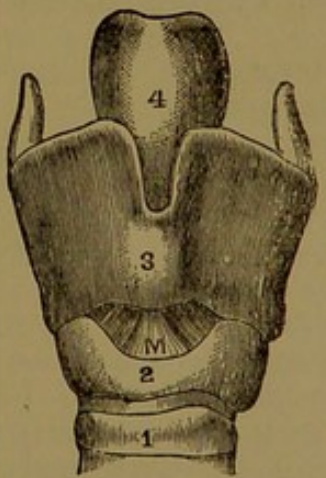

FIG. 32.—LARYNX, FRONT VIEW.

1, Top of Windpipe; 2, Cricoid Cartilage; 3, Thyroid Cartilage; 4, Epiglottis.

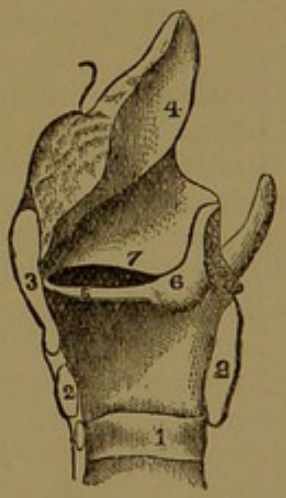

FIG. 33.—LARYNX, SIDE VIEW, WITH LEFT SIDE REMOVED.

1, 2, 3, 4, as in *Fig.* 32. 5, True Vocal Cord; 6, Arytænoid Cartilage resting on Cricoid; 7, False Vocal Cord. The dark space between true and false vocal cords is the ventricle of the larynx.

moved by special muscles (*Fig.* 32). The interior of the larynx is constricted in the middle, two folds of lining mucous membrane from either side (*vocal cords*) nearly meeting in the middle line. These folds, which are strengthened by fibres of elastic tissue, are capable of vibrating and producing sound, somewhat in the same way as the string of a violin, or the reed of an organ pipe (*Fig.* 33). A special mechanism exists whereby they can be brought parallel and close to one another, and tightened or relaxed. In this way high or low notes may be produced. The slit between the cords is called the glottis. Above them on either side is a pouch (*ventricle of the larynx*), the upper free border of which goes by the name of false vocal cord. The upper opening of the larynx is protected by a leaf-shaped cartilage (*epiglottis*), which can be shut down over it like a lid when food is swallowed. A crumb which enters the larynx is said to "go the wrong way." The lining membrane of the larynx is very sensitive, so that the entrance of such a crumb sets up a fit of coughing. The interior of the larynx is usually examined by means of a laryngoscope (*which see*). *See* LARYNGITIS.

Laudanum. *See* OPIUM.

Laughter. *See* EMOTIONS.

Laurel.—The leaves of the common or cherry laurel are used in medicine, and in confectionery for flavouring. They yield a variable amount of prussic acid, and are therefore dangerous.

Lavement. *See* ENEMA.

Lavender is stimulant and carminative. Spirits of lavender consist of 1 part oil of lavender with 49 parts rectified spirit. Dose, ½ to 1 fl. dr. Compound tincture of lavender contains red sandalwood, rosemary, cinnamon, and nutmeg. Dose, ½ to 2 fl. drs. It is an ingredient of arsenical solution.

LAVENDER WATER; dose, 1 to 2 fl. ozs. *See* AROMATICS.

Laxative. — A mild aperient. *See* APERIENTS.

Lead enters into the composition of many substances used in medicine and in other arts, the chief being sugar of lead, litharge, red lead, and white lead. Most lead compounds are poisonous.

SUGAR OF LEAD (*Acetate of Lead*) is met with as a white spongy mass, consisting of small, needle-shaped crystals, dissolving in water, the solution being frequently milky. It has a sweetish taste, and is decidedly poisonous in all but small doses, in which it is given to stop diarrhœa or bleeding. It is not a safe domestic remedy. GOULARD WATER, made by boiling sugar of lead in water with litharge, is much used as a lotion for inflamed surfaces. If used for sore eyes, the lead has a tendency to be deposited on any cracks or abrasions, leaving permanently opaque spots, which may greatly interfere with the vision. LITHARGE is an oxide of lead in the form of brick-red scales. *Massicot* is the same substance unfused. By heating litharge with olive oil and water, *lead plaster* is formed, which is the basis of many other plasters. (*See* PLASTER.) RED LEAD, or *Minium* is another oxide. The use of this compound in boilers and soft water cisterns is decidedly dangerous. WHITE LEAD is a carbonate, used in medicine in form of an ointment. TURNER'S YELLOW is an oxychloride of lead.

Lead Poisoning may happen in many ways. If a single large dose is taken, say of sugar of lead, *acute* poisoning results; the repeated introduction of small doses causes *chronic* or slow poisoning.

ACUTE POISONING causes dry burning sensations in the throat, sickness, thirst, colicky pains, cramps in the limbs, and general prostration. It is seldom met with. *Treatment.*—(1) Emetic of zinc sulphate (*Pr.* 27), followed by copious draughts of warm water; (2) After this has acted, give milk, white of egg, and a tablespoonful of Epsom or Glauber's salts in water.

SLOW POISONING may arise from the use of contaminated drinking water or other beverages, tinned foods, farinaceous foods, or even snuff wrapped up in tin foil; or the use of lead compounds in trades and manufactures. *Drinking Water.*—Soft water or impure water is especially liable to attack leaden pipes

or cisterns; so also is the acid water from peaty districts. Hard water forms insoluble compounds which prevent further change. "Zinc" cisterns on board ship have caused lead-poisoning. It was formerly the custom in Poitou to add sugar of lead to *wines*, in order to prevent sourness from fermentation. Hence came attacks of "colic of Poitou." In the same way *cider* has been contaminated by putting leaden weights into the casks, or by the use of leaden presses ("Devonshire colic"); and *rum* by distillation from leaden stills ("West Indian dry belly-ache"). Early topers have been poisoned by drinking *beer* which has stood all night in the metal pipes of the beer engine. The use of shot to clean bottles is also not quite free from danger. In the case of drinking water, as little as $\frac{7}{10}$ gr. per gallon (or, according to some authorities, $\frac{1}{40}$ to $\frac{1}{50}$ gr.) may cause poisoning. To test the water, acidulate it with pure hydrochloric acid, and pass through it a stream of sulphuretted hydrogen gas. If there is any darkening, the water is not fit to drink. *Foods.*—The chief sources of lead-poisoning are tinned meats and fruits, farinaceous and other foods packed in lead foil, and confectionery coloured with lead chromate. The use of leaden slabs by fishmongers may contaminate the fish. *Trades and Manufactures.* — Painters, plumbers, type-founders, and compositors, manufacturers of stereotype plates, packers handling lead-foil, white-lead manufacturers, colour grinders, lacquerers, japanners, glass and pottery workers, are all liable to suffer. White-lead is also used in whitening Brussels lace, and in making glazed cards. Amongst *other causes* may be mentioned the use of cosmetics containing lead, and the sucking of painted toys by children. Sensitive individuals may even suffer from sleeping in a newly painted room. Gouty people are especially sensitive to lead, which may determine an attack of gout. Bright's disease is also a predisposing cause. The usual *symptoms* of slow lead-poisoning are, colic with constipation, cramps in the calves, wrist-drop and other paralyses. (*See* WRIST-DROP.) There may also be headache, or more rarely blindness or neuralgia. On examining the gums, a blue or purple line is commonly found near the teeth, especially if tartar is present.

H. D. M.

PREVENTION in the case of workmen. —(1) Wear an outer suit of linen when at work, and wash the clothes at least once a week. (2) Never take food in the workroom, or with unwashed hands. (3) Use treacle beer or sulphuric lemonade, or take 15 drops of aromatic sulphuric acid in a wineglassful of water three times daily. (*See* TREACLE BEER; LEMONADE, SULPHURIC.) (4) If much dust is produced, wear a respirator or mask, and see that fans and ventilating shafts carry off as much as possible. (5) In painting a room, use plenty of driers, and ventilate freely; or use zinc paints.

TREATMENT OF POISONING. — Give dose of Epsom salts to open bowels freely (*Pr.* 14, 11), and consult a doctor for other symptoms. A course of medicine will probably be required.

Leech.—Two kinds are used for medicinal purposes, the speckled leech of Northern Europe, and the green leech of Southern Europe. Each kind grows to the length of two or three inches, and is wrinkled transversely, tapering at both ends. The back is olive-green with six rusty-red stripes running along it. The belly in the speckled leech is greenish-yellow, spotted with black; in the green leech, olive-green without spots. The front end has a sucking disc with a three-rayed mouth provided with sharp teeth. Vigorous leeches contract into a ball if the hand is gently closed over them. They are best kept in small aquaria, or in large, wide-mouthed jars half filled with soft water, and provided with a little clean gravel or sand. The water should not be colder than 50° F. It must be changed every ten days or oftener, and the room kept well ventilated and free from strong smells.

APPLICATION.—Get exact directions from the doctor where to place them, marking the spot with a circle of ink. The place chosen should be over a bone or some other firm structure, so that the bleeding may be more easily con-

trolled. The spot should, if possible, be one where a small scar will not be conspicuous. Thus on the temples a little hair may be shaved off, and the leech applied there. On the chest it should in girls be low enough down to be well covered by a low dress. Bathe the skin carefully with warm water, or milk and water; or, if the leech refuses to bite, smear the skin with a little blood from a needle-prick. Remove all hairs likely to irritate the leech. Dry the leech gently with a soft warm cloth. Hold it gently by the tail, apply it and cover with a pill-box; or cover the skin with blotting paper, cut holes where the leech is to bite, and cover with a wineglass. Whenever the leech is applied near an opening—such as the nostril or mouth, it is best put into a leech-glass. This is made with or without a piston. The opening at the small end allows the head of the leech to pass, but not the body. If the leech is sluggish, put it for a quarter of an hour into water at 70° F. Always avoid applying leeches in the afternoon to children and weakly adults; or the warmth of the bed may cause troublesome bleeding. A leech draws about 1½ fl. dr. of blood, and by fomentations the quantity may be afterwards increased to about an ounce. When enough has been drawn, if the leech does not detach itself, sprinkle a little salt upon it. If by any chance it gets into a nostril, or is swallowed, strong brine will detach and kill it. After removing a leech, wash the place with warm water, and then stop the bleeding by pressure with a dry pad of lint and a bandage or piece of plaster. (*See* HÆMORRHAGE.) Leeches should never be used a second time after a case of fever or blood-poisoning. When it is safe to do so, they may be made to disgorge by putting them into a little salt water; the last remnants of blood may be removed by "stripping," *i.e.* holding firmly by the tail, and drawing through thumb and finger. They may then be put into fresh water, which will require changing twice a day for three days, then every fourth day. Gorged leeches may be distinguished from unused or "virgin" leeches by putting them on to a white cloth, and sprinkling the forepart with finely powdered salt, which causes them to disgorge.

Leek. *See* VEGETABLES.

Leg, Broken. *See* FRACTURES.

Leg, Swollen. *See* DROPSY; FOOT, SWOLLEN; GROIN; VARICOSE VEINS; WHITE-LEG.

Legumens, or leguminous foods, include peas, beans, lentils, and other seeds derived from pod-bearing plants. They are rich in legumin, or vegetable casein, and are therefore capable of replacing meat, cheese, and other nitrogenous foods. Unless cooked quite soft, they are, however, indigestible, and liable to cause flatulence. Mint is added to pea-soup to correct this tendency. Although useful where the digestion is strong, legumens are not suitable for most invalids.

Legumin, Plant-casein, is obtained from leguminous foods. *See* LEGUMENS.

Leiter's Tubes are thin-walled metal tubes, intended to be placed next the skin, in order to cool or warm it by a stream of water.

Lemons yield several medicinal preparations. The peel is an aromatic bitter, and is the source of an essential oil and a tincture. A syrup used for flavouring purposes is made by pouring boiling lemon-juice (1 pint) over fresh lemon-peel (2 ozs.), leaving till cold, straining, and adding 2¼ lbs. sugar. Lemon-juice is a valuable remedy for scurvy, also useful in making effervescing draughts. To preserve it against decomposition, $\frac{1}{10}$th part of brandy is often added, the sediment being strained off. Mixed with an equal quantity of glycerine, it is applied externally to prevent sunburns. *Doses* of the syrup, 1 to 2 fl. drs.; of the juice, up to ½ fl. oz. or more. CAUTION.—Salt of lemons is a highly poisonous acid oxalate of potassium, which has no necessary connexion with lemons. *See* OXALIC ACID.

Lemonade should be made from lemons, although citric acid is often used instead. The following receipts are from Ringer's Therapeutics:

(1) Rub 2 or 3 lumps of sugar firmly into the rind of a lemon, squeeze out the juice, add ½ pint or more of cold or iced water, or a bottle of soda-water.

(2) Squeeze out 2 large lemons, and add to the juice 1 pint of spring water, and 3 or 4 lumps of white sugar. When required for use, pour half of it into a tumbler, and add half a small teaspoonful of carbonate of soda; stir, and drink while in effervescence.

(3) The juice of 4 lemons, the rinds of 2 more, ½ pint sherry, 4 eggs, 6 ozs. loaf sugar, and 1½ pints boiling water. Pare the lemon-rind thinly, put it into a jug with the sugar, pour on the boiling water; let it cool, strain, and add the lemon-juice, and eggs previously well-beaten and strained. Mix well together. This is nourishing as well as refreshing.

(4) Pare the rind of 3 lemons as thin as possible; add 1 quart of boiling water, and ¼ oz. isinglass. Let them stand until next day, covered over. Then squeeze the juice of 8 lemons upon ½ lb. lump sugar. When the sugar is dissolved, pour the lemon-water upon it, mix all well together, and strain.

SULPHURIC LEMONADE, for preventing lead-poisoning, may be made by adding 3 fl. drs. dilute sulphuric acid to each pint of lemonade. *See* BEVERAGES; LEAD-POISONING.

Lenitive Electuary. — Confection of senna. *See* SENNA.

Lens. *See* EYE.

Lentil. *See* LEGUMENS.

Lepra. *See* PSORIASIS.

Leprosy occurs chiefly in India, China, and other hot countries, but is also found in Norway and Sweden, and more rarely in other temperate climates. It appears to have been formerly much more common in England, where it is now almost unknown. The *symptoms* are chiefly loss of strength, together with changes in the skin and nervous system. Dull-red spots often appear, which swell up and produce hideous deformities of face and limbs. Ulceration is common, and nose, lips, or fingers may drop off. Loss of sensation, neuralgic pains, and paralysis of various parts are also often met with. The *cause* of this terrible disease is not yet certainly known. It seems to attach itself to certain localities, like malaria, and is transmissible to those who live with the sufferers, although not readily. As an instance of its transmission may be mentioned Father Damien, whose heroic life and death are probably familiar to all who read this book. The disease has also been transmitted by inoculation. On the other hand, if scrupulous cleanliness be observed, and care be taken not to eat anything touched by a leper, nor to wear the same clothes, the disease will usually not be acquired. Microscopical bacilli (*see* BACTERIA) have been found in the diseased tissues, and are probably the main cause of the disease. Theories attributing it to a fish diet are of doubtful value. As regards TREATMENT, much may be done to relieve the sufferings of lepers; but as yet no cure has been discovered. It is advisable, for the sake of other people as well as for the sake of the lepers themselves, that the latter should be kept apart in special institutions, where they can be cared for, and also prevented from spreading the disease.

Lethargy. *See* DROWSINESS; TRANCE.

Lettuce has been credited with soporific qualities. *See* SALADS.

Leucorrhœa. *See* WHITES.

Lice, *Pediculi*, are of three kinds—body-lice, head-lice, and crab-lice, the latter dwelling about the pubic region. They do not bite, but draw blood by means of a sucking-tube; in addition to this, the irritation and scratching cause the formation of pimply, eczematous, and pustular eruptions. Lice on the head frequently cause sore places, and enlargement of the lymphatic glands in the neck. The eggs (*nits*) are attached to the hairs of the body by a tenacious cement, or, in the case of the body-louse, to the underclothing. The disease may be readily *cured* by cleanliness, and the application of Stavesacre ointment or white precipitate ointment. The nits are not easily removed. It is best to cut off the hair. Sore places must be treated like eczema (*which see*).

Lichen. *See* ICELAND MOSS; SKIN DISEASES.

Life. *See* STATISTICS.

Lifting Children by the arms is not entirely a safe proceeding. During childhood the bones consist of distinct pieces separated by gristle, and violence

may draw these apart. (*See* BONES.) Moreover, the ligaments and muscles being less firmly knit than at a later age, true dislocations happen more readily. Lifting by the head is still more dangerous, as a displacement of the first two bones of the spine would cause sudden death. *See* SPINE.

Ligaments. — Fibrous bands which hold the bones together. Some contain elastic tissue, as, *e.g.*, the yellow ligaments uniting the arches of the spinal bones.

Ligature.—A thread or cord used in stitching together wounds, or in tying arteries. The chief materials used for

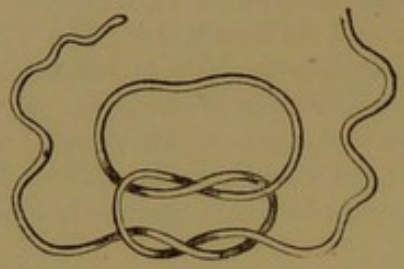

FIG. 34. LIGATURE, SHOWING DOUBLE REEF KNOT.

FIG. 35. LIGATURE, SHOWING SURGEON'S KNOT.

ligatures are silk, horsehair, catgut, and recently kangaroo tendon (*Figs.* 34, 35).

Light is of great importance to health. It has been shown that chemical changes are more active in animals exposed to sunlight than in those kept in the dark; and deprivation of light, besides being depressing to the mind, is also probably answerable in part for the pallor and ill-health of those who live in underground kitchens, or who work in the mines. Human beings, like plants, become "blanched" by darkness. *See also* SIGHT.

Lightning Stroke may do mischief by burning the flesh, or by damaging the nervous system. Sometimes death follows from shock to the nerves, without any obvious injury being found after death. Sometimes, after symptoms of collapse, recovery takes place; but the sight is weak, or there are noises in the ears, or paralysis of the legs; or the memory is found to have been affected, and the brain more or less permanently injured. To *avoid* such accidents, keep away from solitary trees or other prominent objects during a storm. Especially avoid contact with metallic bodies, which act as conductors to the lightning. An isolated house in the country, especially if prominent, should be provided with an efficient lightning conductor. This should consist of a pointed bar of iron 6 to 10 feet high and 2 to 3 ins. diameter at the base, fixed on the roof, provided with copper points, and communicating with the ground by cords of copper wire $\frac{3}{4}$ in. diameter. These may end in two or three prongs, either in a well, or in a hole in the ground 7 yards deep, filled with ashes.

TREATMENT of Lightning Strokes.—Warmth and friction of the limbs, stimulants internally (*Pr.* 4, 5), cold douche to the head and spine; and if breathing be inactive, artificial respiration. (*See* DROWNING.) If the patient cannot swallow, a stimulant enema may be given (1 oz. brandy in $\frac{1}{2}$ pint of gruel).

Lime.—Several substances used in medicine are included under this term.

LIME-WATER is a solution of slaked lime (*calcium hydrate*). It is alkaline and astringent, and is useful in indigestion with acidity and diarrhœa; also in hand-feeding of infants. Dose, 1 to 4 fl. ozs. It should be freshly made, as it absorbs carbonic acid gas from the air, and forms chalk. This fact is the basis of *Angus Smith's household test* for purity of air in dwelling rooms: Put $\frac{1}{2}$ oz. fresh lime-water into a $10\frac{1}{2}$ oz. wide-mouthed bottle filled with the air to be tested by a pair of bellows, and then shake up. If more than 6 parts of carbonic acid gas per 10,000 are present, the lime-water will become perceptibly cloudy, and the ventilation must be regarded as insufficient. Lime-water added to *hard water* in proper proportions will render it softer. (*See* CLARKE'S PROCESS.) *Liniment of Lime*, much used as a dressing for burns, consists of equal parts of olive oil and lime-water.

Carron oil is the same, with linseed oil instead of olive oil.

Quicklime, unslaked lime (*calcium oxide*), is obtained from chalk by heat. It is occasionally used as a caustic. Serious injury to the eyes may be caused by quicklime flying into them. In such cases apply plenty of cold water to the open eyes, till all is washed away. Then treat as in ophthalmia.

Saturated Solution of Lime. — A strong solution in syrup and water used internally for the same purposes as lime-water. Dose 15 to 60 minims.

Sulphurated Lime, or *calcium sulphide*, is a whitish powder with a smell of rotten eggs. It is given internally in doses of $\frac{1}{10}$ to 1 gr. to hasten formation and discharge of matter in abscesses, and to prevent the appearance of pimples (*acne*).

See also Calcium; Chlorinated Lime; Phosphates.

Lime-fruit, the source of lime-juice, belongs to the same family as the lemon, which it resembles.

Lime Tree. *See* Linden.

Linctus.—A thick, syrupy medicine for the relief of cough. The following are useful:

(1) Opium Linctus. — Treacle, 6 fl. drachms; water, 2 fl. drachms; dilute sulphuric acid, 10 minims; tincture of opium, 10 minims. Dose, 1 to 2 teaspoonfuls occasionally.

Caution.—Not to be given to children.

(2) Squill Linctus.—Equal parts of syrup of poppies, syrup of squills, and mucilage. Dose, 1 to 2 teaspoonsfuls occasionally. This also should not be given to young children.

(3) Children's Linctus. — Treacle, 6 fl. drachms; syrup of squills, 2 fl. drachms. Dose, $\frac{1}{2}$ to 1 teaspoonful occasionally at 6 years of age. *See also* Linseed.

Linden Tea.—An old-fashioned remedy for indigestion, made by infusing the flowers of the linden or lime tree (1 oz. to a quart of boiling water). Two tablespoonfuls of honey may be added. Dose, a cupful taken hot.

Liniments or embrocations are fluids intended to be rubbed on to the skin. The following may be used in case of need:

Stimulant Liniments:

(1) Ammonia liniment— 1 part solution of ammonia, shaken up in a wide-mouthed bottle with 3 parts olive oil.

(2) Camphor liniment—1 oz. camphor dissolved in 4 fl. ozs. olive oil.

(3) Soap liniment.

(4) Turpentine liniment—Dissolve 1 oz. camphor in 16 fl. ozs. oil of turpentine, add 2 ozs. soft soap, and rub together until thoroughly mixed.

Soothing Liniments:

(5) Chloroform liniment—equal parts of chloroform and liniment of camphor.

(6) Belladonna liniment.

(7) Opium liniment.

Other Liniments:

(8) Iodine liniment. This is not usually rubbed in, but painted on to the skin.

(9) Aperient liniment. $\frac{1}{2}$ fl. oz. of tincture of aloes, with 1 fl. oz. soap liniment. This is rubbed into the skin of the abdomen.

Linseed.—The seeds of the flax plant. They yield by pressure a fixed oil, used in making "carron oil." The covering of the seed contains much mucilage; hence the meal is used for making poultices, and the whole seeds for a soothing drink. *See also* Poultices.

Linseed Jelly. — Put $\frac{1}{2}$ lb. linseed into 3 pints cold water; simmer for two hours, and squeeze through muslin. Sweeten and flavour to taste with lemon juice, sugar, etc. Taken cold, it soothes cough, and is, moreover, nourishing.

Linseed Tea. — Linseed, 160 grs.; fresh liquorice root in slices, 60 grs.; boiling water, $\frac{1}{2}$ pint. Infuse for four hours in a covered vessel, and strain. Many flavour with raisins or lemon-peel. Some prefer the liquorice omitted.

Lint is used for dressing wounds. It was formerly made by scraping old linen cloth; but lint is now specially manufactured both of linen and of cotton. *See* Dressings.

Lip.—This is often a good index of the state of health. Where the blood is poor in quality, the lips are pale. If the circulation through the veins and heart is imperfect, the lips are often bluish. Sores and warty growths on the lips should not be neglected, especially if

coming in people past middle age. They sometimes form the starting-point of cancer.

Cuts on the lips usually heal well, owing to the abundant blood supply. They must, however, be kept quiet. Bleeding may easily be stopped by pressure between thumb and finger. The arteries to the lips can be felt beating a little way from the angle of the mouth. *See* Harelip; Chapped Lips.

Liquorice is obtained from a pod-bearing plant cultivated in England and the South of Europe. The "root," or underground stem, contains a kind of uncrystallizable sugar not liable to ferment, and therefore less likely to disorder the stomach. The powder is used for dusting pills. A hard extract, known as Spanish liquorice, or Spanish juice, and sold in sticks, is much used for soothing irritable coughs. Small pieces should be slowly sucked for this purpose. A liquid extract is also used (dose, 1 fl. drachm) for covering the taste of nauseous drugs. The fresh root is best kept in dry sand.

Liquorice Powder, Compound. — A laxative medicine, useful in habitual constipation, and in costiveness of children. It contains 2 parts senna, 2 parts liquorice root, 1 part fennel fruit, 1 part sublimed sulphur, and 6 of sugar. Dose, ½ tea-spoonful or more, taken at bed-time.

Liquors, Malt.—*See* Fermented Liquors.

Listerism.—*See* Antiseptic Surgery.

Litharge.—An oxide of lead, forming reddish scales. *See* Lead.

Lithæmia, *lithiasis.*—*See* Liver Disorders; Urine.

Lithium.—One of the alkali metals; the lightest known metal, lighter than water. The carbonate and citrate are used in medicine. They resemble the corresponding salts of potassium both chemically and medicinally, and are chiefly used in gout, gravel, and allied diseases. Dose: of carbonate, gr. 3 to 6; of citrate, gr. 5 to 10. Effervescing lithia water: Dose, 5 to 10 fl. ozs. Occasionally the long-continued use of this drug causes nervous tremors and depression. It may be substituted for half the citrate of potassium in *Pr.* 15.

Lithotomy.—Cutting for stone in the bladder.

Lithotrity.—Crushing the stone in the bladder.

Litholapaxy.—Crushing and washing out by a special method. The relative value of these different operations in any particular case must be left to the judgment of the surgeon.

Liver.—A large organ placed immediately under the arch of the diaphragm,

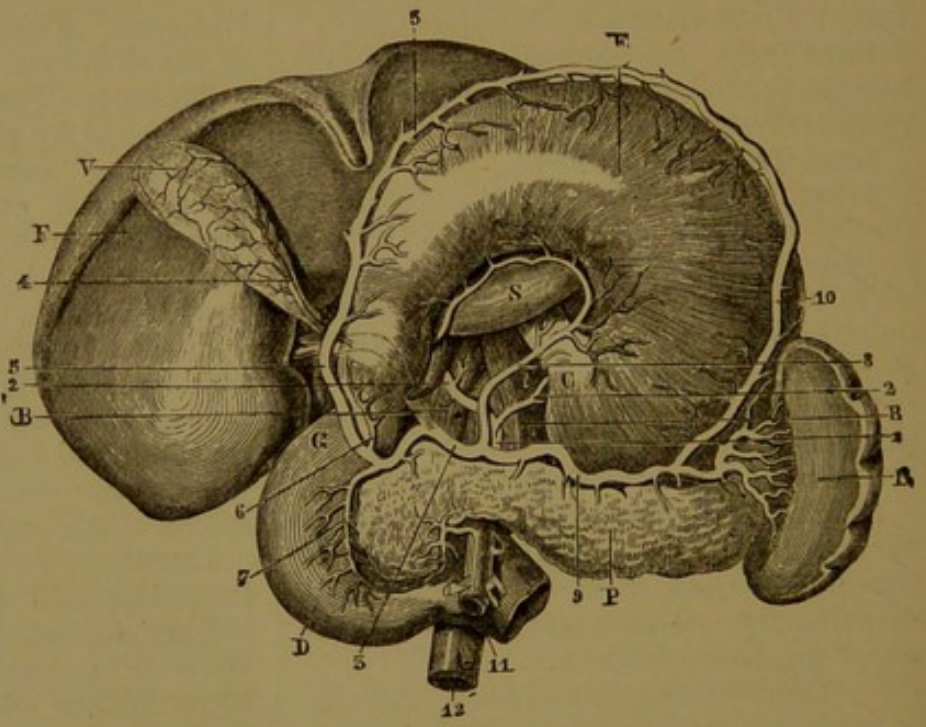

FIG. 36. THE LIVER, STOMACH, DUODENUM, PANCREAS, AND SPLEEN.

The liver and stomach have been turned up, so as to show the gall-bladder (V) and the pancreas (P). A, spleen; B, crura or "stalks" of the diaphragm; C,E, stomach; G,D, duodenum; F, liver. The numbers refer to bloodvessels. 12, Aorta.

and overlapping the right kidney, colon, and stomach (*Figs.* 1, 36). Its functions are (1) to purify the blood coming from the spleen and digestive organs; (2) to form glycogen; (3) to excrete bile. It is also one of the chief heat-producing organs of the body. The liver receives arterial blood through the hepatic ar-

tery, and venous blood through the portal vein. (1) During digestion the blood of the portal vein contains substances absorbed from the stomach and bowels, some of which are poisonous. These are transformed by the liver into harmless substances, which can be utilized in other parts of the body. To bring the blood into close relation with the liver-tissue, the portal vein breaks up into a network of capillaries. These are afterwards reunited to form the hepatic veins, by which the blood is carried to the heart. (2) Glycogen is a starchy substance manufactured by the liver cells, and discharged into the blood. It is easily transformed into sugar. (*See* DIABETES.) (3) Bile leaves the under surface of the liver by the hepatic duct. It is stored up in the gall-bladder, and discharged from time to time by the common bile-duct into the small bowel. The bile flows with a very sluggish stream. Consequently a block in the duct will readily stop the flow, in which case the bile passes into the blood-vessels and causes jaundice. Exercise is of great importance in promoting the flow of bile, especially such forms of exercise as cause active movements of the diaphragm. Every time the diaphragm descends, it squeezes the liver and presses the bile onwards in its ducts. Hence the value of horse-exercise, lawn-tennis, etc., in preventing biliousness. Taking a liquid in successive sips aids the flow of bile. This is one reason why a glass of hot water sipped while dressing will often insure a proper action of the bowels. Bile is a natural laxative, and its proper discharge into the bowel helps to prevent constipation. On the other hand, constipation may cause biliousness by preventing the proper exit of bile. Most of the bile which enters the bowel in health is reabsorbed, and returns to the liver by the portal vein. Some, however, of the impurities associated with the bile leave the body with the fæces. When there is constipation, these impurities may get into the general circulation, causing headache, nausea, and other disturbances. A sluggish discharge of bile may cause diarrhœa, the absence of bile in the bowel permitting decomposition of its contents, and formation of irritating substances. Hence alternate diarrhœa and constipation is a common feature of liver disorders. *See* DIGESTION IN THE BODY; BOWEL.

Liver Disorders are among the commonest ailments of the inhabitants of our towns and cities. Sedentary occupation, insufficient active outdoor exercise, or rich or injudicious diet, and possibly also inherited tendencies, are all more or less answerable for this fact. It has already been pointed out how essential is exercise to the proper expulsion of bile. As regards diet, rich, sweet, or fatty substances are most likely to upset the liver; and alcoholic drinks, especially sweet, strong wines and malt liquors, act in the same way. All alcoholic drinks cause some congestion of the liver, but those above named are especially liable to do so.

Other causes of liver derangement are great heat, worry, and anxiety.

Symptoms.—Feelings of oppression or lowness of spirits, with pain in the right shoulder, loss of appetite, nausea, furred tongue, and a bitter taste in the mouth, are commonly present. The bowels are either constipated or relaxed, the motions pale and chalky, or dark and lumpy, or liquid and bilious. Headache, either dull and heavy, over the forehead, or sick headache with boring pains over one eye, are common with a sluggish liver. Piles are also a common complication, as the veins of the bowel pass through the liver on their way to the heart. Many curious nervous symptoms may be due to liver disorder. Thus there may be giddiness, dimness of sight, numbness, tingling, or cramps. Sleep is often disturbed; and the spirits are almost invariably affected, and the temper irritable.

TREATMENT. — Simplify the diet, taking nothing but easily digestible plain food, avoiding rich, sweet, or strongly flavoured things. Of alcoholic drinks, nothing should be taken, or at most claret or other fully fermented light wines, or a little whisky well diluted with water. Take active exercise in the open air: tennis, cricket,

horse-exercise, or cycling, or, failing these, gymnastics or singing. If the bowels are confined, take plenty of stewed fruit; some saline draught or mineral water (Hunyadi, Carlsbad, Friedrichshall, *Pr.* 14) in the morning before breakfast, and a blue pill the previous night. If this does not agree, some other cholagogue, such as podophyllin or euonymin may be substituted. (*See* LIVER PILLS.) Where there is debility, nitric acid and nux vomica are the most useful tonics (*Pr.* 40). Dilute nitric acid may be substituted for dilute hydrochloric in *Pr.* 1. After the attack, *Pr.* 30 or 13 will be useful to improve the digestion. *See also* JAUNDICE; GALL-STONES; HEADACHE.

Liver, Abscess in the, is chiefly found in those who have lived in hot countries. Another variety arises from the irritation caused by gall-stones. Dysentery is also sometimes associated with abscesses in the liver, although the exact nature of the connexion is still uncertain. In addition to the ordinary *symptoms* of liver disorder, shivering fits and feverishness may be present, with bulging and tenderness over the region of the liver; but the disease usually requires considerable medical skill and knowledge for its detection. Indulgence in alcohol probably aids in bringing it on.

Liver, Gin-drinker's, is a form of chronic inflammation, caused by long-continued indulgence in spirits, especially when taken undiluted. It comes on insidiously, the first symptoms often being disorder of the digestion or loss of appetite. (*See* INTEMPERANCE.) The complexion is usually sallow, and dilated veins show themselves on the face. Piles are common, and after a time the belly becomes dropsical. Vomiting of blood, and passage of black, tarry blood with the motions, are also frequently met with. Sometimes the patient becomes jaundiced; and towards the end, shortness of breath, swelling of the legs, and general loss of strength, lead on to a fatal termination. The symptoms depend upon the formation of fibrous tissue round the liver cells, and the degeneration of the latter. At first the liver is enlarged, but after a while the fibrous tissue contracts, interfering with the passage of blood through the organ. If left too long, this inevitably ends in death; the only chance of cure lies in an early recourse to *total abstinence* from all alcoholic drinks. Diet should be plain and digestible; rich, sweet, greasy, or highly seasoned dishes being avoided. Regular exercise in the open air, and the regular use of suitable saline aperients will aid recovery; and *Pr.* 30, 13, are often useful.

Liver Pills and Powders usually contain some preparation of mercury, or else podophyllin, euonymin, or iridin. Dandelion, ipecacuanha, aloes, colocynth, jalap, rhubarb, sulphate, salicylate, and phosphate of soda, also act on the liver, and are common ingredients in a liver-pill or powder. Such remedies should not be continually resorted to, but only used occasionally. Where the need for them is constantly returning, the diet and regimen should be attended to. *See* LIVER DISORDERS; MERCURY; EUONYMIN; PODOPHYLLIN; and *Pr.* 54, 57, 60.

Lobelia (*L. Inflata* from U.S.A.) is used as a remedy for asthma. In poisonous doses it is an irritant poison, causing much depression, like tobacco.

Lobster. *See* "SHELL-FISH."

Lock-jaw or *Tetanus*. This terrible and painful disease is far more common in hot than in temperate climates, and is supposed to especially affect some of the darker races of mankind. The *cause* is still uncertain, although it is usually excited by injuries, such as a crushed limb or ragged cut or pinch, or, in the absence of these, to exposure to cold and wet. It may follow the slightest scratch, and in India frequently appears without any discoverable breach of surface. The first symptoms complained of are usually sore throat or stiff neck, the patient finding a difficulty in moving his head about, or in swallowing. Then a painful fixed grin is noticed, and the jaws are found to be firmly closed. Spasmodic contractions appear in other parts of the body, the muscles standing out in rigid cords, and the body being bent like an arch; the hands clenched, and the legs stiffly drawn up or extended.

These crampy contractions are increased at more or less regular intervals, causing intense pain; but the muscles are never entirely relaxed from the beginning of the illness. The cramps are excited during the height of the disease by such slight causes as a puff of air, or the slamming of a distant door; so that the sufferer must be kept very quiet. In bad attacks, the body temperature rises, although no other symptoms of fever are usually present. The disease often proves fatal, either by suffocation or exhaustion; the longer the patient can be kept alive, the better his chance of recovery.

The TREATMENT must necessarily be in the hands of a skilled surgeon. Where a wound is present, this will require careful attention; and in all cases the strength must be kept up by frequent feeding with liquid food, such as milk, poured in between cheeks and teeth, or administered by the rectum. (*See* ENEMA, NUTRIENT.) Powerful narcotics and other remedies are usually called for, such as chloral, morphia, or Calabar bean. The spinal icebag appears to be sometimes useful. *See* NUX VOMICA, POISONING; CONVULSIONS; HYSTERIA.

Locomotor Ataxy.—A disease of the spinal cord, interfering with the control of the muscles; so that walking movements are unnecessarily violent, and actions requiring the co-operation of many muscles—such as picking up a pin, or buttoning one's coat—are impossible, or at at all events clumsily done. As a rule the disease first shows itself in unsteadiness in going downstairs, or in moving in the dark. The patient totters and falls if he closes his eyes with the feet put together; walks awkwardly, and soon becomes fatigued. Many other parts of the nervous system may, however, be affected. Neuralgic darting pains are common; blindness, or paralysis, disorders of the digestion, or of the urinary organs, often appear. The disease is sometimes mistaken for rheumatism. The cause is not definitely known; but the disease appears to be due to exposure to cold and wet, long-continued over-fatigue of mind or body, intemperance and excess of various kinds. *The treatment* must be left to the medical attendant.

Logwood.—The sliced heart-wood of a tree, native of East and West Indies. It contains a colouring matter (hæmatoxylin), tannin, etc. It is used in medicine as an astringent in diarrhœa, and is especially valuable for children, as the taste is more pleasant than that of most other astringents. It should, however, be remembered that it may stain the underlinen.

DECOCTION OF LOGWOOD. — Logwood chips, 1 oz.; distilled water, 1 pint; boil for 10 minutes in a covered vessel, adding towards the end 60 grains of cinnamon bark in coarse powder; strain and make up to 1 pint. Dose, 1 to 2 fl. ozs. for an adult.

Loins, Pain in the. *See* LUMBAGO.

Longevity. *See* OCCUPATION; STATISTICS.

Loss of Blood. *See* HÆMORRHAGE.

Lotions. — Liquid preparations for washing or bathing part of the body. They may be classified as cooling, soothing, astringent, stimulant, and antiseptic or antiparasitic. COOLING lotions are used in inflammation or bruising. Examples are, weak spirit lotion, vinegar lotion, Mindererus lotion (No. 1). In using these, a single layer of linen or lint should be saturated and applied without any covering. SOOTHING lotions are used in more advanced inflammation, and in other painful conditions. Examples: poppy lotion, belladonna lotion, lead lotion (Nos. 2, 3, 4, 5, 6). ASTRINGENT lotions brace up the parts to which they are applied (Nos. 4, 7, 8, 9, 10, 11). STIMULANT lotions increase the circulation through the parts to which they are applied. Examples, strong spirit, ammonia lotion (Nos. 12, 13). ANTISEPTIC and ANTIPARASITIC lotions include carbolic, boracic, and chlorinated soda lotions (Nos. 14, 15, 16, 17, 18, 19). Lotions which are used hot are usually called *fomentations*. Liquids intended to be rubbed in go by the name of *liniments*. Those which are applied with a brush are sometimes called paints or *pigments*. (*See* overleaf for formulæ).

No. 1. Sal ammoniac, ½ oz.; spirits of wine, 1 fl. oz.; vinegar, 1½ fl. ozs.; water to ½ pint.

No. 2. Poppyheads bruised, 2 ozs.; boiling water, 1½ pints; boil for ten minutes, strain, and make up to one pint. Use as a fomentation.

No. 3. Extract of belladonna, 1 dr.; hot water, 1 pint. To make a fomentation.

No. 4. Goulard water.

No. 5. Bicarbonate of potash, 1 dr.; carbonate of ammonia, 1 dr.; aromatic spirits of ammonia, ½ fl. oz.; camphor water to 6 fl. ozs.

No. 6. Saturated solution of carbonate of soda.

No. 7. Alum, 1 dr.; water, half a pint.

No. 8. Tannin, ½ dr.; water, ½ pint.

No. 9. Sulphate of zinc, 2 grains; water, 1 fl. oz.

No. 10. Oxide of zinc, 2 drs.; carbonate of zinc, ½ oz.; glycerine, 2 fl. drs.; rose water to 8 fl. ozs.

No. 11. Oxide of zinc, 2 drs.; glycerine, 2 fl. drs.; lime water to 1 pint.

No. 12. Solution of coaltar (Wright's), ½ fl. dr.; glycerine, 1 fl. oz.; water to ½ pint.

No. 13. Strong solution of ammonia, almond oil, chloroform, of each ½ fl. oz.; spirits of wine, 2½ fl. ozs.; oil of lemons, ½ fl. dr. (Wilson). To be dabbed on to bald patches on the head.

No. 14. Solution of carbolic acid, 1 in 40.

No. 15. Boric acid, 2 drs.; water, ½ pint.

No. 16. Borax, 1 dr.; water, 1 fl. oz.

No. 17. Sanitas fluid and water, equal parts.

No. 18. Solution of chlorinated soda.

No. 19. Sulphurated potash, 2 drs.; soap, 2 drs.; rectified spirit, 1 fl. oz.

No. 20. Precipitated sulphur, ½ oz.; spirits of camphor, 2 fl. drs.; lime water, 4 fl. ozs.

Low Diet. *See* DIET.

Lozenges, *trochisci* or *troches*, are used either to act upon the throat, or as a convenient, palatable, and portable form of medicine. There are many different kinds. The commonest are those made with sugar and gum, or with fruit-paste, the latter being usually nicer. Compressed tablets have been introduced by Messrs. Burroughes, Wellcome & Co., which are convenient substitutes for ordinary lozenges. Throat lozenges should be slowly sucked, and not chewed or swallowed whole.

Lucifer Matches, Poisoning with.—Ordinary matches contain yellow phosphorus. Safety matches usually contain chlorate of potassium, or some other substance which will take fire on rubbing against red phosphorus (which is put on the box). The latter, unlike the yellow kind, is non-poisonous. *See* PHOSPHORUS.

Lumbago.—Pain in the muscles of the loins, usually regarded as of rheumatic or gouty nature. It usually comes on suddenly while stooping, either in consequence of a cold draught, or from less obvious causes, and is aggravated by all movements of the part. It must be distinguished from more serious complaints which also cause pain in the back, such as kidney disease, or spinal disease. The TREATMENT is that of the general condition—rheumatism, gout, etc.—and the application locally of embrocations (*see* LINIMENTS), counter-irritants (*see these*), or hot, moist flannels. A serviceable domestic remedy is the flat iron applied as hot as can be borne without pain, over three or four layers of thin flannel. Those liable to lumbago should wear flannel, avoid overheating themselves, and especially avoid chills and draughts. Massage is sometimes useful in controlling the tendency to this painful complaint. *See* GOUT; RHEUMATISM.

Lumbricus.—A term sometimes applied to the round-worm. *See* WORMS, INTESTINAL.

Lunacy. *See* INSANITY.

Lunar Caustic.—Nitrate of silver. *See* CAUSTICS.

Lunatic Asylums. Owing to the large number of public and private asylums and licensed houses, it will be impossible to give a complete list here. In the metropolitan area and neighbouring counties there are the following HOSPITALS for Lunatics: *Essex*, Eastern Counties Asylum for Idiots, Colchester; *Middlesex*, St. Luke's Hospital, Old Street, E.C.; *Surrey*, Bethlem Hospital, St. George's Road, S.E.; Earlswood Asylum for Idiots near Reigate, and the Holloway Sanatorium, St. Ann's Heath, Chertsey. COUNTY AND BOROUGH ASYLUMS exist at Stotford, Baldock, for Beds, Herts, and Hunts; Moulsford, Wallingford, for Berks; Stone, near Aylesbury, for Bucks; Brentwood, for Essex; Knowle, near Fareham, for Hants; Barming Heath, near Maidstone, for Kent; Colney Hatch, Hanwell, and Banstead, for Middlesex; Wandsworth, Brookwood near Woking, and Cane Hill, Coulsdon, for Surrey; and Stone, near Dartford, for the City of London.

METROPOLITAN LICENSED HOUSES include the following:

Bethnal Green	* Bethnal House
Bow	*m Grove Hall
Brixton	s 1, Knowle Road
Brompton	f Earls Court House
Brook Green	m Montague House
Camberwell	* Camberwell House
Chelsea	m Blacklands House
Chiswick	Manor House
Clapton, Upper	Brooke House
Finsbury Park	Northumberland House
Fulham	m Munster House
Hammersmith	f Otto House, North End
	qf Upper Mall House, Sussex and Brandenburgh Houses
Hampton Wick	i Normansfield
Hanwell	f Lawn House
Hayes	f Hayes Park
	Wood End Grove
Hendon	f Hendon Grove
Hillingdon	m Moorcroft House
Hoxton	* Hoxton House
Isleworth	Wyke House
Leyton	qf The Great House
Lower Norwood	qmi Colville, Thurlow Park Road
Notting Hill	s 3, Darnley Road
Peckham	* Peckham House
Peckham Rye	qf Silverton House, 26, Linden Grove
Roehampton	The Priory
Southall	qf The Shrubbery
	Vine Cottage, Norwood Green
Sunbury	Halliford House
Twickenham	Twickenham House
Upper Tooting	s Ivy Lodge
Wandsworth	f The Huguenots, East Hill

Those with a * receive paupers, *m*, males only; *f*, females only; *i*, idiots, etc.; *q*, quiet and harmless cases; *s*, certified special cases only.

For further details *see* the *Medical Directory*, and the Appendix of Dr. Savage's book on Insanity, from which the foregoing particulars have been obtained.

Luncheon. *See* MEALS.

Lungs.—The organs by which blood is freed from its gaseous impurities. Dark venous blood is sent from the right side of the heart by the pulmonary artery to the lungs, and, being transformed there into bright arterial blood, returns by the pulmonary veins to the left side of the heart. (*See* CIRCULATION; RESPIRATION.) The lungs rest on the arch of the diaphragm, overlapping the heart (*Fig.* 18). Each lung is surrounded by a double layer of serous membrane (*pleura*), one layer being attached to the lung, and the other to the inside of the chest wall.

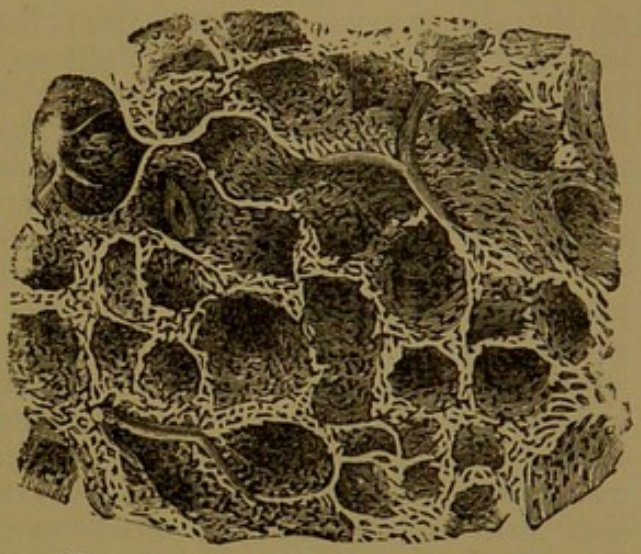

FIG. 37. INJECTED BLOODVESSELS OF THE LUNG, MAGNIFIED.

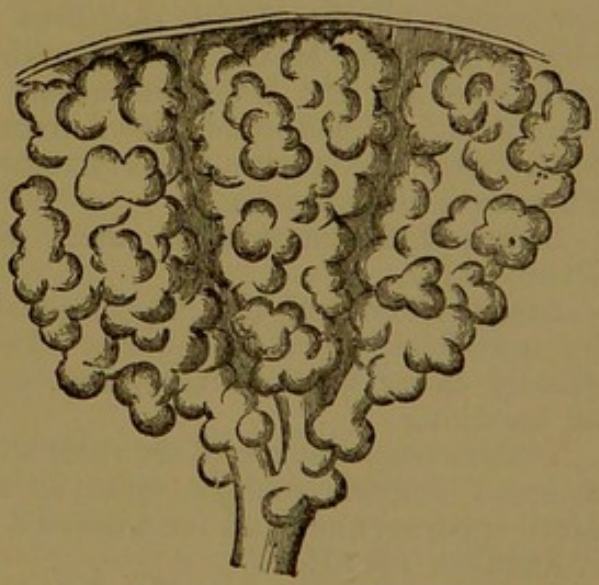

FIG. 38. A LOBULE OF THE LUNG, MAGNIFIED. Showing termination of bronchi in air-cells.

The right lung (which is the larger) is divided into three lobes; the left into two. Air enters the lungs by the *trachea*, or windpipe, which divides behind the breastbone into two *bronchi*, one for

each lung. These bronchi, whose walls are strengthened by imperfect rings of cartilage or gristle, divide repeatedly inside the lungs. The smallest divisions expand into pouches lined with air-cells, surrounding which is a dense network of small bloodvessels (*Figs.* 37, 38). The surface of bloodvessels thus exposed to the air has been estimated at nearly 180 square yards. The lung substance contains much elastic tissue, which enables it to follow the movements of the chest wall. (*See* RESPIRATION.) The whole of the air is never expelled from the lungs; hence the lung tissue is light and spongy, and readily floats in water. The lungs, however, of an infant that has never breathed may sink in water, so that this is a test of live birth. In an infant the lungs are of a delicate, pinkish-white colour. As age advances, dark particles are deposited in their substance, partly derived from the dust and smoke which soils our atmosphere; so that in old age the lungs are slaty grey or even black. This change of colour is still more remarkable in the case of miners, knife-grinders, and the like. *See* CHEST; WINDPIPE.

Lung Diseases.—The chief *symptoms* pointing to disease of the breathing organs are cough, blood-spitting, shortness of breath, and pain in the chest, together with blue lips and other indications of imperfectly purified blood. *See* ASTHMA; BRONCHITIS; CONSUMPTION; EMPHYSEMA; PLEURISY; PNEUMONIA.

Lungs, Inflammation of the. *See* PNEUMONIA.

Lungs, Wounds of the, may be caused by a stab or by a broken rib. They usually cause blood-spitting, and pain on breathing.

TREATMENT.—Surround the chest with a broad flannel bandage, treat as for blood-spitting, and send for a doctor.

Lupulus. *See* HOP.

Lupus.—Literally, a wolf—the name given to a disease which eats away the skin, chiefly of the nose and other parts of the face, causing much disfigurement. The common form begins as small, smooth, reddish pimples or spots, which either scale over or ulcerate. Fresh tissue is continually attacked, while the original growth is replaced by thin, bluish-white scar-tissue. In severe forms the whole thickness of the cheek or nose may be eaten away, either slowly or rapidly. The disease chiefly attacks young people.

The TREATMENT consists in destroying the unsound skin by scraping or cautery, aided by local applications. Tonics, such as cod-liver oil, arsenic, or iron, are usually required. Obviously the treatment must be left in the hands of a surgeon; and the earlier he is consulted, the better the chance of cure.

Luxation. *See* DISLOCATION.

Lying-in Rooms. *See* CHILDBIRTH.

Lymph.—(1) The fluid contained in the lymphatics or *absorbents;* also (2) watery exudations from bloodvessels, blisters, and vesicles. *See* ABSORBENTS; VACCINE LYMPH; TEMPERAMENT.

Mace.—The outer covering of the nutmeg. *See* AROMATICS.

Madeira Wine. *See* FERMENTED LIQUORS.

Madness. *See* INSANITY.

Magnesia.—Oxide of magnesium, a white, almost tasteless powder, insoluble in water, but frequently given medicinally, suspended in water by the aid of mucilage. It is useful as a remedy for acidity or heartburn with constipation, and in the early stage of diarrhœa. If taken in large quantities, or for long periods, it may form concretions or stones in the bowel, especially if iron salts have been taken at the same time. There is, however, no fear of such a result from its occasional use. There are two kinds—light and heavy magnesia—but their action is much the same. Dose to correct acidity, 10 grains; as an aperient, 20 to 60 grains. (*See* GREGORY'S POWDER.) Children may take it in milk, after a helping of garden rhubarb or a couple of oranges.

Magnesium Carbonate resembles the foregoing, but on meeting with an acid (such as the gastric juice), gives off carbonic acid gas, which causes flatulent distension. This is sometimes an advantage, if another aperient is taken at the same time. There are also two kinds of carbonate of magnesium—heavy and light. *Fluid* magnesia consists of

a solution of the carbonate (dose 1 to 2 fluid ozs.).

Magnesium Citrate is sold in granular form, effervescing on addition of water. It has largely replaced the old-fashioned Seidlitz powders.

Solution of citrate of magnesium may be made by dissolving 200 grains of citric acid in a pint of water, adding 100 grains of carbonate of magnesium, and stirring till dissolved. Filter into a soda-water bottle, add a tablespoonful of syrup of lemons, introduce 40 grains of bicarbonate of potash, and quickly close the bottle with cork and wire. Dose, half a tumblerful or more.

Magnesium Sulphate. *See* EPSOM SALTS.

Maize. *See* CEREALS.

Malaria. *See* AGUE.

Male Fern is a valuable remedy for tapeworm. The root-stock is collected in summer or autumn, cleared of earth, scales, roots, and all black or dead portions, without being washed. It is then dried carefully without heat, and the yellowish-green part inside reduced to powder. From this a liquid extract is made with ether (dose, 15 to 60 mins.). The powder should be kept in stoppered bottles; it is not reliable if more than twelve months old. The dose of the powder is 150 to 180 grains; but it is not much used in this form. (*See* Pr. 44.) A full dose sometimes causes nausea; this is usually avoided by lying down immediately after taking the drug. *See* WORMS.

Malignant.—Tumours are called malignant when they tend to infiltrate surrounding parts, and ultimately to destroy life. *See* CANCER; SARCOMA.

Malignant Pustule. *See* WOOLSORTER'S DISEASE.

Malt Extracts, if properly made, contain diastase, a ferment capable of converting starch into sugar. They are for the most part thick, brown, treacly fluids, with a sweet taste. Diastase is destroyed by a temperature above 158° F., so that any malt extract prepared by evaporation at a higher temperature is of little or no value. Reliable preparations are sold by Messrs. Burroughes, Welcome & Co. ("Kepler Extract"), Corbyn & Co., Hoff, the Maltine Manufacturing Co., Lœfflund, and others. A teaspoonful of one of these preparations may be added to half a pint of cocoa, arrowroot, sago, or other farinaceous food, after it has cooled down, so that it can be sipped. It is useless to take malt extracts after meals, as the acid gastric juice destroys the diastase. GROUND MALT may be used in the same way as malt extract. Where malt or malt extract is added to farinacea, no cane sugar is required, as the malt sugar alone is sufficient to sweeten the food. Ground malt is rich in phosphates, malt-sugar, dextrine, and soluble albuminoids; only fat is wanting to make it a typical food, and this is added in Lœfflund's "Cremor hordeatus," and in Oleobyne. Ground malt has more transforming power than malt extracts.

Malted Foods.—Many of these are sold for infants and invalids. Mellin's and Savory & Moore's are reliable preparations. (*See* MALT EXTRACTS.) Malted bread is also sold, in which the starch has been partly changed by the malt previous to baking. Malted flour contains from one-third to one-half malt.

Malt Liquors. *See* FERMENTED LIQUORS.

Mammary Gland. *See* BREAST.

Mania. *See* INSANITY.

Manna.—A whitish substance, obtained from the juice of a kind of ash tree growing in Sicily and other parts of Southern Europe. It has a sweetish smell and a bitter-sweet taste, and consists chiefly of a kind of sugar (*mannite*). It used to be frequently prescribed as a laxative for children, but is now not much used. Dose, 1 drachm to 1 oz. or more.

Marasmus. *See* WASTING.

Margarine. *See* BUTTER.

Marmalade.—A preserve made with Seville and other oranges. Taken in moderation, it is perfectly wholesome, excepting for gouty or diabetic patients and others for whom sugar is not suitable.

Marriage appears to be conducive to longevity. Marriage before full development has been arrived at is trying to the constitution, and weakens the off-

spring; and the same is true of marriage in advancing age. Great disparity of age also renders marriage undesirable. The marriage of near kin, as, for instance, of first cousins, intensifies in the offspring the common characters of the two parents. In this way any hidden unsoundness may become well marked in the children. It would be well for newly married couples to remember the advisability of self-control in their marital relations. Instances are not uncommon in which the constitutional strength has been seriously reduced by neglect of this rule. Probably the Jews owe their well-known superior vitality, at least in part, to the observance of Mosaic regulations for the conduct of married life. Those who suffer from advanced heart disease, Bright's disease, or consumption, should not marry, nor is it advisable where a strong tendency exists to insanity. Epilepsy is sometimes induced or aggravated by the married state. Women with decided contraction or other malformations of the pelvis (such as often result from rickets in early life), cannot safely marry, both on their own account and on that of their offspring.

Marrow.—The fatty matter of bone. Two kinds exist—red matter in the spongy bone, and yellow matter in the marrow-cavity of long bones. The former is concerned in blood-making; the latter is chiefly fat.

Marrow, Vegetable. *See* VEGETABLES.

Marsh Mallow.—The root of this handsome plant is sometimes used medicinally. It contains much mucilage, and may be given to quiet a cough. Syrup of marsh-mallow may be made by leaving $1\frac{1}{2}$ ozs. of the root, dried and sliced, to soak for 12 hours in 1 pint of water; pressing, straining through linen, and adding 3 lbs. sugar, heating gently to dissolve it. When cold, rectified spirit should be added to preserve it, in the proportion of $\frac{1}{2}$ fluid drachm to 1 fluid oz. Dose, 1 teaspoonful to 1 tablespoonful.

The French *pâtes de Guimauve* are made from the same plant.

AMERICAN MALLOW has similar properties.

Marsh Fever. *See* AGUE.

Marshy Land. *See* SOIL.

Marshall Hall Method of Artificial Respiration. *See under* DROWNING.

Massage.—A kind of systematic manipulation of the body. It is spoken of by some as if it were identical with "rubbing." If by this is meant the shampooing provided at Turkish baths, or the manipulations of untrained "rubbers," the two things are by no means the same. Massage includes several kinds of manipulation, which have a profound influence over the nutrition of the body, and which require for their skilful performance some knowledge of anatomy, and special training as well as natural aptitude. The chief varieties of massage may be called stroking, kneading, friction, and tapping. When properly done, the lymph circulation is accelerated, muscular fibre stimulated to contract, temperature raised, and pulse-rate quickened. Massage removes fatigue, increases the size and activity of muscles, removes corpulence, gets rid of rheumatic or gouty deposits, restores the freedom of stiff joints, and is invaluable in the treatment of many nervous complaints. It should, however, never be tried without medical advice, as in unsuitable cases it may do serious harm. Massage is often combined with the Swedish movement-cure; or (under the name of Weir-Mitchell treatment) with rest, seclusion, over-feeding, and the application of electricity. These are, however, quite independent of massage, although often very useful auxiliaries. It is, perhaps, necessary to warn the public that many who profess to be masseurs or masseuses are quite incompetent, and are really dangerous quacks. There are plenty of skilful and reliable persons who practise the art, and can give references to medical men of repute.

Mastication.—The act of chewing, whereby the food is reduced to a pulp fitted for digestion in the stomach. This is of great importance to the health. Dyspepsia and debility are often traceable to imperfect mastication. Hence the importance of cultivating the habit of eating slowly, and of having the teeth kept in good order, or, if necessary, replaced by

artificial ones. *See* DIGESTION; INDIGESTION.

Mastich. — A resin obtained from *Pistachia lentiscus*, growing in Turkey and the Levant. It has a pleasant smell, and is used, dissolved in chloroform or ether, for stopping teeth.

Materia Medica.—The science of drugs, their source, preparation, and properties. *See* DRUGS; THERAPEUTICS.

Matico consists of the leaves of a species of pepper from South America. It has been applied locally to stop bleeding. The infusion acts like pepper and cubebs (*which see*).

Matter.—*See* ABSCESS.

McDougall's Disinfectant powder consists of about 33 per cent. of carbonate of lime, and 59 per cent. of sulphite of magnesium. It is useful for disinfecting excreta, drains, etc.

Meals.—As a rule, the more active the mode of life and the stronger the digestion, the fewer meals will be required in the course of the day. The French custom of taking only two large meals, although it suits some unusually robust people, alternately overloads and starves the digestive organs, and interferes with work for several hours after taking food. For most people, three good meals a day, at intervals of about five hours, are sufficient. Early risers require a good breakfast and a full mid-day meal. Those engaged in sedentary occupations and brain work do better with a light lunch, and a full dinner or supper after working hours; and the same is true of artisans who cannot find time to digest a hearty mid-day meal. People in delicate health do well to take four meals a day; they often cannot digest a hearty breakfast, and therefore require to make an early dinner their chief meal. Invalids and some dyspeptics may even require five or more meals, the quantity taken at each being proportionately reduced. Faintness or sinking some time after meals may be due to indigestion, or to the need of food where the appetite is small. When people get hungry before meals, but cannot eat them when the time comes, the interval is probably too long. Late suppers have been, with much reason, condemned, as likely to interfere with sleep. Healthy people should avoid a full meal within two hours of bed-time. But when the appetite is not great, a light meal an hour or two before retiring often improves, rather than disturbs, the night's rest; and, by preventing exhaustion, assists the digestion of breakfast in the morning. Whatever the times chosen, the meals should be taken regularly every day, as digestion is more easily performed at accustomed hours. *See also* DIET; DIET FOR CHILDREN; DIGESTION; FOODS; INDIGESTION.

Measles.— One of the common infectious fevers of childhood, which often prevails as an epidemic. The disease begins after an incubation period of about ten or twelve days with headache, running from the eyes and nose, fever, and digestive disorder. There is usually also some cough, which may develop into bronchitis. On the third or fourth day of the fever a rash appears, usually first about the forehead, then on the neck and arms, and later on the trunk and legs. The spots are raspberry red, slightly elevated and scattered, tending to form crescentic lines. They begin to fade after four days, and disappear a few days later, leaving the skin rough and peeling. A coppery, mottled appearance often remains for a week or two longer. During the height of the fever there may be delirium. The chief danger in this country is that of bronchitis and inflammation of the lungs. In hot climates, diarrhœa and dysentery are equally dangerous. Measles varies greatly in its severity. It may be so mild as to be quite a trivial matter, or so severe as to cause many deaths. In one bad form the rash is dusky, and comes out imperfectly. When the child recovers from measles, it is apt to suffer from deafness and discharge from the ear, or from weak eyes and general debility. Measles is often the starting-point of consumption or scrofula, so that delicate children must be carefully looked after during convalescence.

TREATMENT. — Isolate as for other infectious fevers (*which see*), and use disinfectants in the same way. (*See* DISINFECTION.) During the height of

the fever give *Pr.* 31 or 7. Give light diet (DIET, II.), and plenty of bland drinks, such as barley water, linseed tea, and oatmeal water. If the rash does not come out properly, the fever remaining high, or if it goes in after once coming out, give a warm bath and a little wine (a teaspoonful of sherry at six years old, with a wineglassful of hot water). Otherwise stimulants should be avoided. There is no objection to giving cowslip tea. If the cough is troublesome, give *Pr.* 19, or repeated small doses of linctus (*which see*), and apply hot linseed poultices to the chest, back and front, and carefully avoid chills. At the same time, plenty of fresh air should be admitted into the room, which may be kept at about 65° F. (*See* SICK-ROOM.) As the eyes are sensitive, the room should be a little darkened. During convalescence, cod-liver oil and steel wine will be required, and a change to the seaside will do good. The disease is infectious from the beginning, and remains so for two or even four weeks, as long as peeling continues. Bad or "malignant" attacks require skilled medical treatment, as they are very fatal to young children.

Measly Meat is the cause of tapeworm. The parasites are encysted in the meat, forming small round lumps, ¼ in. or less in diameter. *See* WORMS.

Measures. — *See* WEIGHTS AND MEASURES.

Measure-glasses. — Of these, several kinds are sold by chemists, differing in their shape, size, and graduation. The *minim measure* is usually cylindrical, graduated in minim or five-minim intervals, up to 60 or 120 minims. The *fluid ounce measure* is beaker-shaped, with divisions corresponding to fluid drachms and ounces. Larger measures, to hold one pint or one gallon, are also used. China or glass measures are made for domestic use, marked in teaspoonfuls, dessert-spoonfuls, and tablespoonfuls. In this case the teaspoonful equals 1 fluid drachm; the dessert-spoonful, 2 fluid drachms; the tablespoonful, half a fluid ounce. Spoons should not be used for measuring medicine, as they vary greatly in size. Drop glasses or pipettes are also sold. If accurately graduated, they may be used instead of minim measures; but otherwise their use is unsafe. A drop of a tincture or thin fluid is often smaller than a minim, while a drop of syrup or other thick, tenacious fluid may be much more than a minim. Therefore doses of medicine should be accurately measured, not "dropped out." All measure glasses should be cleaned immediately after using. Otherwise a deposit is apt to remain behind. *See* MEDICINE BOTTLES; WEIGHTS AND MEASURES.

Meat consists of striped muscle with more or less fat and connective tissue. The average composition is shown in the following table from Parkes:

	In 100 parts.				
	Water.	Albuminates.	Fats.	Carbohydrates.	Salts.
Lean meat, uncooked, best quality . . .	74·4	20·5	3·5	—	1·6
Very fat meat, uncooked	63·0	14·0	19·0	—	3·7
Roast meat, no dripping lost	54·0	27·6	15·5	—	2·9
Salt beef (Girardin) .	49·1	29·6	0·2	—	21·1
Salt pork „ .	44·1	26·1	7·0	—	22·8
Fat pork (Letheby) .	39·0	9·8	48·9	—	2·3
Dried bacon „ .	15·0	8·8	73·3	—	2·9
White fish „ .	78·0	18·1	2·9	—	1·0
Poultry „ .	74·0	21·0	3·8	—	1·2

It will be noticed that fat meat contains less water than lean. The flesh of young animals is usually more watery and fat, and yields more gelatine. Wild animals are less watery and fuller flavoured. Beef contains rather more nourishment than mutton, and more red blood and flavour; but it is less easily digested as a rule. Pork and veal, as prepared in this country, are difficult of digestion, and unfit for invalids. Bacon is, however, a partial exception. White meat is generally considered more digestible than red. The digestibility of meat also depends upon the quality and nature of the joint, and on the mode of cooking. Roast meat is usually less digestible than boiled, but more so than that which is fried, stewed, or hashed. Good beef or

mutton should be marbled with fat, deep red, neither purple nor pale, firm and elastic to the touch, free from excess of moisture and from embedded particles; the smell should be pleasant and the juice reddish and acid. Meat should not be taken from animals killed near parturition, nor in consequence of accident or disease. Too little care is taken in rejecting animals which have diseased lungs. There is reason to believe that consumption may be caused by eating the flesh or drinking the milk of cows affected with the same disease; and the striking immunity of Jews from tubercular disorders has been attributed to the care exercised in the selection of their meat. The bacilli of consumption might easily survive the heat of cooking in the middle of a joint. The meat of diseased animals may also be unwholesome because of drugs given them. Another danger is the presence of parasites, the chief of which are encysted tape-worms (in "measly" meat) and trichinæ. The "measles" are rounded masses about $\frac{1}{4}$ in. long; encysted trichinæ are just visible as specks to the naked eye. Both would be killed by thorough cooking. Tinned meats are sometimes unwholesome, owing either to the presence of lead or tin, or to partial putrefaction. Violent poisons are sometimes developed during decomposition. Perfectly fresh meat is tough, owing to the post-mortem rigidity. This can be overcome by vigorous beating or by hanging. In hot weather small joints may be longer hung, if previously dipped in 1 part of boroglyceride to 50 of water.

Meat Extracts are valuable for their stimulating properties, and some also for their food value. Liebig's extract is purely stimulant, while Valentine's meat juice, kreochyle, bovril, and several other well-known preparations, are also highly nourishing. To render Liebig's extract or ordinary beef-tea nourishing, a teaspoonful of baked flour or of Ridge's food may be added to each teacupful. Murdoch's food is said to contain vegetable juices as well as meat juice. *See* BEEF-TEA; SOUPS.

Meconium.—The dark olive-green discharge from the bowels of the new-born infant.

Medical Advice.—In seeking advice, go to a medical man in whom you can have confidence. State the symptoms and medical history without concealment or deception, as far as possible in the order of their occurrence, and in as few words as accuracy permits. Before leaving, be sure you understand the directions, and then carry them out loyally, unless there is an important change in the condition or circumstances, in which case the doctor should have early notice. If you are dissatisfied with the progress made, tell the doctor openly that you wish for a second opinion, so that he may be able to lay all the evidence before the consultant. It is within your right to change your medical adviser, provided you write to him to say so; but obviously such a change should only be made under exceptional circumstances. Most general practitioners are at home before 11 a.m. and after 6 or 7 p.m., and go their rounds between these hours. If, therefore, you wish the doctor to call, you should give notice before he goes his rounds, stating particulars in a written note. It is not only wrong, but unwise, to send an urgent request when there is no urgency, as on future occasions a really serious call may be disregarded. If in an emergency more than one medical man is summoned, fees should be paid to all; for to a professional man time is money. *See* CONSULTATIONS; DOCTORS; FEES.

Medical Adviser. *See* DOCTOR.

Medicine.—A term applied, on the one hand, to the science and art of healing; and, on the other, to a particular class of remedies. In its broader sense, it includes the study of the causes of each disease, of its symptoms, its relations to other diseases, its probable course under various circumstances, and its relief or cure. Until the causes of a disease are known, its prevention is impossible, and its cure difficult or uncertain. All diseases are perversions of the healthy actions of the body, so that these must first be studied (*Physiology*). The art of preserving health and of preventing disease is called *Hygiene* or *Preventive*

Medicine. Many diseases which at first sight appear to be identical, prove, on closer examination, to be totally distinct, and due to quite different causes. The recognition of a disease from amongst others like it is called *Diagnosis.* To forecast its probable course and issue is to make a *Prognosis.*

TREATMENT of disease may be directed against its cause or its symptoms. Further, it may be rational or empirical, curative or palliative. "Rational" treatment is only possible where the cause of the disease and the exact mode of action of the remedies are known. "Empirical" treatment is that based solely on experience, independent of all knowledge of the mode of action of the remedy. In proportion as medicine becomes more and more of a science, the reason is discovered for methods of treatment originally purely empirical; and remedies can then be more accurately applied. Palliative treatment is that directed to the relief of prominent or distressing symptoms, where a cure is impossible. The treatment of disease frequently has to be taken in several stages, each remedy paving the way for the next. In this way the last remedy, or the last doctor, may get the credit which is equally due to the earlier mode of treatment. In all such matters, where the reasons for treatment are not understood, the patient must trust his medical adviser, and not rashly conclude that a remedy has failed because it is changed or produces no effect noticeable to the uninstructed. That the treatment of disease should be difficult and uncertain is to be expected, considering the extreme complexity of the processes in even the healthy body, and the many ways in which these may be perverted. No great progress was possible in the medical art so long as physiology was unknown, and each prescription contained a number of powerful remedies; but now-a-days these reproaches are far less applicable.

A distinguished writer once compared medicine to a blind man with a club trying to help another man fighting with a bear, in which case it was uncertain whether man or bear would get struck. However true this may have been of the medical art in olden times, it is no longer so; and the club is often wielded by men both able to see what they are about, and trained to use it skilfully. *See* DISEASE; QUACKERY.

Medicine, Administration of.—In cases of illness it is always advisable to obtain full directions from the doctor how to take the medicine. In serious illness this duty devolves upon the nurse, who should ask whether the patient is to be woke to take his medicine, how long he may be left asleep without it, and under what circumstances the remedy should be discontinued. As a rule, sick people should not be roused from sleep for either food or medicine; but there are exceptions. During waking hours, nothing should be said in the patient's hearing about medicine-taking until the right time comes. Medicines directed to be taken "before meals" should be given about 20 minutes before, unless exact directions have been given; "at bedtime" refers to the ordinary hour of retiring—10 or 11 o'clock. Sleeping draughts take a variable time to act; some people require to take them 2 or 3 hours before, and to keep quiet during the interval. Aperient pills and powders are best taken at bedtime or after dinner, and assisted by an aperient draught before breakfast. If active aperients are taken after a meal, they are liable to disturb the digestion. Mild aperients are rendered still more mild by being taken on a full stomach. Irritating remedies, such as arsenic, should be given after a meal—upon a full stomach—and if forgotten, the dose should be omitted altogether. Where no special directions are given, medicines should be taken before meals or several hours after a meal.

Medicine bottles should as a rule be shaken before a dose is taken, and the dose carefully measured out in a clean glass or cup. (*See* MEASURE GLASSES; MEDICINE BOTTLES.) Medicines containing strong acids or preparations of iron are best taken through a glass tube, in order to avoid spoiling the teeth. The mouth should, moreover, be afterwards washed and the teeth brushed.

It is customary after a dose of medicine to eat something to "take the taste away." For this purpose a small piece of orange or lemon-peel may be chewed, both before and after the dose of medicine.

Pills are best swallowed with the head upright in a natural position, and followed by a draught of water or a morsel of bread. To throw the head back violently in taking a pill is to prevent it from going down the throat. Pills which have been long kept are liable to be dry and difficult to swallow. Powders, if small, may be put upon the back of the tongue; or, if large, blown into the throat through a quill, or taken in a little jam, or suspended in water. Powders containing an alkali should not be given in treacle or preserve, on account of the acids usually present in these articles.

Medicines.—Drugs or their preparations. They are given in various ways. Some preparations are applied externally—as liniments, lotions, ointments, plasters, and poultices. Others are given internally, in solid or liquid form. Of solid preparations may be mentioned confections, extracts, lozenges, pills, powders, and tablets. Among fluid preparations are decoctions, essences, fluid extracts, infusions, mixtures, solutions, spirits, syrups, tinctures, and wines. Vapours and sprays are for inhalation; gargles for action on the throat; enemas and suppositories for application to the rectum. Injections may be applied under the skin (hypodermic), or thrown into a cavity or canal, such as the rectum, nose, or ear.

Medicine Bottles are made of various sizes, from 12 ozs. to 1 dr. Very commonly they are marked with divisions corresponding with ounces or half-ounces. Poisons, or liquids for external application, are best put into blue fluted-glass bottles. In this way they may be distinguished by day or night, with less risk of accidents. Medicines should never be left about, but put away by themselves on a shelf or in a locked cupboard, out of the reach of children. Labels beginning to come off should be promptly refixed. Neglect of such precautions has many times caused fatal poisoning. Where medicines have to be kept long, the bottles should be of stoneware or glass, free from lead.

Medicine Glasses. *See* MEASURE GLASSES.

Megrim. *See under* HEADACHE.

Melancholia. *See* INSANITY.

Melon. *See* FRUIT.

Memory.—Failure of memory is a common symptom in various brain diseases and other exhausting illnesses, as well as in advancing age. Where the power of paying attention is deficient, the memory is sure to suffer; and this depends on both bodily and mental conditions. The memory is most acute in the morning, so that this is the best time for its exercise. (*See* APHASIA; EDUCATION.) Curious instances are on record where the memory for recent events has been completely lost in consequence of injury or disease, that for earlier years remaining. It has also happened that people have led a double life, in one of which the character and attainments have been quite different from those in the other; and events have been remembered only in the corresponding conditions of life.

Ménière's Disease.—A disorder of the internal ear, causing giddiness, singing in the ears, and deafness. The disease begins with an attack of loud noise in the ear, followed by giddiness, causing the sufferer to reel and fall forwards or to one side. The noise in the ear becomes constant, and in time there is deafness, which brings partial relief. *See* GIDDINESS.

TREATMENT is uncertain in its results.

Meningitis.—Inflammation of the membranes of the brain. *See* BRAIN-FEVER.

Menstruation.—The monthly periodical discharges, catamenia, menses, or courses, usually appear for the first time in this country between the ages of thirteen and seventeen, although they may begin earlier or later. In India and other hot climates they usually begin a year or two earlier—at all events, among the natives. Luxurious sedentary lives, and the excitement of society in a large town, hasten their advent. It is well to warn young girls about the time of puberty of the possibility of such a discharge, as its

appearance may otherwise cause needless alarm, or lead to imprudent efforts to stop it. The first appearance of the flow is occasionally determined by falls, or over-exertion, or horse-riding. Once established, it normally recurs every four weeks for about thirty years, although some irregularity is common at the beginning and end of this time, and the periods cease during pregnancy and lactation (*which see*). As a rule, the discharge lasts from three to five days. More than this is likely to be weakening. Some headache, pain in the back or stomach, general aching and languor are not uncommon before the flow, and slight sickness or diarrhœa or irritability of the bladder may also be met with; but if these are sufficient to lay the woman up, the condition is unnatural. During the menstrual period, care should be taken to avoid chills or over-fatigue. Regular hours should be kept, and balls and hot rooms avoided. Pads of absorbent medicated cotton wool and other materials (*sanitettes*) are now sold by surgical instrument makers for use in place of the usual napkins. They are intended to be destroyed after use, and are likely to be convenient for travelling. "Sanitary towels for ladies" answer the same purpose.

(1) PAINFUL MENSTRUATION — *dysmenorrhœa.* Whenever the pain at the monthly period is sufficiently severe to cause disability for ordinary duties, it is unnatural, and calls for medical advice. The pain varies in character and in its probable mode of production. It may appear with a scanty or an abundant loss. It may precede the flow by a few hours or days, or come on with it, lasting the whole time, or subsiding as the flow is established. It may be sharp and darting (neuralgic), or dull, aching, and continuous, or bearing down, or resembling cramp and colic. The chief varieties of painful menstruation are *neuralgic*, *congestive*, *obstructive*, *membranous*, and *sympathetic.*

The *neuralgic* form resembles neuralgia in other parts of the body, both in its character and its causes. (*See* NEURALGIA.) It is often associated with tenderness of the skin of the abdomen, and shooting pains in the thighs. As a rule the flow is scanty and in gushes, the pain being relieved by the flow. After some years the constitution frequently suffers, the patient becoming nervous, hysterical, or depressed.

The TREATMENT is that of neuralgia generally, together with avoidance of constipation and digestive disturbances. Plenty of fresh air and exercise short of over-fatigue are useful, late hours and other irregularities being avoided. Before the flow appears, the pain may often be relieved by hot hip baths, used for half an hour at the time, with the water as hot as can be borne. Narcotics are sometimes required, but are best avoided if possible, as their use is liable to grow into a dangerous and distressing habit.

In *congestive* dysmenorrhœa, the pain is aching and continuous, often associated with bearing-down and disturbance of the bladder and bowels. Pain in the back, aching in the groins and thighs, and a feeling of fatigue are common. The pain comes on several days before the flow, which gradually becomes abundant, and may contain clots or threads of membrane. A yellow discharge may also be present (*whites*). The breasts are usually enlarged and tender. This disorder may be induced by anything which suddenly checks the menstrual flow—as exposure to cold and damp, or strong emotional excitement. Those suffering from a feeble circulation, or in whom the veins are over-full, are liable to it. Thus heart disease or liver disorder, or simple constipation, may be answerable for such a condition. Those who live freely and take too little exercise are more liable to suffer in this way than others. Sometimes a local cause is present, such as displacement of the womb, fibroids, ulceration, or "sub-involution" dating from childbirth.

As regards TREATMENT, this must depend upon the cause. As a general rule, plain living, moderate exercise, saline aperients, and other remedies for a sluggish liver, are called for. Where the flow is not excessive, hot hip baths and vaginal injections of hot water are useful. Rest is desirable during the period.

Obstruction to the free escape of menstrual discharge is a very common cause of painful menstruation. The cause may lie in a natural narrowness of the neck of the womb, in some displacement, or the presence of a tumour. Very frequently the pain is crampy or bearing down, relief following a gush of discharge, or the expulsion of a clot. It is sometimes necessary to stretch the channel of the womb by means of suitable instruments; in other cases a displacement has to be corrected.

Membranous dysmenorrhœa is characterized by the expulsion of the lining of the womb in large shreds or membranes. It may occur in married or in single women, but is not at all common. The symptoms are those of the last two varieties; as a rule the loss is copious. Early miscarriages in married women may be mistaken for this disorder. It is a difficult one to cure.

Sympathetic pains may arise from inflammation or other diseases of the ovary. The pain in this case is situated above the groin, extending upwards and backwards; it comes on between the periods, and is aggravated by walking, riding, and other kinds of exercise. Tenderness is also common over the same region. When constipation is present, the pain is often extreme. Hysterical attacks, vomiting, and other sympathetic disturbances are common. This disorder is sometimes due to chill. The subjects are nearly always delicate, and sometimes become more or less invalided if the menstrual trouble is not attended to. As regards domestic treatment, diet should be simple and nourishing; stimulants must be avoided; they may do temporary good, but at the cost of permanent harm. Exercise in the open air is essential, and where one form is not possible, another should be tried. Riding in a bath chair is least trying, being free from jolting. The clothing should be warm, woollen underclothing being worn next the skin. Warm hip baths are useful, taken once or twice a week. Tonics are generally required (*see* TONICS); and constipation must be carefully guarded against. (*See* CONSTIPATION.) When the pain comes on, *Pr.* 18 is useful, together with blisters or other counter-irritants (*which see*) over the seat of pain. Wherever such remedies do not cure the complaint, skilled advice will be necessary.

(2) DEFICIENT MENSTRUATION.—Menstruation may be absent or scanty, from many different causes. There may be some obstruction to the outflow, or a natural want of development preventing its appearance; or some depressing or enfeebling disease, which renders the constitution unequal to the task; or again, the flow may be checked by a chill or fright, or by diseases of the womb or ovaries, or by pregnancy. Probably the commonest cause in single women is anæmia (poorness of blood) and chlorosis (green sickness). In these two closely related disorders the health suffers in various ways in consequence of the state of the blood, and absence or scantiness of the menstrual discharge is only one out of many symptoms. Here the general health must be seen to (*see* BLOOD, POORNESS OF), and the menses will then return. More serious constitutional disorders also lead to suppression of the periods. Thus it is common in Bright's disease, consumption, profuse hæmorrhage from whatever cause, or any long-continued or profuse discharge, whether from an abscess or ulcer, a diseased bone, or the vagina. (*See* WHITES.) Anything which seriously depresses the general health will, as a rule, also stop the monthly discharge. Here again it is the cause which must be attended to. Were the monthly period re-established without first setting right the constitutional disease, it would simply further tax the strength, and make the patient worse. When menstruation is absent from disease of the womb or ovaries, other symptoms are present which point to the true cause. (*See* OVARY; WOMB.) Menstruation is often suddenly suppressed in healthy young women by a chill or violent emotion. Sometimes it may be through going to a ball, or taking a long railway journey; sometimes from a fright or great nervous shock. Here the flow may be restored by hot hip baths, hot mustard baths for the feet, hot poultices and fomentations to the lower part of

the abdomen, a mustard-leaf applied to the thighs, and similar measures. If there is constipation, a pill (*Pr.* 53, 56) will be of use; if there is digestive disorder, suitable remedies should be taken. Sometimes very slight causes suffice to arrest the discharge, such as change of diet, change of air, or extreme fatigue. Newly married women often miss one or two periods without becoming pregnant. There remains to be described absence of menstruation from obstruction or malformation. Where the ovaries are absent or undeveloped, the girl never becomes womanly in appearance, and has no monthly disturbance of health. If the womb is undeveloped, there may be the usual changes in appearance, but nothing more. In other cases, however, there are pain and discomfort every month, just as in menstruation, but without the discharge. Soon a swelling appears low down in the abdomen, which increases every month just when the pain is greatest, and possibly lays open the girl to unjust suspicions. If nothing is done, the girl becomes sickly, pale, and sallow, and loses her appetite. On examination in such a case, the *vagina* (or front passage) is usually found to be closed by a membrane, which possibly is tense and bulging outwards. The discharge has taken place into the channel, but cannot escape. This condition, if neglected, will inevitably lead to a painful death, as the womb, unable to empty itself, naturally becomes distended, and finally discharges its contents into the abdominal cavity. If early attended to, a very simple operation will effect a cure; but if delayed, the operation becomes dangerous. Sometimes the obstruction consists in the absence of a vagina. Here a more extensive operation is imperatively called for to make an artificial passage. These conditions can only be distinguished by a careful and thorough examination.

(3) Excessive Menstruation is apt to appear at the first establishment of the menses, and at the change of life. It may also result from general fulness of habit (*plethora*), debility with laxness of fibre, or disease or displacement of the womb. Many disorders, leading to profuse menstrual loss, are due to injuries inflicted at childbirth, getting about too early after delivery, neglect of suckling, or disregard of miscarriages. For description of these, *see* Childbirth; Miscarriage; Whites; Womb. *See also* Flooding.

Menthol.—A kind of camphor obtained from English and Chinese oil of peppermint. It has a pungent, aromatic taste, followed by a sense of coolness, and a smell like that of ordinary camphor. It is a powerful antiseptic, and is also used to rub over painful parts in neuralgia. This rubbing should not be too vigorously done on the face, or the skin may become inflamed.

Mercury, Quicksilver.—A liquid metal used in the construction of thermometers and barometers, and for many other purposes in the arts. Medicinally it is used in many forms and combinations, some of which are very poisonous, and have to be taken in very minute doses. A few preparations (such as grey powder and blue pill) contain metallic mercury in a finely divided condition. Others contain compounds, of which there are two classes, proto-salts and per-salts, differing in the proportion of mercury they contain. Calomel is the most familiar of the proto-salts of mercury; corrosive sublimate, of the per-salts. Many of the mercurial preparations are irritant to the skin, some even caustic. Nearly all are antiseptics and destroyers of minute forms of life, and are therefore used in treatment of wounds and the cure of parasitic skin diseases. Taken internally, they increase the discharge of various secretions, especially those from the liver and bowels, and assist in the removal of inflammatory swellings. Although valuable preparations in experienced hands, they should be used very sparingly, if at all, in domestic practice. At one time blue-pill and black-draught were given as a matter of course for almost every ill, often with disastrous effects on the constitution. An overdose of a mercurial may cause excessive purging, with great prostration, and a low, feverish state, and in some people, or in certain states of health, even medicinal doses may cause serious depression. If instead of being carried off by the

bowels a mercurial is absorbed into the system, salivation, ulceration of the gums, and loosening of the teeth, or still more mischievous consequences, may ensue. In this way a moderately small dose might do more harm than a much larger dose which acted solely on the liver and bowels. There are some constitutional diseases in which mercurials have to be taken regularly for a long time; but this is quite inadmissible in domestic medicine.

Blue-pill contains metallic mercury, confection of roses, and liquorice root. Dose, 3 to 8 grains.

Calomel is *mercurous chloride*—a white, tasteless powder. It may be given in a pill, or placed on the tongue and washed down like other powders. It should never be given with salt or other alkaline chlorides. Consequently bread-crumb should not be used in making up calomel pills. Dose, up to 5 grains. A fraction of a grain acts upon the liver; one grain or more acts as an aperient. *See* Plummer's Pill.

Grey Powder is mercury (1 part) rubbed up with chalk (2 parts). It should be given in milk, or alone; not with treacle, preserve, or tea. Dose, 3 to 8 grains. *See* Antiseptics; Corrosive Sublimate; Liver Pills and Powders; Ointments.

Mercury, Poisoning by, occurs in two forms: an *acute* form due to overdose of corrosive sublimate or other active preparation; and a *chronic*, due to the long-continued absorption of small quantities, as in silvering mirrors, working in quicksilver mines, or taking repeated small doses of medicinal preparations.

For Acute Poisoning, *see* Corrosive Sublimate.

Chronic Poisoning affects the mouth, stomach and bowels, and nervous system. There is usually profuse flow of saliva (*salivation*), foul breath, swelling and tenderness of the gums, and sometimes ulceration or even gangrene. There may also be nausea with colicky pains and more or less depression. In quicksilver-workers, such as water-gilders, looking-glass makers, and barometer or thermometer makers, absorption of the fumes may cause a sort of shaking palsy of the limbs and tongue, or even insanity.

Treatment.—That of ulcerated mouth and inflammation of the bowels, together with removal of the cause.

Prevention.—Where the occupation is at fault, this must be changed. *See* Mouth Washes; Occupation.

Mesenteric Disease is a scrofulous disease of the mesenteric glands, through which the chyle passes on its way from the bowels to the thoracic duct. (*See* Absorbent System.) The symptoms usually are wasting, loss of strength, and fever, with disturbances of the digestive canal, such as flatulence, colic, and diarrhœa with slimy motions. Treatment is that of scrofula (*which see*) and of diarrhœa.

Mesentery.—The broad fold of peritoneum which attaches the small bowels to the back of the abdominal cavity. Between its layers are bloodvessels, absorbents, and mesenteric glands.

Mesmerism.—A method of inducing sleep and other conditions by "passes" or by concentrating the attention of the subject on bright objects. Mesmerised persons may not only be sent to sleep, but made to obey the operator in a very strange way; their senses may be rendered preternaturally acute; while on the other hand painful operations have been performed without the subject feeling any pain. The phenomena have been attributed to "animal magnetism"; but it is not advisable to use this term. Another name is "hypnotism." The subject is ill-understood.

Metastasis.—The shifting of disease from one part of the body to another.

Mezereon.—The dried bark of a shrubby plant growing in shady places. It is a powerful irritant, and enters into the composition of compound mustard liniment and compound decoction of sarsaparilla. For *poisoning*, *see* Irritant Poisons.

Miasm. *See* Ague.

Microbes. *See* Bacteria.

Microscope.—This is a great aid to the detection of adulterations, and to the recognition of disease. By examining the urine microscopically, blood-cells or casts may be found, pointing to some such condition as Bright's disease; or,

on the other hand, gravel may be detected and its nature ascertained. After the removal of a tumour, it is often possible to tell, from a microscopical examination, whether it is of a simple nature, or malignant and likely to return. In suspected cases of ringworm the discovery of the fungus by the microscope will be conclusive. Many other instances might be given.

Midriff. *See* DIAPHRAGM.

Midwife. *See* MONTHLY NURSE.

Midwifery.—The art of aiding childbirth.

Miliary eruptions consist of minute vesicles caused by excessive perspiration.

Milk.—As this constitutes the sole food during the first period of life, it contains, as we should expect, examples of each important class of food stuffs. Casein, or the cheesy portion, represents nitrogenous or albuminous foods; butter-fat the fatty, milk sugar the carbohydrate groups; while in the salts we find phosphate of calcium, chloride of potassium, and others essential to growth. The proportions vary somewhat in the milk of different animals. Cow's milk contains about $3\frac{1}{5}$ per cent. of casein, $4\frac{1}{5}$ of butter fat, and 5 of milk-sugar (Meigs), while human milk is much richer in sugar ($7\frac{1}{2}$ per cent.) and poorer in casein (1 to 2 per cent.). Ass's milk and mare's milk resemble human milk, while goat's milk is richer in fat than the rest. The fat in milk is present in the form of minute globules. Milk on entering the stomach has its casein thrown down in a clot. This is also artificially done by means of rennet from the calf's stomach in cheese making. The firmness of the clot differs according to the kind; cow's milk forms a putty-like mass, while human milk, ass's milk, mare's milk, and goat's milk form a loose, flocculent mass. (*See* INFANT-FEEDING; WET-NURSING.) Cow's milk has a specific gravity of 1030, and contains not less than $12\frac{1}{2}$ per cent. of total solids. It throws up cream to the amount of not less than 10 per cent. vol. (*See* LACTOMETER.) Skimmed milk has a high specific gravity and low cream value. Watering the milk lowers the specific gravity. The milk of Alderneys is richer than that of most other breeds; while cows fed on brewers' grains have watery milk, which is apt to disagree with children. As a rule the morning milk is poorer in cream and casein. Cow's milk is usually slightly acid when supplied; the acidity increases when it goes sour. Milk is too highly nitrogenised to be the sole food in adult life. If nothing else were taken, nine pints would be required in order to supply enough carbon. Milk often acts as a carrier of disease. Cows eating the poison sumach (*rhus toxicodendron*) get the "trembles," and their milk then irritates the digestive organs of children. The milk of tuberculous cows is said to be a cause of consumption. Thorough boiling would diminish this danger. Tuberculosis is very common among stall-fed cows kept in ill-ventilated sheds. Milk has a great power of absorbing noxious gases and vapours, and is a good soil for the growth of bacteria. It should therefore never be put in a place where it may receive infection. (*See* DAIRIES.) Milk is eminently suitable for the use of invalids. It should, however, preferably be taken with something else, such as biscuit powder, light magnesia (as much as will lie on a sixpence to every $\frac{1}{2}$ pint), seltzer water, soda water, or barley water. It may be mixed with a little well-diluted malt extract (a tablespoonful to half a pint), and kept warm for a little while. This partially digests the milk. Where the bowels are loose, it may be boiled with a little ground rice flavoured with cinnamon. Other modes of taking it are in the form of *rum and milk* (yolk of egg beaten up with half a pint of milk, a teaspoonful of sugar, the same quantity of rum, and nutmeg to taste); or of *treacle posset* (treacle, $\frac{1}{2}$ oz.; powdered ginger, 1 teaspoonful; milk, 1 pint; and rum, 1 teaspoonful). Both of these are suitable for a cold in the head. Other well-known preparations are milk gruel and various milk puddings. In making the latter, it is a good plan to previously bake the rice or other farinaceous food for an hour in a hot oven without scorching. Ground malt may be added to milk puddings ten minutes before they are eaten. In this case no sugar should be added. (*See* BUTTER;

BUTTERMILK; CHEESE; WHEY.) CONDENSED MILK is made by evaporating and adding cane sugar. The advantages, besides portability and convenience, are that it is sterilized, and therefore not so likely to transmit fevers. (*See* INFANT FEEDING.) SKIMMED MILK is useful as a drink in fever. It may be still further diluted with some aërated water, as, owing to the large proportion of salts it contains, pure milk does not readily quench thirst.

Milk-Fever often appears during the first few days after childbirth, while the milk is not yet freely secreted. There is usually throbbing pain in the breasts, chilliness, headache, and fever. The complaint is especially common after first confinements. The breasts should be relieved with a breast-glass or by the nursling, and an aperient given (*Pr.* 11, 54, 58). If there is much fever, a few doses of *Pr.* 31 will be useful.

Miller. *See* OCCUPATION.

Mindererus' Spirit, or solution of acetate of ammonia, is a colourless fluid with a salt taste and no smell. It is made by adding acetic acid to carbonate of ammonia, and is a valuable remedy in fever, chills, etc., rendering the skin moist and cool, and increasing the flow of urine. (*Pr.* 7.)

Miners. *See* OCCUPATION.

Mineral Acids. *See* ACIDS.

Mineral Waters may be classified in several groups: (1) Simple thermal waters, remarkable for their heat; (2) salt waters; (3) alkaline waters, containing carbonate of soda and often also common salt; (4) sulphated waters, including various bitter waters containing sulphates of sodium and magnesium; (5) chalybeate or iron waters; (6) sulphur waters, containing rotten-egg-gas; and (7) earthy and calcareous waters. Of SIMPLE THERMAL WATERS may be mentioned those of Bath and Buxton in England; and on the Continent, Leukerbad (Switzerland, 4,600 ft.), Gastein (Austria, 3,300), Pfäffers (Switzerland, 2,115), Bagnères de Bigorre (S. France, 1,850), Wildbad (Würtemburg, 1,323), Plombières (France, 1,310), Schlangenbad (Nassau, 900), Teplitz (Bohemia, 650), and Hammam R'Ihra (1,675) in Algeria. They are for the most part bathing as well as drinking resorts. Among SALT WATERS are those of Droitwich and Nantwich in England; Kissingen, Homburg, Nauheim, Kreuznach, Soden, Pyrmont, Wiesbaden, Badenbaden, Bex, and Bourbonne-les-Bains on the Continent. SIMPLE ALKALINE WATERS are found at Vichy, Neuenahr, Apollinaris, Vals, Salzbrunn, and Evian (the first two hot); and SALT ALKALINE WATERS at Ems, Royat, La Bourboule, Selters, and Rosbach (the first three hot). BITTER SULPHATED WATERS are found at Pullna, Sedlitz, Hunyadi Jànos, and Friedrichshall; and in England at Epsom, Leamington, and Cheltenham. ALKALINE SULPHATED WATERS, which also contain common salt and carbonate of soda, at Carlsbad, Marienbad, and Tarasp-Schuls. CHALYBEATE WATERS occur at Schwalbach, Spa, Tunbridge Wells, Harrogate, Pyrmont, and St. Moritz. SULPHUR WATERS at Eaux Bonnes, Cauterets, Barèges, Aix-les-Bains, and Bagnères de Luchon; and at Harrogate, Moffat, and Strathpeffer (the last three cold): EARTHY AND CALCAREOUS waters may be found at Contrexéville, Bagnères de Bigorre, and Wildungen. The St. Galmier and Taunus table-waters also belong to this class. In the above list only a few of the best known places have been mentioned. Where figures are given, they represent feet above the sea.

The CHOICE of a suitable mineral water requires as much skill as the choice of a medicine. In *anæmia*, chalybeate waters are used; or if the digestion is disturbed and the bowels constipated, salt waters or mild sulphated waters. Where there is *sluggish circulation* through the portal system (evidenced by piles, indigestion, and bilious attacks), salt or sulphated waters are useful, or sometimes alkaline waters. The sulphated waters act on the bowels, causing watery evacuations. In *gout*, alkaline sulphated waters or alkaline waters are often useful. For gouty people in feeble health, simple salt waters or thermal waters may do good. *Chronic rheumatism* is usually treated with thermal waters, hot salt waters, or sulphur waters. In choosing a mineral spring, the locality and mode of life

should be taken into account. *See* HEALTH RESORTS.

Minim. *See* WEIGHTS AND MEASURES.

Mint.—Many plants belonging to this family are used in medicine: for instance, peppermint, spearmint, lavender, rosemary, sage, and balm. They all yield aromatic essential oils. *See* AROMATICS.

Miscarriage or Abortion.—The premature expulsion of the fœtus from the womb. Before the eighth lunar month it is called *abortion*, and the child is very unlikely to live. During and after this period, the term *premature labour* is used, and the child may often be reared. Miscarriage may happen at any period of pregnancy, but is said to be more frequent between the fourth and twelfth weeks, and at times corresponding with the menstrual periods. It often recurs at the same period during several successive pregnancies, a sort of habit being established. Women differ enormously in the tendency to miscarriage. In some, very slight causes (such as a false step or an attack of toothache) may bring it on, whereas others may suffer serious injuries, and yet go to full term. The late Dr. Pagan had the misfortune to run over a woman in the eighth month of pregnancy. She was seriously injured by the carriage-wheels, and yet went her full time, and gave birth to a healthy child. Criminal attempts at abortion often result in death of the mother without expulsion of the child. A tendency to miscarriage may be due to constitutional disease or debility, to irritability of the nervous system, or a full habit of body. Heart or lung disease, and other conditions in which the blood moves sluggishly, or is imperfectly purified, create a tendency to miscarriage. Those who marry late in life, or who are worn out with repeated pregnancies, are especially liable to such mishaps. So too are those who take very little exercise in the open air, but spend their evenings in overheated and ill-ventilated rooms, and exhaust their strength with late hours and excitement. The presence of displacement or disease of the womb and neighbouring organs also predisposes to such accidents; the use of over-soft beds and couches increases the tendency, by favouring stagnation of the blood in the pelvic organs. Where menstruation appears during pregnancy, or a woman becomes pregnant while suckling, miscarriages are also common. Amongst *exciting causes* may be mentioned attacks of smallpox, scarlatina, or relapsing fever, dysentery, inflamed piles, severe bronchitis, diarrhœa, or the use of strong purgatives (especially aloes). Other drugs which are to be avoided during pregnancy are ergot, savin, rue, borax, iron, and squills; although all of these vary greatly in their action on the womb. Emetics are also best avoided, although women who naturally suffer much from sickness during pregnancy seldom miscarry on this account. Violent exercise or exertion, lifting heavy weights, working with the arms above the head, fright, and other violent emotions, are all apt to cause miscarriage; and the same is true of dancing, jumping, jolting, riding, or straining at stool.

Symptoms.—During the early months of pregnancy, miscarriage is often mistaken for an unusually profuse menstrual loss. Later on, it causes either feverishness, or languor and faintness, with depression of spirits and of strength, cold extremities, and dark rings round the eyes. There is usually a sensation of weight or cold in the abdomen, with more or less dull pain in the back and loins, sometimes extending to the groins or thighs. The breasts become flaccid, and morning sickness with other slight ailments of early pregnancy usually cease. Before long a coloured discharge appears from the passage, and the pains become intermitting, and more severe. If the process is not stopped, the discharge and the pain increase, watery fluid escapes, and finally the whole contents of the womb; after which there is a gradual return to the ordinary state of health. In early miscarriages, the fœtus may be mistaken for a clot of blood. Later on, this mistake is less likely to be made; but parts of the membranes are apt to be retained, and may set up high fever with blood-poisoning. Hence everything that comes away should be kept for the doctor's inspec-

tion. The danger is greatest between the third and fifth months; but a miscarriage is always a severe trial to the constitution, often more so than a natural labour.

PREVENTION.—Where a tendency to miscarriage exists, or is suspected, study the various causes, and carefully avoid them, especially at times when previous mishaps have occurred. It is advisable to sleep alone at such times, and carefully avoid all marital attentions. Conform to all the usual rules of health, as regards rest and exercise, ventilation of the bedroom, and similar matters. Avoid over-fatigue and excitement, and take a simple, easily digestible diet, as a rule without stimulants. Attend promptly to constipation, diarrhœa, and other little ailments, using simple and unirritating remedies. If there are symptoms of a threatening miscarriage, rest in bed on a firm mattress in a cool, quiet room, take all food cold, relieve the bowels with a dose of castor oil or a mild saline draught, and if there is not speedy improvement, send for a doctor. Should there be much tendency to bleeding, napkins dipped in cold water may be laid on the lower part of the body. A doctor would probably give thirty minims of sedative solution of opium, with an effervescing saline, such as *Pr.* 30; but this is only safe where the kidneys are sound. In profuse bleeding, treat as in flooding. After a miscarriage, rest in bed for ten days or a fortnight is necessary. Neglect of this precaution may lead to much misery by setting up disease of the womb. Repeated miscarriages call for constitutional remedies, for which a doctor must be consulted.

Mites.—To this natural order belong the itch-mite of man and horse; mange-mite of the dog; mites of cheese, flour, preserved cream, dried figs, and plums; those infesting various birds; the harvest-bug; and various kinds of tick parasitic upon the sheep, dog, ox, horse, and other animals. *See* BITES AND STINGS; ITCH.

Mixture.—A watery preparation containing several drugs, either in solution or suspended by means of gum, syrup, etc. (*See* MEDICINES.) In hot countries the use of sugar is avoided in all mixtures intended to be kept, on account of the risk of fermentation.

Mole.—(1) *On the skin.* *See* MOTHER'S MARK. (2) *In the womb.*—Substances may be discharged from this organ quite independent of pregnancy, although some are due to an imperfect kind of pregnancy. The substances may be fleshy, membranous, or composed of bladders in clusters. In the latter case there may be gradual enlargement of the abdomen with many of the ordinary symptoms of pregnancy. As a rule, however, there are some obvious differences, and before long there is usually a discharge of the vesicles floating in red fluid, "like white currants in red currant juice." Clots of blood and abortions must be distinguished from moles. It is important to have the womb properly emptied.

Monkshood. *See* ACONITE.

Monomania.—A form of insanity, in which the mind is deranged on one subject, without much else amiss. *See* INSANITY.

Monthly Discharge. *See* MENSTRUATION.

Monthly Nurses should be chosen for their character and intelligence, as well as for their experience and skill. As a rule they should be engaged at the recommendation of the doctor who is to attend at the birth, as he has better opportunities of judging of their capabilities, and moreover it is to the interest of the patient to have a nurse who works well with the doctor, and knows his ways. It is not a safe plan to trust entirely to a monthly nurse for the necessary offices; she may be skilful and intelligent, but cannot foresee and deal with difficulties without a special training in anatomy and midwifery. Where possible, the nurse should be a certificated midwife, with a certificate from some recognised public body. She should be sober, truthful, cleanly, with a kindly disposition and a well-governed tongue; not inclined to meddle where her knowledge is wanting, but ready to receive and accurately carry out instructions, and report any important symptom. In age she should be "not so young as to be

giddy, or so old as to be useless." Her health should be good, and she should be a light sleeper, and have a light step. Her dress should be of some washable material which will not catch the dirt. (*See* SICK-NURSE.) It is well to engage her in good time beforehand, and arrange for her to be in the house a day or two before the confinement is expected, in order to prepare things. *See* CHILD-BIRTH.

Morning Sickness arises chiefly during pregnancy, and in those who indulge to excess in alcoholic liquors, but is also found in consumptive, anæmic, and dyspeptic persons.

(1) IN PREGNANCY it occurs especially during the earlier months, but may continue the whole time, or only appear towards the end. Qualmishness is felt when the head is first raised from the pillow, or on first actively moving about. The appetite (excepting for breakfast) often remains unaffected, but food may be vomited immediately after a meal. In other respects, the patient may remain perfectly well, which is not usual in vomiting from other causes. Slight cases are often cured, or at all events benefited, by taking some light, easily digested food before raising the head from the pillow. Other remedies are chamomile tea, a glass of good, dry champagne with a biscuit, a wet compress to the upper part of the abdomen from the breast-bone to the navel, or effervescing alkaline medicines (*Pr.* 30). Ipecacuanha is also frequently useful (*Pr.* 29). When there is constipation, a simple aperient will be required. If the tongue is coated, or the breath foul, treat as for a bilious attack. Obstinate vomiting, or vomiting with pain or bearing down, is a serious disorder, requiring skilled medical treatment. Sometimes it is impossible to check it until the womb has expelled its contents, and the life of the mother may be endangered.

(2) IN INTEMPERANCE.—Morning vomiting may arise from a drinking bout, or merely from habitually exceeding the limit of safety. The digestive organs are usually deranged, the tongue foul, with a thick yellow fur, a bitter taste in the mouth, and characteristic smell to the breath. There is much accumulation of phlegm in the throat, the appetite is gone, and the patient suffers from more or less headache, depression of spirits, and general discomfort. When vomiting appears, mucus and bile-stained fluid are thrown up. No cure is possible until the habit of indulgence has been overcome. The liver is usually out of order, and in long-standing cases becomes hopelessly diseased. (*See* LIVER, GIN-DRINKER'S; INTEMPERANCE.) Diet must be unstimulating, chiefly farinaceous, with milk and thin soups or broths; and soda-water or other simple effervescing water for drink. *Pr.* 16, 17, 30 are useful; and, later on, *Pr.* 9, 12, 13, 40. The bowels should be regulated with simple pills or powders at night (*Pr.* 53, 54, 55, 46, 58), and saline aperients in the morning; an occasional liver pill is desirable (*Pr.* 57, 60).

(3) FROM VIOLENT COUGH.—Where this causes vomiting, the chest needs the first attention, and medical advice should be sought. Very often such cases turn out on examination to be consumptive; sometimes in winter cough accumulation of tenacious phlegm occurs during the night; warm alkaline cough mixtures are most useful (*Pr.* 19, 21). *See* LINCTUS.

Morphine.—The chief alkaloid of opium (*which see*).

Mortar. *See* PESTLE AND MORTAR.

Mortification, gangrene, or sloughing, is the death of a part of the living body. It may be caused by severe inflammation, injury from heat or cold, or mechanical violence, or by anything interfering with the blood supply to the affected part. Thus a clot of blood formed in or displaced into an artery, is a not uncommon cause. In old people very slight injuries may lead to gangrene, so that care should be taken not to cut a corn too deeply, or neglect a chilblain. Gangrene may also complicate measles, enteric fever, and other infectious fevers, or exhausting illnesses of any kind. The first symptom of gangrene may be severe pain in the part, or a patch of inflammation with a dusky blush, or sometimes a dusky, reddish-brown patch, which slowly spreads and becomes black

in the centre. In moist gangrene the part becomes swollen, tense, and red, then blistered or mottled, an offensive fluid oozing from it. In dry gangrene it becomes shrivelled and black. Gangrene causes much constitutional depression. When there is sufficient vitality, the dead part is cast off by formation of matter between it and the living tissue; but very often the patient dies before this happens. Amputation sometimes affords the best chance of recovery.

Mother. *See* CHILD-BIRTH; PREGNANCY; SUCKLING.

Mother's Mark.—A term applied to stains, moles, and other marks present from birth. Some, which are caused by a local enlargement of bloodvessels, are readily curable. *See* NÆVUS.

Motion. *See* MUSCLES.

Motions, *fæces.*—The stools or matters expelled from the lower bowel. They vary in amount from $2\frac{1}{2}$ to $10\frac{1}{2}$ ozs. in health; being increased by vegetable diet, or by anything causing abundant secretion of fluid from the bowel. They should be sausage-shaped, moist, moderately firm, and brown in colour. When too long retained, they become dark, hard, and ball-shaped (like sheep's dung). In irritable states of the anus they may be flattened or tape-like, from being squeezed through a narrow opening. Where bile is deficient (as in some liver disorders), the motions are pale, resembling clay or putty. A similar condition is sometimes caused by the presence of undigested milk. Green colour may be due to a vegetable diet, or to changes in the bile, or the use of mercurials, iron, or bismuth. Blackness may arise from the presence of blood, or the action of iron or bismuth given as medicine. Spinach, coffee, claret, and porter are also said to colour the stools; so do rhubarb, senna, logwood, and charcoal. Other abnormal conditions of the motions are frothiness, sliminess, offensive or sour smell, or the presence of undigested food or worms, blood, or matter. The most offensive smell is caused by decomposition of shreds of membrane, as in dysentery. IN INFANTS, the motions should be pappy, and of the colour of mustard, free from curds or offensive smell. They are passed twice or thrice daily during the first three months of life. Fermentation will turn the stools to a sour frothy or yeasty mass. The condition of the motions affords valuable information in illness at all periods of life. Whenever the stools are unnatural, they should be kept in a closed vessel outside the room for the doctor to inspect. *See* BOWELS; CHOLERA; CONSTIPATION; DIARRHŒA; DYSENTERY; ENTERIC FEVER; INDIGESTION; LIVER DISORDERS.

Mouth.—*Inflammation* of the mouth causes swelling and tenderness with ulceration, or even sloughing, of its walls. It is commonly found in children who are suffering from debility after fevers, or from some error in diet. Insufficient care in wiping out the last drops of milk from an infant's mouth often causes the lining membrane to become sore. The *treatment* is to improve the general health by attention to diet and other measures, and to paint the mouth inside with glycerine of borax, or use some other suitable mouth wash. Chlorate of potash, 5 grains in water with sugar three times a day, is often of use. *Gargles* 1, 2, 3, 6, may be used as mouth washes. *See* GUMS; NOMA; TEETH; THRUSH.

Moxa.—A method of counter-irritation by the introduction of a piece of woolly vegetable substance into an ulcer.

Mucilage. — Thick gum-water, made from gum arabic or gum tragacanth. A similar preparation is made from starch by rubbing and boiling. Gum-mucilage is used to suspend insoluble particles in watery mixtures. Mucilage of starch may be applied to the skin as a soothing application in eczema.

Mucous Membrane.—The inside skin, lining the digestive canal and other tubes passing through the body. It consists of a deep part, which contains the bloodvessels, and is thrown up in nipple-like prominences or papillæ; and a superficial part, composed of epithelium.

Mucus.—The viscid glairy secretion from the mucous membranes.

Mulberry Juice is cooling and refreshing in fever. The syrup is used as a colouring and flavouring agent. (Dose, 1 teasp.) *See* BEVERAGES.

Mumps, *parotitis*.—An infectious disease in which the salivary glands become inflamed. It especially attacks young people during the second teething period, and is stated not to occur after the age of thirty. Epidemics are not uncommon; second attacks are rare. *Symptoms* begin from one to three weeks after infection. At first the patient merely feels out of sorts and easily fatigued; but after a few days he suddenly becomes feverish, and complains of pain and swelling behind or below the jaw, made worse by yawning, speaking, or swallowing. Usually first one side and then the other is affected, the part swelling up rapidly and becoming decidedly tender to the touch. The temperature varies, but may be as high as 104°. In less than a week it begins to fall, and the swelling and local discomfort then rapidly disappear. The patient remains infectious for two or three weeks from the time when the swelling began. Mumps is not usually a dangerous disease, but may become so through its complications if neglected. It is unusual for matter to form; but when it does so it may burst into the ear. Deafness and singing in the ears are not uncommon. Sometimes there is sudden inflammation in the testicle, ovary, or breast; and at other times the heart, kidneys, or membranes of the brain are attacked. Such complications may be serious, especially in delicate children, and it is chiefly in order to prevent their occurrence that care has to be taken. Mumps is usually easy to recognise. Inflammation of the absorbent glands of the same parts may be mistaken for one-sided mumps.

TREATMENT.—Rest in bed for the first two or three days, and longer if the fever persists. The patient should be confined to one room as long as he is ill, and others kept away from him as in other infectious complaints. Diet as in fever. Ice to suck. To relieve pain, hot fomentations or hot sweet-oil or belladonna liniment applied externally, followed by flannel, etc., to protect against chills. If complications threaten, or the temperature rises a second time, give warm bath and send for the doctor. In ordinary cases, little medicine is required beyond an aperient and a saline mixture (*Pr.* 7, 58). During convalescence, take great care to avoid chills. Tonics are usually required. Disinfectants should be used as in other infectious complaints, both during and after the illness. *See* DISINFECTION; ISOLATION; TONICS.

Muriatic Acid.—Hydrochloric acid. *See* ACIDS.

Muscles. — The fleshy, contractile masses by means of which different parts of the body are moved. Muscles usually contract in response to messages carried along the nerves. Those attached to the bones of the trunk and limbs are under the control of the will (voluntary muscles), and are supplied by nerves from the brain and spinal cord. Those surrounding bloodvessels, stomach, bowels, and other hollow organs, are free from such control (involuntary muscles), and are mainly supplied by the sympathetic system. Muscles are freely supplied with bloodvessels, and exert an important influence on the composition of the blood. (*See* EXERCISE.) They also form one of the chief sources of heat in the body: within certain limits, active exercise warms the body. The fibres of voluntary muscles when examined microscopically are seen to have very delicate cross-stripes. Those of the heart-muscle are faintly striped and branched, forming a network. Those of all other involuntary muscles are spindle-shaped and without cross-stripes. Voluntary muscles may be attached directly to bone; but they usually pass into sheets of fibrous tissue or into tendons (*which see*).

WASTING of the muscles may be caused by paralysis, or by over-use or disuse. Exercise within reasonable limits strengthens and increases the bulk of muscles. In one rare form of paralysis the muscles are enormously enlarged; in all other forms they are diminished in size. Wasting also occurs in disease of the joints. (*See* PARALYSIS; WASTING.)

For PAIN in the muscles, *see* CRAMP; DEBILITY; FATIGUE; FEVERS; LUMBAGO; RHEUMATISM.

For INVOLUNTARY MUSCULAR CONTRACTIONS, *see* CRAMP; CONVULSIONS; LOCK-JAW; SPASM. *Permanent* contrac-

tion follows paralysis, inflammation, prolonged irritation of nerves and some deformities. (*See* CLUB-FOOT.)

Mushrooms contain a large proportion of nitrogenous matter, and might be more largely used as a regular article of diet. The chief danger is that of gathering poisonous fungi by mistake. As a rule only those should be gathered which grow in dry, airy places. Fungi which change colour when broken, or break down into milky fluid, which have a faint sickly or pungent smell, a bright green or scarlet colour, or an astringent or bitter taste, should invariably be rejected. Further details may be obtained from Badham's "Esculent Fungi of England," M. C. Cook's works, and the coloured charts of W. G. Smith. Besides common mushrooms, champignons, morels, and truffles are used as food. Other edible kinds exist, but are not generally known. Mushrooms should only be used quite fresh, and cooked with plenty of salt or vinegar. In POISONING, treat as for IRRITANT POISONS.

Musk.—The dried secretion from the musk-deer. It is used as a scent, and medicinally as a stimulant and anti-spasmodic.

Muskroot, *sumbul*, from Bokhara, has a strong musklike odour, and medicinal properties resembling those of valerian and musk (*which see*).

Mussels. *See* SHELLFISH.

Mustard is used in medicine, and as a condiment. It is obtained from the seeds of both black and white mustard, and contains a fixed oil and other substances yielding a volatile oil on the addition of warm water. This depends on a kind of fermentation, which is prevented by the heat of boiling water. Consequently the water used in making mustard should never be more than warm. Mustard is commonly mixed with starch or flour. This can be detected by its turning blue with tincture of iodine. Other adulterations are turmeric, pepper, and chillies, recognisable with the microscope. Mustard is used internally in small doses as a stimulant to the digestion; in larger doses as an emetic; externally as a counter-irritant. A MUSTARD POULTICE is made by mixing $2\frac{1}{2}$ ozs. each of mustard and linseed meal with half a pint of warm water; first the linseed and then the mustard. A layer of soft muslin should be placed next the skin to prevent the mustard from sticking to it. The poultice may usually be left on $\frac{1}{4}$ hr. or 20 min. Infants do not bear counter-irritants well, so that for them the mustard should be mixed with an equal quantity of breadcrumbs or oatmeal, and the effect very carefully watched. When MUSTARD PAPER is used, it should be dipped in tepid water before being applied, with a layer of muslin next the skin as before. RIGOLLOT'S MUSTARD LEAVES are stronger than the pharmacopœial paper, and cannot be borne so long. They should be used over a double or treble layer of wet muslin. Another convenient preparation is OIL OF MUSTARD, of which 10 minims may be mixed with 1 oz. spirits of camphor, and then sprinkled on spongio-piline (Garrod). COMPOUND MUSTARD LINIMENT contains 1 fluid drachm of oil of mustard, 40 grains ethereal extract of mezereon, 120 grains of camphor, 5 fl. drs. of castor oil, and 4 fl. ozs. rectified spirit. It may be rubbed on to the skin like other liniments. A MUSTARD BATH, made by adding $\frac{1}{2}$ dr. mustard to every gallon of hot water, is useful when children suffer from bronchitis, or when the rash of an infectious fever comes out badly. A short application stimulates; longer may cause depression. Mustard forms a useful EMETIC in the proportion of 1 dr. to 4 drs. in a tumblerful of water. A tablespoonful makes a good average dose.

Myrrh.—A gum-resin obtained from a tree growing in Arabia and Abyssinia. The drug has an aromatic smell and a warm, bitter taste, and is used in solution as a wash for sore gums, mouth, and throat. Given internally, it increases the secretion from mucous membranes, and is useful in bronchitis and (together with iron or aloes) in deficient menstruation. *Preparations:* Tincture, dose, $\frac{1}{2}$ to 1 fl. drachm; as a gargle, 2 fl. drs. to 4 fl. ozs. water. Pill of aloes and myrrh, a mild aperient; dose, 5 to 10 grains.

Nævus, mother's mark—also called cherry stain, strawberry mark, etc.—

little red patches of small bloodvessels, present from birth. Another variety goes by the name of port wine stain; and another, in which hair grows on the patch, is called mouse-mark or mole. If they cause no disfigurement, and show no tendency to grow, they are best left alone. If large or increasing in size, or very noticeable, they should be removed by operation.

Nails are modifications of the epidermis or outer skin. The body of the nail, consisting of flattened horny scales, rests upon a nail-bed, from the back of which the nail grows. All growth is from the under surface of the root, the older part being pushed forward by the newer. To *cleanse* the nails, force plenty of soap under the edge and extract with the thumb nail of the other hand, or use an ivory or bone-cleanser. Nail-brushes do no harm to the nail, but are apt in a sick-room to carry infection. A dirty nail-brush might easily in this way cause erysipelas or blood poisoning. It is a bad plan to clean the nails with a pen-knife, as the scratches made on their under surface encourage the accumulation of dirt. Toe nails should be cut square; finger nails may be cut oval. Cutting the nail down at the edges is one of the causes of INGROWING TOE NAIL. This painful affection arises from pressure of the edge of the nail against the soft skin on which it lies. As a rule, badly shaped boots have been worn, forcing the toes together (*see* BOOTS), and the mischief is increased by cutting the edges in. If neglected, ulceration follows, and matter is formed. To remedy this condition, wear square-toed boots or shoes, allowing plenty of room to the toes. Scrape the centre of the nail, so as to make it thin and yielding, and guard the edge by inserting a piece of tin foil round it from underneath, lifted by a pledget of cotton-wool pressed well under the edge and into the corner. If the flesh has grown up round the edge, it may be necessary to apply caustic to it, but this must be left to a surgeon. Neglected cases, in which matter is pent up under the remnant of nail, have to be treated by cutting out a piece of the whole length of nail from front to root. This prevents the matter working inwards. The *appearance* of the nails is often indicative of the state of health. In gouty people the nails are often brittle and streaky. Much-curved "filbert-shaped" nails are common in long-standing heart or lung diseases. *See also* WHITLOW.

Naphtha. *See* PETROLEUM.

Narcotics are remedies which deaden the nervous system, relieving pain (*anodynes*) or producing sleep (*soporifics*). In small doses their action is usually exciting, thereby showing their relationship to stimulants, which in large doses cause drowsiness and paralysis of the nerve centres. The most important narcotics are opium and its alkaloids, Indian hemp, chloral, henbane, and the bromides of potassium, sodium, ammonium, camphor, etc. Valuable as such remedies are under suitable conditions, they should not be taken excepting under medical advice. There is always some danger that habits may be formed which are exceedingly difficult to cure, and productive of much misery. The sad story of the poet Coleridge shows how ruinous a confirmed opium habit is to both health and character. In France and America there is some fear that the addiction to morphia injections is growing disastrously common; and in this country instances are met with from time to time of people deprived of all will-power and utterly degraded by the habitual use of chloral. A recently introduced remedy, sulphonal, appears to be tolerably safe. The dose is 10–15 grains. *See* OPIUM; CHLORAL, etc.

Narcotic Poisoning. *See* OPIUM; CHLORAL.

Nasal Douche.—If while breathing through the mouth a stream of water is thrown up one nostril, it will return through the other without going down the throat. Advantage is taken of this fact in douching the nose. If the syphon-douche is used, the can should not be raised above the level of the eyes, lest the water be forced into the eustachian tubes and middle ear. (*See* NOSE.) Cold applications should not be used; and it is well to remain for a ¼ hr. in a warm room after using the douche.

Nausea.—The sensation of sickness,

which may precede vomiting or occur independently. For causes and treatment, *see* VOMITING.

Navel. *See* CHILDBIRTH; HERNIA; INFANCY.

Neck.—The following are the chief structures present in the neck: In front of the spine is the gullet, with large bloodvessels on each side and the windpipe before it. Running with the large bloodvessels (jugular veins and carotid arteries) are some important nerves; lying on the windpipe is the thyroid gland, and surrounding most of these structures are large muscular masses. Lymphatic glands are also present, which swell up in scrofula and other diseases. It is objectionable to wear tight collars or stocks around the neck, as this throws a great strain upon the veins of the head during exertion. Apoplexy is said to have been caused in the same way. STIFF-NECK is usually a form of muscular rheumatism arising from chill, but is sometimes gouty. More serious diseases —such as lock-jaw or spinal disease—may also begin with what appears to be stiff-neck. Ordinary stiffneck may be relieved by hot fomentations or friction with stimulating or soothing liniments (*Nos.* 1, 2, 3, 4, 5, 6, 7). Infusion of capsicum is a good remedy. A piece of lint soaked in it may be applied under oilskin. It will often cure within ¼ hour. (*See* CAPSICUM.) WRYNECK may be caused by paralysis or contraction of the muscles on one side, or by disease of the spine. One form is present from birth, and is probably caused by a slight injury to the muscle. Another form comes on later in life, and is aggravated by nervousness, which causes jerking. Galvanism is sometimes useful; at other times an apparatus is required to rectify the deformity.

Necrosis.—Death of a piece of bone. *See* BONE.

Nepenthe.—A secret preparation, containing opium-alkaloids.

Nervous System.—In the lowest forms of animal life the whole of the body appears to be equally adapted to the reception of impressions from outside; but a little higher up the scale we find certain parts near the surface set aside as sense-organs, and others as conductors to ganglia, nerve-knots, or receptive organs, which are more deeply placed. In this way we get a division into end-organs, nerves, and nerve-centres. In man the nervous system is double, consisting, on the one hand, of the cerebro-spinal system, which controls voluntary movement and receives impressions through the chief sense-organs; and, on the other, of the sympathetic system, which is in relation with the bloodvessels, digestive organs, and other parts not under the control of the will, but essential to life. The two systems interlace to some extent, and influence one another. Attached to each are nerves and nerve-knots or ganglia. The cerebro-spinal axis consists of the *brain* and *spinal cord*. The main part of it is protected by the spinal column and skull. The *sympathetic* system consists of a double chain of ganglia situated in front of the spine, united by nerve-strands, and connected with finely woven plexuses or networks on the chief internal organs and bloodvessels. The *sense-organs*, often described as the gateways to knowledge, are the eye, ear, smelling-organs, taste-organs, and touch-organs. *Nerves* contain two kinds of microscopical fibres, white and gray, the former protected by a fatty, insulating coat, which is wanting in the latter. The nerves connected with the cerebrospinal system are partly nerves to the voluntary muscles, partly nerves of common or special sensation. *See* BRAIN; EAR; EYE; SMELL; SPINAL CORD; TASTE; TOUCH.

Nervousness is a condition in which the individual is specially sensitive to outside impressions, starting over a sudden noise, and being painfully affected by many things which would be passed unnoticed by other people. The emotions are vivid and easily excited, palpitation, flushing, and trembling being easily induced. There is often great acuteness of special senses, and an active brain, but no great power of endurance. The condition is usually inherited, but may be brought on or intensified by mental overwork or a faulty system of education. It is essentially a condition of

weakness, and requires for its cure plenty of good, plain, wholesome food, fresh air, regular hours, and the usual conditions of a healthy life. Nerve tonics (*Pr.* 37, 38, 40, 48) and cod-liver oil are sometimes useful. Nervous, precocious children are often the subjects of rickets (*which see*). Nervousness often co-exists in a family with epilepsy, hysteria, and St. Vitus' dance. In all these disorders alcohol is to be avoided. *See* HYPOPHOSPHITES; PARRISH'S FOOD.

Nettles are cooked in some parts of the country for use as a vegetable. The fresh juice is said to increase the flow of the urine, and to check bleeding from the lungs, womb, and other parts. Dose, 1 teaspoonful three times a day.

Nettlerash, *urticaria.*—An eruption resembling that caused by touching a nettle. Little white bumps, or wheals, surrounded by a red blush, appear more or less rapidly, with sensations of itching, burning, or tingling. After a few hours the attack subsides, but may be followed by others. The eruption appears chiefly on the face, neck, and upper part of the body, but may occur in any part of the skin. Sometimes the inside of the throat and mouth becomes swollen, or the lining membrane of the air-tubes, causing shortness of breath. Symptoms of indigestion, nausea, acidity, and pain in the stomach are frequently met with, and sometimes high fever. The usual *causes* are digestive disturbance, or irritation of the skin. Mussels, lobsters, crabs, and shrimps, cucumber, and other indigestible articles of diet, are especially liable to bring on an attack; but much depends upon individual susceptibility. In one man, strawberries will invariably cause an attack; in another, pickles; in a third, the kernels of almonds or peaches. Some drugs—copaiba, cubebs, or turpentine—may also cause urticaria. Then, again, it may be excited by the bites of fleas or gnats, irritation from flannel, scratching, exposure to cold, or teething of infants. It is said to be especially common in spring and early summer. The same person may be repeatedly attacked, but the disease is not catching.

TREATMENT.—If it is due to some article of diet, and there is a feeling of sickness, give an emetic (*Pr.* 27, 28) followed by an alkaline saline aperient (*Pr.* 9, 10, 46). If there is much depression, give in addition half a fluid drachm of sal volatile or spirits of chloroform in plenty of water. For teething infants, *Pr.* 46 and 18 are suitable (*see* DOSES), and perhaps the gums will require lancing (*see* TEETHING). *Local applications:* Alkaline lotions (*Lotion* No. 5), hot or cold, dabbed on with a sponge several times a day; goulard water; carbolic acid solution (1 in 30); lime water; vinegar and water. For stings of insects, sal volatile, or slices of onion or of lemon. A full length warm bath is often useful, or the liberal use of cold cream, or borax, boracic or chloroform ointments. The discomfort caused by stinging nettles may be removed by applying a dockleaf. Cold water aggravates the irritation. *See* BITES AND STINGS; BORAX; BORIC ACID; ITCHING; LINIMENTS 5, 6, 7; LOTIONS 4, 5, 6, 14, 17.

Neuralgia.—Severe pain in the course of a nerve, coming on in paroxysms without fever, and confined to one side of the body. The pain is variously described as darting or stabbing, plunging, boring, or burning; but always disappears or diminishes at intervals. Before an attack there is often some numbness or increased sensitiveness of the skin, and there may be pallor followed by redness, or profuse perspiration from the affected part; but all these outward signs may be absent, even though the pain is agonising. During the attack there may be tenderness along the nerve, and specially tender spots are found where this emerges from under bone or other unyielding structures. Sleep is often prevented, but if it comes on the pain subsides. After an attack a more or less bruised feeling often remains, and more or less exhaustion; and there are well authenticated instances of the hair rapidly turning gray or white over one temple, after an attack of neuralgia in the head. Neuralgia may affect any part of the body, but is commonest in the head and face, and after this in the side of the chest (*intercostal n.*), the back of the thigh (*sciatica*), and the inside of the

forearm, from the elbow to the little finger (*ulnar n.*). A severe form of neuralgia of the face goes by the name of *tic douloureux*.

Causes.—Constitutional depression or exhaustion is usually present, whether from overwork and worry, too frequent pregnancies, profuse menstruation, over-lactation, dissipation, or other causes. Neuralgia may also be caused by rheumatism, gout, kidney disease, or lead poisoning. Formerly malaria was a common cause, the neuralgia showing itself over the brow, and returning at regular intervals (*brow ague*); but since the drainage of marshy places in England this has been a less common cause. Attacks are often excited by bad teeth, cold and damp, or indigestible food. In those subject to attacks, the pain may be brought on by movement of the parts liable to it; thus in a musician, piano playing used to bring on neuralgia from the elbow to the little finger; and in another patient the movements of the muscles of the face brought on neuralgia in the temple. Wounds involving branches of nerves—as from bullets in warfare, or from blood-letting—may cause obstinate attacks. In the same way tumours and internal disease affecting the roots of nerves may cause a severe kind of neuralgia. Where failure of sight or unsteadiness of gait also exists, there is reason to suspect serious disease of the nervous system. Neuralgia is not common before the age of fourteen, and usually appears first between twenty-five and forty-five, or towards the end of life. *See* Ear-ache; Eye, Pain in; Headache; Sciatica; Shingles; Side, Pain in; Toothache, *under* Teeth.

Treatment.—Search for the causes, constitutional and local. Where there is poverty of blood, rheumatism, or gout, treatment must be directed against these. (*See* Blood, Poverty of; Rheumatism; Gout.) As a rule, plenty of good food is required, with a good supply of fat, in the form of butter, cream, cod-liver oil, or meat fat. Tea, coffee, and alcoholic stimulants should not be taken. The digestion should be attended to (*see* Indigestion) and meals taken regularly. Overwork, worry, and mental excitement should be avoided, and plenty of rest and sleep taken. Exercise every day in the fresh air, careful ventilation of rooms, warm woollen clothing, are all important. Where there is a liability to cold-catching, seabathing or a morning sponge bath will be useful; cold and damp must be avoided; and in extreme instances it may be necessary to live in one uniform temperature. Change of residence from cold clay soil to a warmer, drier neighbourhood often gives satisfactory results. For debility and loss of appetite, the bitter tonics are useful. (*See these.*) Nursing mothers may have to wean their babies. All weakening ailments should be seen to. Search carefully for local sources of irritation, such as decayed teeth, worms, constipation, fissure of the anus, and have these attended to.

During the attack hot fomentations, blisters, ice, or freezing with the ether spray may give relief. Liniments of opium, belladonna, or chloroform may be tried. Other local applications are chloral-camphor, aconitine liniment or ointment, or veratrine ointment (*Lin.* 5, 6, 7). Many internal remedies have been more or less successfully tried in this complaint. Of these the most useful are quinine, butyl-chloral, phosphorus, chloride of ammonium, gelseminum, arsenic, aconite, bromide of potassium, antipyrin, and tonga. (*See Pr.* 3, 31, 38, 39, 40, 48, and above-named drugs.) A sleeping draught will often get rid of an attack, such as a double dose of *Pr.* 18, but should not be used habitually or frequently. Severe attacks are best controlled by the subcutaneous injection of morphine. This must be only done under medical direction. Recurring attacks of neuralgia are often cured by galvanism. If this is tried, it should be used regularly twice a day for five to ten minutes. *See* Electricity.

Nicotine.—A poisonous volatile alkaloid present in tobacco.

Night. *See* Light; Sleep.

Night Commodes should have a porcelain lid, and no seat or cushion which may retain a smell. For the sake of weak patients there should be back and arm rests.

Nightdress in temperate climates should be of linen or cotton, as these materials are less stimulating to the skin than wool, and the bedclothes sufficiently preserve the warmth of the body. Young children, however, and those who habitually throw off their coverings at night, are best clad in woven woollen or merino combination garments. In hot climates, these woven merino garments (pyjamas) are the best nightdress. Nightcaps should not be worn excepting by the old, rheumatic, or bald.

Nightmare. *See* DREAMING; NIGHT-TERRORS; SLEEP.

Nightshade, Deadly. *See* BELLADONNA.

Nightshade, Woody. *See* DULCAMARA.

Night-sweating. *See* PERSPIRATION.

Night-terrors in children correspond with nightmare in adults, and are often caused by dietetic errors. If no cause can be discovered, give a little chamomile tea at bedtime, or a teaspoonful of *Pr.* 18.

Nipple-shields are made to protect the nipples during pregnancy and lactation, and to render them more prominent. They are usually made of india-rubber, glass, vulcanite, ivory, or lead (Wansbrough's). Some are provided with a tube and teat, so as to enable the child to suck without causing distress where the nipples are sore. This kind of protector may also be used as a "breast-reliever." Whichever kind is used must be kept scrupulously clean. Babies are very sensitive to sour remnants of milk, which may easily induce severe diarrhœa. It is also important to choose a shield of the right size, as one too large or too small will interfere with nursing. The skin may be smeared with a little cold cream, to make the shield airtight. *See* NIPPLES; SUCKLING.

Nipples (*see* BREASTS).—Sore nipples often arise from want of care during nursing. When cracks are present, they should be painted with friar's balsam, or with solution of nitrate of silver (1 gr. to 1 fl. oz. distilled water), by means of a camel hair brush, renewing the application whenever the little skin which forms begins to come off. Other applications are borax lotion (*No.* 16), powdered borax and starch in equal parts, or powdered gum arabic and alum or borax. The nipple must be carefully washed and dried before and after suckling, and anointed with pure vaseline or fresh spermaceti ointment or powdered spermaceti. A glass shield and tube should be used. (*See* NIPPLE-SHIELDS.) If the child has thrush, this must be cured by appropriate remedies (*see* THRUSH), and similar remedies applied to the nipple. *See* SUCKLING.

Nitrate of Potassium. *See* NITRE.

Nitrate of Silver, Lunar Caustic. *See* CAUSTICS.

Nitre, saltpetre or *nitrate of potassium*, occurs as an effervescence on the soil in many parts of India. It is also artificially prepared by the fermentation of nitrogenous animal matter mixed with lime and ashes. Pure nitre crystallizes in 6-sided striated prisms, which have a cooling taste. Nitre forms 75 per cent. of gunpowder. Little balls of nitre, slowly sucked, are useful in sore throat. Given internally in 20-grain doses dissolved in water, it increases the flow of urine. It should however be avoided when there is irritation of the urinary organs. It is useful in rheumatism and lumbago with scanty urine, and given with 30 grains of bicarbonate of potassium, it sometimes cuts short an attack of gout. In large doses ($\frac{1}{2}$ oz. or more) it acts as an irritant poison (*see* POISONING), causing much constitutional depression. *See* NITRE PAPER.

Nitre Paper.—A valuable remedy for asthma, made by dipping pieces of moderately thick porous white blotting paper into a saturated solution of nitre (or saltpetre). To prepare the solution, set some water to boil in a large shallow saucepan, and add the salt by spoonfuls so long as it dissolves. The paper should be dried in the sun, as it is very inflammable, and might easily be set alight by a spark from the fire. A stronger form may be prepared by adding nitre and chlorate of potash alternately to the boiling water, and soaking in the solution piles of blotting paper six deep, and about six inches square. These may be removed by means of a small pair of tongs, and set to dry slowly in the sun. When nearly dry, it is a good plan to

sprinkle with spirits of camphor. In using the paper, bend into the form of a tent, place on the fender or in the coal scuttle, and set fire at both ends of the fold. It gives off a dense smoke, and sometimes shoots into flame, so that curtains or bedclothes must be carefully kept at a distance.

Nitre, Sweet Spirits of (*spiritus ætheris nitrosi*), is a solution of impure nitrous ether in spirit. It has a sweetish, cooling, sharp taste and an apple-like smell, and is much used in chills, etc., to increase the perspiration and flow of urine. If badly made or kept too long, it may contain free acid, which is irritating to the stomach. The addition of carbonate of soda should cause no effervescence. Dose, ½ to 1 drachm, in gruel or a large draught of water.

Nitric Acid, *Aquafortis*. *See* ACIDS.

Nitrite of Amyl, *nitroglycerine*, and *nitrite of sodium* are three powerful but valuable remedies for breast-pang, asthma, epilepsy, etc. NITRITE OF AMYL was introduced by Dr. Lauder Brunton, who was able to predict its uses from experiments upon animals. It is a yellowish volatile liquid, made from "fusel oil," and when inhaled causes flushing of the face and throbbing of the bloodvessels. Glass capsules are sold, each containing 3 minims. If necessary, one of these may be broken into a pocket handkerchief, and the vapour inhaled. It has a powerful odour like that of pine apples. NITROGLYCERINE is a heavy liquid which enters into the composition of dynamite. Chocolate tablets are sold, each containing $\frac{1}{100}$ gr. NITRITE OF SODIUM is a white, crystalline powder, also sold in tablets containing each 2½ grains. None of these remedies should be used, excepting under medical advice. *See* ANGINA PECTORIS.

Nitrogen Gas, or *azote*, a colourless gas forming nearly ⅘ of the atmosphere. Among its compounds are ammonia, nitric acid, prussic acid, various alkaloids, and other substances derived from the animal and vegetable kingdom. All living things are, at least in part, made up of "protoplasm," which is chemically a combination of carbon, hydrogen, oxygen, nitrogen, with smaller quantities of sulphur and phosphorus. *See* FOODS, EXCRETIONS.

Nitrogenous Foods are such as contain a large proportion of nitrogenous food stuffs. They include different kinds of flesh, such as butcher's meat, the flesh of birds, fish, shellfish, hares and rabbits, venison, tripe, sweetbread, etc.; soups and jellies containing gelatin; eggs, milk, and cheese; and among vegetables, leguminous foods, cereals, fungi, and the cacao bean. Nitrogenous foods are digested in the stomach and bowels. If an excess is taken, it is broken up into simpler substances, which finally leave the body in the form of carbonic acid gas and urea. Should the liver be unequal to its work, we get, instead of urea, uric acid and water, which irritate the kidneys, or being retained in the system cause gouty symptoms. Those inclined to gout, kidney disease, or biliousness, or who are liverish from residence in a hot climate, should avoid excess of nitrogenous food, especially of butcher's meat.

Nitro-glycerine. *See* under NITRITE OF AMYL.

Nitro-hydrochloric Acid.—*Aqua regia*. *See* ACIDS.

Nitrous Acid Vapour may be used for disinfecting empty rooms in place of sulphurous acid. It is prepared by pouring strong nitric acid upon copper filings or a copper coin.

Nitrous Ether, Spirits of. *See* NITRE, SWEET SPIRITS OF.

Nitrous Oxide gas, laughing gas.—A compound of nitrogen and oxygen, used as an anæsthetic. *See* ANÆSTHETICS.

Nocturnal Discharges of seminal fluid are apt, if very frequent, to cause debility; within reasonable limits they may be regarded as a natural relief. If too frequent they may be checked by sleeping on a hard bed with not too much covering. A handkerchief knotted behind the loins with a pebble in it will be useful in preventing rest on the back. Stimulants should be avoided, plenty of exercise taken in the open air, and the thoughts kept well under control. The bowels should be opened freely every day, and an occasional dose of bromides may be taken. (*Pr.* 18, 22.)

Nocturnal Incontinence. *See* URINE, INCONTINENCE OF.

Node.—A swelling on a bone, caused by rheumatism or syphilis. Constitutional remedies are required.

Noise in the Ears. *See* EAR, NOISES IN THE.

Noli me tangere. *See* LUPUS.

Noma, *cancrum oris*, a form of gangrene of the cheeks, which sometimes comes on in children after measles and other fevers. A similar affection may attack the privates. *See* CANCRUM ORIS.

Nose.—The upper part of the respiratory tract, which also serves as the organ of smell. The nerves of smell are distributed to the upper part of the cavity. When we sniff, the air is drawn to this part, while in quiet breathing it passes chiefly along the floor of the nose. Each nostril communicates separately with the throat above the soft palate, and is partially subdivided into three passages by thin, spongy, curving plates of bone, which project from the outer wall. These bony plates are well supplied with blood-vessels to warm the air on its way to the lungs; so that we should breathe through the nose, and not through the mouth. The tear-duct from the inner angle of the eye opens into the nose, so that as a rule the tears do not overflow the eyelids, but moisten the nose. (*See* TEARS.) Other openings communicate with air spaces in the upper jaw-bone and the bone of the forehead. The *bridge of the nose* is protected by two little bones (nasal bones); the lower part consists of cartilage and other soft tissues. Sinking of the bridge is a common consequence of bone disease arising from constitutional causes; it may also result from *injury*. In this case the bridge may be restored by carefully lifting the bones with a padded pen-holder, assisted by the fingers outside. A rag with cold water should then be laid outside. (*See* NOSE-BLEEDING.) The highest part of the nose is roofed in by a very thin plate of bone perforated with fine holes for the nerves of smell. A parasol entering the nose has been known to reach the brain, with fatal consequences. FOREIGN BODIES, such as peas or slate pencils, are sometimes pushed by children into the nose. If the bodies are capable of swelling, they should be removed as early as possible, lest they become wedged in. Any such foreign body remaining in the nose is apt to excite inflammation and discharge. If the other nostril is closed, a vigorous blowing of the nose will often expel the body. Failing this, a hairpin with the rounded end bent up nearly to a right angle for about one-eighth inch, may be passed beyond the body so as to hook it forward, or the nasal douche applied to the free nostril. If a surgeon is at hand it is best to leave the matter to him, as foreign bodies are easily pushed farther in, or an injury done to the delicate lining of the nose. The nose sometimes becomes enormously ENLARGED in middle-aged people. This deformity goes by the name of hammer-nose. A similar enlargement may result from rosy acne. (*See* ACNE.) ULCERATION of the nose is usually due to constitutional diseases, such as cancer, lupus, or syphilis. As it is far more readily cured in an early stage, no time should be lost in obtaining advice. BOILS in the nose cause intense pain, which is best relieved by lancing and hot fomentations. The nose may be BLOCKED by violent colds, chronic inflammation of the lining membrane, polypi, and other tumours. (*See* POLYPI.) DISCHARGES are found in the same conditions. They may be watery, slimy, or mattery, and are sometimes very offensive. *See* COLD IN THE HEAD; OZÆNA. For loss of smell, *see* SMELL.

Nose-bleeding, *epistaxis*, may result from blows, violent sneezing, mountain climbing, enteric and other fevers, and other constitutional conditions. It is very common in growing children, and in girls before menstruation is thoroughly established. Later in life it usually arises from disease of the nose, heart, lungs, liver, or kidneys, and may indicate a tendency to apoplexy.

TREATMENT.—In children is often unnecessary. Raise arms, compress nostril with finger, apply mustard to stomach or legs, or cold water, or alum douche, (*Lotions* 7, 8, 9) to nose. (*See* NASAL DOUCHE.) Internally if obstinate give *Pr.* 33, 34, unless bowels are confined,

in which case *Pr.* 14 is more suitable. In *middle and advanced life* it is not wise to check bleeding from the nose excepting under medical advice. Saline aperients are usually indicated (*Pr.* 11, 14), or aconite (*Pr.* 31). Treat the cause. *See also* HÆMORRHAGE.

Nostalgia. *See* HOME-SICKNESS.

Nostrum. *See* PATENT MEDICINES; QUACKERY.

Nourishment. *See* FOOD; DIET; DIGESTION.

Nourishment of the Body depends on the free supply of material to take the place of that used up by the tissues, and on the removal of waste products which act as poisons. Food, after undergoing digestion in the alimentary canal, enters the blood and is distributed all over the body by the heart and bloodvessels. The blood does not however come into direct contact with the tissues, but part of it oozes through the coats of the blood-vessels, and bathes the tissues under the name of lymph. This enters a fine network of absorbents, which eventually pour it once more into the blood-stream. The blood is purified by the excretory organs (lungs, kidneys, etc.). All these processes are under the control of the nervous system.

Nuisances are dealt with by the medical officer of health and his inspectors, acting under the local sanitary authority.

Numbness usually arises from interference with the circulation in a part of the body, but may point to disease of the nerves or nerve centres. *See* NERVOUS SYSTEM.

Nurse. *See* MONTHLY NURSE; SICK-NURSE; WET-NURSE.

Nursemaid.—The choice of a nursemaid is of great importance, as young people are exceedingly imitative, and apt to acquire any peculiarities, whether mental or physical, of those around them. Odd habits and tricks are more easily learnt than unlearnt; and as many children also obtain their earliest impressions on a host of different subjects from the nursemaid, it is important from an educational point of view that she should be refined and well-informed. It would be a great advantage if every nurse were to learn something of the ordinary laws of health. Even where the parents exercise a personal supervision, as they should, many little things must necessarily be left to the discretion of the nurse. She should also be in good health, especially if she sleeps with the children.

Nursery.—Rooms for children should be in an upper storey, and have a southern aspect, with plenty of light and air. There should be a separate night and day nursery; or, if this is not possible, the children must be taken out early in the morning, and the room aired and thoroughly cleansed. Washing and cooking should never be done in a nursery. Any refuse or filth of any kind, slops, fragments of food, etc., should be promptly removed, as they all help to foul the air. Ventilation is of great importance. There should be an open fireplace with a high guard; and the room may be kept at a temperature of about 60° F. The lower half of the window should be guarded with bars. *See* VENTILATION.

Nursing.—This is so extensive a subject, that only a very brief outline of it can be given here. Some of the chief requirements in a nurse have been mentioned under the heads of monthly nurse and sick-nurse. One of the first duties of a nurse is *cleanliness*. The patient should be kept scrupulously clean (*see* ABLUTION), and the bedlinen clean, smooth, and free from crumbs (*see* BEDS AND BEDDING). All excretions and discharges from the patient should be promptly removed from the room. Soiled bandages are usually best burnt. Soiled sheets must be steeped in disinfectant (*see* DISINFECTION), and then boiled. Chamber utensils in a sick-room should be provided with lids, and emptied promptly, if not required for the doctor to see, in which case they should still be put out of the room in some cool place. (*See* NIGHT COMMODE.) Miss Nightingale mentions a case where a patient suffered from severe diarrhœa solely because the utensil was only emptied once in twenty-four hours. No slop-pail should ever be left in the sick-room. Spitting pots should be kept free from other things, such as matches, paper, or the refuse of food. In cleansing the

room, a damp cloth should be used to wipe the furniture. It is best not to scrub the floors, but to oil them with linseed-oil and polish with beeswax and turpentine. (*See* DISINFECTION; SICK-ROOM.) *Ventilation* is of great importance. *Systematic feeding* often makes all the difference between death and recovery. Food should be tempting in appearance, served frequently, and in small quantities, so as to be completely finished. Remnants of food are always distasteful to the sick. During the small hours it is especially important to give food to feeble patients. The *warmth* of the patient must be preserved where necessary by the application of hot bottles. In fever, cold sponging is grateful. (*See* FEVER, TREATMENT OF.) The patient's *strength* should be saved as far as possible; he should also be spared the necessity of taking thought, or deciding about anything. When spoken to, it should be at a distance at which he can easily hear without effort. No whispering should be allowed in the sick-room. Rustling of dresses and other distracting sounds are also to be avoided. Plenty of sound sleep is a great aid to recovery. Patients should not be woke to give them food or medicine, unless in a very weak state, or the doctor has expressly ordered it. *See also* BANDAGES; BLISTERS; ENEMAS; FOMENTATIONS; LEECHES; POULTICES; SUCKLING; WOUNDS, DRESSING OF.

Nursing Institutions.—British Nurses' Association, 20, Upper Wimpole Street, W. (for registration and association of all qualified British nurses); General Nursing Institution, Henrietta Street, W.C.; Guy's Hospital Nurses' Institution; Hamilton Association, 22, South Audley Street (male nurses); Hampstead Home Hospital (*see* HOSPITALS); London Association, 123, New Bond Street, and 86, Kennington Park Road; London, Clapham, and Brixton, 210, Clapham Road; London Hospital Private Nursing Institution; Middlesex Hospital Nurses' Institution; Mildmay Nursing Home, Newington Green; Nightingale Home, St. Thomas' Hospital (for training nurses); Nursing Sisters' Institution, Devonshire Square, E.; St. Bartholomew's Nursing Institution; St. Helena Home, Grove End Road, St. John's Wood; St. John the Divine Sisterhood, Drayton Gardens, S.W.; St. John's House and Sisterhood, Norfolk Street, Strand; St. Mary Magdalene's Home, 3, Delaware Crescent, Paddington; St. Thomas' Home, S.E. (*see* HOSPITALS); Westminster Training School, Queen Anne's Gate; Wigmore Institution, 32, Wigmore Street, W.; Wilson's Institution, 96, Wimpole Street, W.

Among those *in the Provinces are*—Bradford Institution; Brighton Institution; Croydon Institution; Deaconesses' Institution, Tottenham; Dublin Red Cross Nursing Sisters' House, 87, Harcourt Street; Kent Institution, West Malling; Leeds Institution; Leicester Institution; Liverpool (male nurses); Stephen Monckton Nurses' Home, Maidstone. All the above institutions supply hospital trained nurses. (*See* Medical Directory.) *See also* SICK-NURSE.

Nutmeg.—The dried seed of a kind of tree found in the Malay Archipelago. It yields a fat (concrete oil) and a volatile oil. Nutmeg fat is used externally as a liniment in chronic rheumatism. The essential oil has aromatic properties. The dose of *spirits of nutmeg* (1 part of the oil to 49 of rectified spirit) is from ½–1 fl. dr. Large quantities of nutmeg (*e.g.* half a nutmeg) have caused narcotic poisoning. Surrounding the nutmeg is an arillus which forms *mace*. *See* AROMATICS; NARCOTIC POISONING.

Nuts are mostly very rich in oil and albumen, the chief exception being the chestnut, which contains much starch and very little oil. Nuts, as usually eaten uncooked, are indigestible and irritating to the stomach, especially if stale. Cocoanuts and chestnuts are in their native lands important articles of diet, the chestnut, when boiled, usefully replacing the potato. *See* ALMONDS.

Nux Vomica.—The seeds of a kind of tree, a native of India. They yield strychnine and other alkaloids, and are valuable for their medicinal properties, but in large doses exceedingly poisonous. Small doses of nux vomica act as bitter tonics (*Pr.* 40); they are also added to aperient pills. Large doses cause con-

vulsions. Strychnine is an ingredient of many vermin-killers.

The *symptoms* of poisoning usually appear within ten or twenty minutes of taking the poison. After a feeling of restlessness or excitement, a choking sensation comes on, followed by trembling, jerking, and stiffness of the whole body. Consciousness is not lost, and in a few minutes the stiffness passes off, but repeatedly returns until death ensues, usually within half an hour. Sometimes the spasms gradually die away, and the patient recovers.

TREATMENT.—Give an emetic (*Pr.* 27, 28, or mustard and water) followed by large draughts of warm water. If medical assistance cannot be obtained, give 20 grains of chloral hydrate (to an adult) in water, by mouth or rectum. Keep the patient quiet in a darkened room, and avoid all unnecessary handling, which excites the spasms. During the attacks firm rubbing of the muscles gives some relief.

Oak-bark.—This powerful astringent is collected in spring from the smaller branches and twigs. From the dried bark a decoction is made ($1\frac{1}{4}$ ozs. to 1 quart of boiling water, boiled down to 1 pint). This is useful as a gargle in relaxed throat, and as an injection in "whites." *See also* GALLS.

Oakum is useful as a dressing for wounds. Lint may be placed next the wound, and the oakum packed outside, the whole retained by a gauze bandage. *See* WOUNDS, DRESSING OF.

Oats are very rich in fat as compared with other cereals, and more nourishing in proportion to bulk and price than either wheat or barley. *See* CEREALS.

OATMEAL PORRIDGE may be made by sprinkling the meal into boiling water with a pinch of salt, stirring until thick, and then boiling briskly for ten minutes. It may be made more digestible by leaving it overnight on the hob, mixed with boiling water. In this case it should be made thinner to allow for evaporation. Another method is to bake it while dry in a hot oven for twenty minutes before using. As ordinarily prepared, oatmeal is apt to cause flatulence.

OATMEAL WATER is made by boiling a handful of oatmeal in a gallon of water.

Obesity.—Fatty or adipose tissue is naturally present under the skin, and surrounding many of the internal organs; and in moderate quantities is useful as a protection against cold or injury, and as a store of energy during abstinence from food. Stout people, in whom fat is abundant in parts naturally possessing it, are also apt to have it deposited in other parts, such as the muscles and heart. The tendency to obesity is often hereditary, although habits of life have great influence. It may come on in early adult life, especially in pale young women with deficient menstruation, but more often shows itself after middle age. Corpulence may be due to excess of food, but as a rule stout people are small eaters. Indulgence in malt liquors often causes an unhealthy corpulence, in which condition scratches readily fester, and attacks of fever or inflammation are easily provoked. People may also put on flesh because of insufficient exercise in the open air. In health, about one-twentieth part of the body consists of fat; in extreme obesity (as in the case of Daniel Lambert, who weighed nearly fifty-three stone) as much as four-fifths may be fat. Obesity is not only a source of inconvenience for mechanical reasons, but also tends to produce breathlessness, excessive perspiration with an oily skin, muscular weakness, and in serious cases fainting fits and feeble circulation. The digestion is often imperfect, and gout and diabetes are common. Extreme stoutness often disappears in young people, but not usually later in life. Where those hitherto stout become thin at middle age, there is often something amiss.

TREATMENT.—Take plenty of exercise in open air, especially in the form of riding and other kinds which induce free perspiration. *Diet:* Avoid large meals, take lean meat, green vegetables, fruit, and dry toast; bread, milk, and starchy food only in great moderation; little or no butter, fat, oil, or sugar. Avoid malt liquors, sweet wines, champagne, etc., substituting water or, if necessary, weak spirits and water. If blood is poor, iron tonics may be required; if liver inefficient, special diet and treatment. (*See*

LIVER DISORDERS.) In all cases free daily action of the bowels should be insured, and great care taken in the ventilation of dwelling and sleeping rooms. Long-standing obesity with much weakness and dyspepsia is sometimes usefully treated by the "Weir-Mitchell" method. (*See* BANTING; MASSAGE.) The practice of taking large quantities of vinegar and other vaunted specifics in corpulence is strongly to be condemned, as the health is liable to suffer seriously. *See* FATTY FOOD.

Obstetrics.—The art of midwifery. *See* CHILDBIRTH.

Obstruction of the Bowels. *See* BOWELS, OBSTRUCTION OF THE.

Occupation has a great influence over the health. Many occupations are unhealthy because they lead to the inhalation of dust, or because of inefficient ventilation of workshops and workrooms; others because they involve exposure to the weather, or to extremes of temperature; yet others because of the long hours, the monotony, or the attitude or actions required. Sometimes the fault lies in the difficulty of obtaining sufficient or suitable food, or in the temptations to intemperance or to the excessive use of particular kinds of food, or in the use of poisonous substances. Among *dusty* occupations may be mentioned those of potters, millstone cutters, stonemasons, and marble polishers, sandpaper makers, needle and knife-grinders, miners, millers, hairdressers, fur dyers, hemp and flax-dressers, and linen drapers. Those who are occupied in such ways are apt to become asthmatical or consumptive, although the danger may be diminished by the use of suitable ventilating fans and shafts and respirators. By the introduction of wet-grinding and of magnetic respirators the mortality among needle-grinders has been greatly diminished. The colliers of Durham and Northumberland are longer lived than their fellows elsewhere, owing to better ventilation of the mines. Pearl-cutters are apt also to suffer from a peculiar kind of rheumatism, apparently caused by fine particles being carried to the bones. Chimney sweeps may suffer from cancer, bronchitis, or skin diseases from irritation by the soot. Bleachers suffer from the effects of the sulphurous acid gas, fur dyers from nitric acid vapours, brush makers from resinous fumes, hat makers from the vapour of ammonia, and workers in alkali works from the hydrochloric acid which escapes into the air. Where the substances inhaled are not only irritating, but *poisonous*, the special symptoms of poisoning are superadded. Thus cigar makers suffer from weakness of the muscles and depression of the heart-action; gilders and others who use quicksilver, from spongy gums, salivation, and tremors; workers in bichromate of potassium from ulceration of the nose and skin; those who use lead (plumbers, painters, glaziers, compositors, white-lead manufacturers, etc.) from wrist-drop or lead colic; zinc workers and brass workers from a peculiar kind of "ague," and from diarrhœa, cramp, and waterbrash. House painters, in addition to lead poisoning, are subject to headache and loss of appetite, apparently due to the fumes of turpentine. Paraffin workers get mattery heads which leave scars. Photographers suffer from depression and giddiness from the use of cyanide of potassium. India-rubber workers get headache, muscular pains, and nervous depression, from the use of bisulphide of carbon. Those who use arsenic, such as artificial flower makers and potters (arsenic being present in the glaze), get the characteristic symptoms of arsenical poisoning. Match makers used to suffer greatly from disease of the jawbone caused by phosphorus, but since the introduction of red phosphorus are no longer so much affected. In many of the above instances the poison enters the system by other channels beside the lungs; but each poison, however introduced, selects its own special parts of the body. In the case of wool-sorters and rag-pickers and hide dressers, the risk is of a rather different kind, as they are liable to infection by bacteria clinging to the materials they deal with. (*See* WOOL-SORTER'S DISEASE; INFECTIOUS FEVERS.) Postmen, commercial travellers, and others who are much *exposed* to the weather, suffer not only from this cause, but also from the

long or irregular hours, and in some cases from the temptation to drinking. Bakers, sugar-bakers, and hat makers are affected by the *extreme heat* and bad ventilation of the rooms in which they work. Lace-frame makers put a coke stove under their work, which causes them to inhale the poisonous carbonic oxide gas. (*See* POISONOUS GASES.) Shoemakers and tailors suffer from the constrained *attitude* necessary for their work; pianoforte players, type-writers, and reporters, from the continual repetition of the same *movements*. (*See* WRITER'S CRAMP.) Porters and navvies are more subject to hernia than others with a less laborious occupation; and soldiers and sailors, who have spells of extremely severe exertion, and periodical temptations to excess, often become afflicted with aneurysm. Sedentary occupations are also unhealthy.* The mortality among butchers, draymen, and publicans is usually extremely high, owing to their habits of *eating* too much meat and drinking too much fermented liquor. Obviously many of these causes of disease may be avoided by suitable means, so that the health of those who are engaged in unhealthy occupations is to a great extent in their own hands.

Odour. *See* SMELL.

Œdema.—Dropsy of the tissues under the skin. *See* DROPSY.

Œsophagus. *See* GULLET.

Oils may be divided into fixed and volatile. *Fixed* oils include almond oil, linseed oil, olive oil, castor oil, croton oil, cod-liver oil, colza oil, and poppy-seed oil. They leave a greasy stain on paper, not dissipated by heat, and are more or less aperient. *Volatile* or essential oils are very numerous, and much used in medicine. Amongst them we find oils of dill, anise, cajeput, caraway, cloves, cinnamon, eucalyptus, juniper, lavender, lemon, peppermint, rosemary, rue, mustard, turpentine, and others. Most of these have aromatic or "carminative" properties. *Palm oil* and *cocoa-nut oil* are solid or semi-solid fats. Many of the above are referred to in special articles. *See* FATS.

Oil-silk. *See* DRESSINGS.

Ointments. — Greasy substances for outward application. (*See* LINIMENTS.) They are usually made with lard, suet, or wax. Paraffin wax, vaseline, and lanolin are also used. SIMPLE ointment is made by melting together 2 ozs. white wax, 3 ozs. benzoated lard, and 3 fl. ozs. almond oil. SPERMACETI ointment is made with 5 ozs. spermaceti, 2 ozs. white wax, 1 pint of almond oil, and ½ oz. benzoin in coarse powder. These are heated together, stirred frequently, and strained. OTHER USEFUL OINTMENTS are—

Borax ointment (15 grs. to 1 oz. vaseline).

Boric acid ointment (10 grs. to 1 oz. vaseline).

Eucalyptus ointment (1 oz. eucalyptus oil to 2 ozs. each of hard and soft paraffin).

White precipitate ointment (30 grs. to 1 oz. lard).

Red oxide of mercury ointment (golden ointment).

Calomel ointment (20 grs. to 1 oz. vaseline).

Sanitas ointment (4 fl. drs. sanitas oil to 4 ozs. vaseline).

Camphor ointment (60 grs. powdered camphor with 1 oz. lard).

Sulphur ointment (1 oz. to 4 ozs. lard).

Belladonna ointment.

Compound gall ointment (half strength of B.P.).

Chloroform ointment (½ fl. dr. to 1 oz. lard).

Goulard ointment (½ fl. dr. goulard extract with 1 oz. lard).

Resin ointment.

Tar ointment. *See* TAR.

Sulphate of iron ointment (6 grs. to 1 oz. vaseline).

Zinc ointment.

Old Age.—During this period of life it is important to maintain the bodily warmth by woollen clothing and other means. The winters should, if possible, be spent in a warm climate, or if this is not possible, cold winds and wet weather

* Overwork of the brain is far more often the result of worry and want of exercise in the open air, than of the actual amount of work done. Change and variety of occupation will allow of far more work being accomplished without distress.

avoided as far as may be, and the house kept at an equable temperature. The food must be such as can be easily masticated; and a glass of light wine with the chief meal is likely to be beneficial. Constipation must be carefully guarded against by suitable diet and aperients, and the skin kept in good order by a hot bath every week. The hours should be regular, and all violent exertion avoided.

Olfactory Nerve. *See* SMELL.

Olive oil, salad or sweet oil, is used in making hard and soft soaps, and various liniments. It may be employed as a dressing for wounds, and is useful as an addition to enemas. Taken internally, it is soothing, and slightly laxative.

Omentum.—An expansion of the peritoneal membrane, containing fat and bloodvessels. The *great* omentum hangs down from the lower border of the stomach, covering over the bowels like an apron. *See* HERNIA.

Onanism, self-pollution, is answerable for many ailments during youth and early manhood. Parents should give a few words of suitable advice to their children about the time of puberty, in order to prevent the possibility of vicious practices being ignorantly indulged in. When at this time of life young people are debilitated without obvious cause, and show listlessness and dislike to appear in society, it is well to remember the possibility of such practices.

Onion and Garlic contain volatile oils with stimulant properties. They are somewhat aperient and diuretic. The chief drawback to their use is the disagreeable eructations to which they give rise.

Onychia.—Inflammation of the bed of the nail. *See* NAIL; WHITLOW.

Ophthalmia. — Inflammation of the front of the eye, with discharge of matter or watery fluid. *See* EYE.

Ophthalmoscope.—A contrivance for examining the interior of the eye-ball by reflected light. The surgeon throws the light of a lamp on to the eye by means of a concave mirror with a hole in it, while he looks through the hole. Magnifying glasses and other lenses may also be used.

Opinion, Medical. *See* CONSULTATIONS; DOCTOR; MEDICAL ADVICE.

Opium.—The thickened juice of the opium poppy, imported in the form of brown or black cakes or masses, with a heavy smell and bitter taste. It is obtained chiefly from Asia Minor, but inferior kinds are grown in Egypt, India, China, South of France, and other places. It contains morphine and other alkaloids, together with resinous, gummy, and other matters.

Action.—It is one of the most valuable of drugs. It relieves pain and causes sleep; quiets the bowels and lungs, promotes perspiration, and diminishes all the other secretions. The chief disorders in which it is given are those causing great pain, sleeplessness, loss of blood, or profuse discharges; also inflammation of the bowels, diseases of the lungs, and diabetes.

Modifying Circumstances. — Small doses are stimulating, large ones depressing. Children are always profoundly affected by it, and should never be allowed to take it excepting under medical advice. A single drop of laudanum has caused the death of an infant. Many soothing syrups and other secret remedies for the ailments excited by teething contain opium, and are therefore dangerous to children. It is also dangerous to adults with unsound kidneys and some diseases of the brain, or where the lungs are choked with secretion. Some individuals are excited, instead of being soothed, by opium. The effect largely depends upon habit. Sir Alf. Garrod mentions a case in which a young man habitually took 60 grains of Smyrna opium night and morning, and often in addition to this, from 1 to 1½ fl. ozs. laudanum during the day. The common dose of opium is 1 grain, or of laudanum 10 or 15 drops. Poisoning may however result if large doses are suddenly resumed after an interval, even if they have previously been taken with impunity. The action of opium is greatly modified by combination with other drugs. Thus with ipecacuanha in Dover's powder it acts chiefly on the skin and respiratory organs; with vegetable astringents, on the bowels; with other narcotics, on the brain. Some people, if they take opium to induce

sleep, are liable on waking to suffer from headache, nausea, loss of appetite, foul tongue, thirst, and constipation. The habitual use of opium deranges the liver and digestive organs, and causes lowness of spirits and depression, together with an irritable state of nervous system, which appears when the drug is discontinued. Those addicted to the drug become sallow and emaciated, lose their energy and interest in life, become feeble of will, and untruthful. On abandoning the use of the drug, they suffer exquisitely from the extreme acuteness of all the senses; but perseverance, together with the use of a few suitable remedies, will restore them to health. Such people require to put themselves under medical control, to become cured of their habit.

Preparations.—These are very numerous, so that only a few can be mentioned here. Some are applied to the skin, others given internally, or put into the rectum. A solution containing morphine is sometimes injected under the skin.

Fluid Preparations.

Tincture (laudanum), dose, 5 to 20 minims.
Battley's Sedative Solution (not official), dose, 5 to 20 minims.
Compound tincture of camphor (paregoric, for cough), dose, 10–30 minims.
Compound tincture of chloroform and morphine (an imitation of chlorodyne, which is a secret preparation), dose 5 minims.

Solid Preparations.

Extract, dose, ½ grain.
Compound ipecacuanha powder (Dover's powder), dose, 5–15 grains.
Compound kino powder (for diarrhœa), dose, 10–30 grains.
Compound chalk and opium powder (for diarrhœa), dose, 10–30 grains.
Compound ipecacuanha and squill pill (for cough), dose, 5 grains.

For *external* use: liniment of opium, opium plaster, and compound gall ointment (for piles). Half a drachm of paregoric may be used with 2 fl. ozs. mucilage of starch as an enema.

Opium Poisoning causes giddiness and drowsiness, with contraction of the pupils and a flushed face. If sufficient has been taken, the drowsiness passes into stupor, the skin becomes cold and damp, the lips livid, and breathing and heart-action are interfered with. The symptoms usually set in within an hour or less. No time should be lost in emptying the stomach by an emetic (*Pr.* 27, 28), or by tickling the throat, or by the use of the stomach pump. The latter is only safe in medical hands; if the patient can swallow, the stomach tube may be used instead. At the same time, the patient must be roused by shaking, walking about, dashing cold water into his face, and shouting at him, so that he does not drop off to sleep. When he begins to recover, give strong coffee freely, and hartshorn and water (*Pr.* 5) if he is faint.

Opedeldoc.—A popular name for soap liniment.

Optical Illusions. *See* Illusions; Sight.

Orange.—Two kinds are used in medicine, sweet and bitter. From the flowers are prepared orange flower water, syrup of orange flowers, and a volatile oil (*oil of Neroli*). Orange peel contains another volatile oil, together with a bitter principle. From the coloured part of the bitter orange peel is prepared an infusion (peel, ½ oz., boiling water, ½ pint); a compound infusion (bitter orange peel, ¼ oz., fresh lemon-peel, 56 grains, cloves, 28 grains, boiling water, ½ pint); tincture of orange-peel, tincture of fresh orange-peel (more pleasant to the taste), syrup of orange-peel (tincture, 1 oz., syrup, 7 ozs.), and orange wine. The peel and the tinctures are aromatic bitters. (*See* Bitter Tonics.) The oil of orange-peel is stimulant and carminative, and in large doses an irritant poison. The other preparations are chiefly useful as flavouring agents. The *tincture of fresh* oranges may be made by thinly peeling some oranges, and macerating 6 ozs. of the peel in a pint of brandy or spirits of wine, in a well-corked or stoppered bottle for a fortnight in a warm place, shaking every day. The dregs should be pressed, the liquids added together, strained, and bottled in a stoppered bottle. *Doses* of the infusions, and of orange-flower water, 1–2 fl. ozs. Of the tinctures and syrups, 1–2 fl. drs.

Orangeade.—(1) Make a syrup by boil-

ing 6 ozs. loaf sugar in ½ pint water till dissolved. Pour it over the thin yellow rinds of two small oranges, and keep in a warm place for two or three hours. Strain the juice of six oranges into a jug. Add to the syrup 1½ pints cold water, strain through a jelly bag, and mix with the orange juice. Use cold.

(2) Dissolve a small lump of sugar in half-a-pint of cold water, and add a tablespoonful of fresh tincture of oranges.

Orbit.—The bony cavity which lodges the eye.

Organic substances, those which are obtained from animal or vegetable bodies, or resemble other substances so obtained. They all contain carbon, and many also nitrogen.

ORGANIC DISEASE is associated with a discoverable change in the bodily structure. In *functional* disease, no such change can be detected.

Orpiment. *See* ARSENIC.

Ossification.—The formation of bone. In early life the bones are represented by cartilage (gristle) or membrane. Centres of ossification appear, from which the bone gradually spreads. In long bones there are separate centres of ossification for the shaft and the extremities, which join on to the shaft when growth is beginning to cease. (*See* BONES.) In old age some parts which are cartilaginous in middle life (as for instance the larynx), become partially ossified. *See* FRACTURE.

Ovariotomy.—The operation for removal of diseased ovary. This was at one time a most deadly operation, and is still a formidable one; but thanks to the labours of Spencer Wells and others it has become comparatively safe.

Ovary.—The manufactory of germs which after impregnation develop into the child in the womb. The ovary is subject to many diseases, such as dropsical enlargement, solid tumours, or inflammation. During menstruation the ovary sometimes becomes painful. The pain is chiefly felt low down above the groin, and may be excited by movement, pressure, or the action of the bowels. *See* OVARIOTOMY.

Overcrowding is a fruitful source of disease, and a distinct relation may be traced between the density of population and the death-rate. This is partly due to insufficient supply of pure air, partly to the spread of infectious disease. Where houses are put back to back, so that no free circulation of air is possible, the death-rate and amount of sickness are invariably greater than in better placed, but otherwise similar houses. The sanitary authorities have power to forbid overcrowding, both of houses on a given area and of people in dwelling-rooms and workshops. Public parks and open spaces greatly improve the health of a neighbourhood.

Overlying sometimes happens where infants share their parents' beds. *See* INFANCY.

Overwork. *See* EXERCISE; OCCUPATION.

Ovum.—The egg or impregnated germ of a future animal. (*See* OVARY.)

Oxalic Acid is found in combination with potash in garden rhubarb, wood sorrel, and other plants. Oxalate of lime is also found in the body in some diseases, and cast out with the urine. (*See* OXALURIA.) The acid may be made artificially by the action of nitric acid upon sugar or starch, and, like these, consists of carbon, hydrogen, and oxygen in combination. It forms small, white crystals, which have a distant resemblance to sulphate of zinc and Epsom salts, but are highly poisonous. The taste of the sulphate and of Epsom salts is bitter, that of oxalic acid intensely sour. Salt of sorrel or salt of lemons, used for cleaning leather and removing inkstains, is an oxalate of potash.

The *symptoms of poisoning* with a large dose are, burning pain at the pit of the stomach, with pain and constriction in the throat; vomiting of blood or of strongly acid brownish matter, and complete prostration of strength. The symptoms begin directly after swallowing the poison, and the sufferer may die within half an hour.

TREATMENT.—Give plenty of chalk, whiting, or old mortar, rubbed up in water; this forms an insoluble oxalate of lime. After this, give warm milk and water, and if there be no vomiting, an emetic of sulphate of zinc (*Pr.* 27). The

stomach pump cannot be safely used, as the coats of the stomach are usually partially destroyed. If the patient survive, the treatment is that of inflammation of the stomach and bowels.

Oxaluria.—A condition in which oxalate of lime is passed with the urine. The oxalate forms minute crystals, which are apt to irritate the urinary passages. They may also be deposited in the kidney in the shape of a calculus or stone. (*See* KIDNEY, STONE IN THE.) The causes of oxaluria are not well understood; it is often associated with gout, or with indigestion and lowness of spirits. Sulphuretted hydrogen (rotten-egg-gas) is sometimes belched up by patients with this complaint.

TREATMENT consists in the avoidance of articles containing oxalates, and of sweet, effervescing beverages, and in taking mineral acids (*Pr.* 1) after meals. It would, however, be scarcely possible for the unskilled to recognise the nature of the disease.

Oxgall in a purified state is given as a remedy for constipation, flatulence, diarrhœa, and other disorders depending upon insufficient secretion of bile. It is especially useful where the bile-duct is obstructed. It is prepared by adding two pints of rectified spirit to one of fresh ox-bile, shaking in a bottle, and setting aside for twelve hours. The clear part is then decanted, and evaporated at a gentle heat, till firm enough for pill-making. Five to ten grains may be taken once or twice a day in pills or capsules. Coated pills are sold by the chemists.

Oxygen.—An elementary gas forming one-fifth of the atmospheric air, and present in water in combination with hydrogen. It is essential to respiration, and to the burning and rusting of various substances. Its metallic compounds are called oxides. (*See* RESPIRATION.)

Water aërated with oxygen instead of carbonic acid gas is now supplied by a firm of mineral water manufacturers. It is a pure and stimulating beverage, useful in some forms of dyspepsia.

Oxymel consists of clarified honey (8 ozs.), acetic acid (1 fl. oz.), and distilled water (1 fl. oz.); it is a pleasant application for sore throat. Dose, 1–2 fl. drs. Oxymel of squill is made by mixing 5 fl. ozs. of vinegar with ½ lb. honey. *See* SQUILL.

Oysters are usually regarded as nourishing and easy of digestion; but this is only true if they are taken raw, or very lightly cooked, and in season. The large, fawn-coloured liver which forms so conspicuous a part of the oyster consists almost entirely of glycogen, associated with a ferment, diastase. When oyster is taken raw, this ferment assists in its digestion; but if cooked, the ferment is liable to be destroyed, and what remains is comparatively indigestible. Oysters are in season from September to April (months with an *r*). At other times they may cause symptoms of irritant poisoning. *See* SHELLFISH.

Ozæna.—An offensive smell from the nose, caused by disease of the bone, chronic inflammation of the lining membrane, or an independent change of the secretions. It very often depends upon constitutional weakness, and tonics or other remedies are usually required for its cure. A solution of common salt (½ teaspoonful to a pint of warm water) may be snuffed up into the nostril from the palm of the hand morning and evening, or a solution of carbolic acid (1 in 40) or of boracic acid (10 grs. to 1 oz.).

Ozone.—A specially active modification of oxygen, in which three volumes are condensed into the space for two. The pungent smell noticeable when an electrical machine is being worked is due to the presence of ozone. A minute proportion is always present in the pure air of mountain tops and the seaside, and after a thunderstorm or fall of snow; but in the close air of houses and towns it is often wanting, having been used up in oxydizing organic impurities. Air deprived of ozone by being breathed is said to be "devitalized." Hydrogen peroxide has similar purifying properties. *See* HYDROGEN PEROXIDE.

Pain is of many different kinds, according to its seat and other circumstances. It may be continuous or intermittent, dull or sharp, associated or not with tenderness. When due to inflammation it is usually fixed, while nervous pains

are often shifting or flying. In inflammation of the skin, or of "mucous membranes," the pain is burning, tingling, or smarting; in that of a "serous membrane," it is sharp and cutting; where matter is forming or bloodvessels are overful, the pain is often throbbing; muscular pain is aching or cramplike, and relieved by gentle pressure; and that of neuralgia sharp and flying. Pain is not always felt at the seat of disease. When caused by compression or disease of a nerve, the pain is usually felt in the distribution of the nerve, and irritation of one nerve branch may be felt at the end of another. Thus in hip disease, pain in the knee is complained of; a rotten tooth may cause neuralgia at the back of the head, or at the temple; constipation may cause pain running down the leg. The degree of pain depends partly on the local cause, partly on the constitutional sensitiveness. Some people appear to be little affected by painful diseases which in others would cause much suffering. Pain may be greatly intensified by paying attention to it, and *vice versâ*. This is especially true of nervous pains. In "hysterical" people, there is often little or no suffering until attention is drawn to the part affected.

Pain is not without its uses, as it leads to the discovery of disease while this is still curable. In busy people persistent disregard of pain is very unwise, and may lead to much more serious illness. On the other hand, those who are not obliged to work, or who for other reasons are always dwelling on every little ailment, are apt in this way to increase their sufferings, and should be encouraged to occupy their minds with other matters. Great exhaustion or shock diminishes the capacity for suffering, so that the absence of pain is not always a good sign. A small blister may cause intense discomfort, while a large burn may be almost painless, owing to depression of the nervous system. Severe or long-continued pain is very depressing to the system, and should therefore not be left unrelieved. At the same time it should be always regarded as the consequence of some other condition, which also calls for treatment. To give soothing syrup to a baby chafed by an ill-fitting garment, or tortured by indigestible food, instead of removing the cause of the pain, would scarcely commend itself as rational treatment. In the presence of pain, therefore, the first thought should always be, how to remove its cause; the second, how to relieve the suffering. The first method can never be wrong; while the second may sometimes lead to great mistakes. *See* ANODYNES.

Pains. *See* CHILDBIRTH.

Painter's Colic. *See* LEAD POISONING; COLIC.

Painter's Palsy. *See* WRIST-DROP; LEAD POISONING.

Paints, Poisonous. — Newly painted houses often cause headache and other unpleasant symptoms. The effect may be diminished by using paint which dries quickly, choosing, if possible, dry warm weather, and ventilating freely. During the colder part of the year, and in damp weather, no newly painted room should be inhabited until fires have been lighted in it for at least twelve hours, the windows being meanwhile left open. Zinc paints are probably free from injurious influence, but are said to be both more expensive and less easy to work with. On the other hand, white zinc paint is less likely to tarnish than lead paint. Some paints are poisonous from the presence of arsenic (*which see*). Children are sometimes made ill by sucking paints and paint-brushes. Non-poisonous paints may be obtained for them, but it is best to cure the habit.

Palate.—The partition between the mouth and nose. The front part, or hard palate, consists of bone covered with mucous membrane. The back part, or soft palate, is chiefly muscular; it is prolonged in the middle into a hanging tassel (*uvula*) from which run two pairs of arched pillars to the side of tongue and throat. Between each pair is placed a *tonsil* (*Fig.* 39). The space bounded by the arched pillars, tongue and palate, is called the gorge or swallow. (*See* THROAT.) In breathing through the mouth, and in swallowing, the soft palate is raised so as to cut off the upper part of the throat from the lower. (*See* SWALLOWING). The palate is also con-

cerned in speech. Some children are born with deficiency of the palate (CLEFT PALATE), which necessitates operative treatment. Such a condition is often associated with HARELIP. For other diseases of the palate, *see* THROAT; TONSIL; UVULA.

Pale Face. *See* BLOOD, POVERTY OF.

Pale Motions. *See* MOTIONS.

Palliatives.—Remedies which relieve, but do not cure. By their use many incurable and painful diseases are rendered less distressing.

Palm Oil. *See* OILS.

Palpitation.—Irregular or painful heart-action. In health we are not conscious of the action of the heart; if we become unpleasantly aware of it, there is said to be palpitation. The commonest *causes* are indigestion and sudden emotion. The presence of wind in the stomach or bowels mechanically interferes with the heart-action. Undigested and half-masticated food, especially at night, is apt to provoke an attack. Other causes are, the use of strong tea or coffee or tobacco, a gouty tendency, poorness of blood, and debility from over-study, insufficient food, or excess of various kinds. When palpitation is often induced by emotion or exertion, it will be wise to consult a doctor. The cause is usually a removable one, but sometimes there is heart disease.

The TREATMENT is that of the cause: remedies for the general health, attention to diet and digestion, avoidance of common causes as mentioned above. In an emergency, *Pr.* 4, 5, may be taken; but this must not replace an inquiry into the cause. Palpitation is sometimes troublesome in pregnancy, especially after a meal, or on first lying down at night. When it appears for the first time during pregnancy, give a wineglassful of camphor-water, with 20–30 minims aromatic spirit of ammonia. Avoid alcohol, and take *Pr.* 34, 35, or 36 three times a day.

Palsy. *See* PARALYSIS.

Panacea.—A remedy for all diseases. None but ignorant people can believe in the existence of such a remedy.

H. D. M.

Panada is made by drying thin slices of bread in the oven, and then boiling them for a long time in water or milk and water. It is suitable for children and invalids. A modification of this (*bread-cream*) is made by steeping slices of baked bread for several hours in water, and then boiling gently for several hours more, adding water from time to time. The fluid should then be strained, sweetened, and flavoured with a little orange-flower water. Arrowroot, sago, or semolina may be treated in the same way. Instead of the water, barley water, thin gruel, weak chicken broth or beef-tea may be used. The last two convert it into a kind of soup.

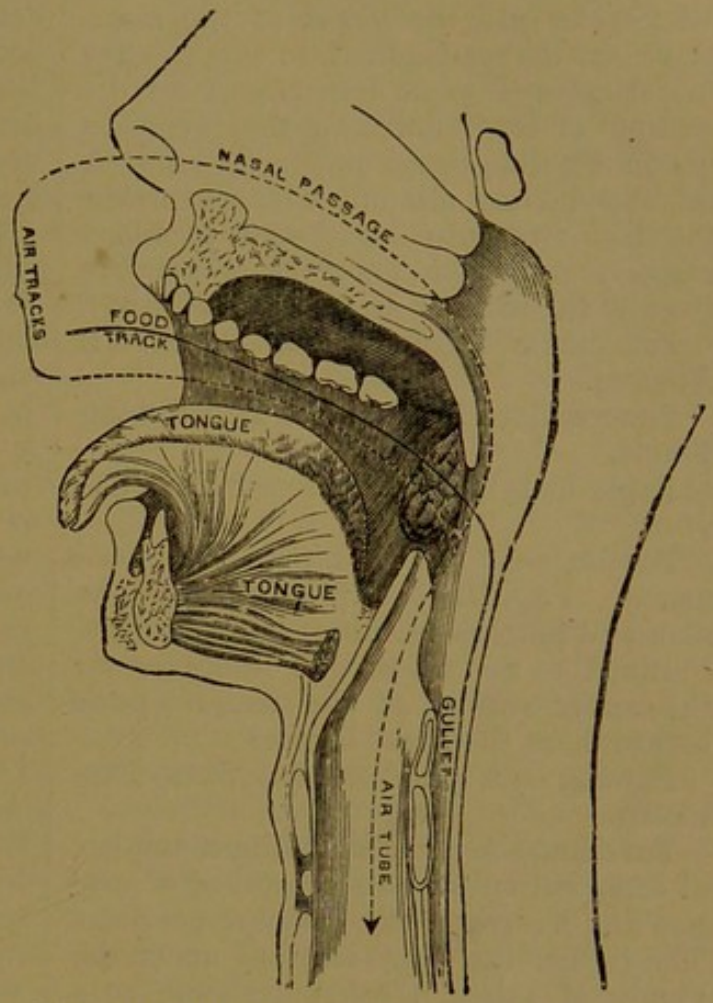

FIG. 39. DIAGRAM OF PATHS TAKEN BY FOOD AND AIR RESPECTIVELY.

Separating mouth and nose is the palate. Close to the end of soft palate is the right tonsil.

Pancakes are unsuitable for invalids, unless very light and quickly fried.

Pancreas.—A large gland placed at the back of the abdomen, behind the stomach. It is shaped a little like a

dog's tongue, with the thick end to the right, embraced by the first curve of the small intestine, and the thin end to the left touching the spleen. In structure it resembles the salivary glands; the duct opens into the bowel at the same place as the common bile duct. Its secretion is of great importance for digestion of food, finishing the processes begun by the gastric juice. It acts on fat, starch, and albuminoids, converting the last two into sugar and peptones respectively. The pancreas of animals goes by the name of sweetbread (*Fig.* 36).

Pancreatic Extract. *See* DIGESTIVE AGENTS.

Pancreatised Foods. *See* PEPTONISED FOODS.

Paper-hanging. *See* HOUSE DECORATION.

Papilla.—A small, nipple-like eminence. Papillæ are plentiful in the skin and mucous membranes. Some are confined to the deep part, others (as on the upper surface of the tongue) push before them the outer layers.

Papule. — A pimple. *See* SKIN DISEASES.

Paraffin.—A term including a number of different substances composed of carbon and hydrogen in certain proportions. The lighter kinds are familiar under the names of *paraffin oil*, petroleum, rock oil, etc.; while the denser ones are of a pasty or waxy consistence, and may be divided into soft and hard paraffin. *Soft paraffin* includes vaseline, cosmoline, fossiline, ozokerine, adepsine, etc.—all of them white or yellow greasy substances, largely used for ointments or toilet preparations. *Hard paraffin* or paraffin wax is firmer, slightly greasy, and when pure has neither colour, taste, nor smell. It melts in hot water, and burns with a bright flame. None of these substances turn rancid or spoil with keeping. They do not mix with water, or form soaps with alkalis (as do true fats).

Paralysis or *Palsy.*—Loss of power of voluntary movement, arising from disease or disorder of the brain, spinal cord, or nerves. It includes loss of sensation as well as of motion, and is really a symptom of many different diseases, rather than a disease of itself. *Varieties.*—Almost any part of the body may be affected. Sometimes, as in apoplexy, all one side of the body is paralysed; at other times, as when the back receives a severe blow, or the cord is compressed by disease of the backbone, both legs are paralysed, while the arms are unaffected; and sometimes an arm or a leg, or a group of muscles, or even a single muscle, may alone be paralysed.

The *causes* of paralysis are as numerous as its varieties. Sometimes it is due to pressure or injury; sometimes to bursting or blocking of a bloodvessel; sometimes to inflammation, or to some change in the nutrition of a part of the nervous system. The use of crutches sometimes causes paralysis of an arm, though this is usually easily cured. In the same way pressure of a tumour in the brain, or disease of the bones of the spine, may cause more extensive paralysis. Violent shaking, such as is common in railway accidents, often leads to paralysis. Exposure to cold and damp may give rise to paralysis of one side of the face. Amongst other causes of paralysis may be mentioned certain poisons (such as lead or alcohol), diphtheria, syphilis, and exhaustion from overwork, insufficient nourishment, loss of blood, or excess of various kinds. Diseases are also met with, in which there is not so much loss of strength, as inability to perform certain movements. Sometimes for instance a pianist can write or sew, but cannot play the piano, the particular combination of movements being no longer possible, owing to over-practice. Belonging to this group are scrivener's palsy, violinist's cramp, pianist's cramp, etc. Again, in locomotor ataxy, the muscles are strong as ever, but they cannot be properly controlled, so that the sufferer uses unnecessary violence in moving his legs, and, though capable of walking long distances, has difficulty in setting off, or in stopping or turning round. It must be obvious that paralysis is not suitable for domestic treatment. Some kinds of paralysis are easily curable, while others are quite incurable. Each case must be judged on its own merits. Galvanism and Fara-

dism in skilled hands are of great value, both in determining the nature and extent of paralysis, and in curing it. *See* APOPLEXY; PARAPLEGIA; LEAD-POISONING; INFANTILE PARALYSIS; SCRIVENER'S PALSY; WRIST-DROP.

Paraplegia.—Paralysis of both lower extremities, caused by disease or injury of the spinal cord. It may arise in many different ways, and is sometimes curable. In addition to weakness of the legs there is often loss of sensation, or numbness and tingling, and a feeling as of a tight cord tied round the waist. The bladder and bowels require careful watching, as there is often retention or incontinence. Bedsores are apt to appear, so that the slightest redness of the skin should receive attention. (*See* BEDSORES.) The legs are often "unruly," jerking about involuntarily when touched by the bedclothes or otherwise irritated.

Paregoric, compound tincture of camphor, contains opium, aniseed, benzoic acid, and camphor. It is much used in cough mixtures, but should never be given to children excepting under medical advice (*see Pr.* 21). *Scotch Paregoric*, or ammoniated tincture of opium, contains opium, aniseed, benzoic acid, and ammonia. It is more than twice the strength of the English preparation, and is equally unsuitable for children. (*See* OPIUM.)

Pareira Root.—A bitter tonic from a Brazilian tree. It is used in diseases of the bladder.

Parent. *See* INHERITANCE; MARRIAGE.

Parish Doctor. *See* DOCTOR.

Parotid Gland.—The largest of the salivary glands, situated behind the lower jaw on either side of the face. Its duct opens into the mouth opposite to the second upper double tooth. This gland is inflamed and painful in *mumps* (*which see*). Several important nerves pass through or near the parotid gland; beneath it are the internal carotid artery and internal jugular vein, two of the largest bloodvessels in the neck.

Paroxysm.—A periodical increase of a disease. Thus in neuralgia we have paroxysms of pain; in ague, paroxysms of fever; in some kinds of insanity, paroxysms of madness.

Parrish's Chemical Food contains phosphates of iron and calcium, with smaller quantities of phosphates of sodium and potassium. It is a very useful tonic. Dose, 1 fluid drachm.

Parsnips. *See* VEGETABLES.

Parturition. *See* CHILDBIRTH.

Passion.—Violent fits of passion are most injurious to health, and in elderly people or others with brittle arteries may lead to apoplexy. Especially should such emotions be avoided in sufferers from heart disease. There is a story of a woman who gave the breast to her infant immediately after a fit of passion, and the child died as if poisoned. Violent emotions affect both mind and body; in addition to the direct dangers, all loss of self-control may indirectly lead to suffering or death.

Pastilles are used for covering bad smells, or for inhalation; they often contain aromatic gum resins and sweet-smelling woods, made into a paste with charcoal and gum. A small quantity of cascarilla bark burnt over hot cinders on a shovel will diffuse a fragrant odour in the room. Special pastilles are prepared for asthmatic people. *See* INHALATIONS; DEODORANTS; DISINFECTANTS.

Pastry is usually somewhat difficult of digestion, as the fat or butter in it coats the starch cells of the flour, and keeps off the digestive juices. If baked in a close oven, pastry is apt to become impregnated with acrid substances derived from the over-heated fats. This renders it still less digestible. *See* COOKING; DIGESTION.

Patella, knee-cap or knee-pan, is situated in the tendon of the front or extensor muscles of the thigh. (*See* SKELETON, *Fig.* 43.) It protects the knee-joint, and gives leverage to the muscles connected with it. It may be broken by a blow, or by sudden muscular effort, as in checking a fall. The knee-joint is apt to be injured at the same time, so that a surgeon should be sent for. In the meantime the leg should be extended on a padded inclined plane, and the fragments drawn down with bandages. Two of these

may be tied moderately tightly round the limb above the fragments and below the knee, and drawn together by two more. If there is much swelling, put an ice-bag over the knee. There is more displacement of fragments when the fracture is from muscular effort. Several months are sometimes necessary to restore the limb. The time may sometimes be considerably shortened by an operation, and a better result obtained.

Patent Medicine, proprietary medicine, is one whose sale is secured to the proprietor by a patent, so that it may only be sold with his permission. The Government stamp shows that it has paid duty, but is no proof (as some ignorant people imagine) that its efficacy is officially vouched for.

Pathology.—The science of disease, which treats of its nature, causes, symptoms, and tendencies. *See* MEDICINE.

Pea.—Green peas when young are wholesome and digestible for healthy people; but when old the skins become woody and apt to irritate the bowel. They contain a notable amount of sugar, and are valuable for their salts. Dried peas are indigestible, unless soaked or ground, and thoroughly cooked. They are apt to cause flatulence; hence the addition of mint to pea-soup. In pork and pease-pudding, the pork makes up for the deficiency of the peas in fat. They contain a large proportion (23 per cent.) of casein, which in China is made into a kind of cheese. About half the weight of pea-meal is starch. *See* LEGUMENS.

Peach. *See* FRUITS.

Pearlash. *See* POTASSIUM CARBONATE.

Pearl-barley. *See* BARLEY.

Pears. *See* FRUIT.

Pediculi. *See* LICE.

Peel. *See* FRUITS.

Peeling. *See* DESQUAMATION.

Pelvis.—The bony ring surrounding the lowest part of the abdomen, containing within its cavity the bladder and rectum, and in women the uterus. The female pelvis is lighter and more expanded than the male, being adapted to the purposes of childbirth.

RICKETS in early life often causes deformity of the pelvis, which may in the event of pregnancy gravely interfere with the birth of a child, and imperil its life and that of the mother. A woman who is afflicted with such a deformity should not marry until a medical examination has shown that a safe pregnancy is possible. (*See* CÆSARIAN OPERATION.) FRACTURE of the pelvis is usually due to serious accidents, such as a railway collision or being run over. There is great probability of the bladder and other organs being injured. It requires surgical knowledge for its detection and treatment. *See* ACCIDENTS; AMBULANCE.

Pemmican is made by drying lean meat, and reducing to powder or paste. It has been used in cold countries as a portable concentrated food.

Pennyroyal belongs to the mint tribe, and has much the same properties as mint (*which see*). It is said to cause abortion, so that it is unsafe to give it in pregnancy. The dried leaves are said to drive away fleas.

Pepper.—The unripe dried berry of a trailing plant growing in the East Indies. White pepper is black pepper deprived of the husk. Long pepper, which forms pods an inch or more long, is obtained from an allied species. All these have similar properties, stimulating the mucous membranes, especially in the digestive and urinary tract. Pepper is used as a condiment for its action on the digestive organs; confection of pepper (*see below*) is given as a remedy for piles. Steeped in alcohol and applied to the skin, pepper acts as a rubefacient like mustard. It owes its properties to the presence of a volatile oil and other bodies. Pepper used at one time to be extensively adulterated, even artificial pepper-corns being met with. Most of the adulterations can be readily detected with the microscope. Two other drugs, cubebs and matico, belong to the pepper family. (*See also* CAPSICUM; CONDIMENTS.)

CONFECTION OF PEPPER. — Black pepper in fine powder, 2 ozs.; caraway, 3 ozs.; clarified honey, 15 ozs.; rubbed well together. Dose, 1 to 2 teaspoonfuls.

Peppermint. *See* MINT.

Pepsine.—The active principle or fer-

ment of the gastric juice, usually prepared for medical purposes from the stomach of the pig or the calf. It is sold in many different forms: pills, tablets, powder, flakes, and solutions in acidulated glycerine, wine, and other fluids. The pharmacopœial powder is a light, yellowish-brown powder, with a faint odour and a saltish taste. (Dose, 2 to 5 grains.) Saccharated pepsine is pepsine dried with sugar of milk. (Dose, 5 to 15 grains.) Pepsine tablets are also sold by Burroughs, Welcome & Co. and other chemists. Each contains, as a rule, 3 grs. pepsine with chocolate. Among reliable liquid preparations may be mentioned Bullock's acid glycerine of pepsine, Mason's pepsine wine, and Benger's liquor pepticus. The dose of all these is 1–2 fl. drachms, taken at the end of a meal.

Peptones.—The final stage of digestion of albuminoids and gelatinoids in the stomach. They are peculiar in not being coagulated or clotted by heat, and in readily passing through animal membranes. Beef peptones have been introduced as a food for invalids.

Peptonised Foods are such as have been partially digested by adding some preparation of pepsine or of pancreatic extract. Where pepsine is used, the food must be rendered slightly acid; where pancreatic extract, the food must contain carbonate of soda and have an alkaline reaction.

Fairchild's Peptonising Powders contain each 5 grains of pancreatic extract and 15 grains bicarbonate of soda, sufficient to digest 1 pint of milk in ½ hour. They are sold in little tubes packed in boxes of 1 dozen each. To peptonise *milk*, pour 1 pint of milk into a quart bottle, with ¼ pint of water and one powder. Let it stand for ½ hour in water as hot as the hand can bear, and then boil for 2–3 minutes, which stops the digestive process. To peptonise *beef tea*, mix half a pint of "whole beef tea" with ½ pint water, 30 grains pancreatic extract, and 20 grains of bicarbonate of soda. Stand in hot water as before, but for three hours, and then boil.

Where Benger's Pancreatic Fluid is used, it may be added to the food when it comes up to the table, or applied beforehand and boiled. If peptonised food is too long predigested, it is apt to become bitter. The following are useful receipts: Peptonised *milk:* Dilute 1 pint of milk with ¼ pint of water, and heat to 146° F. (or what comes to the same thing, heat one half to boiling-point and add to it the other half cold). Two or three teaspoonfuls of pancreatic fluid with 10 to 20 grains of bicarbonate of soda (about half a small teaspoonful) may then be added, and the mixture left in a covered jug under a cosy for 1 hour or 1½ hours. Then boil up for 2 or 3 minutes. The bitter taste should be just perceptible. The preparation may be skimmed, and cream added afterwards. Peptonised *gruel:* Bake some wheaten flour, oatmeal, arrowroot, sago, pearl barley, peaflour, or lentil flour. Then make into gruel, boiling well and making it thick and strong. Put into a covered jug, and cool to 140°; add ½ fl. oz. (1 tablespoonful) of pancreatic fluid, keep warm for 2 hours, boil, and strain. Peptonised *milk gruel:* Make some thick gruel, cool it to 140°, add 2 or 3 teaspoonfuls of pancreatic fluid, with 20 grains of bicarbonate of soda. Keep warm for 2 hours, boil, and strain. Peptonised *soup:* Use peptonised gruel instead of water to extract the goodness from shins of beef, etc. Peptonised *jellies:* Add gelatine to hot peptonised gruel, and flavour. If cream is added to this, it forms peptonised *blanc mange.* Peptonised *beef tea:* Simmer ½ lb. finely minced lean beef with 1 pint of water and 20 grains bicarbonate of soda for 1½ hours. Cool to 140°, and add 1 tablespoonful pancreatic fluid. Keep warm for 2 hours, shaking occasionally; decant the liquid, and boil 5 minutes. More than three-fourths of the organic constituents are peptones, so that it is about as nourishing as milk. Salt must be added.

Percussion in medicine signifies tapping the body with fingers or special instruments in order to tell by the sounds the condition of parts beneath the skin.

Perforation in medicine signifies the formation of a hole through the coats

of some hollow organ, such as bowel, stomach, or bladder.

Perinæum.—The space at the fork of the lower limbs between the anus and the generative organs. It is sometimes injured in childbirth, necessitating an operation.

In cutting for stone in the male, this is the region usually selected. Injuries in this part are apt to damage the urethra. *See* URINARY ORGANS.

Periodicity.—Rhythmical action is exceedingly common throughout nature, and even in the human body most actions are probably essentially rhythmical. As illustrations of this fact, it is only necessary to mention sleep and activity, the contraction and relaxation of the heart, expansion and recoil of the lungs, periodic filling and emptying of the bladder, and the daily rise and fall of the body warmth. Of changes with longer periods we have instances in pregnancy and menstruation. Everywhere we find a gradual accumulation of energy, and then a period of activity. Rhythmical activity with regularly recurring periods of rest is probably less exhausting than where the intervals are unequal. Irregular work is more tiring than regular, and irregular hours for sleep, meals, and relaxation will in time wear out the strongest constitution. Regular habits of life enable us to perform many bodily actions automatically, and even unconsciously, setting free a corresponding amount of nervous energy for other purposes. The calls of nature should also be attended to at regular intervals.

There is some evidence to show that periodic changes take place in the body corresponding with the *season* of the year. Thus in spring there is greater nervous irritability, greater power of work, and more active chemical change in the body than in summer and autumn. Some diseases are more prevalent in certain seasons of the year. Thus there are more deaths from smallpox, whooping cough, lung diseases, gout, and rheumatism in winter and spring; from scarlatina and bowel complaints, in summer and autumn. Measles appears to have two periods of activity, one culminating in June, the other in December. The reasons for this distribution of disease are probably complex: activity of minute forms of life, influence of temperature on chemical changes, fermentation and putrefaction, the kind of food taken, activity of the skin, ventilation of rooms, and many other causes probably contribute.

Epidemics recur after more or less definite periods of years. In this case the result is influenced by the number of people who have already suffered from the disease, as one attack often protects against another. The subject is a very interesting one, but too large to discuss here.

Periods. *See* MENSTRUATION.

Periosteum.—The membrane lining the bones, excepting at the joint-surfaces. *See* BONES.

Peristaltic Action.—Alternate contraction and expansion of the bowels, which causes their contents to travel along towards the anus. Irregular peristaltic action causes griping pain. *See* COLIC.

Peritoneum.—The smooth membrane which lines the walls and organs of the abdomen. Like other serous membranes it forms a closed sack (*peritoneal cavity*), the walls of which are in contact, and secrete a little fluid, which enables the various organs to move easily upon one another. (*See* SEROUS MEMBRANES.) Special folds which surround the bowel and hold it in place are called *mesentery* (for the small intestine) and *mesocolon* (for the large bowel). Other folds are the broad ligaments which hold the womb and ovaries in place, and some of the ligaments of the liver and spleen. In dropsy of the belly there is an unnatural accumulation of fluid within the peritoneal cavity. *See* DROPSY; PERITONITIS.

Peritonitis.—Inflammation of the peritoneum.

ACUTE PERITONITIS is usually caused by wounds or operations; perforation or rupture of the bowels or other hollow organs; inflammation in neighbouring parts; fevers, such as erysipelas, smallpox, or blood-poisoning; kidney disease, cancer or tubercle. In women it also occurs as the result of menstruation, pregnancy, or diseases of the womb or

ovary. Uterine injections have occasionally caused peritonitis. *Symptoms:* Peritonitis usually begins with shivering fits, severe pain in the abdomen, which causes shallow breathing and extreme tenderness. The patient lies on his back with anxious expression and knees drawn up, and cannot even bear the pressure of the bed-clothes. The bowels are usually confined, the pulse frequent, small, and wiry; and signs of fever are often present; but the temperature need not be raised. The disease is a dangerous one, needing skilful treatment by a medical man.

The TREATMENT depends upon the cause; where it follows rupture of the bowel, little can be done. Sometimes an operation gives the best chance of recovery. In most cases it is advisable to give opium (1 gr. every two hours in a pill until the patient is drowsy). In kidney disease, however, this would be dangerous treatment. A bed-cradle should be put over the body, and a hot linseed and mustard poultice applied, if it appears to be grateful. Diet should be confined to fragments of ice, small quantities of iced milk or beef-tea.

CHRONIC PERITONITIS is less definite in its symptoms. It may follow an acute attack, or arise from continued local inflammation, or cancer or tubercle. It would probably only be recognised by a medical man.

Permanganate of Potash is contained in Condy's fluid. It readily gives off oxygen in the presence of organic matter, and is therefore a disinfectant and deodorant. Shallow dishes full of Condy's fluid may be exposed to the air in sick rooms. When the fluid changes from pink to yellow, it has lost its virtues. Diluted Condy's fluid (1 teaspoonful of pink fluid to a tumblerful of water) is useful as a mouth-wash when there is ulceration or foul breath from carious teeth. *See* DISINFECTANTS.

Persons found Dead. *See* DEATH.

Perspiration depends on the activity of the sweat-glands. (*See* SKIN.) It is *deficient* in early stages of fever, in Bright's disease, and diabetes; *excessive* in rheumatic fever, gout, intermittent fevers, the later stages of other fevers, consumption, and some other diseases. When there is excessive perspiration on slight exertion, it is usually a sign of debility. Indulgence in alcohol encourages this tendency. In consumption, the disorder usually takes the form of "night-sweats," the patient waking during the small hours and finding himself and the bed-clothes sopped with perspiration. Tonics (*Pr.* 1, 2, 25, 34, 35, 37, 38) are usually required, or the treatment appropriate to the cause. Belladonna (*Pr.* 22) is sometimes useful; and the skin may be sponged with very hot water, vinegar and water or acid lotions (2 fl. drs. dilute sulphuric acid to 1 pint of water). Whenever there is a tendency to perspire freely, woollen underclothing should be worn. Curious instances are met with of *local* sweating on the palms, soles of feet, or one side of the face or trunk. In such cases, belladonna liniment may be rubbed in. Profuse perspiration about the head is common in rickets. *Offensive* perspiration usually affects the feet, armpits, or lower part of the trunk, but may be a more general disorder. It is by no means always curable by strict cleanliness, but usually gives way to the application of antiseptics, such as boric or salicylic acids or sanitas. When the feet are affected, cork soles should be worn, with shoes rather than boots, and the feet and socks plentifully dusted with a dusting powder of 3 parts zinc oxide, 6 parts of starch, and 1 part boric or salicylic acid. Repeated washing with tar-soap, or the application of belladonna liniment, are also useful. Offensive perspiration is met with in those who are taking sulphur medicinally, and in some dyspeptics, so that the general state of health should be inquired into. *Coloured* perspiration has been recorded, staining the underlinen blue or red. *See also* DIAPHORETICS.

Peruvian Bark. *See* CINCHONA.

Pessary.—An instrument for supporting a displaced womb. *See* WOMB.

Pestilence. *See* PLAGUE.

Pestle and Mortar for medical purposes is best made of wedgwood, as this is stronger than glass, and not acted upon by acids like marble or metal.

Petechiæ. — Marks like flea-bites, which appear during the course of some fevers. They are caused by escape of blood-pigment into the deep skin.

Petroleum, rock oil, exists in many different forms, of which some are thin, highly volatile, and watery; others like wax, or of intermediate densities. Petroleum jelly and vaseline are useful, or at all events harmless applications in many skin diseases. They do not become rancid like ordinary vegetable oils. *See* VASELINE; PARAFFIN.

Phagedænic ulcers are ulcers associated with sloughing or gangrene of bits of flesh. They usually occur in people of unhealthy constitution, or exposed to faulty sanitary arrangements.

Pharmacopœia.— An official description of recognised drugs, their sources, preparations, and doses, together with tables of weights and measures used in dispensing the drugs. Since 1864 there has been only one "Pharmacopœia" for the whole of Great Britain and Ireland.

Pharmacy. — The art of preparing medicines.

Pharynx. *See* THROAT.

Phenol. *See* CARBOLIC ACID.

Phlebitis.—Inflammation of the veins. *See* VEINS.

Phlebotomy.—Cutting veins in blood-letting (*which see*).

Phlegm. *See* MUCUS.

Phlegmasia-dolens. *See* WHITE LEG.

Phosphates. — Compounds of phosphoric acid. Phosphate of *sodium* is used chiefly as an aperient. Phosphate of *calcium* forms a large proportion of the mineral part of bone, and of all actively growing tissues. It is prepared for medical use as a white powder, which may be mixed with the salt used at meals, or stirred up in water or milk. Parrish's food contains phosphates of calcium and iron. All these preparations are useful tonics in children suffering from long-standing diarrhœa or rickets, or who have outgrown their strength; also in women exhausted by childbearing or suckling, in those pulled down by long-standing discharges, and in consumptive patients. (*See* PHOSPHORUS.) Phosphates exist abundantly in urine, and their presence in water is therefore often a sign of sewage-contamination. They are essential to the growth of most plants. *See* SEWAGE, DISPOSAL OF.

Phosphorus is an elementary body which exists in several forms, the chief of which are red and yellow. *Red* phosphorus is to be seen on the boxes of some kinds of safety-matches. When pure, it appears to be non-poisonous and without medicinal properties. *Yellow* phosphorus, which is highly inflammable, and is still largely used for tipping matches, is also sold in sticks resembling wax, and kept under water. It is used in very minute doses as a remedy for neuralgia, nervous debility, and angina pectoris. It may be given in pills, each containing $\frac{1}{30}$ gr., or dissolved in almond oil, and inclosed in capsules. All these preparations must be procured from a reliable chemist. In neuralgia, one capsule may be taken every four hours. *See* HYPOPHOSPHITES.

Phosphorus Poisoning occurs in two forms, one from exposure to the fumes, which attack the jawbone and cause inflammation and breaking down of the bone; the other from swallowing an overdose of phosphorus either in the shape of lucifer matches or in some other way. The *symptoms* are pain in the throat and stomach, vomiting of fluid which contains particles luminous in the dark, and collapse. This is followed by inflammation of the stomach and bowels, kidneys, liver, and other organs. Delirium, headache, sleeplessness, and other nervous symptoms are not uncommon, and the patient may die after several days of suffering.

TREATMENT. — Give an emetic (20 grains of sulphate of copper in water, or *Pr.* 27) followed by magnesia, and mucilaginous drinks, such as linseed tea, barley, gruel, or gum-water, together with oil of turpentine ($\frac{1}{2}$ fl. dr.); and at the same time send for assistance. Fats and oily substances do harm, and should be carefully avoided.

Phthisis. *See* CONSUMPTION.

Physic. *See* MEDICINE.

Physician. *See* DOCTOR.

Physiognomy.—The art of reading the

countenance—a valuable art for the physician. *See* FACE.

Physiology.—The science treating of the functions of living bodies. As a rule, the word refers to *human* physiology. *See* BODY, ORGANS OF THE.

Pia Mater.—The inner membrane covering the brain. *See* BRAIN.

Picking the Nose is in children very often a sign of worms. *See* WORMS.

Pies. *See* PASTRY.

Pickles are unsuitable for invalids or for such as have delicate digestive organs. The most wholesome are those in which the ingredients have been cooked as well as pickled. Bright green pickles sometimes owe their colour to the presence of copper. This may be detected by putting a clean knife-blade into the liquid, when copper will be deposited as a reddish-brown stain. Such adulterated pickles may cause irritant poisoning. Another adulteration is sulphuric acid. *See* VINEGAR.

Piles or *hæmorrhoids.*—This exceedingly common complaint affects people in all ranks of life; of all ages and both sexes; although decidedly more common after middle age, and in those who lead a sedentary or luxurious life. It consists of an enlargement of the veins of the rectum, of the same nature as varicose veins in the legs. Two kinds are described; internal, which arise inside the bowel, and external, which appear about the anus. The former are red or claret-coloured, slimy and velvety to the touch; the latter being more opaque, rough and dry. Hæmorrhoids cause a feeling of fulness in the bowel, as if it had not been properly emptied. Bleeding may take place during action of the bowels, or after straining of any kind, and there may be more or less pain, especially when internal piles protrude through the anus. During early stages, the only symptoms may be heat and irritation about the anus. In an "attack of the piles," they swell up or inflame, or appear externally through the vent. Under these circumstances there is a great increase of the pain, and the action of the bowels may be interfered with, either by the pain or by actual blocking of the passage. The whole region swells, rendering sitting painful. If the piles are inflamed, the pain is throbbing, and the patient feverish. Sometimes a smart attack of bleeding brings relief; but more often other measures are necessary. Other diseases of the rectum are often mistaken for piles. Tissue at the anus, or ulcer inside the bowel, often cause the formation of skin-flaps about the anus resembling external piles; and prolapse of the bowel may be mistaken for internal piles. Such prolapse forms a swollen ring all round the anus; it usually follows diarrhœa or straining where the sphincter muscle is weak, as in children or in women after childbirth.

The chief *causes* of piles are, free living with too little exercise; or interference with the circulation through the liver, whether from disorder there, or in the heart or lungs. Constipation, straining from any cause, sitting over-long at the W.C., or the continual use of soft cushions or feather-beds, also help to bring on piles. They may also arise in pregnancy or from the pressure of abdominal tumours; and have been attributed to the abuse of purgatives, especially of such as contain aloes.

TREATMENT.—Avoid the causes as already mentioned, and take plenty of active exercise. Avoid the use of pickles, spices, pepper, and highly flavoured or greasy dishes, strong coffee, and alcoholic drinks, especially those which are imperfectly fermented, like champagne or malt liquors. After each action of the bowels, use plain "sanitary paper," rather than printed paper; or if there are external piles or skin-flaps, sponge the anus carefully with cold water and dry with a soft towel. Where the piles are internal, an injection may be used after breakfast of three-quarters of a pint of tepid water, followed after the bowels have acted by about 4 fl. ozs. of cold water. Care must be taken not to injure the piles with the pipe of the syringe. To render the motions soft and easy to expel, take confection of senna, or from a wineglassful to half a tumblerful of Friedrichshall water every morning on rising, and suitable diet. (*See* CONSTIPATION.) To ease the irritation, apply goulard ointment or

calomel ointment (*see* OINTMENTS) to the anus, after washing it. (*See* ANUS, ITCHING AT THE.) Should the piles come down at any time, they must be promptly returned by gentle pressure with a piece of oiled linen. Neglect of this precaution will cause them to swell, and perhaps inflame. Internally, nux vomica (*Pr.* 40) is said to be useful. Where there is a *tendency to bleed* freely, the motions should be rendered watery by Friedrichshall or *Pr.* 14. A pledget of linen soaked in hazeline or fluid extract of hamamelis, should be inserted inside the anus just before a motion, and a similar one applied afterwards. An ointment or cerate of hamamelis is also sometimes useful. Or equal parts of vaseline and compound gall ointment may be applied, or astringent injections used. (LOTIONS, 7, 8, and *see* ENEMAS.) It is important to prevent the loss of blood; but free watery motions should first be obtained, otherwise there is in elderly people some danger of apoplexy. Internally, twenty minims of tincture of hamamelis may be taken twice a day in water. If there is serious disorder of the liver, heart, or lungs, medical advice will certainly be required. For *inflamed* piles, keep lying down, or rest with the anus high and the head and chest low. This causes the blood to gravitate away from the inflamed part. Bathe with water as hot as can be borne, applying a hot sponge to the anus. Or hot lead lotion may be used. Afterwards, an ointment such as the compound gall ointment, with an equal quantity of vaseline, may be applied; or if the bowels have acted freely, a starch and opium injection. Internally, a dose of castor oil to open the bowels freely may be followed by aconite (*Pr.* 31).

Pills are sometimes made by adding to the chief ingredients a little syrup, gum, or glycerine. Where the bulk is insufficient, bread-crumb, hard soap, soft extract of liquorice, or confection of roses may be added. Pills made with bread-crumb are apt to become very hard on keeping. Stale bread should be used. Pills containing glycerine keep moist a long time. All pills should be kept in stoppered bottles, and well dusted over with flour or powdered liquorice-root, unless they are varnished or otherwise coated. *See Pr.* 53, 54, 55, 56, 57, 61, 62.

Pimento, *allspice*. *See* AROMATICS.

Pimples. *See* SKIN DISEASES.

Pine Apples are not very digestible, and should be avoided by invalids.

Pins and Needles if accidentally swallowed may find their way to very distant parts of the body. They should never be left where children can get at them, nor used to fasten any part of their dress. The pricking of a pin has been known to cause convulsions in an infant. For the *sensation* of "pins and needles," *see* NUMBNESS.

Pitch. — The solid brittle residue obtained by heating crude wood-tar. It used to be taken in pills, but is now superseded as an internal remedy by tar (*which see*).

BURGUNDY PITCH is reddish-brown and aromatic. Both kinds are used for the preparation of plasters (*which see*).

Pityriasis.—This term is sometimes applied to scurfiness of the skin (*see* DANDRIFF); but also includes a parasitic disease caused by the growth of a microscopic fungus in the skin, which gives rise to brownish-yellow patches on the chest, often more or less circular or crescentic, with a little tendency to peeling. The disease especially affects those who perspire very freely, and is easily cured by a little sulphur ointment or white precipitate ointment, or a lotion of weak sulphurous acid or chlorinated soda. (*Lotion* No. 18.)

Placenta. *See* AFTERBIRTH.

Plague.—A contagious fever which formerly caused great loss of life in England, France, and other Western countries, but is now only met with in the East. It has a short period of incubation lasting a few days, followed by extreme weakness, shivering, and then fever, headache, vomiting, and sometimes diarrhœa. In a few days glandular abscesses (or *buboes*) appear in the armpits, groins, and other parts; carbuncles may also develop, and death often follows within a few days or even a few hours. If the patient survives the fifth day, he may recover; convalescence is always tedious. The contagion ex-

tends to a very short distance around the patient, but may be carried in clothes, rags, etc. Dead bodies appear to be less liable to spread the disease than the living. Probably filth and other insanitary influences have much to do with its appearance. *Treatment* as in typhus.

Plaster of Paris.—Gypsum, or sulphate of lime, is sometimes used to adulterate flour. It is very useful in making splints for broken limbs and diseased spines.

Plasters may be spread upon linen or calico, or on leather. The latter is more durable and flexible. They are used sometimes for their mechanical properties, sometimes for the medicinal effects of the chief ingredient. Those employed for dressing wounds and for support are court plaster, sticking plaster, isinglass plaster, lead plaster, soap plaster, and a few more. Cuts should never be closed with plaster if they are dirty, or the part is bruised. If matter accumulates under the plaster, active inflammation and fever may follow. Plasters help the healing of wounds by closing them, and keeping the parts quiet. They have no direct healing power, and are likely to irritate any raw surface with which they come into contact. Some kind of unirritating dressing should therefore be put next the wound. Even sound skin is apt to be irritated by many kinds of plaster; the least irritating are lead plaster and soap plaster. Isinglass plaster is also unirritating, but difficult to apply properly. India-rubber plasters are made by some makers; they adhere very tenaciously. To prevent the retention of perspiration, porous plasters have been devised. Painful parts may often be soothed by the application of a plaster to keep them quiet. Thus, the pain of true or false pleurisy, of a sprained joint, or of some kinds of rheumatism, may be usefully treated in this way. Belladonna and opium plasters also lull pain by the absorption of their active ingredients. They may be applied to boils and other inflamed parts. Stimulating plasters are used for the sake of counter-irritation. Of this kind we have pitch plasters, warming plasters, capsicum plasters, and cantharides or blistering plasters. (*See* COUNTER-IRRITATION.) Mercurial plaster and salicylic acid plaster are used to help the absorption of inflammatory and other thickenings. The latter is used to cut away corns and warts. The hard skin should first be removed. Plasters are spread by means of a plaster-iron, which is heated so as to just melt the material. The composition of some kinds is given below: others will have to be obtained ready spread.

LEAD PLASTER: boil 5 lbs. powdered litharge with 1 gallon of olive oil and 4 pints of water, slowly simmering and occasionally stirring until of the right consistency. This takes four or five hours.

SOAP PLASTER consists of $2\frac{1}{4}$ lbs. lead plaster with 6 ozs. hard soap and 1 oz. resin. The lead plaster is first melted and the other ingredients stirred in.

STICKING PLASTER contains 2 lbs. lead plaster, 2 ozs. hard soap, and 4 ozs. resin. *See* BLISTER; DRESSING; WOUNDS.

Pleasure. *See* RECREATION.

Plethora.—Unnatural fulness of the bloodvessels, commonly found in those who are hearty eaters and drinkers, and take too little exercise. Plethora may be regarded as an exaggeration of the sanguine temperament, in which there is a ruddy complexion, strongly built body, good digestion, and active habits. Plethoric people are apt to suffer disproportionately from fevers and inflammations, and are particularly liable to apoplexy, and diseases of heart, lungs, liver, and kidneys. They readily fall into ill-health if any of the excretory organs become inactive, whether from chill, or any other cause. They are then affected with headache, heaviness, sleeplessness, and inability to work, and may be thought to be suffering from debility. Tonics and stimulants however do harm in this condition, which is best relieved by a spare and easily digestible diet, with remedies to assist excretion. (DIET, IV.; *Pr.* 14, 46.)

Plethoric people are better as a rule with a diet containing little or no meat, and no stimulants, and of a nature to assist the action of the bowels. Plenty of exercise in the open air should be

taken, and only a moderate allowance of sleep.

Pleura.—The smooth serous membrane which lines the inside of the chest and the outside of the lungs. There is one for each lung. *See* SEROUS MEMBRANES.

Pleurisy.—Inflammation of the pleura. This commonly arises from exposure to cold and wet, from broken ribs and other injuries to the chest, or in the course of rheumatic fever, scarlatina, Bright's disease, inflammation of the lungs, or consumption. The chief *symptoms* are sharp cutting or tearing pain in the chest, increased by pressure or movement, so that the breathing is shallow and jerky, and the affected side of the chest is moved less than the other. Slight cough is often present, and moderate fever. When fluid is poured out into the pleural cavity, the breath becomes short, and the affected side enlarges. Pleurisy can only certainly be recognised by a doctor; it is simulated by neuralgia and rheumatism of the side. (*See* CHEST, PAIN IN THE.) TREATMENT should be in medical hands. Keep in bed, and give diet and medicine as in fever (*which see*). Apply a large mustard and linseed poultice (equal parts) to the side, or a few small blisters. If there is much difficulty in breathing, it may be necessary to draw off fluid from the pleura. When a special cause for the attack is present, this will need appropriate treatment.

Pleurodynia. *See* CHEST, PAIN IN THE.

Plummer's Pill.—Compound calomel pill. Contains guaiacum and antimony: it is with some people a favourite remedy for rheumatism, but not suitable for domestic use. *See* MERCURY; PILLS.

Pneumonia, *inflammation of the lungs*, usually attacks the base of one lung, but may be more extensive. It is often associated with pleurisy, and is a common complication of rheumatic fever. The *causes* are not fully understood. It has been frequently attributed to exposure to cold and damp, but it is believed by some to be a fever of the same class as scarlatina or mumps, and probably caused by a special bacterium which is found in the expectoration. The disease is especially common in men, and during early life. Inflammation of the lungs is also met with as a complication of pleurisy, bronchitis, injuries to the chest, Bright's disease, heart disease, etc.; but under these circumstances is probably a different disease.

The *symptoms* begin suddenly with shivering fits (*rigors*) followed by high fever (102°–104°) with dry burning skin, hacking cough, quick breathing, and more or less shortness of breath. Very soon the expectoration is rusty or blood-tinged, and very tenacious, so that it clings to the vessel in which it is put. As the patient improves, this tenacious character diminishes, and the material coughed up becomes yellowish, like matter mixed with phlegm. There may be pain in the chest at first; but this is often ill-marked. Delirium is common. At the end of about a week, the fever suddenly runs down, with profuse perspiration or copious discharge of urine, diarrhœa, nose-bleeding, or skin-eruption, after which the patient rapidly recovers. Sometimes however death takes place before or after this reduction of temperature. Pneumonia is sometimes a form of consumption, or leads into it. In this case the upper part of the lung is usually attacked.

The TREATMENT should obviously be in medical hands if possible. When this cannot be managed, keep in bed in a warm, well-ventilated room, diet as in fever (*see* DIET, II.), apply hot linseed poultices to the chest (back and front) every two or three hours, and give aconite (*Pr.* 31) during the earlier stages, or 2 to 3 minims of antimony wine in a little water every two hours. If the pulse is weak or the strength begins to fail, give brandy, (½–1 oz.) with some of the food, and *Pr.* 7 instead of the aconite. For thirst, ice may be given to suck, or cooling drinks. (*See* BEVERAGES.) For constipation, an aperient. (*Pr.* 11, 53, 54, 58.)

Podagra. *See* GOUT.

Podophyllum is obtained from the dried rootstock and rootlets of the American may-apple (*P. peltatum*). From this a resin is prepared, which

relieves the liver of bile. It is in large doses a powerful purgative and apt to gripe, so that it should be combined with other remedies. The *tincture* may be given in 10 to 20 drop doses with an equal quantity of tincture of ginger, either on sugar or suspended in gum water. Dose of the resin, $\frac{1}{8}$–1 gr.

Poisons and Poisoning.—The evidence of poisoning rests partly on the symptoms which are present, partly on the circumstances under which they appear. Some poisons give rise to symptoms which are unmistakable; but others may easily be confounded with disorders owning quite different causes. Arsenical poisoning sometimes resembles cholera, and cases of one have been actually mistaken for the other. A careful examination of all the circumstances together with a chemical examination, will, however, prevent such errors. Poisons have been classified into irritants, narcotics, and narcotico-acrids, but it will be more convenient to divide them into corrosives, irritants, narcotics, deliriants, inebriates, convulsants, depressants, and poisonous gases. CORROSIVES cause immediate burning pain in the mouth, throat, and stomach, and destroy all parts with which they come in contact. Very soon there is vomiting and purging, and the matters discharged may contain red or altered blood. Later on, if the patient survive, there is violent inflammation of the injured parts. Antidotes should be given at once; it is not safe to give emetics or to use the stomach-pump. (*See* CORROSIVE POISONS.) *All other poisons*, excepting prussic acid and poisonous gases, require both antidotes and emetics. IRRITANT POISONS cause burning pain and constriction in the throat and at the pit of the stomach, increased by pressure; intense thirst, nausea and vomiting, followed by pain and tenderness of the entire abdomen, and by purging with straining, and often also difficulty in passing urine. At first there is more or less collapse; later on there is fever with inflammation of the affected parts. Many irritant poisons also give rise to special symptoms of their own. (*See* IRRITANT POISONS.) NARCOTICS cause drowsiness and giddiness, followed by insensibility. (*See* OPIUM; CHLORAL.) DELIRIANTS cause dryness of the lips and throat, dim sight, dilated pupils, giddiness, restlessness, and delirium. (*See* BELLADONNA; DELIRIANTS.) INEBRIANTS cause excitement followed by intoxication. Large doses give rise to insensibility. (*See* INEBRIANTS; ANÆSTHETICS.) CONVULSANTS include nux vomica and its alkaloid strychnine. They cause stiffness followed by convulsions. (*See* NUX VOMICA.) DEPRESSANTS give rise to muscular weakness, staggering, confusion of sight, and difficulty of breathing; or to faintness, giddiness, and insensibility. (*See* DEPRESSANTS; PRUSSIC ACID.)

The EFFECTS OF A POISON depend not only on the nature of the poison and its dose, but also on the state of the stomach, (whether empty or full), the time of day, bodily health, and other circumstances. When taken with a meal or soon after, they cause less irritation of the digestive organs, but are more quickly absorbed and sooner affect other parts of the body. Some poisons (such as digitalis) have a cumulative effect, so that after a number of small doses have been taken, symptoms of poisoning may suddenly arise. In some cases as in opium-eating and arsenic-eating) tolerance of the drug may be produced by gradually increasing the dose taken day after day. Much depends on the rapidity with which the poison is cast out of the body by the excretory organs (bowels, kidneys, etc). Where these are diseased, symptoms of poisoning may come on sooner and with smaller doses. Patients with Bright's disease may be poisoned by comparatively small doses of opium or mercury.

ANTIDOTES in poisoning may be mechanical, protecting the coats of the stomach (*e.g.* linseed tea); chemical, entering into combination with the poison so as to produce an inert or less poisonous substance (*e.g.* chalk in poisoning by acids); or physiological, counteracting some of the symptoms. For further details, see articles on each poison and class of poisons.

Poisonous Gases naturally fall into two groups, one of which includes *irritant* gases, such as sulphurous acid gas,

hydrochloric acid gas, nitrous acid gas, ammonia vapour, and chlorine; while the other includes *asphyxiants*, which cause imperfect aëration of the blood and suffocation. This group includes carbonic acid gas, carbonic oxide, prussic acid, marsh-gas, coal-gas, nitrous oxide, sulphuretted hydrogen, and sewer-gas. *Irritant* gases cause cough and choking, followed by inflammation of the air-passages. Those of an acid nature may be neutralized by cautiously inhaling weak ammonia vapour. Ammonia may be neutralized by vapour of vinegar. Whenever there is poisoning by irritant gases, inhalation of steam is likely to be useful. *Asphyxiants* call for plenty of fresh air, artificial respiration (*see* DROWNING), friction, weak mustard plasters to the chest, and alternate hot and cold douches to the head and chest. In poisoning by sulphuretted hydrogen (rotten-egg-gas), chlorine (from bleaching powder) may be cautiously inhaled. Stimulants (*Pr.* 4, 5) should be given internally. (*See* separate articles.)

Polypus.—A stalked outgrowth from a mucous membrane, such as that lining the nose, bowel, bladder, or womb. Polypi often appear as the result of long-continued irritation or inflammation. They cause more or less obstruction of the channels in which they grow; and if liable to be pulled upon, may also give rise to much pain. Sometimes polypi are of a cancerous nature, but not usually. Some kinds are loose in texture and readily bleed. As their presence is not free from danger, they should be removed by a surgeon. *See* NOSE.

Pomatum.—The following are unobjectionable receipts:

(1) Two parts of benzoated lard, and one part of beef-suet, melted at a moderate temperature, and scented with a few drops of essential oil of roses, lemon or orange. If too stiff, add good olive oil, 1 fl. oz. to every lb.

(2) Pure white vaseline, chrisma, or adepsine, scented with essential oil as above.

(3) One part of lanoline, 20 parts of sweet almond oil or olive oil, scented with oil of rosemary.

(4) Sweet almond oil, 9 fl. ozs.; spermaceti, 1 oz. Melt together, and when a little cooled add ¼ oz. essence of bergamot. Without the spermaceti, this makes a good hair-oil.

Pomegranate.—A native of Southern Europe and Asia, growing to the size of a small tree, and bearing handsome scarlet flowers and juicy fruit as large as an orange. The fresh root-bark has been used from the earliest times by the Chinese, Hindoos, Greeks, and Romans, as a remedy for tape-worm. A decoction of the dried root-bark is sometimes prescribed in England, but is apt to fail. Recently better results have been obtained with one of the alkaloids (*pelletierine*) obtained from the root. The flowers and fruit-rind are used in India in diarrhœa and dysentery; and the fruit itself is useful in quenching the thirst of fever.

Popliteal Space.—The ham or hollow behind the knee. Swellings in this region are sometimes caused by aneurysm (*which see*).

Poppy.—Two species are used in medicine, the opium poppy (*Papaver somniferum*) and the red or corn poppy (*P. rhœas*).

The OPIUM POPPY is extensively cultivated in Syria, Egypt, Persia, India, and China, and to a smaller extent in England and southern Europe. It has large white or purplish flowers; red or double varieties are also to be found in gardens. The seeds are oily, and have no narcotic properties; they are made into cakes in Asia Minor. Opium is prepared from the white, milky juice of the unripe capsules. (*See* OPIUM.) Medicinal preparations made from the dried capsules have similar properties, but vary greatly in strength, so that they should only be used externally.

The *decoction* may be used as a fomentation. It is made by boiling 2 ozs. bruised poppy-heads in 1½ pints water for ten minutes, straining and adding water to make up a pint. The *syrup* used to be given to children in cough medicines, but is dangerous. Half a teaspoonful has proved fatal to an infant six months old.

The CORN POPPY is chiefly used as a colouring agent. A syrup is made from the petals (dose, 1 drachm).

Pork is somewhat indigestible, probably because of the large amount of fatty matter mixed with the muscular fibres. Salt and roast pork are more difficult of digestion than fresh boiled pork. The latter is a valuable food for those with a tendency to consumption, if the digestive organs are in good condition. Imperfectly cooked pork has in Germany and elsewhere caused extensive outbreaks of trichinosis (*which see*). Smoked hams and sausage-meat should always be properly cooked before being eaten; if this is done, all parasites are killed. Bacon is remarkable for its value as an economical and sustaining food. It is, however, not usually suitable for invalids. In this as in other matters of diet individual peculiarities must be taken into account. "What is one man's meat is another man's poison." Bacon fat is often digested when other kinds —even butter fat—are resented by the stomach. It is well to remember this in the case of fanciful children with consumptive or scrofulous tendencies. For such as these, bread soaked in bacon fat is often of great value.

The use of bacon with poultry and other meats deficient in fat is familiar to all. (*See* MEAT.)

Porridge. *See* OATS.

Porrigo.—A term sometimes applied to to eczema of the scalp.

Porter. *See* FERMENTED LIQUORS.

Port Wine. *See* FERMENTED LIQUORS.

Position of the body, or of its parts, has a great influence on recovery from illness or injury. All wounded and inflamed parts should, if possible, be well raised, as this diminishes the blood supply, and so helps to prevent both bleeding and increase of inflammation. Long standing about is bad for those who suffer from varicose veins. Extreme contraction of a limb, whether at the elbow, hip, or knee, interferes with the circulation of the blood, and may cause swelling of veins, or numbness and weakness of the parts beyond. Limbs are sometimes purposely bent in order to arrest bleeding. In bed-ridden or paralysed people, continually lying in one position is apt to interfere with the circulation, and cause bedsores to form. In those who are much reduced in strength from serious illness, the blood and other fluids are apt to gravitate towards the lowest part of the lungs. This is an additional reason for regularly changing the position of the body. In general dropsy, the chief swelling usually appears either in the back and buttocks, or about the ankles, according to the position of the body. Relaxed parts, such as the face, also swell early. In pregnancy, swelling of the feet may be to some extent prevented by lying on the face or side, rather than on the back. Whenever there is a discharge of matter from a wound or inflamed surface, the part should be so placed as to enable the fluid to drain away freely. This may make all the difference in the amount of fever, and the progress of the disease. In fractured and dislocated limbs, and in painful affections, the position should be arranged so as to guard against pressure on the affected part, or displacement of the bones. For other illustrations of the influence of position, *see* APOPLEXY; FAINTING; FLATULENCE; HEART-DISEASE; HERNIA; PLEURISY. *See also* ATTITUDE.

Posset is made by the addition to milk of wine or beer, and various flavouring agents. A good form is described under the head of WHITE WINE WHEY.

Post-mortem examinations are of great value to medical men, and indirectly to society generally, inasmuch as they render possible an exact knowledge of disease. When the cause of death is fairly certain, and due to natural causes, a post-mortem examination cannot be insisted upon against the wishes of the dead or their surviving relatives and friends; but it should be understood that whoever gives directions for his body to be examined after death is doing a service to humanity. It seldom happens that nothing is learnt from such an examination; and sometimes the information gained is of the greatest value to other sufferers. There need, as a rule, be no revolting disfigurement of the face or body.

Potassium salts are abundant in the blood-corpuscles and muscles of the body, and in the leaves and twigs of plants.

The compounds chiefly used in medicine are caustic potash, the carbonate and bicarbonate, acetate, citrate, tartrate, and acid tartrate, sulphate, nitrate, and chlorate. *See also* CONDY'S FLUID; IODIDES; BROMIDES.

CAUSTIC POTASH is used in sticks. (*See* CAUSTICS.) The solution is also given internally. NITRATE of potash (*Nitre*) and CHLORATE of potash, are cooling and diuretic. The latter is useful in ulcerated mouth and throat. TARTRATE and SULPHATE are purgatives; there are, however, better remedies for domestic use. The other compounds mentioned above neutralize acidity in the body, and are useful in rheumatism, gout, and red gravel. Effervescing potash water contains the bicarbonate in solution.

CAUTION: Large doses of potash salts are poisonous, and may cause dangerous depression or even death. Prolonged administration of medicinal doses is liable to weaken the digestion. This can be partly prevented by combination with vegetable bitters (*Pr.* 15).

Doses: Carbonate, bicarbonate, nitrate, and chlorate, 10 grs. The chlorate of potash lozenges (B.P.) contain each 5 grs. Acetate, citrate, and acid tartrate, 20 grs. Effervescing potash water, 5–10 fl. ozs.

Potato.—A valuable article of diet, and an efficient preventive of scurvy. It contains a large proportion of water (¾), and starch forms the bulk of its solids; so that it is incapable of sustaining life unless taken in large quantities, or supplemented by nitrogenous foods, such as milk, buttermilk, cheese, or meat. Taken alone, eight or ten pounds per day would be required for an adult. (*See* DIET.) The digestibility of the potato depends very largely upon its condition and mode of preparation. Waxy and diseased potatoes are indigestible, being with difficulty penetrated by the digestive juices. For the same reason, new potatoes are less digestible than old. Baked or steamed potatoes seem to be a little more digestible than boiled. A well-cooked potato should be soft and mealy to the centre. In roast potatoes the hard outer crust is indigestible. Mashed potatoes are easy of digestion if slowly eaten, and if there is not too much fat or butter mixed with them. The green parts of most members of the potato family are highly poisonous, and the water in which potatoes have been boiled is probably also unwholesome. Prolonged boiling of potatoes diminishes the proportion of potash and other salts, and their value as preventives of scurvy.

POTATO-STARCH is used as a substitute for arrowroot, and made up into "British tapioca." These preparations are both cheap and wholesome.

Potato-spirit contains fusel oil. It is very bad for the health. Low-class brandy and new whisky are often largely composed of potato-spirit.

Poultices.—Soft, moist, local applications, usually hot, sometimes applied cold. They are chiefly used to diminish inflammation, either in open wounds or in deeper parts. They relax the tissues and increase the circulation through the parts under them. In applying a poultice, prepare the patient before the poultice, and apply the latter as hot as can be borne. When put on to a wound, this should be carefully cleansed beforehand. Poultices applied to the chest are conveniently put into a flannel bag, with tapes to go twice round the body. In all cases they should be covered with oil-silk or waterproof, or some similar material, to prevent drying and cooling.

The poultices mentioned in the "Pharmacopœia" are the charcoal, chlorinated soda, hemlock, linseed, mustard, and yeast poultices. Others made of figs, carrots, bread, etc., are used in domestic medicine.

BREAD POULTICE.—Break crumbs of bread into a hot basin, pour over it boiling water sufficiently to soak it; let it stand for a few minutes by the fire; drain off the superfluous moisture, and spread thickly on a piece of cloth. Cover it with a single layer of thin muslin, and apply this surface to the body.

LINSEED POULTICE. — Put 4 ozs. linseed meal into a hot basin, and add gradually ½ pint boiling water, stirring constantly. Another method is to add the meal gradually to the water. In either case the meal should be evenly spread on a piece of soft old linen rag,

or a large roll of tow. If the linseed has been deprived of its oil, olive oil must be added in the proportion of one part to eight.

This and the bread poultice are used for their heat and moisture.

Chlorinated Soda Poultice.—Mix 4 ozs. linseed meal gradually with 8 fl. ozs. boiling water; then add 2 fl. ozs. of chlorinated soda solution, stirring constantly.

Charcoal Poultice.—Soak 2 ozs. bread crumb in 10 fl. ozs. boiling water for ten minutes near a fire; then mix with it gradually $1\frac{1}{2}$ ozs. linseed meal and $\frac{1}{4}$ oz. wood charcoal. Sprinkle another $\frac{1}{4}$ oz. charcoal on the surface.

This and the chlorinated soda poultice help to prevent foul smells from wounds.

Mustard Poultice.—Take $2\frac{1}{2}$ ozs. mustard, and mix it with an equal quantity of lukewarm water. Then take $2\frac{1}{2}$ ozs. linseed meal, and mix them gradually with 6 to 8 fl. ozs. boiling water. Add the first to the second and mix together. The acrid and volatile principles of mustard are produced by means of a ferment. This is destroyed by hot water, spirit, or vinegar, so that these should never be added to it in poultice making. Mustard poultices can seldom be borne longer than from twenty minutes to half an hour. When applied to an insensible person they should be removed at the end of twenty minutes. It is a good plan to cover the surface of the poultice with a single layer of muslin, as in the linseed poultice. *See* Mustard-leaves.

Poultry varies greatly in digestibility. Ducks and geese contain much fat, and are difficult of digestion. On the other hand, a boiled fowl is one of the most easily digestible foods that exists. The white meat of turkey is also fairly digestible. Chicken-broth is well suited to the needs of invalids. (*See also* Infants' Food.) Poultry being deficient in fat is usually eaten with fat bacon or melted butter. The addition of sauce made with some meat extract is an improvement.

Poverty increases both the tendency to disease and its severity. Poor people who have all their lives been obliged to struggle against want have as a rule comparatively feeble constitutions, and succumb to illnesses which more favoured individuals would readily shake off. Those who live in the country, and can obtain plenty of wholesome milk, bread, cheese, butter, pork, and a few other necessaries of life, and spend most of their time in the open air, are doubtless better equipped against disease than many wealthier town-dwellers; but unfortunately the very poor, to whom health is of the greatest consequence, fall into a different category. Intemperance, dirt, and ignorance also greatly diminish the chances for a healthy life in the poor, who are less able to avoid them. Doubtless hospitals, sick clubs, and similar institutions, do much to relieve suffering in the poorer classes; but they can do little to prevent illness. This may, however, be done by teaching the laws of health, and by diminishing the temptations to intemperance by the provision of coffee-taverns, public reading rooms, workmen's clubs, well conducted music halls, and the like. The art of rational enjoyment, which is so closely bound up with the health as well as the happiness of every community, needs cultivation like every other art. Every institution which provides the means for such enjoyment will help forward the work of education in its wider sense, and indirectly improve the health of the people. To be healthy, one must be happy; and it is especially important to bear this in mind in the case of the very poor. *See* Hygiene; Public Health.

Powders are usually prepared by grinding in a special machine, or by rubbing down with pestle and mortar. It is a good plan to alternately rub and sift. Powders may be taken suspended in water, or given in jam, syrup, milk, gruel, and the like. Jam and syrup both contain acids, and are therefore unsuited for taking with alkaline powders, such as chalk powder or Gregory's powder. Many modern powders are tasteless. *See Pr.* 46, 58, 59, 60.

Practitioner. *See* Doctor.

Precipitate.—Something thrown down, usually from a solution by chemical means. White precipitate, or *ammoni-*

ated mercury, is used externally in skin diseases, etc. *See* OINTMENTS; SULPHUR.

Precocity—untimely maturity—may show itself in many ways. Delicate children are apt to be mentally precocious, partly because of their continual association with older people, and their inability to take part in the romps and games of childish companions. Such children are best in the country, and should be encouraged to spend much of their time in the open air in active games, etc. What education they have should be pre-eminently of the senses and muscles. Carpentry, botany, and "object lessons" are likely to be of more permanent value to them than book-learning. Physical precocity sometimes shows itself in an early appearance of puberty. The dangers of such early maturity are best counteracted by the influence of a good home, and association with refined children and adults.

Precordial Region.—That over the heart. *See* CHEST.

Predigested Foods include MALTED FOODS and PEPTONISED FOODS (*which see*). Refer also to DIGESTIVE AGENTS.

Predisposition. *See* DISEASE, CAUSES OF.

Pregnancy, Signs. The most reliable of these are such as only a medical man can recognise; but there are several which are sufficiently obvious to the mother herself, and will be useful as indications, although, taken alone, none of them are infallible.

(1) *Cessation of menstrual discharge.* Those who have previously menstruated usually cease to be unwell after conception, although many instances are known where menstruation has continued during the first three months of pregnancy, or even throughout. It must also be borne in mind that pregnancy is possible before the courses have appeared, and by no means unknown after their disappearance. Mere children—in one instance only 9 years of age—have become mothers, and, on the other hand, pregnancy may happen for the first time after 20 or more years of married life, when the menstrual function is ceasing. Well authenticated instances are recorded of women becoming mothers at the age of 54, and more doubtful instances up to 64. It is generally believed that suckling is a bar to pregnancy; but conception is very common during lactation. Out of 160 cases carefully inquired into by Mr. Robertson, of Manchester, 81 had become pregnant once or oftener while suckling. Since menstruation is usually absent in mothers while nursing, pregnancy under these circumstances may not be immediately recognised. The courses may also be suppressed from other causes; but if the health remains good or becomes so after the menses have been absent for three months in a married woman, the chances are in favour of pregnancy. In newly married young women, it is not uncommon for a few periods to be missed without pregnancy following.

(2) *Morning vomiting* is common two or three weeks after conception, and it may happen still earlier. *See* MORNING SICKNESS.

(3) *Changes in the breasts.* These become larger, firmer, and more tense during pregnancy. After two months or earlier, uneasy throbbing or stretching sensations are felt, with tingling about the nipple. The breast becomes knotty, uneven, and heavy, the nipple more prominent, and surrounded by a single or double circle of dark colour. After the seventh week of pregnancy, the "areola," or coloured circle round the nipple, becomes darker, and from ten to twenty prominent points appear on it. In the course of a few weeks the coloured circle grows to the size of 1 or $1\frac{1}{2}$ inch, the skin becoming soft and slightly moist. After the fifth month, a second circle may appear in dark-complexioned women immediately outside the first, and resembling the marks made by spots of water falling on a tinted surface and washing out the colour. Towards the end of pregnancy, or earlier in some women, milk appears in the breast, and may be squeezed out through the nipple. None of these signs, taken alone, is conclusive of pregnancy. The changes in the appearance and colour of the breast and its areola may occur in some diseases; and milk has been known to appear in old women and young children,

independent of pregnancy, or even in young men. A story is told by Belloc, in which a servant girl was obliged to sleep with an infant who was being weaned; and in order to still its crying she gave it the breast, with the result that milk appeared after a time in sufficient quantity to satisfy the child. Livingstone investigated a case where a native woman in Africa was delivered of twins, and her mother, a woman of 40, took one of them, and putting it to her breast caused an abundant secretion of milk, after at least 15 years' interval since she last suckled a child.

(4) *Quickening* is said to take place when the mother first feels the movements of the child. At first it resembles a fluttering inside, which may cause faintness. Obviously this symptom is of more value in mothers who have previously experienced it; as movements of wind in the bowels might be mistaken for it by careless or inexperienced women. Very rarely it is absent throughout pregnancy, but it usually is first felt between the twelfth and eighteenth week.

(5) *Enlargement of the abdomen* from below upwards may be due to pregnancy, or to dropsy or other causes. A medical man is able to determine its nature where the cause is doubtful to less skilled observers. During the first few months of pregnancy, the abdomen is rather flatter than usual, owing to the womb sinking inside because of its greater weight. This may cause a frequent desire to pass urine, from pressure on the bladder. Later on, when there is evident enlargement of the abdomen, the womb may be felt distinctly as a firm, rounded mass, which hardens and relaxes at regular intervals under the hand. The navel, which was depressed during early pregnancy, usually becomes everted in later months.

False Pregnancy is a curious condition, in which women fancy themselves pregnant, and show many of the usual signs and symptoms, such as distension of the abdomen, cessation of the menses, and enlargement of the breasts, while the womb is quite empty, the increase in size being caused by accumulation of wind in the bowels. The enlargement may temporarily disappear under chloroform.

Pregnancy, Rules for.—The ordinary rules of life apply very largely to the period of pregnancy. Fresh air, exercise, regular hours, and temperate habits are as important as at other times.

Diet should be simple and nourishing, with the food-stuffs in much the same proportion as in childhood. Highly seasoned and indigestible dishes are best avoided, especially if the stomach is irritable, in which case the diet should be as in dyspepsia. Alcoholic stimulants are not necessary, and, as a rule, are best avoided, unless they have been habitually taken in moderation, in which case they may be continued. (*See* Alcohol.) "Nipping," or over-indulgence, is especially objectionable during pregnancy, as it encourages the tendency to kidney disease, convulsions, and other nervous disorders. There is an idea prevalent that more food is required during pregnancy. This is a mistake, inasmuch as the absence of menstrual discharge counterbalances the increased expenditure in other ways; also less exercise is usually taken, and the digestive organs are easily overtaxed. "Longings," when for comparatively harmless things, may be allowed; but if of a very extraordinary nature, they should be repressed, as otherwise much mischief may be done to the health. Since there is often a tendency to constipation, moderate quantities of fresh ripe fruit and vegetables are valuable. *See* Constipation.

Cleanliness should be carefully observed. If necessary, the bidet may be safely used with lukewarm water. Bathing, if habitual, may be continued, but should not be begun during pregnancy. Indoors, a large bath towel or sheet should be used, and the skin vigorously rubbed by an attendant. Sea-bathing may be cautiously indulged in where the patient is used to it and the health is good. The best time is two or three hours after breakfast. Three minutes in the water is quite long enough, and unless there is much fatigue, a short walk should be taken afterwards.

Dress must be accommodated to the situation, so as to avoid pressure on the womb and breasts. This is of great importance. Yielding corsets are specially made for such times. Woollen underclothing should be worn, and thick, well-made boots. During later months a belt is useful.

Habits should be regular; dinner parties, evening parties, and crowded rooms generally, are best avoided. Regular exercise is very beneficial; but over-exertion, lifting heavy weights, or working with the arms uplifted, are injurious. Mental *emotion* should be avoided, and a quiet, equable temper cultivated. It often happens that there is a little irritability of temper during early months; this should be borne in mind by those around, and not heedlessly aggravated. Much anxiety is sometimes felt with regard to mother's marks and deformities from impressions on the mother. Too much importance has been attributed to this subject; and although it cannot be denied that violent emotion may injuriously affect the offspring in earlier months, instances are by no means common, and such defects are probably as a rule due rather to physical causes or to faulty conception. Hen's eggs, if unequally heated, give rise to deformed chickens. The late Dr. William Hunter investigated the subject of "mothers' marks" by inquiries at the lying-in hospital to which he was attached; and out of 2,000 inquiries, not a single instance was found in which blemishes coincided with disappointed longings, unusual shocks, or any of the commonly alleged causes. If the ordinary rules of health are observed before and during pregnancy, the result may be awaited without anxiety. If blemishes do occur, they are unavoidable, and to anticipate them will merely make matters worse. (*See* MISCARRIAGE.) It is well to engage a medical man in good time during pregnancy, as in this way his advice may be obtained for the trivial ailments common in this condition.

PREGNANCY, AILMENTS OF.—The chief of these are heartburn and constipation, sickness, toothache, and salivation, palpitation and fainting fits, piles, varicose veins, swelling of the feet and legs. There is also often some irritability of the bladder. (*See* INDIGESTION; CONSTIPATION IN PREGNANCY; MORNING SICKNESS; PILES.) For toothache, palpitation, and fainting fits, an iron or quinine tonic is useful (*Pr.* 34, 35, 36, 37, 38, 52). Salivation, if very troublesome, may be checked with belladonna (*Pr.* 22) and an astringent mouth-wash of tannin, borax, or alum (1 dr. to 4 fluid ozs. water). Varicose veins and swelling of the feet and legs may sometimes be relieved by wearing elastic stockings, and by regularly resting face downwards, so as to take the pressure off the large veins of the abdomen. If there is puffiness of the face, as well as of the feet, a doctor should be consulted. *Cramp* requires the usual treatment—vigorous rubbing with camphorated oil and gentle exercise. *Diarrhœa* should never be neglected during pregnancy. If the motions are loose and frequent, but otherwise natural, tongue clean and appetite good, it will probably suffice to regulate the diet and wear a flannel roller round the abdomen. When the motions are liquid, dark, and offensive, with coated tongue and foul breath, give *Pr.* 24 or 60, or a dose of podophyllin; and when the tongue cleans and motions are more natural, a bitter tonic (*Pr.* 12, 13).

Premature Birth.—That which takes place before the 38th week of pregnancy. The causes are those of miscarriage (*which see*). Children born before their time are seldom as strong as those born at the proper period, so that, whenever possible, such a mishap should be carefully guarded against. Occasionally, as, for instance, when there is contraction of the pelvis, it happens that a premature delivery gives the only chance for mother and child. (*See* PELVIS.) The decision must necessarily be left to the medical man in attendance.

Prescription.—In olden times all prescriptions were written wholly in Latin. Now-a-days it is more common for the directions to be written in English, the ingredients still appearing in the Latin garb. Another difference is the greater simplicity of modern prescriptions. This renders it easier for the physician

to trace the action of his medicines, and diminishes the probability of one ingredient interfering with another. This simplification, however, may be carried too far, as there are often advantages in combining several remedies. Thus a carminative (such as ginger) added to an aperient (such as rhubarb) helps to prevent griping; and ammonia taken with ipecacuanha, in winter cough, prevents the depressing effects of the latter, and helps the circulation through the lungs. Sometimes two remedies in combination have different properties from either alone, practically forming a third remedy. Thus, opium is a sedative, ipecacuanha acts chiefly on the air-passages; but the combination of the two in Dover's powder acts chiefly on the skin, promoting perspiration. Then, again, many drugs are unpleasant to take alone, and become fairly palatable on the addition of sugar or other flavouring agent. The use of single remedies, if logically carried out, would often lead to great expense; for most of the medicines in use are mixtures of several different principles, which would have to be separated in order to be given singly. We may therefore conclude that, although there are often great advantages in giving medicines singly, yet in other cases, more especially where their action is well known, it is better to give them in combination.

A physician in prescribing does not merely follow a mechanical rule, giving this remedy for this disease, and that for the other, but suits his prescription to the requirements of the individual for the time. No two patients have the same constitution; no two attacks of, say, rheumatic fever or of scarlatina, are alike; and a remedy which is right to-day may be wrong to-morrow. All these things have to be taken into consideration by a skilful physician. It follows that a prescription is not a universal remedy, applicable alike to everybody who seems to be suffering in the same way, but a special remedy for a particular occasion, only to be used again when expressly so stated by the prescriber. A prescription given by a physician to a patient is considered to be the property of the latter; but it is seldom good policy for the patient to use it repeatedly. *See* DOCTOR.

Prescriptions.—*See* DOSES; INHALATIONS; LINCTUS; LINIMENTS; LOTIONS; MEASURE GLASSES; OINTMENTS; WEIGHTS AND MEASURES.

(1) *Acid tonic mixture.*—Dilute hydrochloric acid, 2 fl. drs.; tincture of cascarilla, 6 fl. drs.; syrup of ginger, 6 fl. drs.; compound infusion of oranges to 6 fl. ozs. Dose for an adult ½ fl. oz. three times a day.

(2) *Acid astringent mixture.*—Dilute sulphuric acid, 1 fl. dr.; acid infusion of roses to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(3) *Sal ammoniac mixture.*—Chloride of ammonium, 90 grains; liquid extract of liquorice, 1½ fl. drs.; water to 3 fl. ozs. Dose for an adult, 1 fl. oz. every four hours.

(4) *Ammonia mixture.*—Carbonate of ammonia, 18 grains; tincture of ginger (or compound tincture of cardamoms), 1 fl. dr.; infusion of cloves to 6 fl. ozs. Dose for an adult 1 fl. oz. three times a day.

(5) *Ammonia and ether mixture.*—Aromatic spirits of ammonia, 1 fl. dr.; spirits of ether, 1 fl. dr.; syrup of oranges, 6 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(6) *Ammonia and bark mixture.*—Aromatic spirits of ammonia, 1 fl. dr.; syrup, 6 fl. drs.; decoction of cinchona bark to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(7) *Fever mixture.*—Solution of acetate of ammonia, 1½ fl. ozs.; sweet spirits of nitre, 3 fl. drs.; syrup, 6 fl. ozs. Dose for an adult, 1 fl. oz. every four hours.

(8) *Gallic acid mixture.*—Gallic acid 60 grains; dilute sulphuric acid, 1 fl. dr.; water, 6 fl. ozs. Dose for an adult, 1 fl. oz. every four hours.

(9) *Rhubarb and soda mixture.*—Tincture of rhubarb, 3 fl. drs.; carbonate of soda, 60 grains; aromatic spirits of ammonia, 1 fl. dr.; peppermint water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(10) *Rhubarb and magnesia mixture.*—Tincture of rhubarb, 4 fl. drs.; magnesia, 30 grains; tincture of ginger, 20 mins.; dill water to 2 fl. ozs. Dose for an adult, 1 to 2 fl. ozs.

(11) *Black draught.*—Epsom salts, ½ oz.; liquid extract of liquorice, 1 fl. dr.; tincture of senna, 2½ fl. drs.; compound tincture of cardamoms, 1½ fl. drs.; infusion of senna, 15 fl. drs. Dose for an adult, 1 to 2 fl. ozs.

(12) *Soda and gentian mixture.*—Carbonate of soda, 60 grains; aromatic spirits of ammonia, 1 fl. dr.; syrup of oranges, 6 fl. drs.; compound infusion of gentian to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(13) *Soda and calumba mixture.*—Carbonate of soda, 60 grains; compound tincture of cardamoms, 3 fl. drs.; infusion of calumba to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(14) *Acid aperient mixture.*—Epsom salts, 1½ ozs.; dilute sulphuric acid ½ fl. dr.; acid infusion of roses to 6 fl. ozs. Dose for an adult, 1 fl. oz.

(15) *Potash and gentian mixture.*—Citrate of potash, 90 grains; glycerine, 3 fl. drs.; compound infusion of gentian to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(16) *Bismuth and calumba mixture.*—Solution of citrate of bismuth and ammonia, 3 fl. drs.; aromatic spirits of ammonia, 1 fl. dr.; infusion of calumba to 6. fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(17) *Bismuth mixture.*—Subnitrate of bismuth 90 grains; mucilage, 6 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day. 10 grains of carbonate of soda may be added to each dose.

(18) *Bromide mixture.*—Bromide of potassium, 90 grains; compound tincture of cardamoms, 6 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(19) *Ipecacuanha and tolu mixture.*—Ipecacuanha wine, 1 fl. dr.; syrup of tolu, 1 fl. oz.; gum arabic in powder, 120 grains; water to 6 fl. ozs. Dose for an adult, ½ fl. oz. three or four times a day.

(20) *Ipecacuanha and squill mixture.*—Ipecacuanha wine, 1 fl. dr.; tincture of squills, 2 fl. drs.; syrup of tolu, 1 fl. oz.; water to 6 fl. ozs. Dose for an adult, ½ fl. oz. three or four times a day.

(21) *Ipecacuanha and paregoric mixture.*—Ipecacuanha wine, 1 fl. dr.; compound tincture of camphor (paregoric) 1½ fl. drs: solution of acetate of ammonia, 1 fl. oz.; camphor water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day. *See* OPIUM.

(22) *Belladonna mixture.*—Tincture of belladonna, 1 fl. dr.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(23) *Diarrhœa mixture.*—Tincture of catechu, 6 fl. drs.; chalk mixture to 6 fl. ozs. Dose for an adult, 1 fl. oz. every four or six hours.

(24) *Carminative mixture.*—Rhubarb, 16 grains, aromatic spirits of ammonia, 20 mins.; tincture of ginger, 20 mins.; cinnamon water to 2 fl. ozs. Dose for an adult, 1 fl. oz.

(25) *Quinine and acid mixture.*—Aromatic sulphuric acid, 1 fl. dr.; sulphate of quinine, 6 grains; cinnamon water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(26) *Diuretic mixture.*—Acetate of potash, 90 grains; spirits of juniper, 1 fl. dr.; decoction of broom to 6 fl. ozs. Dose for an adult, 1 fl. oz. three or four times a day.

(27) *Zinc emetic mixture.*—Sulphate of zinc, 20 grains; ipecacuanha wine, ½ fl. oz.; water to 1 fl. oz. An emetic for an adult, to be followed by plenty of warm water.

(28) *Emetic mixture.*—Ipecacuanha in powder, 15 grains; warm water, half a tumblerful. An emetic for an adult. For children give one-fourth part every ten minutes until there is vomiting.

(29) *Ipecacuanha mixture.*—Ipecacuanha wine, 1 fl. dr.; water to 6 fl. ozs. Dose for an adult, 1 fl. dr. every hour.

(30) *Effervescing mixture.*—Carbonate of soda, 90 grains; spirits of chloroform, 1 fl. dr.; water to 3 fl. ozs. Dose, ½ fl. oz. taken in effervescence with 15 grains of citric acid in an equal quantity of water.

(31) *Aconite mixture.*—Tincture of aconite, 20 mins.; water, 3 fl. ozs. Dose for an adult, 2 fl. drs. every two hours.

(32) *Nitre mixture.*—Nitrate of potash, 90 grains; syrup, 6 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(33) *Hamamelis mixture.*—Tincture

of hamamelis, ½ fl. dr.; water, 1 fl. oz. Dose for an adult, 1 fl. dr. every two hours.

(34) *Astringent iron mixture.*—Solution of perchloride of iron, ½ fl. dr.; glycerine, 3 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day. Lemon juice may be substituted for the water.

(35) *Aperient iron mixture.*—Sulphate of iron, 15 grains; Epsom salts, 1 oz.; dilute sulphuric acid, 1 fl. dr.; glycerine, ½ fl. oz.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(36) *Alkaline iron mixture.*—Tartarated iron, 60 grains; bicarbonate of potash, 90 grains; syrup of ginger, 3 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(37) *Acid and bark mixture.*—Dilute hydrochloric acid, 1 fl. dr.; compound tincture of cinchona, 3 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(38) *Iron and quinine mixture.*—Sulphate of iron, 15 grains; sulphate of quinine, 6 grains; dilute sulphuric acid, ½ fl. dr.; syrup, 1 fl. oz.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(39) *Strong quinine mixture.*—Sulphate of quinine, 30 grains; dilute hydrochloric acid, 1 fl. dr.; water to 6 fl. ozs. Dose for an adult, from ½ to 1 fl. oz.

(40) *Nux vomica mixture.*—Tincture of nux vomica, ½ fl. dr.; spirits of chloroform, 1 fl. dr.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(41) *Iodide mixture.*—Bicarbonate of potash, 90 grains; iodide of potash, 20 grains; syrup of oranges, 6 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(42) *Salicin mixture.*—Salicin, 60 grains; dissolve in 2 fl. ozs. hot water; cool, and add syrup, 6 fl. drs., and water to 6 fl. ozs. Dose for an adult, 1 fl. oz. every four hours in rheumatic fever; 2 fl. drs. three times a day as a tonic.

(43) *Salicylate mixture.* — Salicylate of soda, 120 grains; spirits of chloroform, 3 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. every four hours in rheumatic fever; 1 fl. dr. every half hour in bilious headache.

(44) *Tapeworm mixture.*—Liquid extract of male fern, 3 fl. drs.; syrup of ginger, 3 fl. drs.; compound powder of tragacanth, 30 grains; water to 3 fl. ozs. Dose for an adult, 1 fl. oz.

(45) *Sulphurated lime powder.*—Sulphurated lime, 10 grains; sugar of milk in powder, ½ oz. Mix thoroughly, and divide into ten powders. One every hour.

(46) *Rhubarb and soda powder.*—Carbonate of soda, 30 grains; powdered rhubarb, 20 grains; powdered ginger, 10 grains. Mix, and divide into three powders. (*See* GREGORY'S POWDER.)

(47) *Corrosive sublimate mixture.*—Corrosive sublimate, ½ grain; water, 6 fl. ozs. Dose for an adult, 1 fl. dr. (measured teaspoonful) every hour.

(48) *Arsenical mixture.*—Arsenical solution 16 mins.; water to 2 fl. ozs. Dose for an adult, a teaspoonful four times a day after meals.

(49) *Magnesia mixture.*—Magnesia, 8 grains; spirits of chloroform, 10 mins.; dill water to 1 fl. oz. Dose for an infant, 1 fl. dr.

(50) *Castor oil mixture.*—Castor oil, 6 fl. drs.; the yolk of an egg; dill water, 2 fl. ozs.; loaf sugar, a teaspoonful. Shake up together. Dose for an infant, 2 fl. drs. every hour.

(51) *Gout mixture.*—Bicarbonate of potash, 120 grains; colchicum wine, 1 fl. dr.; glycerine, 3 fl. drs.; water to 6 fl. ozs. Dose for an adult, 1 fl. oz. three times a day.

(52) *Blaud's pill.*—Sulphate of iron, 2½ grains; carbonate of potash, 1½ grains; sugar, 1 gr.; tragacanth, ⅙ gr. (Martindale). Two or three after meals three times a day.

(53) *Compound rhubarb pill.*—5 grains at bedtime.

(54) *Colocynth and henbane pill.*—5 grains at bedtime.

(55) *Dinner pill.*—Watery extract of aloes, 1 grain; ipecacuanha, ¼ gr.; capsicum, ¼ gr.; extract of gentian to 4 grains: to make one pill.

(56) *Aloes and asafœtida pill.*—Five grains at bedtime.

(57) *Liver pill.*—Mercurial pill 1 grain; compound rhubarb pill, 3 grains. One at bedtime.

(58) *Compound liquorice powder.*—(*See* SENNA.) Dose, 1 teaspoonful.

(59) *Compound scammony powder.*—Dose for an adult, 15 grains.

(60) *Grey powder.*—Dose for an adult, 6 grains in gumwater.

(61) *Ipecacuanha and squill pill.*—Dose, 5 grains three times a day.

(62) *Compound squill pill.*—Dose, 5 grains three times a day.

Presentation. *See* CHILDBIRTH.

Preservation of Food. *See* FOOD, PRESERVATION OF.

Pressure is useful in arresting bleeding. Probably no bleeding need be fatal where the wounded vessel can be reached and compressed. Uniform compression of a limb is useful in varicose veins, dropsy, and swelling from sprains and other injuries. If too long continued or too tight or unequally applied it may cause mortification. The formation of bed-sores is largely due to unequal pressure on unprotected parts. Long-continued pressure, such as that applied by foolish, tight-lacing women, by those who wear tight ill-formed boots, or work in cramped attitudes, may permanently deform the body, completely changing the shape of the bones. Continuous pressure usually causes wasting; intermittent pressure leads to thickening of the skin, and formation of callosities and corns.

Prickly Heat.—A skin eruption caused by heat and moisture in tropical climates. It is especially common just before the rainy season, and attacks all new-comers, those of sanguine temperament being most affected. The chief symptoms are pricking, itching, tingling, and the appearance of small red raised spots. The skin often becomes very rough and may be dry, in which case there is danger of complications. Sores often result from scratching.

The best TREATMENT is to take regular exercise in the cool of the day, keep cool and quiet at other times, abstain from alcohol and be very temperate in eating; get a regular daily action of the bowels; abstain from scratching; wear light woollen or silk undergarments; use tepid alkaline baths (1 dr. sod. bicarb. to 1 gal. water), or, in obstinate cases, soft soap.

Profession, Choice of. *See* OCCUPATION.

Prognosis. A forecast of the probable issue of an illness. This is sometimes easy to make, sometimes very difficult. The course of an illness depends to some extent upon the experience and skill of the doctor; but the result is also greatly influenced by the constitution of the patient and the effects of treatment. Frequently important symptoms only show themselves long after the illness begins, and in this way the prognosis may be rendered uncertain.

Prolapse. *See* RECTUM; WOMB; BLADDER.

Prophylaxis. — Prevention of disease.

Prostate Gland surrounds the neck of the male bladder. In old age it is often enlarged, thereby causing difficulty in the passage of urine. *See* URINE, RETENTION OF.

Proteids. *See* ALBUMEN.

Proud-flesh. *See* ULCERS.

Prunes. *See* FRUIT.

Prurigo.—A skin disease characterized by severe itching, together with the appearance of small pimples.

Pruritus.—Itching (*which see*).

Prussic Acid (*Hydrocyanic Acid*).—A colourless liquid, very volatile and faintly acid, with peculiar taste and odour. Its metallic salts are called cyanides—the commonest being cyanide of potassium, used by photographers. Prussic acid is usually prepared from prussiate of potash, but may be obtained from apple-pips, peach or cherry kernels, bitter almonds, or the leaves of the cherry laurel.

The strong acid is extremely poisonous, and may cause death within a few minutes. The dilute hydrocyanic acid of the B.P. contains 2 per cent. A stronger preparation, known as Scheele's acid, contains 5 per cent., but is now little used. Cherry laurel water (B.P.) is of very variable strength, and therefore dangerous.

Medicinal uses of prussic acid.—It is applied externally, much diluted, to relieve itching (*which see*), and to allay pain in neuralgia. If the skin is abraded, it is a dangerous application. Internally it is given for palpitation, asthma, whooping-cough, painful affections of the

stomach, vomiting, etc. It should only be used under medical advice.

Poisoning.—A large dose may cause instant death. A smaller dose may more slowly cause death, by paralysing the heart and breathing centres. Still smaller doses cause giddiness, faintness, and feeling of suffocation. Cyanide of potash is also extremely poisonous.

Treatment.—Artificial respiration (*see under* Drowning); cold affusion to head and spine; internally stimulants. (*Pr.* 4, 5.) Smelling chloride of lime is useful. If the patient begins to recover, keep his limbs warm with hot bottles and friction.

Psoriasis, or *Lepra.*—A skin disease characterized by the formation of white spots on the back of the arms and front of the legs, covered with dry silvery scales. The spots run together to form patches with a raised margin. They may itch a little, but never discharge any fluid. The tendency to psoriasis is often inherited, and may go with a gouty constitution. It is usually a very chronic complaint, but readily curable by means of arsenic, tar ointments, etc. An ointment of 2 drs. juniper tar with 1 oz. lard may be used alternately with zinc ointment. In young people, cod-liver oil is useful; in older people, plenty of exercise in the open air, with avoidance of stimulants and of food which is highly seasoned, rich or sweet.

Ptisane.—A term applied to barley water and other similar beverages given in fever, colds, etc.

Ptomaines.—Alkaloids, often poisonous, formed during the decomposition of animal tissues. "Sausage-poisoning" has been attributed to the presence of ptomaines.

Ptyalism.—Salivation, excessive discharge of saliva. It may be caused by taking too much mercury, by pregnancy, etc. *See* Pregnancy, Ailments of.

Puberty.—The transition stage from childhood to sexual maturity. *In the youth* it is associated with a change in the depth and quality of the voice (commonly known as "breaking"), and with the growth of hair on the face and other parts of the body. The change takes place gradually at about fifteen years of age. *In girls* it appears as a rule about a year earlier, and is much more rapid, the child passing at a bound into womanhood. Her figure becomes rapidly developed, menstruation is established, and the character and disposition undergo striking changes. The appearance of menstruation is largely influenced by climate, social conditions, and general health. It appears earlier in warm climates and luxurious states of society; and, on the other hand, is often delayed by poorness of blood, and other forms of bodily weakness. Headache, palpitations, nose-bleeding, and other slight ailments are very common in girls before the advent of menstruation. During this period of development, schooling should not be pressed, but plenty of rest, good food and fresh air provided. A little judicious advice given to youths and maidens about this time of life may be of incalculable benefit in preventing needless alarm or the formation of objectionable habits.

Public Health.—The dislike of any interference with individual liberty has long been a British characteristic; but it has been for many years evident that the individual should not be allowed to use his liberty so as to injure the community. Under the Public Health Act of 1875, and other Acts of Parliament, wide powers are entrusted to the sanitary authorities in each rural and urban district; and it is probable that these powers will be further extended, and the laws of health still more rigidly enforced in the future. The chief matters which should come under the province of the sanitary authorities are as follows: (1) Condition of the *land*, as regards drainage, regulation of forests, and of rivers, which should neither be allowed to overflow their banks, nor to be polluted with sewage and other refuse. (2) Construction and cleansing of *streets* in towns. (3) The site, arrangement, and building of *houses*, including provisions for free access of air and light, ventilation, water supply, drainage and removal of refuse. Sanitary authorities have power to inspect lodging-houses and cellar-habitations, and to prevent over-crowding. (4) Regulation of *food supply*, to

prevent the sale of adulterated, contaminated, or diseased articles. This includes the inspection and regulation of slaughter-houses, cow-houses, dairies, and bake-houses. (5) Regulation of *trades*, to prevent those which are offensive from being established within a certain distance of other houses, and to enforce provisions for the avoidance of nuisances. The prevention of smoke nuisances, ventilation of workshops, and regulation of the liquor traffic would come under this head. (6) The prevention of *contagious and infectious diseases*, by isolation, disinfection, vaccination, and other provisions. In many towns the notification of such diseases is compulsory. (7) The *disposal of the dead*, provision of public mortuaries and regulation of cemeteries. (8) The prevention of *nuisances* of all kinds, whether from premises, drains, animals, refuse-heaps, factories, or other sources. Many of the foregoing subjects are referred to in other articles.

Puddings are mostly prepared with some kind of farinaceous food. Of boiled puddings, the most suitable for invalids are light batter-puddings, rice, sago, tapioca, and bread-puddings. Baked farinaceous puddings should be made with plenty of milk, the eggs being added towards the end of the time, to preserve their digestibility. All greasy, rich puddings, suet puddings, and the like, are inadmissible in the sick-room dietary. Sauces are usually of doubtful suitability.

Puerperal or Childbed Fever may be caused by bad drainage, decomposing animal matter, or infection by attendants. The contagion of scarlatina, erysipelas, ulcerated legs, or disease of the bones in those present at the birth, has been known to cause the fever. It has also arisen from the use of dirty sponges or napkins, or the incomplete removal of the afterbirth.

The symptoms are, high fever, thirst and delirium, with alteration of the natural discharge, which may be altogether stopped or offensive. Sometimes also there is pain in the abdomen.

THE TREATMENT must be prompt and thorough in order to avert death. Antiseptic lotions must be syringed into the passages (*Lotions* 14, 15, 17, 18), quinine and other remedies given internally, with a light diet as in fever generally. (*Pr.* 39.) A doctor should always be consulted.

Puerperal Insanity may come on during the confinement, or within a few weeks of birth. The chief warning symptoms are a wild, restless appearance, wandering of the mind, and sudden dislike to the husband or child. The patient must be carefully watched, and kept perfectly quiet. As a rule she should not be allowed to see her child or any near relatives, as they usually cause increased excitement. There is a decided tendency to suicide in this form of insanity. The diet should be unstimulating, and the action of the bowels insured. (*Pr.* 11, 14.) Iced cloths may be put to the head, and a sedative draught given. (*Pr.* 18.) *See* INSANITY.

Puerperal State. *See* CHILDBIRTH.

Pulmonary.—Belonging to the lungs (*which see*).

Pulse.—The periodic throbbing of the arteries, caused by their distension with blood from the heart. The pulse is usually felt in the radial artery at the wrist; sometimes, however, another artery, such as that at the temple, is more convenient. A physician, in feeling the pulse, notices the frequency, regularity, and strength of the beat, the fulness of the arteries and the character of their walls; he can often tell therefrom the condition of the heart, kidneys, and other important organs of the body. The pulse-rate varies according to age, sex, and other circumstances. At birth, it is about 140; during infancy, 120–130; in childhood, 100; in youth, 90; at the prime of life, 70–75, and in old age a little more. Women have a more frequent pulse than men. The number of beats increases with food-taking, exertion, or emotion; there is a difference of 5 to 10 beats between sitting and standing. In debility there is a great difference between the pulse during rest and that after exertion. This is also noticeable in poorness of blood and other conditions of feeble health. During fever, the rate is increased. In some liver and brain disorders it is diminished. Even more

important than the pulse-rate is its regularity both of force and of rhythm. Intermittency (or loss of a beat now and again) may be due to tobacco smoking, indigestion, or more serious diseases. Softness and fulness and other pulse characters are also valuable indications to the physician, but require skill and medical knowledge for their due appreciation.

A *pulse tracing* may be taken by a sphygmograph, whereby the movements are magnified and recorded upon a moving surface. Such a trace often affords valuable information to the doctor.

Punctured Wounds. *See* WOUNDS.

Purgatives. *See* APERIENTS.

Purpura.—A disease in which the blood escapes from the vessels into the surrounding tissues, causing swellings and discolorations, which go through the same changes as a bruise. Some forms of purpura are extremely dangerous to life; so that in all cases a doctor should be consulted. *See* SCURVY.

Purulent.—Composed of *pus* or matter. *See* ABSCESS.

Pustule.—A little bladder on the skin, containing pus or matter. Pustules occur in smallpox and a few other diseases. For *malignant pustule*, *see* WOOLSORTER'S DISEASE.

Putrefaction.—The process whereby animal and vegetable tissues are transformed into simple chemical compounds. It is usually due to fermentation, and, like it, requires the presence of minute living organisms. A piece of flesh or a bottle of soup will remain quite sweet and good if access of air is prevented, or the incoming air is filtered through cotton-wool. The changes from putrefaction result in the formation of very poisonous alkaloids and other substances (*ptomaines*). The juices of a slightly stale piece of meat are more dangerous if introduced through a prick or scratch, than those of a piece which has been longer kept. The final products of putrefaction are simpler and less dangerous; they constitute a part of the food of plants. *See* BLOOD-POISONING; DEAD, DISPOSAL OF; FOOD PRESERVATION; SCAVENGING.

Pyæmia. *See* BLOOD-POISONING.

Pylorus. — The junction between stomach and small bowel. *See* ALIMENTARY CANAL.

Pyrosis. *See* WATER-BRASH.

Quackery usually implies pretension to knowledge or skill not really possessed. A man who pretends to cure diseases without any knowledge of anatomy and physiology, or of the laws of disease, is rightly called a quack; as also is one who offers one remedy as the cure for all diseases alike. It is open to argument whether the hydropath or the homœopath is to be so considered, who honestly holds peculiar views on the treatment of disease after he has had a full course of medical training. Systems of medicine which offer one universal principle of treatment are always to be regarded with suspicion, as the tendency to premature generalization is very strong in most people's minds. But the treatment of disease is so complex a matter, and it is so difficult in most cases to determine whether the medicine given, or the diet or other circumstances, have led to recovery, that there is often room for several different opinions to be honestly held. Under these circumstances, it is well to avoid casting an opprobrious epithet upon people holding peculiar views as to treatment, even if we cannot agree with them, and think them wanting in scientific caution. There are, however, less doubtful cases. To recommend a remedy to a sick man merely because it has done somebody else good, who may or may not have been suffering in the same way, is really quackery; and such hap-hazard treatment is productive of untold mischief. Still worse is it when the nature of the remedy is unknown, as in the case of secret proprietary remedies. (*See* PATENT MEDICINE.) That a quack is supported by people of education and position is no proof of the goodness of their claims. An impostor (St. John Long) who, many years ago, pretended to draw "morbific" matter from the body, was supported at his trial for manslaughter by many noblemen, clergy, and men of distinction, although he was proved to be utterly ignorant of medicine and surgery.

There are a host of dishonest people

who trade upon the ignorance and fears of the public, and sometimes grow rich upon the proceeds. The only remedy for such a state of affairs is education in the rudiments of anatomy, physiology, hygiene, and allied subjects.

Quarantine originally meant forty days isolation on board ship, or in a building set apart for the purpose, of people who have come from a place known or suspected to be infected with disease. Unless great care is exercised, quarantine in this shape may do more harm than good, as healthy people become infected by the building, or fall ill for want of ordinary necessaries of life. During the last outbreak of cholera in the South of Europe the most vexatious restrictions were placed upon passengers crossing the frontiers in some places, and some people preferred to abandon their journey rather than undergo the repulsive and useless fumigations imposed by the authorities. In India, experience has shown that the enforcement of cleanliness and the provision of pure water have been more useful in preventing the spread of cholera than any quarantine. Sometimes, however, quarantine is necessary: A child coming home from a school where there is scarlatina should be isolated until it is clear that he has not caught the disease; and his clothes, etc., should be carefully disinfected. So also cargoes of rags from ports infected with typhus fever or smallpox should be promptly disinfected, or forbidden entry into the country. The Port Sanitary Authorities have power to visit and examine vessels from suspected ports, to isolate those sick with infectious complaints, destroy infected materials, and detain the ship till properly disinfected. *See* INFECTIOUS FEVERS; INFECTION; DISINFECTION; ISOLATION.

Quassia Wood is obtained from Jamaica and sold in chips, shavings, or raspings. It is a valuable bitter, without astringency. Containing no tannin, it can be combined with salts of iron without darkening. The *infusion* is chiefly used. To make it, leave 55 grains to soak for half an hour in ½ pint cold distilled water. It may be used as an enema for thread worms; sweetened with sugar, it will attract and destroy flies. In warm weather the infusion is liable to decompose. *See* BITTER TONICS.

Quickening. *See* PREGNANCY.

Quicklime. *See* LIME.

Quicksilver. *See* MERCURY.

Quillaya, *Soap bark*, obtained from Chili, has the property of forming a froth or lather with water without soap. The infusion is used for cleansing cloth and removing stains, and forms an ingredient of some hair-washes and mouth-washes. It contains *saponin*, which is a powerful poison, also present in senega and sarsaparilla. A similar principle also exists in the primrose.

Quinine. *See* CINCHONA.

Quinsy, inflammation of the tonsils, is especially common in young people. It usually appears after exposure to damp and wet, especially in those who are rheumatic, or who have had previous attacks. The *symptoms* are dryness or uneasiness in the throat, which becomes a severe shooting or throbbing pain, increased by speaking or swallowing. At the same time there is usually fever, with general weakness and aching pains in the limbs. The sensation of fulness leads to frequent swallowing of the saliva; the speech becomes thick and altered in character, and there may be more or less deafness. The glands of the neck are often enlarged and hardened. After a few days the inflammation subsides, or matter forms in the tonsil and bursts during some effort of coughing or swallowing. The pain then rapidly disappears, and the other symptoms at the same time improve. Both tonsils are often affected, but matter usually only forms in one. The attack lasts about a week, and leaves behind it a liability to other attacks.

TREATMENT.—In early stages give *Pr.* 31 every two hours, small pieces of ice to suck, and warm liquid bland food. The patient should stay in bed, and get the skin into action by hot-water bottles and plenty of covering. If there is no ice available, put a large hot linseed poultice round the throat from ear to ear, and change it whenever it begins to cool. Steam inhalations will also be useful. (*See* INHALATIONS.) When the fever subsides, give tonics. (*See* TONICS.) Other useful

remedies in an early stage are guaiacum lozenges, one every three hours, and salicylate of soda. (*Pr.* 42, 43.) If there is much swelling and shortness of breath, the doctor should be sent for, as a prick will probably be required to let out the matter.

Rabies, *Dog-madness*. *See* HYDROPHOBIA.

Rachitis. *See* RICKETS.

Radish. *See* SALADS.

Railway Convenience.—A portable india-rubber urinal.

Railway Travelling. *See* TRAVELLING.

Rainfall. (*See* CLIMATE.)—The average annual rainfall in this country is about 30 inches, varying from 20 on the east coast to 70 or 80 in the Welsh mountains. Exceptionally, as much as 200 inches have fallen in the lake district. In tropical countries the rainfall may amount to as much as 400 to 500 inches. The amount of sunshine is quite as important as the rainfall in estimating the climate of a place: heavy rain may fall in a day which is mostly fine, whereas a little continuous rain will make the air damp.

Rain-water. *See* WATER.

Raisins.—Grapes dried in the sun or with artificial heat. They contain much grape sugar and some acid tartrate of potash. The skins are indigestible, and may cause diarrhœa. In medicine, raisins are used chiefly for flavouring.

Ranunculus.—The botanical name for the buttercup and allied flowers. They are nearly all poisonous, and have an acrid, irritating juice. Some kinds will raise a blister on the skin. *See* IRRITANT POISONS.

Rash.—An outbreak of redness on the skin. *See* ERUPTIONS.

Raspberry. *See* FRUIT; BEVERAGES.

Reaction.—Any disturbance of the bodily condition is apt to be followed by a recoil in the opposite direction. Thus after a chill comes a feverish attack; after over-indulgence in stimulants, a period of depression; and after mental excitement there often comes a state of dulness or low spirits. Such reactions may be carried so far as to constitute fresh dangers. This must be borne in mind in the treatment of disease.

Reading. *See* VOICE, CARE OF.

Recreation is of the greatest importance for the preservation of health. "All work and no play makes Jack a dull boy," and the form of play must be suited to the kind of work. For those with sedentary occupations, active outdoor recreation is the best—such as cricket, lawn tennis, riding, cycling, and the like. For the artisan probably some form of mental relaxation is more suitable—music, reading, or artistic or dramatic entertainments. Some of these are not entirely free from objectionable features; but in time such will be removed, when knowledge of the laws of health has become sufficiently common. The possession of a "hobby" is often a great aid to health and happiness. An hour spent in botanizing in the fields, or in wood-carving, or chess-playing, will completely change the current of ideas, preventing dull monotony, and restoring healthy balance to a jaded mind. Asceticism, however admirably suited to a very different state of society, and however lofty the motives leading to its cultivation, has no longer a place in rational modern life, and recreation as well as work should be regarded as a duty. Whenever the taste for recreation is beginning to be lost, it is time to consult a doctor, or to seriously review and amend the mode of life. *See* EXERCISE.

Rectum.—The last part of the bowel, ending at the *anus* or fundament (*which see*). It is placed in front of the sacrum (*see* SPINE), following its curve, but placed a little more to the left side. In its interior are transverse folds of mucous membrane, which help to support the load of fæces. The existence of these folds should be remembered in giving rectal injections. The veins of the rectum belong for the most part to the portal venous system, which ends in the liver, and hence interference with the circulation through the liver causes swelling of the rectal veins (*hæmorrhoids* or *piles*). The lining membrane of the rectum is capable of absorbing food and drugs; advantage is taken of this fact when these cannot be given by the mouth. *See* ENEMAS, NUTRIENT; SUPPOSITORIES.

In elderly people, and others who

habitually neglect the calls of nature, the rectum may become enormously distended with dry, hard fæces, which entirely prevent the descent of the contents of the bowel above, and must be removed either by enemata or by mechanical means. (*See* CONSTIPATION.) Such a condition frequently gives rise to irritation and to a discharge resembling diarrhœa, and if neglected may lead to ulceration. OBSTRUCTION from accumulated fæces or from foreign bodies swallowed is not very uncommon.

During the Irish famine of 1846 rectal concretions of diseased potato mixed with bits of peel are said to have been frequently found. A dental plate from the mouth accidentally swallowed has been known to be arrested just above the anus.

Another cause of obstruction is STRICTURE, by which is meant a narrowing of the bowel, either fibrous or cancerous. Simple fibrous stricture is more common in women than in men. It may arise from injury during childbirth; but any long-standing source of irritation, such as a fissure or ulcer, may give rise to a stricture. Where it is not preceded by ulceration, the first symptom is a difficulty in passing the motions, which are small, and perhaps pipe-like or flattened. The bowel at the same time feels imperfectly relieved. Afterwards symptoms as of ulceration or fistula usually appear. The *treatment* of stricture is frequently tedious, extending over months. The earlier skilled advice is obtained, the greater the probability of success.

Another and far commoner disease is described under PILES.

ULCERATION of the rectum often follows neglected constipation, injury during childbirth, stricture of the rectum, cancer, and other constitutional conditions. It usually shows itself by diarrhœa and tenesmus, with discharge, either mucous, or dark, offensive, and bloodstained. Where the ulcer is situated near the anus, much pain may be occasioned by passage of the motions, even from a very small ulcer, and the general health will suffer severely from broken nights' rest and continual discomfort. Where the ulceration is cancerous, the general loss of health and strength are more marked, and the progress of disease is towards a fatal termination, usually within three years. As regards *treatment*, simple ulceration may often be cured by the surgeon; and in cancerous disease great relief may be afforded and life considerably prolonged, while in an early stage a cure is possible.

ABSCESS near the rectum usually causes sharp, pricking sensations, soon followed by aching pain and throbbing. Sitting is painful, and fever present. If left to itself, the abscess will burst, often into the rectum, leaving a fistula. Surgical advice should be obtained without delay.

For affections of the FUNDAMENT and its neighbourhood, *see* ANUS; *see also* FISTULA; PROLAPSE.

Red Gum.—An eruption of scattered red pimples in the skin of infants, usually due to teething or to irritation in the intestinal canal. The best treatment is attention to the food, rest, and warmth, and locally the application of fuller's earth and zinc oxide (1 to 2), or of a lotion of lime-water and oxide of zinc (*Lotions* 10, 11). Sometimes a dose of rhubarb and magnesia, or of grey powder, is required. (*See also* EUCALYPTUS.)

Reflex Disorders are those in which a source of irritation gives rise by reflexion in the central nervous system to disturbance elsewhere. Thus worms in the bowel may give rise by reflexion to convulsions or twitching of muscles of the limbs; disease in the hip joint may cause pain in the knee; and a rotten tooth may cause all the other teeth to ache, or set up neuralgia in the eye or temple. (*See Fig.* 57.)

Refrigerants.—Cooling medicines given in fever. Their chief effect is to allay thirst and promote the action of the kidneys and skin. Cold water is the most important; others are the juice of lemons, oranges, tamarinds, and acid fruits generally; and beverages made from these, or from citric and tartaric acids, with or without an alkali. *See* BEVERAGES; FEVER, TREATMENT OF.

Refuse. *See* SCAVENGING.

Regimen.—The regulation of the mode of life of an individual, including diet, rest, and exercise, meal times and hours

of sleep and work, clothing, and other matters. (*See* HYGIENE.)

Registration of Births.—The father or mother is bound under a penalty of 40*s.* to attend at the registrar's office within six weeks of the birth of a child; or failing them, the occupier of the house where the birth took place, or some person present at the birth, or in charge of the child. The registrar will attend at the house on payment of a shilling, if notice is given. After three months a birth cannot be registered excepting in the presence of the superintendent registrar, and on payment of extra fees. The baptismal name may be inserted any time within twelve months of registration. The foregoing rules are somewhat relaxed in the case of children born during long voyages. *Registration of deaths* must be done within five days of death, under a penalty of 40*s.* Those liable to this duty are the nearest relatives present at death or during the last illness, or failing them, some other relative in the same sub-district, or some one present at the death, or the occupier of the house; or, failing these, an inmate of the house or the person causing the body to be buried. If the registrar attends at the house by request, he is entitled to a fee of one shilling. Notice of death must be accompanied by a certificate of the cause of death signed by the medical man in attendance. A certificate from the registrar should be given to the clergyman at the funeral service.

Relapsing Fever, or *famine fever.*—An infectious disease formerly prevalent in Ireland, Scotland, and other countries, occurring chiefly in epidemics affecting the poorer and worse-fed members of the community. It is communicated by the air, and by clothing and other matters coming from the sick, and has been carried long distances. The period of incubation is variable; it is followed by shivering, headache, muscular pains, and other symptoms of high fever. After from five to seven days, the fever suddenly disappears; but a second attack comes on in a few days more, and a third may follow this. There is no rash, but jaundice is often present. It is not a common disease. A microscopic organism (*spirillum*) is found in the blood during the febrile attacks. (*See* BACTERIA.)

Relaxed Throat. *See* THROAT.

Relaxed Bowels. *See* DIARRHŒA.

Relaxation. *See* RECREATION.

Remittent Fever.—A severe form of malarious fever, in which the fever does not disappear between the paroxysms, but merely remits, or diminishes. Indian "jungle fever" is of this nature. *See* AGUE.

Renal.—Relating to the kidneys (*which see*).

Rennet.—An extract from the stomach of the calf. It is capable of curdling milk and digesting albuminous foods. (*See* PREDIGESTED FOODS.)

Resins.—Brittle, uncrystallizable solids, soluble in spirit, but not in water, chemically related to turpentine and other similar bodies. Turpentine resin is present in many plasters and in resin ointment. Other resins used medicinally are obtained from guaiacum, jalap, scammony, podophyllum, and copaiba. *See* PLASTERS; OINTMENTS, etc.

RESIN OINTMENT is made with 8 ozs. resin in coarse powder, 4 ozs. yellow wax, 16 ozs. simple ointment, and 2 fl. ozs. almond oil, melted at a low temperature, strained, and stirred until cool.

Respiration, or breathing, the process whereby the body gets its supply of oxygen, and gets rid of its gaseous impurities. (*See* AIR.) This gaseous interchange, without which life is impossible, is common to both animals and plants, although somewhat obscured in the latter by other processes. (*See* VEGETATION.) In all the higher animals, the blood contains an oxygen-carrying substance (*hæmoglobin*), which will take up oxygen from the air in the lungs, and part with it to the tissues. At the same time the blood is a carrier of carbonic acid gas from the tissues to the lungs. The chest is expanded by raising the ribs and breastbone, and by flattening the curve of the diaphragm. This draws fresh air into the lungs, and pushes out the front of the abdomen. The lungs and chest walls then contract again by their elasticity, expelling the impure air. The abdominal muscles assist in con-

tracting the chest by pressing the liver, stomach, etc., against the concavity of the diaphragm. In children the abdominal movements are particularly noticeable. In women the upper part of the chest moves more freely in breathing than in men. Adults breathe about seventeen times a minute. The movements are controlled by nerve-centres in the *medulla oblongata*, together with nerves connected with them. *See* BLOOD; BREATH; CHEST; CIRCULATION; LUNGS.

Respiration, Artificial. *See* DROWNING.

Respirators.—Contrivances for protecting the air passages from cold or dusty air, or for impregnating the air to be breathed with some volatile drug.

Respiratory Organs include the lungs, pleuræ, and air-passages. In a broad sense they may also include the larynx and nasal passages.

Rest is a valuable means of preserving health, and of curing disease. Without *sleep*, which is rest of the whole body, disease or insanity sooner or later comes on. Much of the repair of the body tissues is done during sleep, so that a double advantage is obtained—diminution of waste, and increase of repair. (*See* SLEEP.) Rest of mind during part of the day is also necessary for perfect health. Want of relaxation is a frequent cause of breakdown in city men and mothers of large families. (*See* RECREATION.) Every part of the *body* requires its periods of rest; even the heart and lungs have their time of rest, the former resting for two-fifths of a second after each beat, while the latter rests after each expiration. Insufficient muscular rest causes wasting. Blacksmiths who overwork their arms suffer from wasting and weakness of the muscles. Whereas moderate periodical use strengthens a part, immoderate continuous exertion weakens it. In *disease* and after *injury*, rest is of great importance to allow of repair. Those who have a weak heart should give it rest by avoiding exertion and excitement. Those with diseased lungs should breathe as pure air as possible, so as to diminish the necessary work of breathing. If there is Bright's disease, the skin and bowels must always be kept active, so as to relieve the kidneys. Acute dyspepsia is best treated by abstinence and rest for the stomach. A broken arm, or an inflamed eye, or an aching tooth, alike call for local rest until the damage has been repaired. (*See* EXERCISE.)

Restlessness is due to many causes, the chief of which are an excited nervous system, over-fatigue, loss of blood, impurity of the blood, or pains or extreme irritation of the nerves. *See* SLEEPLESSNESS.

Restraint. *See* INSANITY.

Resuscitation.—Restoration from apparent death. *See* DROWNING; FAINTING; FITS; HANGING; SUFFOCATION.

Retching. *See* VOMITING.

Rete Mucosum.—The deep part of the outer skin. *See* SKIN.

Retention of Urine. *See* URINE, RETENTION OF.

Retina.—The sensitive part of the eye (*which see*).

Rhatany (*Krameria*).—The bark from the root of this plant is strongly astringent, and when chewed, tinges the saliva red. The powder is used as a tooth-powder where gums are spongy. An infusion and a tincture are given in diarrhœa and bleeding from internal organs. Lozenges of rhatany are useful in relaxed sore throat.

Rheumatism is a term which includes several distinct diseases. In the first place there is *rheumatic fever*, or acute rheumatism; next we have *chronic rheumatism* and *rheumatic gout;* and, lastly, *muscular rheumatism*. It is quite possible that these may in future be still further subdivided.

(1) RHEUMATIC FEVER is especially prone to attack over-worked and pale young people. Probably cold and wet assist in bringing on the attack, but the tendency is strongly hereditary. It is believed by some that indulgence in rich food or in alcohol will help to bring on rheumatic fever, but this is doubtful. Exhaustion from overlactation and other causes predisposes to the disease. The *symptoms* are severe aching or throbbing pains in the limbs, affecting in succession one joint after another, together with fever and profuse, sour-smelling

perspiration. The joints swell up, are reddish, very tender, and painful in movement. As others become affected, those originally attacked return to their natural state. If untreated, the disease may last six weeks or more, but relapses are very common. Heart disease is a frequent complication, especially in children, in whom it may be almost the only sign of an attack. Pleurisy and inflammation of the lungs are also common during rheumatic fever. The disease may be confounded with blood-poisoning (*pyæmia*), gout, and other diseases. It is, however, too serious a disease to be treated by the unskilled, so that whenever its existence is suspected, a doctor should be promptly called in. It is most likely to be overlooked in children, in whom vague flying pains and a little feverishness may be followed by breathlessness and other symptoms of heart disease.

Treatment.—Where medical assistance cannot be obtained, put the patient to bed in blankets without sheets, wrap the affected joints in cotton wool, and avoid all jarring of the bed or patient. As to *diet*, give milk and "fever diet" (DIET, II.), avoiding stimulants. When recovery is taking place, milk puddings, white fish, fowl, and boiled mutton may be successively added. The most useful *medicines* are salicin, salicylate of soda, potash salts, and lemon juice. Salicin may be given in 30-grain doses every two hours till the pain is better, and after this 20 grains every four or six hours for a week after the fever has gone (*Pr.* 42). Salicylate of soda may be given in 20-grain doses every 4 hours (*Pr.* 43), and then 15 grains every 6 hours. Both of these drugs may cause deafness and singing in the ears, or even delirium; in which cases smaller doses must be given. Bicarbonate or citrate of potash (*Pr.* 15) are less efficacious, but less likely to cause discomfort. To each dose may be added 20 min. tinct. quinine. The lemon juice treatment was recommended by the late Dr. Owen Rees. He gave half an ounce every 4 hours. After recovery from rheumatic fever, iron tonics are frequently useful (*Pr.* 34, 36). Woollen underclothing must be always worn, and chills carefully avoided. Residence on a dry, sandy soil is advisable.

(2) CHRONIC RHEUMATISM often follows an attack of rheumatic fever, but may come on independently from exposure to cold and wet, especially in men of middle or advanced age who are engaged in laborious occupations. It causes aching, wearying pain in or about the joints, with stiffness and sometimes redness, tenderness, and swelling. The symptoms are aggravated by exposure to cold and wet, and by the warmth of the bed; free use at first increases the pain, but finally relieves it, as also does rubbing of the part.

Treatment.—Apply counter-irritants or soothing liniments (Nos. 1, 2, 3, 4, 5, 6, 7). Hot fomentations followed by rubbing are of service. Turkish baths, or a course of treatment at Bath, Buxton, Strathpeffer, Aix-les-Bains, Aix-la-Chapelle, Wiesbaden, Baden-Baden, or Hamman R'Ihra, may also be tried. Warm clothing is essential, and residence in a warm, dry climate advisable. Internally iron tonics with cod-liver oil may be of use (*Pr.* 34, 36).

(3) RHEUMATIC GOUT, better termed *rheumatic arthritis*, is not a variety of ordinary gout, or a mixture of gout and rheumatism, but quite a different disease. It appears chiefly in delicate women suffering from menstrual disorder, especially after a chill or an injury, or where the health is undermined by frequent pregnancies, long-continued suckling, and other causes. It may appear at any age, but usually first shows itself between twenty and forty years, or at the change of life.

It causes considerable deformity of the joints, the bone wasting where there is pressure on it, and growing out elsewhere. The affected joints (which are very often those of the hands) are painful and stiff, swollen and tender. The pain is worse on movement, and creaking may then be felt in the joint. The extremities are usually cold, and the health feeble. The disease sometimes follows an attack of rheumatic fever; but it also comes on in subacute attacks, which may be mistaken for the other disorder. The TREATMENT is much the same as in

chronic rheumatism (*which see*). *Pr.* 41, 6, or cimicifuga may be useful. *See* CIMICIFUGA.

(4) MUSCULAR RHEUMATISM usually results from a chill or an injury to some muscle. It may attack the neck, shoulders, limbs, chest, loins, or scalp. (*See* LUMBAGO; STIFF-NECK.) One form of false pleurisy is really rheumatism of the muscles of the chest. Muscular rheumatism causes pain on movement, with stiffness and weakness, which are at least partly due to fear of moving the affected set of muscles. There may be sore throat and debility, as with other rheumatic affections. A similar complaint may be caused by gouty tendencies.

Treatment.—Rest the painful parts. Apply counter-irritants (LINIMENTS 1, 2, 3, 4) or soothing applications (LIN. 5, 6, 7). See to the action of the bowels, and if the urine be cloudy give *Pr.* 10 or 11. Turkish baths or massage are useful in this form of rheumatism.

Rhubarb.—MEDICINAL RHUBARB is the dried root of several kinds of plants growing in China and Tibet, usually imported in slices with the bark cut off and a hole drilled through the middle. Inferior kinds have been long grown and prepared at Banbury, in Oxfordshire, and elsewhere. Rhubarb powder is gritty, yellowish, buff coloured, with a bitter taste and aromatic smell. If adulterated with turmeric, it is reddened by the addition of boric acid solution.

Properties.—In small doses (under 5 grains) it is astringent, and tonic to the stomach. In larger doses (10–30 grains) it causes purging followed by constipation, and is therefore useful in early stages of diarrhœa. Taken internally, it stains the urine, perspiration, and milk, and through these the linen. The milk is also rendered bitter, so that infants may refuse to take the breast. (*Pr.* 9, 10, 24, 46, 53, 57.)

GARDEN RHUBARB is a valuable substitute for fruit, especially where there is a tendency to constipation. It should be cooked quite soft. As it contains much oxalate of lime, it has been thought that its use would cause gravel in the urine; but this has not been satisfactorily proved.

Rhus Toxicodendron.—Poison sumach tree of North America, sometimes given medicinally for incontinence of urine, rheumatism, and some skin diseases. The milk of cows who have fed on the leaves of this tree has been known to cause symptoms of poisoning in children. Boiling the milk makes it harmless.

Ribs surround the chest from spine to breast-bone. There are twelve pairs, each ending in front in cartilage or gristle. The cartilage of the seven upper pairs (true ribs) are attached directly to the breast-bone. Those of the five lower pairs (false ribs) are attached to the cartilages of the ribs above, excepting the last two pairs (floating ribs) which have free ends (*Fig.* 43). The mode of attachment to the spine and breast-bone allows the ribs to be raised in front like a railway signal, and sideways like the handle of a bucket. The cartilages greatly increase the elasticity and capacity of the chest. In old age they became calcified or bony. Between the ribs are sheets of "intercostal muscles," which run obliquely in opposite directions. These and other muscles are used in breathing. *See* CHEST; RESPIRATION.

Ribs may be FRACTURED or broken by direct violence, or occasionally by muscular effort, coughing, etc. The condition is recognised by pain on breathing, and creaking when the broken ends rub against one another. Provided the lungs are not injured, fractured ribs usually unite without trouble. A broad flannel bandage should be wound moderately tightly round the chest, or "strapping" in strips one inch or more in breadth applied to the affected side, overlapping one another, and reaching over the sound side in front and behind. This must be left on for a month, being replaced if it gets loose. If the rib has been broken from a serious accident, or blood is coughed up, or the breath is very short, it will be absolutely necessary to obtain a surgeon's help, which, indeed, it is always wiser to do where it is possible.

Rice is the staple food of millions in warm climates. It contains more starch and less gluten than wheat, and is therefore not adapted for bread making. If cooked quite soft, it is light and well

suited for invalids; otherwise it may cause severe indigestion. Rice is rather constipating. In diarrhœa, ground rice, rice water, rice milk, and rice puddings are useful. Where the bowels are not relaxed, rice may be taken with cream or fruit. In diarrhœa, gelatine (1 teaspoonful to one pint) is a more useful addition. Arrack, a spirit used in the East, is made by fermenting rice. *See* FARINACEOUS FOODS; FERMENTED LIQUORS.

Rickets is a disease of early childhood which renders the bones abnormally soft, so that they give way and become deformed. It is *caused* by improper feeding in childhood, together with lack of fresh air, sunlight, cleanliness, and other health-giving influences. A large proportion of hand-fed babies suffer from rickets. The disease usually appears during the second or third year of life, and if untreated disappears after a few years, leaving the child deformed and puny. Sometimes, however, the child dies of some complication which it has not strength to withstand. The earliest *symptoms* are tenderness of the skin and perspiration about the head. The child cries when washed, kicks off the bedclothes at night, and is disinclined for play and active movements. Very often there is digestive disorder, such as vomiting or diarrhœa, and if the child has begun to walk it is "taken off its legs" again. Deformities are most noticeable in the bones of the legs, chest, and head. Bow legs, buck-shin, and knock-knee are common. The child is often pigeon-breasted, and has swellings on the rib-ends where they join the cartilages (*rickety rosary*). The spine may become curved, the pelvis deformed, wrists, knees, and ankles are unnaturally large (double-jointed), and the head becomes big, square, and flat, with widely open fontanelles, while the face is small and ill-developed. Owing to enlargement of the liver and spleen, the belly is usually very prominent; convulsions and child-crowing are common, and attacks of bronchitis or whooping cough unusually dangerous.

TREATMENT.—Directly the early signs of rickets are noticed, the child should be put on a different diet. If at the breast, the milk is probably insufficient, or has been supplemented with indigestible starchy food. Hand-fed infants should be treated as mentioned under INFANTS, FEEDING OF. Plenty of good cow's milk, either alone or mixed with barley water or lime water, is usually required. In children of three years old and upwards, animal broths should also be given. Cod-liver oil, Parrish's chemical food, and similar tonics are very useful. Cold sponging and dry rubbing or massage will keep the skin and muscles in order, and plenty of fresh air and sunlight are also advisable. To prevent deformities, the child should not be allowed to walk unsupported, but should be kept in light steel supports (leg irons), or long wooden splints applied, which will prevent him from putting his feet to the ground. He should sleep on a firm mattress. If deformities appear, they may in early stages be corrected by suitable steel appliances. Later on, operative treatment will usually be necessary.

Rigor. *See* SHIVERING.

Rigor Mortis. *See* DEATH, SIGNS OF.

Ring, Fixed.—To remedy this accident, wind a thread of worsted round the finger from the point upwards, strip it off rapidly, and wind round again rather more tightly, repeating the manœuvre until the ends can be passed under the ring, when the latter will easily be removed.

Ringworm.—A disease caused by a vegetable parasite, which grows in the hair and skin. It is usually situated upon the scalp, where it causes itching, baldness, and the formation of raw places or mattery heads, as in *eczema*. Sometimes it attacks other parts of the body, in which case it is easier to cure. As a rule the first sign of ringworm is breaking off of the hair over a little circular patch, which is seen to be a little red and scurfy. If promptly attended to in this stage it is usually easy to cure. If neglected it is a most obstinate and intractable disease, and may leave permanent baldness. The patches, if left without treatment, grow larger and larger, and fresh ones appear until the whole scalp is affected. If one of the

stumps of hair is pulled out and examined with the microscope in a few drops of strong potash, the fungus will be seen in the form of threads and spores. (*See Fig.* 40.)

TREATMENT.—Cut the hair quite short all over the scalp. Remove all crusts, by the application of a bread poultice or hot water dressing; cleanse thoroughly with soap and water, and apply with a brush twice a day some freshly prepared solution of sulphurous acid, or in older children glycerine of carbolic acid. Another useful remedy is citrine ointment. As the disease is contagious, the child must not be sent to school, and must use separate towels, comb, and brush. An oilsilk cap for the head is useful, both to prevent evaporation of lotions, and to prevent the dissemination of scurf. If the child is in a weak state of health, it will be advisable to give cod-liver oil and other tonics, and good plain food, with fresh air and other hygienic measures. Some families are especially liable to the disease, but the reason is not always clear. If there is more than one patch, it will save time and disappointment to consult a doctor. *See* SCALD-HEAD.

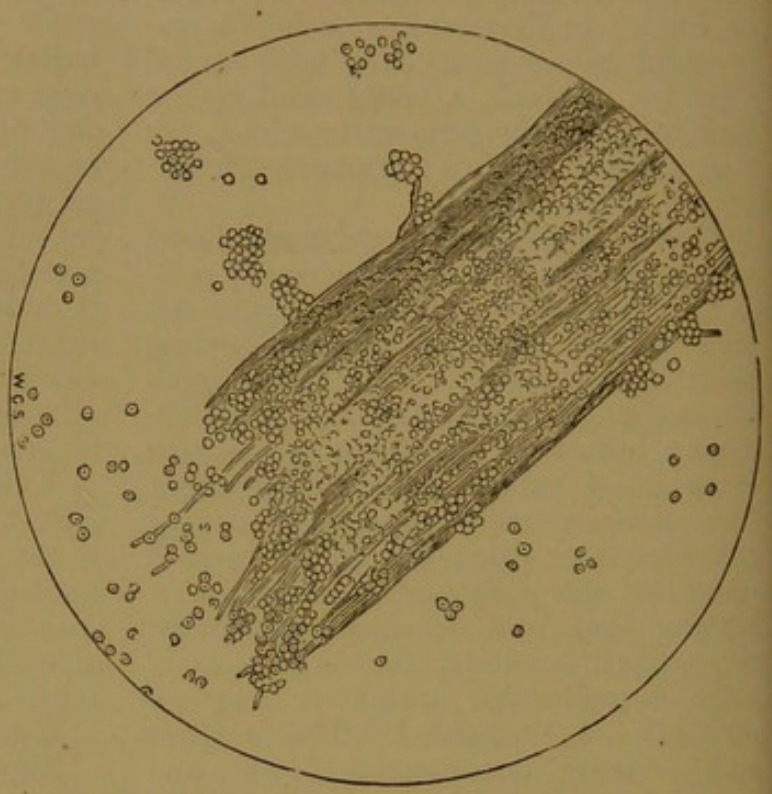

FIG. 40. MICROSCOPICAL APPEARANCE OF HAIR INFESTED WITH RINGWORM (HIGHLY MAGNIFIED).
(From Tilbury Fox on "Skin Diseases.")

Roasting. *See* COOKERY.

Roche's Embrocation is said to consist of olive oil, 2 parts; oil of amber, 1 part; oil of cloves, 1 part. Its uses are those of most embrocations. *See* LINIMENTS.

Rochelle Salt.—Tartarated soda and potash. *See* POTASH.

Rodent Ulcer. *See* CANCER.

Roller. *See* BANDAGES.

Room. *See* BEDROOM; HOUSE; NURSERY; SICK-ROOM.

Rose.—Three kinds are used in medicine: cabbage rose petals for making rose water; red rose petals for confection of roses, acid infusion of roses and syrup of roses, and dog rose fruit (hips) for confection of hips. Red rose petals are obtained from unexpanded flower buds, and deprived of their claws.

ROSE WATER is chiefly employed as a substitute for pure water in lotions and mixtures.

ACID INFUSION OF ROSES is made by quickly drying the red rose petals by means of a little heat, and infusing $\frac{1}{4}$ oz. with 1 fl. drachm of dilute sulphuric acid and $\frac{1}{2}$ pint boiling water. It is a pleasant astringent with a beautiful colour, and may be used as a gargle, or as a vehicle for other remedies (*Pr.* 14).

SYRUP OF ROSES is used as a flavouring agent in mixtures.

CONFECTION OF ROSES is useful as a pill-basis; it is prepared by pounding in a mortar 1 lb. fresh red rose petals and 3 lbs. sugar, at first separately and then together.

CONFECTION OF DOG ROSES may be used for the same purpose as the foregoing. It is made by rubbing to pulp 1 lb. ripe hips without seeds, adding gradually 2 lbs. sugar.

Rosemary contains a volatile oil, which is stimulant and carminative. Spirits of rosemary (1 in 49 rectified spirit) may be given in doses of $\frac{1}{2}$ fl. dr. in water or

on sugar, as a remedy against flatulence. *See* CARMINATIVES.

Roserash.—A non-infectious eruption of red patches on the skin, somewhat resembling mild scarlatina or German measles. It arises during teething, and from digestive disorders, eating shell-fish, etc.

TREATMENT is that of a feverish attack: but in case of doubt it is best to treat as an infectious fever. *See* GERMAN MEASLES; SCARLET FEVER; NETTLERASH.

Rubbing or friction is useful to promote absorption of patches of thickening due to old inflammation, sprains, etc. Gentle rubbing also relieves some kinds of pain. Cod-liver oil and other remedies may be introduced into the body by rubbing. (*See* LINIMENTS.) Medical "rubbers" also manipulate the parts by kneading, tapping, and other measures. Done systematically, this usually goes by the name of massage (*which see*).

Rubefacient.—An application which reddens the skin. *See* COUNTER-IRRITATION.

Rue contains a volatile oil, with acid taste and strong, disagreeable smell, but is useful as a remedy for spasms. (*See* AROMATICS.) It is also given where the menses are deficient, and applied externally as a counter-irritant. A strong infusion of rue used as an injection is valuable in flatulent distension of the bowels, and to kill threadworms. It is not a suitable remedy in young infants or during pregnancy. Dose for an adult, 1 to 4 drops, on sugar or in gum and water.

Rule, Living by. *See* HYGIENE; REGIMEN.

Rum. *See* FERMENTED LIQUORS.

Rupture.—The bursting or tearing of some part of the body. Thus the bladder or stomach when full may be ruptured by a blow; or a muscle by a violent effort. The same term is popularly applied to hernia, in which there is an escape of bowel or some other structure through the walls of the cavity containing them. *See* HERNIA.

Rye. *See* CEREALS; ERGOT OF RYE.

Saccharin.—A white powder or crystalline substance obtained from coal tar products, and used as a substitute for sugar. It dissolves readily in hot water or spirit, forming an intensely sweet solution, which if concentrated has a faint flavour of bitter almonds. It has about 300 times the sweetening power of sugar, and appears devoid of mischievous effects. Since its discovery and introduction by Fahlberg in 1886, it has been much used by persons suffering from gout and diabetes. It possesses no nourishing properties.

Saccharine Foods. *See* SUGAR; HONEY.

Saffron.—The central feathery part of the blue autumn crocus, used chiefly for the sake of its colouring properties.

Sage is stimulant and carminative, like other members of the mint family. An infusion (*sage tea*) is used domestically. *See* AROMATICS; CARMINATIVES.

Sago is prepared from the pith of several kinds of palm tree. Fictitious sagos are sold, composed of potato starch. They may be detected microscopically by the different shape of the starch grains. *See* FARINACEOUS FOODS; STARCH.

Saint Anthony's Fire. *See* ERYSIPELAS.

Saint Vitus' Dance. *See* CHOREA.

Sal Ammoniac.—Chloride of ammonium, or muriate of ammonia, is sold in the form of tough, white, fibrous masses, without smell, and easily soluble in water. The popular name is said to be derived from that of the temple of Jupiter Ammon, or of Ammonia, the district of Libya in which this was situated. Sal ammoniac has been made in Egypt from the earliest times by burning camels' dung. In Western countries, the chief source is ammoniacal gas liquor. The drug is used as a remedy for facial and other kinds of neuralgia (*Pr.* 3), liver disease, and winter cough and other catarrhal diseases with thick, abundant phlegm. A solution is also useful as an evaporating lotion for bruises. (LOTION No. 1.)

Sal Prunelle. *See* NITRE.

Sal Volatile. *See* AMMONIA, AROMATIC SPIRITS OF.

Salads, like other raw vegetables, are not easily digested. Where the digestion is strong, they are useful in preventing constipation and scurvy. They should always be carefully cleansed, else

they may be the means of introducing intestinal worms into the body. Dressing of oil, mustard, and vinegar appears to aid the digestion of salads.

Salep is prepared from the roots of several species of orchids from the East. It contains more gum than some other farinaceous foods. To use it, dissolve the powder in hot water, and add sugar and milk, stirring well.

Salicine.—A white, crystalline substance obtained from willow bark, much used in the treatment of rheumatic affections, and as a tonic. Dose, 3–10 grains (*Pr.* 42). From it may be prepared Salicylic Acid, and its compounds, which are invaluable in the treatment of rheumatic fever, removing the pain and swelling of joints like magic. The drawbacks to their use are, that they are liable to cause constitutional depression if injudiciously pushed, and may give rise to singing in the ears, deafness, and headache, or even delirium. The best effects are obtained from a dose not much under the poisonous dose, so that, as regards rheumatic fever, they should be left in medical hands. *Salicylic acid* is an antiseptic, and may be usefully applied locally in offensive sweating of feet, as a powder mixed with 50 parts starch. A mixture with 50 parts tallow rubbed on to the feet will prevent soreness from long walks. Dissolved in fluid collodion (30 grs. to 1 dr.), it is very useful for corns and warts, which it causes to peel off. Salicylic tooth paste is also sold.

Salicylate of Soda renders the bile more watery, and is useful in tendency to gall-stones. A small dose taken every half-hour is useful in sick headaches due to liver disorder (*Pr.* 43). Larger doses are required in rheumatism.

Salines include salts of potash, soda, magnesia, etc. Some are purgative, as Epsom salts, Glauber's salts, Rochelle salts; others, such as nitre, are chiefly cooling and diuretic. "Pyretic Saline," Eno's fruit salt, and many other secret remedies, contain a mixture of various salts of soda, potash, etc. *See* Aperients; Fever.

Saliva, or Spittle.—The fluid secreted by three pairs of glands (*salivary glands*) opening into the mouth. It contains about 1 per cent. of solids, including a very small proportion of a ferment (*ptyalin*), which has the property of converting starch into sugar (*see* Digestion in the Body). The secretion of saliva is largely influenced by the nervous system. Thus the mouth "waters" at the sight of food; while, on the other hand, fear parches the mouth—a fact of which advantage has been taken in the rice ordeal of the East. The secretion of saliva is excited by contact of food with the mouth, by acids, bitters, and pungent substances. Tea and astringents check its secretion. It not only acts in an important way upon food in the mouth, but when swallowed excites secretion in the stomach. Smokers who spit much, and thereby lose much of their saliva, are frequently dyspeptic.

In paralysis of the face, secretion of saliva is sometimes interfered with, thereby causing a difficulty in speech, swallowing, and taste. On the other hand, *salivation*, or excessive secretion of saliva, is sometimes met with in pregnancy. As much as four pints have been discharged daily. Belladonna is here useful (*Pr.* 22).* A similar disorder may arise from abuse of mercury and some other drugs, although in this case there is often tenderness of gums, and excessive secretion from the lining membrane of the mouth, rather than from the salivary glands. An astringent mouth-wash of tannin, alum, or borax (1 dr. to 4 fl. ozs.), may be used.

Salivary Glands are in three pairs: parotid, behind angle of jaw; submaxillary, on either side below floor of mouth; and sublingual, under lining of front of mouth, next the root of the tongue. *See* Saliva.

Salmon. *See* Fish.

Salt, chemically, is the product of an acid and an alkali united together. "Common salt" is chloride of sodium, and may be formed by acting on caustic soda with hydrochloric acid, although its usual source is from salt mines, or brine-springs, or sea-water. Salt is present in

* If the secretion is very tenacious, it may cause vomiting. This may be prevented by washing the mouth with lime-water.

every secretion of the body, and is probably the source whence the acid of the gastric juice is derived. The eagerness with which wild animals resort to "salt-licks" in America is evidence of its importance in the body. The practice of eating salt with food is based upon sound physiological principles. It is necessary to digestion, to secretion, and to the proper composition of the blood. About 120 grains are required every day by an adult, including what is present in various articles of diet. *Medicinally*, salt is used for (1) bathing and douching in rheumatism, sprained joints, etc.; (2) as an enema for cure of threadworms, 2 ozs. to 1 pint of water; (3) as an emetic, 1–2 ozs. in a half-pint of warm water; (4) as a gargle or spray. *See* INHALATIONS.

Salt Meat is very different in its properties from meat taken with salt, as the exposure to brine extracts much of the goodness of the meat and hardens the fibre, rendering it less digestible as well as less nourishing. The continued use of salt meat in absence of fresh or preserved vegetables will cause scurvy. As a rule, in salting meat some saltpetre is added to the brine.

Saltpetre. *See* NITRE.

Salt of Lemons.—Binoxalate of potash, or salt of sorrel, used for bleaching straw and removing ink-stains. It is an active poison. Symptoms and treatment of poisoning as in OXALIC ACID (*which see*).

Salt of Tartar.—An impure carbonate of potassium. *See* POTASSIUM.

Salts.—A popular term for EPSOM SALTS (*which see*).

Samphire.—A plant growing on rocks by the sea-shore, used occasionally for making pickles.

Sanatorium.—An institution for promoting or preserving health. Such an establishment is chiefly resorted to by those who have a consumptive tendency, or are "delicate" in other ways. (*See* HEALTH RESORTS.) In India the hill stations act as sanatoria, where those exhausted by the climate go periodically to recruit their health. The term is also sometimes inaccurately applied to hospitals for infectious diseases, or to convalescent institutions (*which see*). Schools have been established at the seaside and in the country of the nature of sanatoria, health being considered more than schooling. *See* EDUCATION.

Sandal-wood. — Red sandalwood is used as a colouring agent in making compound tincture of lavender.

Sandalwood Oil is given in capsules to restrain discharges from mucous membranes.

Sanitas.—A disinfectant introduced by Mr. Kingzett, prepared by the oxidation of turpentine. It contains peroxide of hydrogen, camphoric acid, and other bodies. Hydrogen peroxide has similar properties to ozone, with which it has often been confounded. It is given off by pine trees, eucalyptus, and most aromatic herbs, which possibly owe their purifying influence to its presence. Many preparations are made by the Sanitas Company: a sanitas fluid, sanitas oil, disinfecting powder, several kinds of soap, furniture cream, etc. Sanitas fluid is a valuable deodorant as well as disinfectant. It is non-poisonous, and may be used for sprinkling about carpets and floors, as a spray for the air, for washing the sick (a wineglassful to a quart of water), cleansing the mouth (a tablespoonful to a wineglass of water), dressing wounds (half strength), disinfecting linen, clothes, etc. For water-closets, drains, and sewers the crude fluid may be used. For ash-bins and stables, the powder. The oil is most useful for fumigation, and for admixture with ointments and other oily substances. (*See* OINTMENTS.) It may also be sprinkled on rubbish heaps, etc. A few drops added to the water used for scrubbing floors will whiten the boards. *See* DISINFECTION.

Sanitation includes all measures for preserving health or warding off disease, and may be considered as almost synonymous with *preventive medicine*. The term is frequently, however, used in a more limited sense, to include only such measures as are taken by the community for the preservation of health. *See* HYGIENE.

Santonin.—A crystalline substance obtained from unexpanded flower-heads of Artemisia maritima from Russia, used

as a remedy for round worms. *Preparations:* Lozenges (B.P.), each containing 1 grain. *Directions for use:* Give to an adult 2–6 grains on an empty stomach at bedtime, as a powder with sugar, or in a little milk, or in the form of lozenges. Follow in the morning by a purge of castor oil.

Cautions.—The drug often causes yellow vision and irritable bladder, but these symptoms are only temporary. In poisonous doses it may cause giddiness, headache, vomiting, convulsions, and even death.

Sarcoma.—A kind of malignant new growth, formerly regarded as a soft cancer. It may appear in children or adults.

Sardonic Smile. *See* LOCK-JAW.

Sarsaparilla.—JAMAICA SARSAPARILLA is obtained from Central America in the form of a dried root-stock, with spirally twisted bundles of roots, not exceeding a goose-quill in thickness. It has a gummy, slightly bitter taste, and is supposed by some to increase the flow of urine, and act usefully in rheumatism and some other constitutional diseases. For INDIAN SARSAPARILLA *see* HEMIDESMUS.

Sassafras.—The dried root of Sassafras officinalis, an ingredient in compound decoction of sarsaparilla. It increases the perspiration.

Sausages are a convenient but not always a digestible kind of food. Like other preserved meats, they occasionally undergo decomposition with formation of poisonous alkaloids. (*See* PUTREFACTION; FOOD, PRESERVATION OF.) The custom of eating sausages which have been smoked but not cooked has led in Germany to fatal attacks of trichinosis.

Savin Tops, from a species of juniper, are employed in making savin ointment, formerly used to keep open sores from blisters or setons. They contain an essential oil, which powerfully influences the menstrual function, but is unsuited for domestic use.

Scabies. *See* ITCH.

Scald-head.—Honeycomb ringworm, or favus, a rare parasitic disease of the scalp, more often found in Scotland and abroad than in England. It usually attacks the younger children of poor people, and is caught from children, mice, or cats suffering with the same complaint. It begins with patches like dandriff, on which small dry yellowish crusts appear. These spread and form sulphur-yellow cups of the size of a split pea. Many of these placed close together somewhat resemble a piece of honeycomb; hence one of the names of the disease. The hair gets brittle, short, woolly, and pale, the greater part falling out. A peculiar fœtid, mousy smell is produced. Examined with the microscope, filaments and spores of a fungus (*Achorion Schönleinii*), are found both in the cups and in the diseased hairs. If treated early, the disease is curable; but if neglected it causes incurable baldness, matter may form, and the health may suffer seriously.

TREATMENT is difficult and tedious, and should be left to a medical man. Where this is not possible, the hair should be cut short, and linen or lint soaked in vinegar applied to the scalp and covered with oilsilk. The softened crusts should be scraped off, and the head well washed, first with vinegar and water, and then with soap and water. The diseased hairs must be carefully removed (*see* HAIR, REMOVAL OF), and a lotion or ointment applied to kill the fungus. (LOTIONS 19, 20; citrine ointment, white precipitate ointment.)

Scalded Throat. *See under* THROAT.

Scalds. *See* BURNS AND SCALDS.

Scales for medicinal purposes are made of steel and brass, with glass or brass pans suspended from a pillar, or made to hold in the hand. They should be kept in a dry place, and the pans carefully wiped each time after using.

Scalp.—The thick, firm skin of the head, containing the roots of the hair. It is strengthened by a sheet of fibrous tissue, and loosely attached to the skull by cellular tissue. Consequently WOUNDS of the scalp may lead to its detachment in large flaps. In such a case, cleanse very carefully with a stream of warm water, picking out particles of dirt with a pair of forceps. Then plait together strands of hair across the wound, so as to bring the edges exactly into position,

apply a dry pad and bandage, and keep the patient quiet in bed. (*See* BANDAGING.) Alarming wounds of the scalp often heal readily, as the blood supply is copious. The chief dangers are the accumulation of matter under the scalp, damage to deeper parts (such as the bone or brain), and the appearance of erysipelas. (*See* FEVER, for diet and medicine.) Should there be decided fever within thirty-six hours, as shown by the thermometer, a surgeon must be called in. In any case, this is a wise precaution to take, as there is often much need of skilful treatment in order to avoid complications. *See also* WOUNDS.

TUMOURS are often found in the scalp. Some are perfectly harmless, and may, if not very disfiguring, be left alone. Others are of a more serious nature. In young children, all tumours of the scalp call for skilled advice.

DISEASES OF THE SCALP.—The chief are *Ringworm*, *Scald-head*, *Eczema*, *Dandriff*, and irritation from *Lice*. (*See* separate articles.) Any of these diseases may cause enlargement of the glands at the back of the neck, or even formation there of abscesses.

Scammony.—A gum resin exuding from the cut living root of a kind of convolvulus which grows in Asia Minor.

The resin extracted from the dry root is also used in medicine. Both are powerful purgatives, used in dropsy and to expel intestinal worms. Compound scammony powder contains some jalap. The dose of this for an adult is 10–20 grains; but it is best avoided in domestic medicine.

Scar.—The mark left after healing of a wound. Clean cut wounds which heal quickly, cause little scarring. Wounds which heal with formation of matter always leave a scar. A recent scar appears red or brown. After a while it may be converted into a scarcely noticeable white line, visible chiefly when the surrounding skin is reddened. Scars affecting superficial skin alone may completely disappear. Scar tissue is very liable to contraction; hence the deformities so frequently seen after burns and scalds. Some diseases, such as smallpox, chickenpox, and acne, leave noticeable scars. Probably scars from wounds of the deep skin are indelible.

Scarf Skin. *See* SKIN.

Scarification.—Superficial cuts of skin or mucous membrane, done with a lancet or scarificator, to give exit to blood or serum, or to relieve tension. *See* TEETHING; CUPPING.

Scarlet Fever or *Scarlatina*, two names for one and the same disease, one being the English and the other the Latin name. It is one of the commonest and most dangerous of the infectious fevers. It begins, after an incubation of one to five days, with sore throat and the usual symptoms of fever. Shivering and pains in the limbs are common, and headache, loss of appetite, vomiting, hot skin, quick, full pulse, and thirst. In children an attack of convulsions may replace the shivering. Early on the second day of fever a bright red rash appears in separate points, which soon run together to form a continuous blush. This is first seen on the face and chest, spreading to other parts of the body, and gradually fading after the fifth day. The tongue is thickly coated at first with a creamy fur, through which the larger papillæ show like red spots; afterwards it becomes red and perhaps raw. The throat is also of a vivid red, with more or less ulceration of the tonsils, which in bad cases may spread to other parts around. There is usually a little difficulty in swallowing, and some stiff neck and enlargement of the glands or kernels of the neck. On the sixth day or later, peeling of the skin begins, either branny or in large flakes. It lasts six weeks or even more, during the whole of which time the patient is capable of spreading infection.

It is especially during this period that the kidneys may be affected, which may be shown in dropsy and changes in the urine. The dropsy causes swelling of the legs, and puffiness under the eyes and in other parts where tissues are loose. All these parts "pit" on pressure. (*See* DROPSY, KIDNEY DISEASE.) The urine may be dark, scanty, high-coloured, or smoky; it may contain blood and be cloudy when passed; or the only noticeable changes may be chemical (ALBUMINURIA). Other complications are extreme ulceration and

mortification of parts of the throat, causing a discharge of highly offensive matter. The inflammation may spread to the ears, and cause discharge there with temporary or permanent deafness. Sometimes rheumatism occurs as a complication. *See* HEART DISEASE.

Scarlatina varies greatly in severity. Sometimes attacks are so mild that they are not even recognised. At other times they are so severe that the child dies before the rash has been able to come fully out, or the throat affection is so great as to cause death. In bad cases the rash is dusky and patchy: a hot bath may sometimes help it out. Mild or ill-marked cases are sometimes difficult to distinguish from measles, German measles, or non-infectious red rashes. When there is doubt, it is safest to treat the case as one of scarletina.

Mode of infection.—The disease may be transmitted through the breath or the particles from the skin; infection may be carried by third persons, in clothes, linen rags, and other articles from the sick room. It may contaminate milk and cream; and occasionally dogs and other domestic animals have been affected, and have spread the disease. The infection lasts the whole time, as long as peeling is present, although it is less active during the first two days. It is increased by want of ventilation, diminished by fresh air, disinfectants, and the use of greasy applications during the peeling stage. Women expecting confinement, and those suffering from open wounds, should be very careful not to expose themselves to infection. The disease is far more dangerous to young children than at a later age. A severe attack may be caught from a mild case.

TREATMENT should always if possible be in medical hands, owing to the numerous sources of danger. However slight the attack, the patient should be confined to bed in a warm, well-ventilated room for at least three weeks, and to the room for six weeks, great care being taken to avoid chill, as this brings on the kidney disorder. The room must be prepared as for other infectious fevers, and the usual precautions as to isolation and disinfection strictly observed. (*See* INFECTIOUS FEVERS.) Saline medicines (*Pr.* 7) may be given as in other fevers, but mild cases need very little medicine. For constipation *Pr.* 10, 11, 14, 46, 50, 53, 54, 58, may be given; for rheumatic pains *Pr.* 42. For dropsy or kidney affection, *see* KIDNEYS, INFLAMMATION OF. For ulcerated throat 5 grains of chlorate of potash may be given in syrup and water at five years of age, with stimulants (*Pr.* 4, 5, 6), and gargle or spray (*Inhalations* 3, 7, 10, 11; *Gargles* 2, 3, 6). Diet and cooling drinks as in fever cases.

Scavenging, or removal of household refuse, should be regularly performed. Collections of decomposing matters are always dangerous to health, and sometimes lead to outbreaks of fever. In some towns, where the sewage is removed dry in pails, kitchen refuse is placed in the same pail and destroyed in special apparatus. (*See* SEWAGE, DISPOSAL OF.) Where the sewage is water-borne, the ashes and kitchen refuse must be separately removed. It is a good plan to have them removed daily in galvanized iron pails. Dustbins are objectionable as usually constructed, since they become saturated with organic matter, and are moreover usually much too large. They should be made of concrete or good cement, or, better still, provided with a shell of galvanized iron which can be taken out and emptied. This should be done at least every four days. Dustbins must not be placed within six feet of an inhabited house. Kitchen vegetable refuse should be placed behind the fire every night, and burnt in the morning. In this way the most noxious matters are likely to be removed from the dust bin. Scavengers should call regularly, even if notice is not given by the householders.

Scheele's Green. *See* ARSENIC.

Schooling. *See* EDUCATION.

Schoolrooms are commonly faulty in three respects, in lighting, ventilation, and the construction of forms and desks. Pure air is especially important for growing young people, so that overcrowding and imperfect renewal of the atmosphere should carefully be avoided. (*See* VENTILATION.) Ill-lighted rooms, or those in which the light throws confusing shadows, are apt to injure the sight,

and lead to habits of stooping. The light should come from one side of the room, and the scholars be so placed that the light falls on their books from behind and from the left side. The forms and desks should be so arranged as to support the feet and thighs in a comfortable position, give a rest for the back, and bring the paper for writing just above the level of the elbows, when the arms are hanging freely. The edge of the form should be one or two inches under the edge of that of the desk, so that the child is encouraged to lean back instead of resting on his chest and arms. *See* SPINAL CURVATURE; BED-ROOMS.

Sciatica.—Pain in the region supplied by the sciatic nerve and its branches. The pain is usually felt chiefly at the back of the thigh and leg, and in the buttocks; but is often also present in the loins, the front of the thigh, or even in the ankles. It differs from neuralgia in other parts of the body in being continuous gnawing or aching, rather than sharp, darting pain. As a rule a tender part may be found outside the knee; and there is often loss of power and wasting in some of the muscles of the leg or thigh. There may also be numbness in the limb, or a tendency to hot flushes. The pain is usually increased by pressure or movement, so that the patient limps, and in severe attacks is confined to bed. Coughing, sneezing, or action of the bowels may also aggravate the pain.

Causes.—It may be brought on by exposure to cold and wet, over-exertion in walking or sewing-machine work, pressure on the nerve with the edge of a chair, or injury in other ways. It may also be due to childbirth, constipation, gout or rheumatism, malaria, anæmia, or general debility. Similar pain has been set up by a needle-point broken in the nerve, and by disease of the bladder, rectum, womb, hip, or spine. It must also be distinguished from kidney disease and lumbago.

TREATMENT.—Since it is often difficult to make out the cause with certainty, and sciatica is usually an obstinate disease, often lasting for years, it will be good policy to consult a doctor. Where this is not possible, the patient should clear out the bowels; put himself on a diet of milk, cream, and vegetables, without meat or stimulants; and keep absolutely at rest on the sound side of the body. He may then, if gouty or rheumatic, take *Pr.* 51 or 15, or if pale and debilated, quinine (2 grains, three times a day), or *Pr.* 38, 34, or 35, with cod-liver oil. He should rub on a liniment (Nos. 4, 5, 6, 7), and wear merino drawers and a bandage on the affected leg. If these measures fail, other measures will have to be tried; such as galvanism, hypodermic injections, pricking with a long needle, etc., with internal administration of arsenic or phosphorus; but none of these remedies are safe out of medical hands. Hot bathing and massage as provided at Bath are frequently of great value, and counter-irritation to the spine (*Liniments* 1, 2, 3, 4) sometimes effects a cure.

Scirrhus.—Hard cancer. *See* TUMOURS.

Scratch. *See* ABRASION.

Screaming of infants may be merely an exhibition of temper, but more often is due to bodily discomfort. Very often the cause is found in the pricking of a pin, or an overtight band. Infants crying from hunger usually clench their hands and flex their limbs. Colic gives rise to violent screaming fits, with uneasy movements of the body and lower limbs. At the same time the belly is often hard, and a blue tinge is seen round the mouth. Screaming fits at night are often caused by teething, intestinal worms, indigestion, or dreaming. (*See* NIGHT-TERRORS.) Moaning at night is characteristic of abdominal disease. Ear-ache causes a constant, unappeasable screaming, the side of the head being pressed against the pillow. Hunger also causes continuous screaming. Where there is headache, the infant knits the brows and often moves its head from side to side. A shrill, piercing scream at intervals, with a drowsy state between whiles, should excite suspicion of brain fever. Intermittent screaming fits usually point to some painful affection of the chest, the child screaming until the pain causes it to desist. The

cry of children is a valuable guide to their strength; a feeble infant has not power to cry lustily. In such a condition, the face may be puckered up as in crying, but no sound is uttered. A strong child in pain breathes out as it cries; a weak, exhausted one has a sobbing cry in which the breath is drawn into the chest. In chest-disease there is little crying, as the effort is painful, and interferes with breathing. There may however be a shrill cry on coughing in pleurisy. A hoarse cry indicates croup or diphtheria, or laryngitis.

Scrivener's Palsy. *See* WRITER'S CRAMP.

Scrofula *or struma.*—A constitutional condition in which slight injuries lead to long-continued inflammation, which shows little tendency to sound healing.

Scrofulous children are usually heavy and dull, with thick lips, muddy complexion, thick skin, coarse hair, and swollen belly. They are liable to sore throat, enlargement of the tonsils, inflammation of the eyes, and eczema; the joints and bones often become chronically inflamed, and the lymphatic glands or "kernels" in different parts of the body almost invariably swell, and often break down into abscesses, which burst and leave ugly, puckered scars. Hence the altered shape of the neck in most scrofulous people. Scrofula is related to consumption, although the nature of the connexion is disputed. It may be regarded either as itself a sort of abortive consumption, or as a predisposing cause, the tubercle bacilla flourishing in the inflammatory products from the scrofulous parts. Scrofula often arises from inheritance. Where one or both parents are weak, aged, or dissipated, the children are apt to become scrofulous. Poverty, with the lack of fresh air and good food which it causes, often leads to scrofula; on the other hand, attention to the rules of health will improve the constitutional powers and help to remove inherited weakness.

TREATMENT.—Good suitable food, warm woollen clothing, plenty of fresh air, a dry soil and bracing climate, are needed for the cure of scrofulous tendencies. Great care must be taken to avoid irritation of the skin and mucous membranes. For this reason the food should be digestible (DIET, IV.), and the skin regularly cleansed with unirritating soap. As a rule cod-liver oil and iron tonics (*Pr.* 34, 35, 36, 38) are required; but it is necessary first to remedy any digestive disorder that may be present. The syrup of iodide of iron is often useful (dose, 1 fl. dr. in water twice a day). When the glands are enlarged, sulphur is sometimes beneficial, either in the form of sulphuretted mineral waters, or as sulphurated lime (*Pr.* 45). If matter forms, it should be let out by the surgeon's lancet, as this diminishes the scarring. (*See* ABSORBENT SYSTEM.) For the treatment of sore throat, sore eyes, diarrhœa, enlarged tonsils, and inflamed bones and joints, *see* other articles. Seaside air, especially at places such as Margate, is of the greatest value. Scrofulous children should almost entirely live in the open air, on a dry, well-drained soil of gravel, sand, or chalk.

Scrubbing Floors is inadvisable in a sick-room while the patient is in it. Dry rubbing with beeswax and turpentine may be advantageously substituted if the boards are polished.

Scurf. *See* DANDRIFF.

Scurvy has nothing to do with scurfiness, but is a general disease caused by the want of fresh fruit and vegetables. Formerly many of our sailors used to die every year from scurvy; but since its cause was discovered, and rations of lime juice made compulsory, it has become comparatively rare. In 1742 Admiral Anson's fleet lost 626 men out of 961 from scurvy; but a few years later Captain Cook, encouraging the use of fresh vegetables, lost only one out of 118 men from scurvy in a three-years' voyage round the world.

Symptoms.—Scurvy begins with languor and debility, and disinclination for exertion of any kind. The gums swell up and become very tender and apt to bleed, and the teeth loosened. The breath is offensive, and the mouth often ulcerated. The skin becomes sallow, spots like fleabites appear on it, and enlarge until they resemble bruises. Ulcers

readily form, which may bleed freely. Blood also escapes into the tissues in other parts of the body, forming firm swellings in the limbs, which are also subject to "rheumatic" pains. Blood may be lost in other ways, such as by the bowels or kidneys. The heart is weakened, so that, if the patient sits up suddenly, he may faint or even die. The disease if uncured is usually fatal by exhaustion. Fortunately it is easily curable, at all events in an early stage, and still more easily prevented by suitable measures. Salt provisions alone will not cause scurvy, if lemon juice or fresh vegetables be taken as well in sufficient quantities; nor, on the other hand, will an abundant diet of meat and bread suffice to prevent it, if the meat be cooked or preserved. The Irish peasantry live on a very poor diet, but are not subject to scurvy, excepting when the potato crop fails.

The TREATMENT consists almost entirely in dietetic measures. The patient should take at least 1 oz. lemon juice every day, and plenty of fresh green vegetables or mashed potatoes. Dried vegetables are less useful: the best are dried potatoes, cabbage, or cauliflower; dried peas and beans are useless. Ripe fruits, especially of the orange tribe, are invaluable; but if only unripe fruit can be obtained, it should be taken cooked. The Board of Trade requires that every one on a long voyage shall be supplied with at least 2 ozs. of lemon juice or lime juice twice a week after the first fortnight. Such vegetable diet must be given in scurvy, even if there is diarrhœa; and a speedy improvement may be expected. If solid food cannot be taken, fresh meat soups, milk, and eggs should be given at least once a day. Malt liquors are useful if there is no dysentery. Spruce beer, made from the tops of the spruce fir, was found very useful by Captain Cook. Vinegar possesses antiscorbutic properties, and may be used in cooking or preparing meat. In all well-marked attacks, the patient should be prevented from sitting up, even for a moment. Ulcers should be dressed with water dressing (*which see*), and a gargle (Nos. 3, 6) used if the mouth is ulcerated.

Hand fed babies are occasionally attacked with scurvy. In such a case fresh cow's milk suitably diluted should be given (*see* INFANT FEEDING), and in addition a little fruit juice once a day.

Scybala.—Hard, lumpy masses formed by retention of fæcal matter in the bowel. *See* CONSTIPATION.

Sea-bathing. *See* BATHS AND BATHING.

Seaside.—The climate on the sea-coast is, generally speaking, moister but more equable than inland, being warmer in winter and cooler in summer, and less subject to sudden changes. The air is purer and more loaded with salt, which contributes to its stimulating and tonic qualities. The seaside usually benefits those who are suffering from debility or scrofulous tendencies, provided their digestive organs are fairly healthy. On the other hand, highly nervous, gouty, or bilious people often do better inland. Some of the latter will benefit by sea air, provided they take saline aperients with plenty of exercise, and a very moderate allowance of food and stimulants. Convalescents from severe illnesses do well at the seaside when they have partly regained their strength. For those who are much exhausted, a warm, dry inland place is often more suitable. When people lose weight at the seaside it is usually a sign that the climate does not suit them. *See* HEALTH RESORTS.

Sea-sickness is a peculiarly distressing and in some cases dangerous complaint. The susceptibility to sea-sickness varies greatly in different individuals, some being entirely free from it, while others continue to suffer from it after a long experience of the sea. As a rule, children and the aged suffer less than those in the prime of life, and men less than women. The usual duration on a long voyage is from three to five days, the complaint ceasing spontaneously; but some people suffer for weeks. The early symptoms are giddiness and uneasiness at the pit of the stomach, followed by nausea and vomiting. The bowels are usually confined, and the urine may be scanty. The milk in nursing women is often suppressed, while the menstrual discharge if present is apt to be increased, and

pregnant women may miscarry. There is often much exhaustion; and occasionally the patient becomes deadly faint and prostrate without any sickness. Sometimes the chief complaint is of violent, cramp-like pains in the stomach, without nausea.

TREATMENT.—A light meal should be taken an hour or two before going on board, and the bowels relieved by a simple aperient. A central place, where there is least motion, should, if possible, be chosen. Whenever it is possible to remain on deck it is best to do so, as fresh air is a decided preventive, and the smells of the cabin or state-room often provoke an attack. It is well to lie down, and keep the feet well wrapped up. Many drugs have been tried with more or less success, amongst others capsicum (1 grain in a pill every three hours), creasote (1 drop in a pill every three hours), the bromides (*Pr.* 18), effervescing alkaline draughts (*Pr.* 30), amyl nitrite, cocaine ($\frac{1}{4}$ grain in water three times a day), and strychnine. Ice sucked in small pieces is useful; but Chapman's spinal icebag is still more efficacious. It should be placed in immediate contact with the skin, along the spine, from the lower part of the neck to the loins, or not quite so low in pregnancy. Where there is faintness rather than sickness, *Pr.* 4, 5, may be taken. In Corbyn's coca wine both stimulant and sedative are combined. A firm band round the abdomen is useful. *See* ICE.

Seasons. *See* CLIMATE; PERIODICITY.

Sea Voyages are often recommended for consumptive or scrofulous persons. They are also beneficial in some nervous disorders, overwork, and dipsomania. Much however depends upon the ship, some being provided with special comforts for invalids, whereas others have a scanty dietary and poor accommodation. Iron ships are usually cleaner and sweeter than any but the best kept wooden vessels, but they apt to become very hot in the tropics. Steamers are more dirty and smoky than sailing boats, but are less dependent upon favourable winds. The food on most ships, although suitable to those with good appetites, is scarcely adapted to the needs of an invalid with delicate digestion. This should be remembered before a voyage is decided upon. Many consumptive patients are sent away from home and friends at a time when the disease is too far advanced to allow of much benefit. To such patients the voyage often does harm, rather than good. On the other hand, in suitable cases the health may be completely restored by a sea voyage. Those who are very bad sailors, who are much exhausted, suffering from heart disease or advanced lung disease, who are subject to fits or to persistent sleeplessness at sea, should not be sent for a long voyage. Eczema is usually rendered worse by a sea voyage. For early stages of consumption the voyages usually recommended are those to the Cape of Good Hope, or to Australia or New Zealand. In the first case three or four months may be spent in the interior of South Africa. The journey is somewhat trying in several respects. For the Australian voyage it is best to start early in October, rest awhile in Hobart Town, the Darling Downs of Queensland, or some other suitable place, and return in February, reaching England again in May or June. *See* CLIMATE; HEALTH RESORTS.

Sebaceous Glands are those which secrete the soapy or oily material of the skin; they are largest about the head and face. When the orifices are plugged with dirt, they form what are called "black heads," from which a "worm" of soapy matter can be squeezed. This is not really a worm, although a parasite (*demodex*) is sometimes found in these glands. It is however harmless. Inflammation around the sebaceous glands constitutes "acne" (*which see*). *See also* SKIN.

Secret Remedies.—*See* PATENT MEDICINES.

Secretion.—The preparation from the blood of a special material, intended for further use in the body. Thus saliva is a secretion which helps to digest starchy food. The organs of secretion are usually called glands (*which see*). *See also* EXCRETION.

Sedatives.—Medicines which quiet or depress the activity of some part of the

body. The chief gastric sedatives (acting on the stomach) are bismuth, alkalies, prussic acid, creasote, and opium. Those quieting the heart are aconite, digitalis, and prussic acid; quieting cough are opium, hemlock, belladonna, and prussic acid. Of nerve sedatives there are many representatives, such as the bromides, chloral, opium, and other sleep-compelling or pain-quelling remedies. Since restlessness is often a sign of weakness, tonics may act as the best sedative. The warm bath is a convenient nerve sedative. *See* NARCOTICS; ANÆSTHETICS.

Sedentary Life. *See* OCCUPATION.

Seidlitz Powders consist of 2 drachms of Rochelle salt with 40 grains of carbonate of soda in a blue paper, and 37 grains of tartaric acid in a white paper. The contents of the blue paper are dissolved in water, and those of the other added. The draught is then taken during effervescence. The action is aperient; small doses increase the amount of urine passed. *See* APERIENTS; MAGNESIA, EFFERVESCING CITRATE OF; SALINES.

Seltzer Water. *See* MINERAL WATERS.

Semola and *semolina* are obtained from wheat. The former is deprived of some of its starch by washing. The latter consists of the granular particles of hard wheat which do not pass through the flour sieves. Both contain a large proportion of gluten, and are nourishing and digestible. *See* FARINACEOUS FOODS.

Sending for the Doctor. *See* DOCTOR; MEDICAL ADVICE.

Senega-root, from North America, is much used for its action on the skin and mucous membranes, especially in bronchitis and dropsy.

Senna.—A valuable aperient obtained from North Africa, India, etc. The leaves, which are chiefly employed, are from 1 to 2 inches long, unequally oblique at the base. Their taste is nauseous and sickly, but not bitter. Other leaves, stalks, etc., are frequently present as an adulteration. They should be removed before the drug is used. Senna acts chiefly on the small bowel. From it are made a confection, infusion, syrup, tincture, and compound mixture; it is also the active principle of compound liquorice powder.

CONFECTION OF SENNA (*Lenitive electuary*) contains 7 parts senna in fine powder, 3 parts coriander in fine powder, 12 ozs. figs, 9 ozs. tamarind, 9 ozs. cassia pulp, 6 ozs. prunes, 1 oz. extract of liquorice, 30 ozs. sugar, and distilled water to 75 ozs. Dose, 1 to 2 teaspoonfuls.

INFUSION OF SENNA.—Senna, 1 oz.; sliced ginger, 28 grains; boiling distilled water, ½ pint. Allow the water to just go off the boil, leave on the senna and ginger for half an hour in a closed vessel, and strain. Black tea or coffee may be added, and the infusion then taken with milk and sugar. Dose, 1 to 2 fl. ozs.

SYRUP OF SENNA and TINCTURE OF SENNA.—Dose, 1 to 4 fl. drs.

COMPOUND SENNA MIXTURE, or black draught, contains 4 ozs. Epsom salts, 1 fl. oz. liquid extract of liquorice, 2½ fl. ozs. tincture of senna, 1½ fl. oz. compound tincture of cardamoms, and 15 fl. ozs. infusion of senna. Dose, 1 to 1½ fl. oz.

COMPOUND LIQUORICE POWDER.—Senna and liquorice root in fine powder, of each 2 ozs.; fennel fruit in fine powder, 1 oz.; sublimed sulphur, 1 oz.; powdered sugar, 6 ozs., thoroughly mixed. A valuable preparation for children, as the taste is not disagreeable. Dose, ½ to 1 teaspoonful.

SENNA PODS are also occasionally used as aperients. A liquid extract is sold, which is said to be efficient without griping.

Sensation. *See* NERVOUS SYSTEM.

Sense Organs. *See* EYE; EAR; SMELL; TASTE; TOUCH.

Septicæmia. *See* BLOOD-POISONING.

Sequelæ.—Consequences which follow an attack of illness. Thus, running from the ears and various scrofulous diseases are common sequelæ of an attack of measles.

Serous Membranes are smooth membranes lining internal cavities of the body. Each consists of two layers, of which the outer lines the cavity, while the inner surrounds the contained organs—such as heart, lungs, liver, and bowels. The two layers together form a closed cavity like that of a sewn-up pillow-case, and secrete a little fluid, which enables them to glide easily upon

one another. The most important serous membranes are the pericardium, the two pleuræ, peritoneum, and arachnoid of brain and spinal cord.

Serpentary.—Virginian snake root, a remedy for rheumatism. Its action resembles that of guaiacum (*which see*).

Serum.—The watery part of the blood after separation of the clot. A similar fluid is formed in blisters. *See* BLOOD.

Seton.—Part of a skein of silk or similar material, passed under the true skin with the aid of a "seton-needle" or probe, and left in to cause the formation of matter. Counter-irritation by setons is much less resorted to than formerly. The seton should be covered with a dressing of simple cerate, and the strictest cleanliness observed. To keep up the irritation, move about the threads at each dressing, or, if necessary, smear the wound with savine ointment or other irritant.

Sewage ordinarily consists of solid and liquid excreta, with more or less house slops. Where the surface drainage is carried into the sewers, you also get washings from roadways and houses. The average quantity, taking all ages and both sexes, has been reckoned by Letheby at about $2\frac{3}{4}$ ozs. solids and 32 ozs. liquid excreta; house slops average 16 gals. per head. This complicated mass of organic matter is not only prone to decompose, but affords a breeding-ground for countless microscopic organisms, some of which are the probable causes of diseases such as enteric fever and cholera. It is a general rule that living beings are poisoned by their own excreta if these are not removed. There is no exception to this rule, so that every good system of drainage aims at the prompt removal of all such matters. In the decomposition of sewage large volumes of gas are produced, which are capable of carrying the "disease germs" with them for considerable distances. The danger of sewer-gas lies chiefly in the living solid particles which accompany it. These transform the decomposing sewage into poisons, or act similarly on the tissues and fluids of the body. Half-way products of decomposition are often more dangerous than fully oxidized products. A dissection wound from a recently dead body is far more deadly than one at a later period. So with sewer-gas, its poisons may be rendered harmless by free dilution with fresh air. Deadly in a confined space, they do little harm when transformed by thorough ventilation of the sewers. Ventilation into a house is highly dangerous; into the open air comparatively safe. In order to thoroughly mix the sewage and sewer-gas with the oxygen of the air, the former must be kept in motion. Allow it to stagnate in cesspools, or in badly constructed sewers, and disease is sure to follow. The excretions of a household should therefore be rapidly carried out of the house, and kept moving until finally disposed of.

REMOVAL OF SEWAGE.—In the *Privy system*, still common in the country, the excreta are received direct into a tank or receptacle, which is periodically emptied by hand and bucket, or better by a pump and hose leading to a partially exhausted barrel. Considerable stench is necessarily caused during removal. To make such a system tolerable, the privy must not be within 6 feet of the house; and the receptacle must be quite small, with water-tight sides and bottom of unabsorbent materials, a cover to keep out the rain, and free ventilation at the top. The bottom should slope, and a drain be provided to carry off excess of moisture. The receptacle may with advantage be raised above the ground level, and made with sloping floor. In the *Midden system*, ashes and other refuse are thrown into the same receptacle with the excretions. In the *Cesspool system*, the excretions and slop-water are discharged through a soil-pipe, and drain into a cesspool or dumbwell. In the most objectionable form this is left porous, so that the liquids soak into the soil, and the solids gradually accumulate. It is still common to find cesspools in the basement of town houses, and many attacks of fever have been traced to such insanitary arrangements. Cesspools may be improved by being made impervious, ventilated with large shafts reaching above the eaves of the house, and well trapped at the entrance of soil pipe and

sink pipes. They require to be emptied like privy tanks. All cesspools are, however, objectionable, and should rather be filled up and replaced by other arrangements. In Paris, *movable receptacles* (*fosses mobiles*) are much used. The solids in such arrangements are sometimes strained off by a removable separator (such as Chesshire's intercepting tank), the liquids draining away into a sewer. In the *Pneumatic system* (used in parts of Holland, Germany, etc.) the sewage is drawn along iron pipes into a tank at the junction of several streets, by means of a powerful air-pump. The pipes are, however, apt to get blocked up, when they require to be washed out. In the *Water-carriage system* the sewage is washed along the sewers by means of water; and in dry systems of removal (earth closets, pail systems, etc.) various materials are added to dry and deodorize the excreta. The water-carriage system is probably the best, whenever there is a plentiful supply of water and a sufficient fall can be provided; but the dry methods also work well under some circumstances. There are several modifications of the *Pail system*, in one of which (Goux) the pails are lined with a composition containing clay, and provided with chaff, straw, or hay to absorb the liquid parts. In other methods ashes or house refuse are placed in the same pail, or a deodorant added. *See* Earth-Closets; House Drainage; Water Closets.

Disposal of Sewage must be adapted to the method of collection and removal. *Unaltered sewage* from privies and cesspools is usually put on the land, either immediately or after drying. The products of the *dry systems*—such as the pail system, earth-closet system, etc.—may be burnt up into slag for garden paths or for making mortar, or reduced to charcoal, or converted into artificial manure. The addition of other substances to the excreta considerably diminishes their value as manure. Where *water carriage* is adopted, the sewage may be dried and converted into manure, or the solids precipitated by various chemicals and separately dealt with. It has also been proposed to convert the sludge into bricks or cement. The main difficulty, however, lies in the disposal of the liquid sewage, as this, if neglected, is quite as likely to cause fever as the solids. Formerly sewage used to be discharged *into running streams;* but this is now very properly prohibited as regards all new sewage works, and in time it will probably be everywhere put a stop to. Much of the London drinking water is still derived from Thames water fouled with sewage, towns and villages high up the stream possessing the right to poison the water in this way. Some purification is effected by the action of air, sun, and water plants and animals; but it is obviously a mistake to first contaminate the water supply and then attempt to purify it. The presence of sewage in our rivers might easily give rise to serious epidemics of fever, especially in a dry season, when the rivers would be like open drains, giving off noxious effluvia; and the disappearance of all the choicer kinds of fish from many of our English rivers is evidently due to the same cause. Where the effluent is purified by chemical processes the contamination of the stream is less marked; but no perfectly satisfactory method has so far been discovered. *Discharge into the sea* is less objectionable than discharge into running streams, but is by no means free from objection. If the wind and tide prevent the sewage from getting well out to sea, a nuisance may arise; and, in addition, it is a mistake to waste good material which would fertilize our land, while large sums of money are spent on bone-dust or artificial manure to replace it. The annual value of the London sewage has been estimated at more than one million sterling. Sewage contains large quantities of phosphates, which would be greedily absorbed by plants. The liquid portion is more valuable than the solids. Where sewers discharge into the sea, special precautions must be adopted to prevent wind and tide banking up the sewage, and care be taken that the outfall is always under water. *Precipitation methods* have already been alluded to; and although they are not yet perfectly

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satisfactory, some plan may be discovered whereby the sewage can be properly purified, and its rich stores of chemical and of organic matter utilized. Many valuable chemicals are now obtained from the refuse of gas-works, and there is no reason why the same should not be done with the sewage of our towns. Among the substances used for precipitation of sewage may be mentioned alum, charcoal, blood, and clay (all used in the A B C process), phosphates of lime and alumina (in Anderson's process, etc.), coke and clay, and sulphate of iron. *Filtration* through earth or charcoal has also been tried. Downward intermittent filtration through a considerable depth of porous soil appears to answer well; other methods are unsatisfactory. Cabbages may be planted on the surface of the filter-beds. *Irrigation* is at present decidedly the most satisfactory way of utilizing water-carried sewage, provided that plenty of suitable ground is available. The sewage is freed from its coarser portions by settlement of precipitation, and then allowed to flow at intervals over different fields in rotation. The water is collected by drains about 5 or 6 feet under the surface, and directed to the nearest water-course. Large crops of grass may be obtained from sewage farms. About 1 acre is required to every 100 persons. There is evidence to show that, under good management, such farms do not foster disease, whether infectious or parasitic; and there need be very little smell.

Sewer. *See* DRAINAGE; HOUSE DRAINAGE.

Sex.—Among the children born every year in England, the boys outnumber the girls in the proportion of 1,040 to 1,000. In other countries there is a still greater disparity. The proportion of boys is usually greater in large than in small families, and greater among the earlier born than among the later born children. According to Quetelet, when the father is older than the mother, boys are likely to outnumber girls, and *vice versâ*. The disproportion between the sexes is, however, reduced as years go by. More men die every year than women, so that at the age of 34 the sexes are equal in number, and at the age of 70 there are alive about 925 men to 1,000 women. As regards health and disease, the two sexes necessarily fare somewhat differently, owing to physical differences and different conditions of life. Women are usually more capable of enduring pain and discomfort, but less able to stand fatigue. Their work should be done in shorter spells than that of men. They will often do much more in two spells of two hours each than in one of four or more. Women require about one-tenth less food than men; and as a rule they need smaller doses of medicine. *See* MARRIAGE.

Shampooing.—Manipulation of the different parts of the body, as done in Turkish baths. A more systematic kind of shampooing goes by the name of massage (*which see*). *See also* HAIR.

Shellfish include molluscs (such as the oyster, mussel, etc.) and crustacea (crabs, lobsters). Oysters are fairly digestible as usually taken, partly owing to the ferment contained in the large liver. Mussels are somewhat uncertain, especially in spring or summer. At times they cause symptoms of irritant poisoning, such as vomiting, colic and diarrhœa, heat in the throat, cramps, and nettlerash. (*See* PTOMAINES.) For such an attack an emetic (*Pr.* 27, 28) would be appropriate, followed by stimulants (*Pr.* 4, 5). Snails are stewed and eaten in some parts of the world. They form a mucilaginous, easily digestible food. Crabs and lobsters are not very digestible, as their flesh-fibres elude the teeth.

Sherry. *See* FERMENTED LIQUORS.

Shingles, or *herpes*, consists of an eruption of vesicles on a reddened patch of skin corresponding with the course of some superficial nerve. The vesicles begin in groups as small pimples, which form watery heads, and then usually burst and dry up. This process takes about a week or ten days, and may at first be accompanied by feverishness. In old people shingles is a painful disease, which causes aching, burning, or shooting sensations both before, during, and after the eruption. In young people there may be little or no pain. The

usual seat of the eruption is along one of the nerves of the chest or abdomen, forming a half-girdle; it may also be found on the face, neck, arms, and legs. There is a superstition that shingles is necessarily fatal if it encircles the body. Since this probably never happens, the truth of the statement is not important. The eruption may overlap at different levels without any untoward result. Shingles on the forehead sometimes causes damage to the eye. In sickly people ulcers may be left after an attack. Shingles is not an infectious disease.

TREATMENT.—The patient should rest indoors, and protect the eruption with cotton-wool or collodion. If there is much fever, give *Pr.* 31 or 7. If there is much pain, *Pr.* 48 or 39 will be useful. Severe neuralgia may remain behind, requiring the usual treatment.

Ship. *See* EMIGRATION; SEA VOYAGES.

Shivering.—A sensation of cold with involuntary quivering of the muscles, commonly resulting from chill or fever. It is a form of "reflex action," in which the muscles of the skin, bloodvessels, limbs, etc., contract in response to some irritation of the nervous system; and may vary from a passing shiver—such as results in many people from taking food or nasty medicine, or emptying the bladder—to a severe shivering fit (or *rigor*) with shaking limbs and chattering teeth, as in an attack of ague. Shuddering from fear is nearly related to shivering; and in children convulsions may follow or replace either of these. Rigors usually point to the formation of matter or the onset of fever. By using a thermometer, it will often be found that the skin, or, at all events, the inside of the mouth, is hot, although the patient complains of cold. "Goose-skin," which often accompanies shivering, is caused by the contraction of the skin-muscles. *See* FEVER.

Shock.—A term applied medically to depression of the system from severe pain or injury, or violent mental emotion. Loss of blood, extreme cold, and some poisons (such as prussic acid) also cause shock. Even a slight blow in certain regions of the body (such as the pit of the stomach), where nerves are plentiful, may fatally depress the system; and before the introduction of anæsthetics many lives were lost in this way from operations which are now usually successful. The state of mind greatly influences the extent of shock, dread increasing it, while a courageous temper diminishes it. The soldiers of a defeated army suffer more from shock than those of the victorious one.

Symptoms.—The sufferer is usually pale, cold, and very weak, with small pulse, and sighing breathing. He is not necessarily unconscious, but may wander slightly in mind. Shock may last a few minutes, or several hours. If not immediately fatal, it ends in reaction, with more or less fever and excitement, according to the nature of the injury and the constitution of the patient. Sometimes restlessness and excitement are marked features from the first.

TREATMENT.—Apply warmth to the feet, flanks, pit of stomach, and other parts, by means of blankets and hot bottles. Rub the limbs and spine with stimulating liniment (Nos. 1, 2, 3). Put the patient on to a couch or bed, in a quiet room, and allow him to rest for some hours. It is best, if possible, to leave all further treatment to the medical attendant. But if in his absence the pulse becomes very feeble, it may be necessary to give stimulants, although they increase the tendency to hæmorrhage and to violent reaction. (*See* STIMULANTS.) If stomach and bowels are not likely to have been injured, hot tea, soup, or milk, in small quantities, may be given at short intervals when the patient is able to take them. If the patient cannot swallow, it may be necessary to give a stimulant enema by the rectum. *See* COLLAPSE; ENEMA.

Short Sight. *See* SIGHT, DISORDERS OF.

Short Breath. *See* BREATH, SHORTNESS OF.

Shoulder.—The upper limb is attached to the trunk by means of an arch of bone or shoulder-girdle, of which the front piece or collar-bone is rod-shaped and jointed on to the breast-bone, while the back piece, or blade-bone, is flat and triangular, and glides freely over the ribs. The junction of these two pieces

is close to the point of the shoulder, and under it is the true shoulder joint between the blade-bone and arm-bone. This is a ball and socket joint with a small, flat socket, allowing of great freedom of movement, and depending on muscles for its strength. When the arm is raised to the level of the shoulder, the movement takes place at the true shoulder joint; if the arm is raised still higher, the movement occurs at the joint between collar-bone and breast-bone, and the whole shoulder-girdle is lifted (*Fig.* 43).

Injuries to the shoulder should be promptly brought under the notice of a surgeon, as the nature of the accident is far more easily recognised before much swelling has taken place. If the arm stands rigidly out from the body, there is probably a dislocation, and gently pulling the arm down and out, as if to make it longer, will sometimes enable the head of the bone to slip back into place. Where the elbow does not stand out in this way, the forearm should be supported in a sling until surgical advice can be obtained. *See* Dislocation; Fracture.

Pain in the shoulder may be due to inflammation of the joint, muscular rheumatism, disease of the bones, and other causes. It may even be an early sign of consumption. *See* Bone, Inflammation of; Joints, Diseases of; Rheumatism.

Shoulder-blade, or blade-bone. *See* Shoulder; Skeleton.

Sickness. *See* Morning Sickness; Sea-sickness; Vomiting.

Sick Nurses.—Not every one has the gifts which make a good nurse. Good intentions alone are of little value, unless joined with training and natural aptitudes. A good nurse should be soothing and quiet in her manner, quick, but not fussy; firm, but not unsympathetic; cheerful and good-tempered, but not too demonstrative or gushing. She should be scrupulously clean and neat, methodical, punctual, and observant; discreet, and not given to talk about other people, moderately strong, and in sound physical health. Her dress should be of washable material, not rustling, or apt to catch the dust. Her chief *duties* are to administer food and medicine, see to the bed and sick-room, and keep the patient clean and comfortable. She should keep a record of the patient's chief symptoms, including pulse rate, respiration, temperature, tongue, skin, evacuations, and character and amount of sleep. She should be able, whenever called upon, to say exactly what food has been taken by the patient. (*See* "Nightingale on Nursing.") She should know the rudiments of anatomy, physiology, medicine, and surgery; how to apply poultices, splints, dressings for wounds, and other applications, and how to prepare food for the sick-room. Hospital-trained nurses are always preferable to others. Most of the large hospitals and infirmaries arrange for the training of nurses. (*See* Nursing Institutions.) The course of training usually lasts three years. Candidates for admission must be about twenty-three or twenty-four years of age, and submit to a month's trial. They may enter as ordinary probationers, or lady probationers. The former receive their food and clothing, and a small salary when sufficiently trained. They are eligible for posts of ordinary hospital-nurse. The lady probationers pay for their clothing, and receive no salary. They are eligible for the position of sister of a ward. The ward sister is under the control of the hospital matron, and has the responsibility of a ward. The nurses act under her, and take their turn of day and night duty. Servants' work is done by the ward maids. Private Nurses may be obtained from one of the many nursing institutions. They usually require a salary of one to two guineas per week, payable to the institution. Rules are laid down, prescribing the number of hours they may remain on duty, and the number of nights they may sit up. They should, as a rule, spend at least seven or eight hours in bed, and an hour or two in the open air, and should never be obliged to have their meals in the sick-room. When two nurses are engaged on the same case, one should be the head. *See* Nursing Institutions.

Sick-room. — The choice of a sick

room will be guided by many considerations. For infectious diseases it is essential that it should be isolated from the rest of the house; so that it is often convenient to take a top floor for sick-room and nurse's room. There should also be access to a separate W.C. and lavatory, which should, however, not be directly leading out of the sick-room. (*See* DISINFECTION; ISOLATION.) A sick-room should be light and cheerful, with plenty of sunlight, tempered by slate-coloured or green blinds. A southern or south-westerly aspect is therefore better than one to the north or east. A proper chimney and fireplace are essential, even in summer, as they are necessary for thorough ventilation. The best temperature for a sick-room is about 60°F. For young infants or old people, or those suffering from chest affections, a temperature of five or ten degrees higher is advisable. Plenty of fresh air is required in illness. The room should therefore be large, and provided with ample means of ventilation. In St. Thomas' Hospital 1,800 cubic feet of space are allowed to each ordinary patient, and 2,500 to each patient in the fever wards. As much space should, if possible, be provided in the sick-room of a private house. The walls are best covered with cement, distemper, or some other washable or easily removable material. Staring wall-paper patterns or arsenical papers should be avoided. The floors may be of polished, close-fitting boards, which may be regularly waxed in lieu of too frequent washing, which renders the air damp. The furniture should be free from unnecessary hangings, which obstruct the currents of air and catch the dust. In infectious cases nothing should be introduced which cannot afterwards be disinfected or destroyed. This refers to books and papers, as well as to bed-clothes and similar articles. Matting is better in such cases than carpets; and bed-curtains and eiderdown quilts should not be used. Many special contrivances are made for the use of invalids. Some of the most important are alluded to under the heads of ALIMENTARY TUBE; BATHS; BED CRADLES; BED LIFTS; BED PANS; BED RESTS; BEDS AND BEDDING; CHAIRS, INVALID; NIGHT COMMODES; and NURSING. Bed-tables, and feeders warmed by a nightlight, are also useful.

Side, Pain in the, may arise from a multitude of causes. In the *chest*, it may be due to pleurisy, inflammation of the lungs, consumption, rheumatism, or neuralgia. If on the right side, it may depend upon disordered liver; if on the left, on dyspepsia, heart-disease, or general debility. Pain under the left breast is very common in women who suffer from menstrual irregularity or poverty of blood, or who are overworked and under-fed. *See* ABDOMEN; CHEST; LUMBAGO, ETC.

Sight.—The sense of sight may be defective from birth, or become so later in life. DIMNESS OF SIGHT may be due to want of transparency in the parts through which light passes, to imperfect focussing power, or to disorders of the retina, optic nerve, or sight-centre in the brain. It is very common to get dimness of sight from anæmia, loss of blood, extreme fatigue, or exhaustion. The brain must be well supplied with pure blood in order to do its work properly; and the same is true of the eye. Another common cause of failing sight is the use of tobacco. SPECKS BEFORE THE EYES often accompany weak sight from general debility. Sometimes they are caused by the shadow of blood-vessels in the eye, sometimes by opacities in the transparent parts of the eye. They may resemble the wing of an insect, or moving dots and lines. DOUBLE VISION usually arises from squint; but a rare form is met with in which the defect is in the brain. Intoxication causes double vision by interfering with the control over the muscles of the eye. Another curious defect is SEEING ONLY HALF of an object. This is caused by disturbance of the nervous apparatus of sight, either temporary or from organic disease or injury. Disorders of sight in which there are noticeable changes or pain in the eye are treated under the heading EYE. The chief defects in focussing power are short sight, long sight, old sight, and astigmatism.

In Short Sight the eyeball is too long, so that pictures of distant objects are focussed in front of the retina instead of upon it (*Fig.* 41). Short-sighted people are apt to "screw up their eyes" in order to get a better-defined image. They can see without effort an object placed close to the eye,

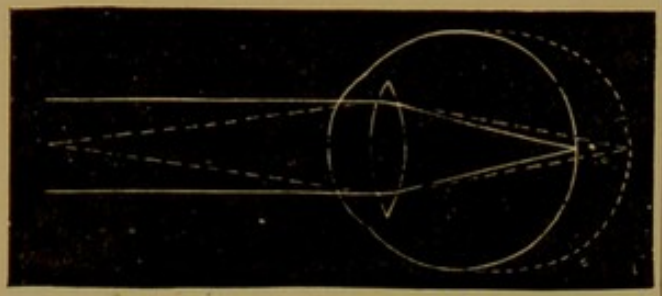

FIG. 41. DIAGRAM OF EYEBALL.

The dotted line shows the condition in "short sight." Rays of light from an object near by fall on the retina; those from a distant object fall in front of the retina.

so that they read with a book placed less than ten inches from the eye—often as near as three or four inches—but cannot clearly see things at a greater distance. Short sight is often caused during school and college life by poring over books in a dim light. To prevent it, books should be printed in a clear, bold type, and a good light thrown on them slantwise from behind and from the left side. Scholars should also be prevented from stooping over their books, or from doing work which must be brought nearer than fourteen inches. When the neck is bent forwards, the blood cannot return so easily from the eyeball, which becomes congested and weakened. The use of suitable forms and desks is of the greatest importance in this connexion; most of those met with are decidedly objectionable. (*See* Schoolrooms.) Since the introduction of a more universal education for children, short sight has become increasingly common. It would be wise economy to replace old and defective school appliances with others more suitably constructed. A nation of short-sighted people is under considerable disadvantages; besides which, there is danger of other diseases attacking a short-sighted eye. Short-sighted children should be taken to an oculist, to be examined for suitable spectacles. These should be worn for all near work; a second pair for distance is also useful.

Long Sight is usually present from birth. In this defect the eyeball is too short, so that even distant objects cannot be seen without effort, while nearer things are only seen blurred and indistinct. Many children, supposed to be slow and stupid, are really suffering from this defect, so that, whenever there is any doubt, the eyes should be properly examined. Long-sighted children are apt to bring their books too near the eye, as the large size of the image thus formed partly compensates for its indistinctness. Suitable magnifying spectacles will be required (*Fig.* 42).

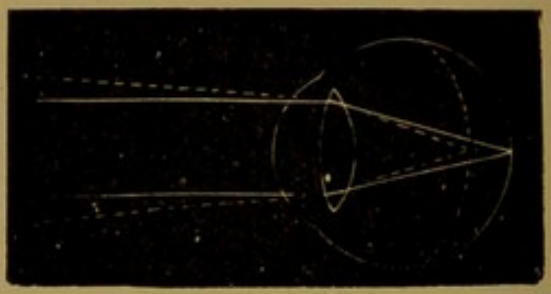

FIG. 42. DIAGRAM OF EYEBALL.

The dotted line shows the condition in "long sight." Parallel rays of light are brought to a focus behind the retina.

Old Sight resembles the last defect in the fact that near objects cannot be clearly seen, but is due to a different cause. As people advance in age, the lens of the eye becomes flat and inelastic, so that near objects cannot be focussed on to the retina. Hence books are held a long way off in order to be clearly seen; and magnifying spectacles are usually required.

Astigmatism is a defect which causes dots to appear as lines, and lines in certain directions to be blurred. It is in slight degrees very common, especially in short-sighted people, and arises from unequal curvature of the lens or cornea in different directions. If marked, it may be corrected by cylindrical spectacles. *See* Blindness; Colour-Blindness; Eye-ball; Eye Diseases; Squint.

Silk. *See* Clothing.

Silver is used in its metallic state for coating pills. The oxide, a dark, olive-brown powder, is given internally in dyspepsia and some nervous disorders. It forms an explosive compound with creasote. Silver nitrate, or lunar caustic, is cast into sticks for application to ulcers, warts, diseased eyelids, etc. The solution is much used as a lotion, injection, or eyewash. It was formerly given for epilepsy, but is apt to produce a dull, leaden discoloration of the skin. Lunar caustic is of very little value as an application to dogbite, as it produces a skin on the surface which prevents all further penetration of the tissues.

POISONING.—Where lunar caustic has been accidentally swallowed, give an emetic of salt and water.

See CAUSTICS; BITES AND STINGS.

Silvester's Method of artificial respiration. *See under* DROWNING.

Sinapine Tissue. *See* MUSTARD.

Sinapism. An application of mustard to the skin. *See* MUSTARD.

Singing, if judiciously done, is a useful means of expanding the chest and strengthening the lungs. For this purpose, straining after high notes and fatiguing the voice should be carefully avoided.

Singing in the Ears. *See* EARS.

Sinking Sensations are felt by some people an hour or more after a meal. This points to faulty digestion, often dependent upon constipation. Stimulants do harm in such a condition; but a glass of water sometimes removes the discomfort. *See* DIGESTION; INDIGESTION.

Sinus, in surgery, is an unnatural canal, often started by an abscess or piece of dead bone. Anatomically, there are two kinds of "sinus" in the skull, one filled with air, and the other accommodating some of the veins. *See* SKULL.

Site of a House. *See* HOUSE.

Skeleton.—The bony framework of the body, formed of over 200 separate bones, variously jointed, and held together by ligaments and muscles (*Fig.* 43). It consists of a central column (spine), to which are attached three bony cavities and two pairs of limbs. The bony cavities (skull, chest, and pelvis) are connected with the middle and ends of the column. The limbs are attached to the walls of the middle and lower cavities. There are 24 bones in the spine; 22 form the skull; 25 belong to the chest, 4 to the pelvis, 64 to the upper and 60 to the lower limb. In

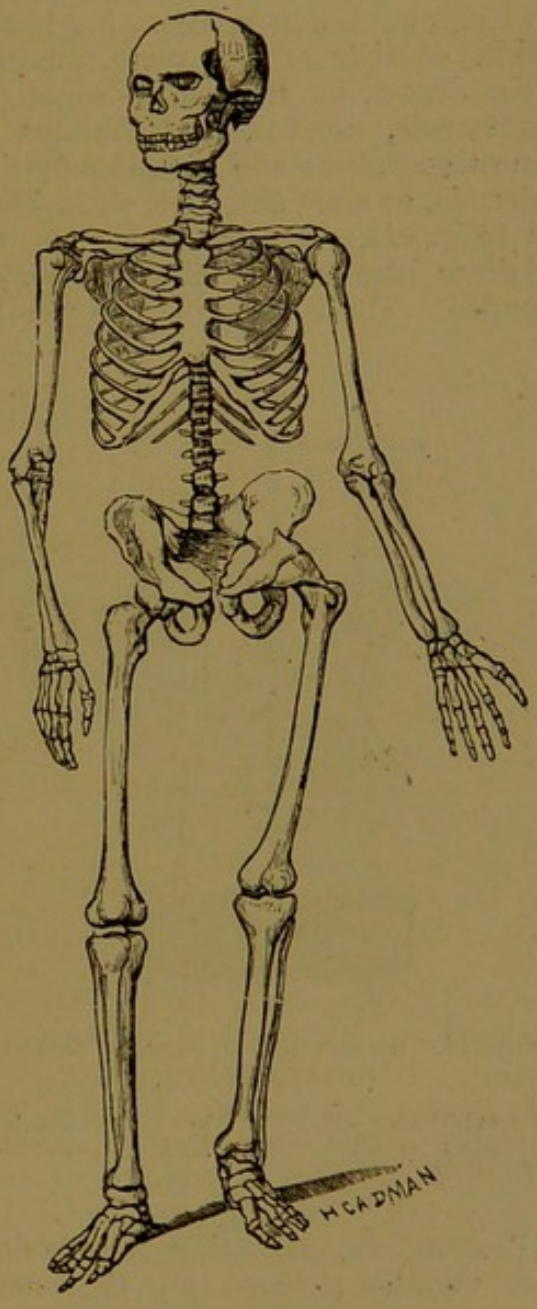

FIG. 43. THE SKELETON.

addition to these, there is a bone at the root of the tongue, some minute bones in the internal ear, and a variable number of pea-like or "sesamoid" bones in the tendons of some of the muscles. The teeth are not included among the bones. In early life, many bones are represented by rods of cartilage (gristle) or

sheets of membrane. Moreover, many bones consist of several pieces in the child which are single in the adult; and the number of separate bones is still further reduced in old age.

Bones are of four kinds: long bones, with a hollow shaft and expanded ends (thigh-bone, collar-bone); flat bones (vault of skull); short bones (wrist); and irregular bones (spine). *See* BONES.

Skin consists of two parts, an inner (cutis, derma, or true skin) containing bloodvessels, nerves, and bundles of connective tissue; and an outer (cuticle, epidermis, or scarf skin) which is bloodless (*Fig.* 44). Hence a razor cut will not draw blood unless the true skin is wounded. The scarf skin is an "epithelial" structure, consisting of cells fitted close together: those on the surface horny and scale-like, the deeper ones soft and rounded, while the deepest of all are columnar in shape. The cells grow up from below, and are continually rubbed off on the surface. Whenever a blister forms, the horny layers are separated from the deeper ones. These last go by the name of mucous network (*rete mucosum*), because they are indented with little pin's head depressions, which correspond with nipple-like projections (or *papillæ*) from the true skin. This shades off below into subcutaneous fat and fascia. The skin is a very tough and elastic structure; it may escape injury when deeper parts are much damaged; and it readily adapts itself to changes in the bulk of the tissues underneath. Two kinds of GLANDS exist in the skin—sweat glands, and sebaceous or oil glands. The *oil glands* have branching ducts with pouched ends. Their secretion serves to lubricate the skin, and is especially abundant in the natives of hot climates. Oil glands are attached in pairs to the hair sacs. The *sweat glands* form minute tubes ending in a coil. They secrete water, together with small quantities of urea, fatty acids, salt, and other substances. Erasmus Wilson has calculated that there are over seven million pores (or openings of gland ducts) in the skin of a man of average size, making nearly twenty-eight miles of tubes. Over 2 lbs. of perspiration is given off by the skin on an average in 24 hours. The amount, however, varies greatly according to the heat of the body and other circumstances. *See* ABLUTION; BATHS AND BATHING; DIAPHORETICS; FEVER; HAIR; NAILS; TOUCH.

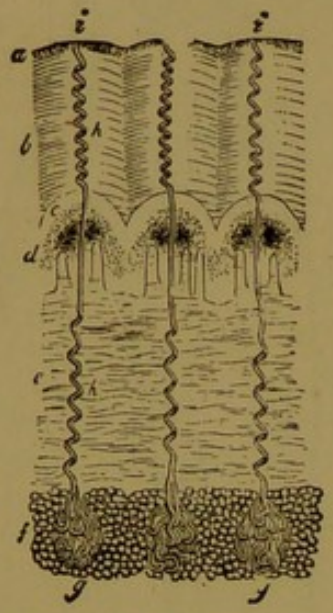

FIG. 44. MICROSCOPICAL SECTION OF SKIN (DIAGRAMMATIC).

a,b,c, epidermis; *a,b*, horny layer; *c*, mucous layer; *d,e*, derma; *f*, fatty tissue; *g*, coiled up ends of sweat glands; *h,i*, their ducts.

Skin Diseases.—It is impossible here to allude to more than a few of the most common varieties of skin disease, together with their causes.

The infectious fevers (such as measles or small-pox) are not to be regarded as skin diseases, although many of them have characteristic eruptions. Of other diseases affecting the skin, some are constitutional, and some arise from local causes. Many appear as the result of gout, rheumatism, a syphilitic taint, or a scrofulous constitution; and it is then important to discover and treat the underlying cause. Sometimes impurity of the blood, or faulty digestion, or the use of medicines causes a rash to appear; at other times (as in *shingles*) nervous influences are at work. Very many skin diseases are started by local irritation from sun or wind, chafing of clothes, the use of irritating liquids or solids, want of cleanliness, or animal or vegetable para-

sites. The chief diseases in which a skin eruption is accompanied by fever, are the infectious fevers, erythema, erysipelas, and a few varieties of eczema and nettle-rash.

Some diseases cause the appearance of a blush on the skin. In others, red pimples appear; in yet other disorders, the pimples form little bladders or vesicles; and these may burst and form open raw spots, or be converted into mattery heads or pustules. If only a red blush appears, the disease may be erythema, nettle-rash, rose-rash, erysipelas, scarlatina, or German measles; or it may be due to a local irritant. Erythema usually forms raised pimples or spots. One kind is known by the appearance of spots like bruise marks. Nettle-rash comes out very suddenly with intense itching or tingling, and as suddenly disappears. In its most characteristic form it produces raised red spots or lines with white centres. In erysipelas there is much swelling under the skin, which becomes tight and painful. Pimples are characteristic of measles, German measles, and early stages of acne or eczema, and a few other diseases. Vesicles or pustules are found in chicken-pox, small-pox, acne, eczema, shingles, and herpes. Raised spots with silvery scales are found in psoriasis; moist oozing spots which form crusts, in eczema. Dark patches may be due to pityriasis, liver-spots, freckles, old scars, etc. Scratching causes the skin to become darker. *Parasitic* diseases give rise to a great variety of skin-marks. Thus the itch (*scabies*) may form pimples, vesicles, pustules, or raw places, as well as the lines indicating the itch-mites' burrows. The chief parasitic skin diseases are referred to under the heads of ITCH; LICE; PERSPIRATION; PITYRIASIS; RINGWORM; SCALDHEAD; SCALP, DISEASES OF THE.

Domestic treatment is seldom advisable in skin diseases, as their recognition usually requires considerable experience.

Skull.—The bony case for the brain, and the support for the face and sense organs. It is composed of twenty-two separate bones, of which eight form the brain case, fourteen the bony part of the face. The *vault* of the skull consists of "flat bones" united by "sutures," which may be formed by toothed, roughened, or shelved and overlapping edges (*Fig.* 45). These bones have an inner and an outer layer (or table) of hard bony tissue, with an intermediate layer of spongy bone, which is in some parts hollowed out into air-spaces or sinuses. In consequence of these spaces, and of the varying thickness of bone, the outside of the skull does not exactly correspond with the shape of the brain. The inner table of the skull-bones is more brittle than the outer, so that a blow will sometimes fracture it when the outer table escapes. The *floor* of the brain-case is hollowed out into

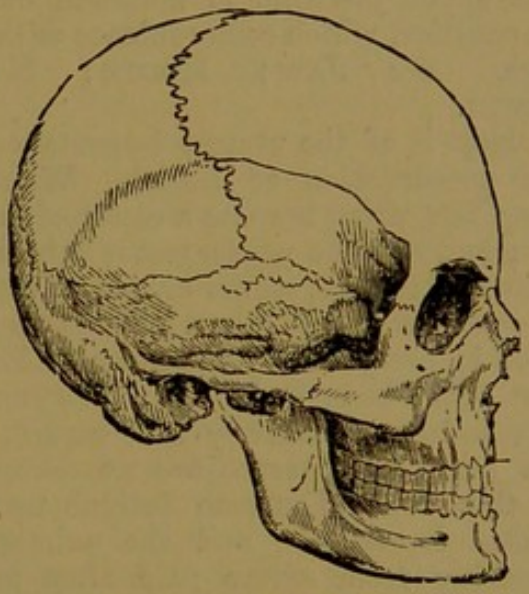

FIG. 45. THE SKULL.

three fossæ or depressions, and perforated by holes for the spinal cord, important nerves, and bloodvessels. The hindmost fossa is for the cerebellum or small brain. To its edges is attached a membranous partition which separates the small from the big brain. Another similar partition runs in the midline along the vault of the skull, separating the two halves of the large brain. (*See* BRAIN.) The front fossa of the brain-case overlies the orbits; the bony floor is here very thin, and might easily be penetrated by a poke from a stick through the eye-socket or nose. Another thin part is found at the temples. The base of the skull is sometimes fractured by a blow or fall on the vault. The symptoms are usually those of concussion followed by

compression (*see* BRAIN); bleeding from the ear, nose, or mouth, and escape of watery fluid from the ear, may also be present. Fracture of the vault is often treated by trephining, the fragments of bone being lifted off the brain so as to prevent its being irritated. Fractures of the skull are usually less serious in children than in adults; but while exceedingly severe damage to the brain may be recovered from, a fatal result will often follow an apparently trifling injury at any period of life. The bones of the *face*, like those of the brain-case, are jointed together immovably, with one exception, the lower jaw, which is united to the base of the skull by a sort of hinge joint. The upper jawbone is hollowed out by air cavities, which communicate with the nose. *See* JAW; MOUTH; NOSE; TEETH.

Sleep is of the utmost importance for the preservation of health. Want of sleep has often become a cause of insanity; and any one whose rest is habitually disturbed is sure, sooner or later, to suffer in some way or other. The cause of sleep is not yet fully made out. Every part of the body is subject to rhythmical alternations of activity and repose, and the brain and nerves are no exception to this rule. Extreme fatigue usually causes drowsiness, and the exhaustion resulting from severe pain often has a similar effect. In addition to this, it is highly probable that some of the waste products due to activity, more especially of the muscles, have sleep-compelling properties. During sleep the bloodvessels are contracted, and the brain paler than in waking hours. This has been proved by Durham's experiments on dogs. All parts of the brain do not go to sleep, or the heart and lungs would cease to act for want of nervous control. In sound sleep the greater part of the brain is at rest. In dreaming, restless sleep, and sleep-walking, some parts of the brain are active, although those which receive impressions from outside are not fully awake. The soundness of sleep largely determines the amount required. An old saying is, seven hours' sleep for a man, eight for a woman, and nine for a fool; but people differ enormously in their need for sleep, some clever men requiring the fool's allowance, while others can do with five or six hours. Since sleep is the time for brain-repair, the amount needed will vary according to the activity of processes of repair, being comparatively short in vigorous people whose blood is pure and circulation active, much longer in those who suffer from poorness of blood or debility.

Healthy children at four years of age probably require twelve hours; at fourteen, ten hours; at twenty-one, nine hours are sufficient; and during the prime of manhood, eight hours. Nervous children and light sleepers should have an extra allowance. During active growth, more is required; and also in convalescence from illness. That some famous men (like Wellington and Napoleon) have been able to do with very little sleep probably depends on their being able to fall sound asleep at very short notice. Those who take long in getting to sleep require longer hours in bed; sometimes, however, a little medical advice is needed. Processes of repair appear to be especially active during sleep; but the breathing and heart action are somewhat diminished. Ventilation of bedrooms is therefore of great importance, or what is gained by repose may be lost by the breathing of foul air.

To draw the bedclothes over the mouth and nose hinders the respiratory changes, and is therefore very injurious, especially in childhood, while the body is developing. It appears that the time when sleep is taken is not a matter of indifference. Those who habitually sleep in the daytime and work during the night sooner or later begin to suffer from ill health. There are, however, some sources of fallacy which render it impossible to be sure of the reason. *See* DREAMING; SLEEPLESSNESS; SLEEP-WALKING; NIGHT TERRORS.

Sleeplessness arises from many different causes. Pain will, of course, prevent sleep; but more often other hindrances are present. The *attitude* is of some importance. Lying with the head low quiets the circulation, and affords an ample supply of blood to the brain. It is therefore good

for anæmic, and objectionable for full-blooded people. Those who suffer from flatulence, or from shortness of breath, whether due to heart or lung disease, usually prefer to sleep with the head and chest well raised. Sleeping on the left side or back in some people invariably causes unpleasant dreams. *Warmth* has also to be studied. Cold feet often keep people awake in winter, and on the other hand too much bedclothing renders the sleep disturbed. As a rule the temperature of a bedroom should be below that of a sitting-room. *Fresh air* is important during sleep, as breathing is then rather shallow. Ill-ventilated bedrooms not only cause poorness of blood and debility, but with some people prevent sleep altogether. Sufferers from heart or lung disease often wake in the night from want of fresh air. The drowsiness which is caused by an overcrowded room is apt to pass into heavy, unrefreshing sleep. *Quiet* is with many people indispensable, but monotonous noises, such as that of running water or of distant machinery, is soothing to most people. The sounds must, however, be rhythmical. Those who on board steamer can sleep soundly while the engine is throbbing wake directly it ceases; and a noise which is produced irregularly—now loud, now soft—is disturbing rather than composing. The practice of rocking babies to sleep, and some of the methods of hypnotism or mesmerism, also depend upon monotonous oft-repeated impressions.

Food and digestion are important in this connexion. Going to bed after a heavy supper is for most people a sure way of getting an attack of nightmare. As a rule, no heavy meal should be taken for at least two hours before bed-time. Where the appetite is small, sleep may sometimes be induced by a light meal—say of bread and milk or well-cooked porridge, or some other digestible food—taken half an hour before retiring; and those who wake in the night will often find that eating a biscuit will send them off again to sleep.

Pronounced dyspeptics seldom obtain a sound, refreshing sleep; either sleep is disturbed, or it is heavy and unrefreshing. The practice of taking a "night cap" of stimulants before retiring to rest is not to be recommended. Sometimes it is a necessary evil; but if so, there is probably some other ailment requiring attention. *Tea and coffee*, especially strong, or green tea, are fertile sources of sleeplessness; indeed, nervous people should avoid them altogether during the latter part of the day. The *mental state* greatly affects the power of getting to sleep. Excitement or mental overfatigue are great hindrances, so that many people have to abstain from headwork during the last two hours of the day. On the other hand, *muscular exercise* and moderate physical fatigue are favourable to the advent of sleep; and many a restless night has been prevented by a short turn in the open air before retiring. Where the muscles are ill developed, physical exercise should, if possible, be taken regularly so as to develop them. Failing other means, gymnastics, the use of dumbbells, tricycling, or tennis should be tried. In children, sleep is sometimes prevented by fear. Nervous children should therefore be taught that some one is at hand to be with them if required; and for such children companionship is advisable, although it is not a good plan for two to sleep in one bed. In *old age* sleeplessness is often due to sluggish circulation and inelastic arteries. Here drugs may be necessary; but in every case simple remedies should first be tried, and composing draughts only taken under medical advice, and for just so long as recommended. The practice of taking narcotics and sedatives is so dangerous, and the temptations to excess are so great, that no formulæ will be given here. It is a serious mistake to leave sleeplessness untreated, but equally foolish to habitually indulge in sleep-compelling draughts.

Sleep-walking, or *somnambulism*, is an interesting but somewhat dangerous habit. It must be regarded as an imperfect kind of sleep, in which that part of the brain is awake which receives impressions from outside, together with the part controlling movement. It may be compared with dreaming, in which, as a rule, the brain continues to think, but

does not to any great extent receive impressions from outside or act upon the muscles. Intermediate states are also met with, so that instances have been recorded where a sleeping man has been conducted through all the stages of a duel by whispered suggestions from his friends, or where a sleepwalker has written down verses or solutions to problems composed during sleep. Perilous feats have at times been performed in safety by sleepwalkers, who have been aided by the absence of fear. The habit is, however, a dangerous one.

Sling.—There are two different ways of applying a sling to the arm, illustrated

FIG. 46. SLING SUPPORTING WRIST AND FOREARM.

FIG. 47. SLING SUPPORTING ELBOW AND FOREARM.

by *Figs.* 46 and 47. In the first method the chief support is given at the end of the forearm next the hand. In the second, the end next the elbow is chiefly supported.

Slops. *See* DIET; DRAINAGE.

Slough.—A dead piece of tissue cast off from the living body. *See* BEDSORES; ULCERS; WOUNDS.

Smallpox, or *variola*, is a highly infectious and formerly very fatal disease, which begins thirteen days after infection with high fever followed on the third day by a characteristic rash. At the onset of fever there are chills, pain in the back, great weakness, and sometimes vomiting. The rash begins in the form of little red pimples on the forehead, face, and wrists, spreading over the rest of the body. They are hard to the touch, like shot under the skin, and change in about forty-eight hours to vesicles, which become cloudy, flat, and dimpled, and surrounded by a red halo or areola. By the eighth day they have ripened and burst, forming scabs which fall off about the end of the third week, leaving a pit in the skin together with purple-red blotches. In bad attacks the vesicles are closely crowded together and run into one another (*confluent*); in milder forms the vesicles are distinct or *discrete*. There is usually much swelling of the face. Spots also appear on the lining of the mouth and sometimes on the eyes, so that sore throat and weak eyes are common, and there is some danger of permanent blindness. While the rash is ripening the fever increases, falling again later on. A peculiar sickening smell is present when the scabs are forming. In very bad attacks the rash may not come out properly, but be replaced by a number of dark-blue, violet, or black spots. Such attacks are usually fatal. Those who have been properly vaccinated suffer less from an attack of smallpox, which becomes modified, running its course more quickly and mildly, and giving rise to less pitting and less danger of death. (*See* VACCINATION.) It is even possible to modify smallpox by vaccination after exposure to infection, provided that the patient is vaccinated within two days of exposure.

Smallpox may in an early stage be mistaken for measles and a few other

diseases. Sometimes a red rash comes out after smallpox infection, before the proper rash appears, in which case it may be mistaken for scarlatina. Until the characteristic eruption shows itself, there must necessarily be uncertainty. Chickenpox is a much milder disease, and the spots come out in several crops, and run a more rapid course. In measles the spots do not turn to vesicles.

TREATMENT.—Isolate the patient at once in a suitable room (*see* SICK-ROOM; ISOLATION) directly there is suspicion of smallpox. No more infectious disease exists, so that careful disinfection and thorough ventilation are necessary. If the patient is an adult, and has not been vaccinated since infancy, have him revaccinated at once; and at the same time revaccinate the other members of the household. *Diet* as in other fevers; medicine should be left to the doctor in attendance. If no doctor can be obtained, give *Pr.* 31 or 7, and an aperient if the bowels are confined. Sponge the skin frequently with sanitas fluid (a wineglassful to a quart of water), until the spots have changed to vesicles. Then paint with olive oil containing $\frac{1}{10}$th part of sanitas oil, or sprinkle with sanitas powder and anoint well with vaseline. For pain in the eyes, apply a cold compress. When the crusts form about the nostrils, they must be gently cleared away. Elsewhere they should not be disturbed. Infection lasts as long as there are scabs on the body or the skin is peeling. The patient should have six or more disinfecting baths before being allowed to mix with others, and should wear disinfected clothes. *See* AMBULANCE; DIET; DISINFECTION; HOSPITALS; INFECTIOUS FEVERS.

Smell.—The sense of smell may be impaired by chronic colds or stoppage of the nose, or more rarely by injuries to the nervous system. Naturally it is very acute, as little as the $\frac{1}{300000000}$th of a grain of musk being capable of detection. According to experiments made in France, the sense of smell is more acute in men than in women. *See* NOSE.

Smells, Offensive, about a house are usually caused by defective drainage, or non-removal of refuse. (*See* DRAINAGE; SCAVENGING.) About the person they may arise from the feet, nose, or other parts. Although often due to want of cleanliness, they may be due to offensive discharges or diseases of the bones or teeth. *See* BREATH, OFFENSIVE; DISCHARGES; FEET; NOSE.

Smelling-salts consist of carbonate of ammonium, and strong ammonia with various volatile oils, such as those of bergamot, orange peel, cinnamon, lemon, or lavender. *See also* VINEGAR, AROMATIC.

Smoke is injurious to the health, and destructive to clothes and furniture. Coal smoke contains sulphurous compounds which are irritating to the eyes and respiratory passages, and to some extent are answerable for the disagreeable qualities of a London fog. In the case of large factories, the law compels the owners to consume their own smoke, and it is to be hoped that similar regulations will one day be enforced in all other cases. In factories the smoke is consumed by passing it over a redhot surface, or through the fire. The grates of dwelling-rooms may be made to do the same, though rather less perfectly, by using Teale's economiser, feeding from below, and other contrivances. (*See* STOVES.) The present mode of imperfectly burning coal is very wasteful, and more intelligent methods would repay themselves in saving of fuel, diminished consumption of gas, and diminished destruction of property.

Smoking. *See* TOBACCO.

Smothering. *See* SUFFOCATION.

Snakebite. *See* BITES AND STINGS.

Sneezing is an early sign of colds, influenza, measles, hay asthma, and some other diseases. It may also be excited by dust and other irritants. Sniffing camphor, or Ferrier's snuff, or Weaver's iodate crystals in powder, will often put a stop to this troublesome complaint.

Snowblindness is usually accompanied by throbbing pain and great sensitiveness to light. It may be prevented by wearing dark glasses.

Snuff. *See* TOBACCO.

Snuffles.—A chronic cold in the nose in an infant. It is usually a sign of an unhealthy constitution.

Soap is usually made by boiling fats and oils with caustic soda. The fatty acids unite with the alkali, glycerine being liberated. On the addition of brine, the soap rises to the surface, and may be further purified, medicated, or scented, and pressed into bars or cakes. SOFT SOAP is made with caustic potash; shaving soaps have sometimes a similar composition. MARINE SOAP is made with cocoa-nut oil, and may be used with sea-water without being rendered insoluble. Of the other varieties of soap, only a few of the best known can here be mentioned. CURD SOAP is made from tallow and soda. In YELLOW SOAP there is in addition some resin, which renders it irritating to a delicate skin. Excess of resin makes the soap wanting in firmness, and indicates a poor quality. HONEY SOAP is a purified scented variety of yellow soap, coloured with saffron. CASTILE SOAP, MARSEILLES SOAP, and VENETIAN SOAP, are made chiefly from olive oil, with more or less linseed, poppy, or ground-nut oil. White Castile soap is a very pure variety, used in pill-making. PALM OIL SOAP is an excellent kind, which enters into many toilet soaps; others being made from curd soap. Amongst useful MEDICATED SOAPS may be mentioned *coal-tar* soap, *terebene* soap, and *carbolic* soap. These may be used as disinfectants after fevers, or as stimulants in some skin diseases; but for ordinary purposes may be too irritating. The cleansing power of soap depends on the fact that contact with water decomposes the soap, and liberates some of the alkali, which unites with the grease on the skin. Where the mildest kind of soap causes irritation of the skin, it is a good plan to bathe the surface with lemon juice beforehand, or to anoint the surface afterwards with a little pure sweet-almond or olive oil. Should this not answer, friction with hot soft water, or bran water without soap, may do better, or dry rubbing with fuller's earth or a mixture of kaolin and starch powder. These measures are especially suited to skins affected with eczema, for which plain water is injurious.

Soda.—One of the two common alkalis, containing a metal (*sodium*) which is also present in common salt, Glauber's salts, Rochelle salts, borax, and many other familiar substances. Salts of sodium exist largely in the blood and all the secretions of the body, and form essential ingredients of our food.

The CARBONATE and BICARBONATE are much used in medicine to neutralize acidity. The bicarbonate yields more carbonic acid gas, and is therefore less alkaline. (*See* EFFERVESCING MEDICINES.) Lozenges are sold, each containing 5 grains. Dose, 10 to 30 grains. (*Pr.* 9, 12, 13, 30, 46.) SODA WATER often consists merely of distilled water impregnated with carbonic acid gas; but it should by rights also contain 30 grains sodium bicarbonate to every pint. PHOSPHATE of soda in small doses (1 drachm) is diuretic, in large doses (1 oz.) aperient, acting on the liver. If given in soup it is almost tasteless. SULPHATE of soda, or Glauber's salts, is an aperient in doses of ½ to 1 oz. It has a bitter, nauseous taste. TARTARATED SODA — Rochelle salt, contains both potash and soda. Dose as a diuretic, ½ dr.; as an aperient, 2 to 4 drs. It may be given in coffee. EFFERVESCING CITRO-TARTRATE of soda is a granular powder which effervesces on addition of water, forming an agreeable mild aperient. Dose, 1 to 4 drs. For caustic soda *see* CAUSTICS; *see also* BORAX; CHLORINATED SODA; HYPOSULPHITES; SULPHITES; SALT.

Soft Water. *See* WATER, HARDNESS.

Soil is an important element in the health of a place. A damp soil fosters rheumatism and heart disease, consumption and bronchitis, and increases the mortality from measles, whooping cough, and pneumonia. Careful subsoil drainage and provision of concrete foundations, with a proper damp-proof course, will do much to render a house dry even on a damp soil, but cannot prevent the greater moisture of the overlying air. Clay soil is only safe on a hill with considerable slope. Chalk is dry and healthy above the water line. The healthiest soils are probably the hard rocks (granite, slate, millstone grit, etc.), gravel and sand on a porous subsoil, sandstones and limestones. Lowlying clay or alluvial soil (such as that in the valley of a river),

marshy land, gravel or sand over clay and marl, are nearly always unhealthy. *See* HOUSE.

Soilpipe. *See* DRAINAGE.

Solanum. *See* DULCAMARA; POTATO; POISONS.

Soldiers. *See* OCCUPATION.

Somnambulism. *See* SLEEP-WALKING.

Sores. *See* ULCERS; WOUNDS.

Sore-throat is a common symptom of scarlatina, and some other infectious fevers; it may also be caused by impure water and bad drainage, and is especially common among neglected scrofulous children and rheumatic adults. Other causes that may be mentioned are, tobacco smoking, the excessive use of fermented liquors, highly seasoned dishes, and hot fluids, exposure to damp and cold, the injudicious use of the voice, and injury from irritating gases or fish bones swallowed. Those who live in foul, ill-ventilated rooms, and follow a sedentary occupation, are especially liable to suffer from sore throat. Debility from whatever cause also predisposes to such attacks. Dr. Corfield has shown that sorethroat may arise from slight escape of coal gas.

In ACUTE SORE-THROAT swallowing is painful, and there is fever, headache, and digestive disorder. In slighter attacks there is little beyond local discomfort. The voice is husky and quickly fatigued, the throat feels uncomfortable, stiff, and dry, or perhaps painful. There is continual hawking up of phlegm, and if the uvula is elongated, a troublesome hacking cough, worse on lying down.

Treatment.—If there is fever, give an aperient, followed by aconite (*Pr.* 31) every hour; small pieces of ice to suck, or a spray of cold salt water (a teaspoonful to a pint) from a hand spray; and wet compresses outside the throat. Sometimes inhalations of steam, or gargles of warm milk and water, or borax (No. 2), are grateful. If there is a tendency to ulceration, chlorate of potash lozenges should be taken, or in rheumatic constitutions salicylate of soda (*Pr.* 43). Diet should be bland and semi-solid. The patient should remain in a warm, well ventilated room, but need not keep his bed. When the fever is gone, guaiacum lozenges are useful, one every three hours, and during convalescence alkaline tonics. *See* TONICS, and *Pr.* 36.

RELAXED SORE-THROAT, or chronic sore-throat, is often the result of an acute attack of quinsy, or of ordinary sore-throat. It is usually associated with sedentary occupation, debility, digestive disorders, abuse of alcohol or tobacco, or improper use of the voice. Clergymen and lecturers who overstrain their voice, and "speak from the throat" rather than "from the chest" are especially liable to this disorder, which has in consequence received the name of clergyman's sore-throat. The *symptoms* are those of mild continued sore-throat, without fever or constitutional disturbance. There is hawking of phlegm, chronic cough, dryness in the throat, and constant inclination to swallow. From time to time the symptoms are aggravated. *See below for* ULCERATED SORE-THROAT.

Treatment. — Improve the general health by regular exercise in the fresh air, plain nourishing food, bathing in salt water, and if possible change of air and scene. Give up smoking, and rest the voice as much as possible. Clergymen should rest from their ordinary duties one day in the week, and spend it in the open air. All those who are obliged to use their voice in public speaking or singing, should learn to do so in the way which involves least effort. For this purpose lectures on elocution will be useful. Tonics (*see* TONICS) will probably be required, and a saline aperient every morning if there is a sluggish digestion or a tendency to liver disorder. Then to the throat, apply glycerine of tannin with a brush, at first two or three times a day, then night and morning. Or use Corbyn's compound eucalyptus lozenges three or four times a day. Other useful remedies are, chlorate of potash lozenges, guaiacum lozenges, benzoic acid lozenges, Brown's bronchial troches, capsicum gargle (No. 5), or spray inhalations of common salt (a teaspoonful to a pint), alum or tannin (15 grains to 1 oz.), or sulphate of zinc (5 grains to 1 oz.). Of these spray inhalations, two or three teaspoonfuls may

be used at a time. A cold wet compress may be applied to the throat every night. *See* LARYNGITIS; QUINSY; TONSILS.

ULCERATED SORE-THROAT may be an aggravation of relaxed sore-throat, or a complication of scarlatina, German measles, etc. It is usually associated with debility, so that plenty of good digestible food is required, with port wine, stout, or other stimulants, and tonics during at all events the later stages of the complaint. When there is fever, the treatment should be that of *acute sore-throat*. (*See above.*) When the fever abates, *Pr.* 6, 37, 38, will be more useful. Locally, during the later stages, gargles of borax, or chlorate of potash (Nos. 2, 3), may be followed by more astringent gargles (Nos. 1, 4), or spray inhalations (INHALATIONS, Nos. 6, 7, 9). If the breath is offensive, sanitas gargle (No. 6) or spray inhalation (No. 12) will be useful.

Sound.—An instrument for exploring cavities in the body.

Soup is, when properly made, an exceedingly nourishing and digestible form of food. The nourishing power of a food does not at all depend on its solidity. All food before absorption must be liquefied in the digestive canal, and where the digestion is feeble, or there is a great demand for liquids, soups and broths are preferable to more solid preparations. Ordinary meat soups are rich in albuminous foodstuffs, but wanting in starch; hence the custom of adding flour and other farinaceous foods to thicken soup. For invalids, baked flour, malted foods, or biscuit powder, may be added. *See* BEEF-TEA; MEAT-EXTRACTS.

Spanish Fly. *See* CANTHARIDES.

Spasm.—An involuntary and usually painful contraction of the muscles. Colic is spasm of the stomach or bowels; in asthma there is spasm of the muscles of the air-tubes. Spasm also affects the muscles of the trunk and limbs, which are under the control of the will. In cramp the spasm is uninterrupted (*tonic*) while it lasts; in twitching and convulsions, the spasm is repeated with very short intervals (*clonic*). *See* ANGINA PECTORIS; ASTHMA; COLIC; CONVULSIONS; CRAMP; EPILEPSY; FLATULENCE; HYDROPHOBIA; INDIGESTION; LOCK-JAW; MUSCLES; NUX VOMICA; WHOOPING COUGH.

Spatula.—A blunt flexible knife, used for mixing powders, spreading ointments, etc. The best are of iron, about three or four inches long in the blade.

Spearmint. *See* MINT.

Specific.—A medicine which cures a particular disease or symptom. Thus quinine is a specific for ague, arsenic for psoriasis. A SPECIFIC DISEASE is one which is distinct from all others, usually owning a distinct cause. Thus scarlatina and itch-disease are both specific diseases.

Spectacles are chiefly made to correct the three common defects of sight—short sight, long sight, and astigmatism; but they may also be worn as a protection. Old sighted people require convex spectacles for near objects. Those who are long sighted in early life need them for both near and distant objects. In short sight two pairs of concave spectacles are required; and for astigmatism the glasses must be made cylindrical. It is not uncommon for two defects to be combined; and the two eyes are often unlike. Very frequently when the sight fails, the general health is at fault, so that it is better in the first instance to consult a good oculist than an optician. Spectacles should be made to fit the bridge of the nose, and of the right size and shape to completely cover the eyes. The best lenses are made of "pebble" cut at right angles to the axis of refraction. The only way of insuring good quality is to go to an optician of repute. It is scarcely necessary to observe that spectacles made for one person are very unlikely to be of the right kind for another; and to adopt spectacles at random is bad economy. Children with imperfect eyesight should, if possible, be fitted with suitable spectacles. Otherwise they not only strain their eyes in looking at objects out of focus (and perhaps suffer from periodic headaches from the same cause), but also learn far less from their surroundings than their more favoured companions. Some useful hints on spectacles may be obtained from "Our Eyes," by John Browning.

Speculum.—An instrument with a mirror for the examination of internal parts of the body, such as the rectum or womb.

Speech.—Defects of speech may depend upon paralysis of the muscles, or injury or disease of the nerves; or it may arise from loss of control through deafness, or from some change in the brain. Children who become deaf through measles or scarlatina at an early age, sometimes pass into a condition similar to that of congenital deaf-mutes. (*See* DEAF-MUTES.) Lisping is occasionally due to tongue-tie (*see* TONGUE); but more often to carelessness or bad training. Stammering and stuttering arise from imperfect nervous control over the muscles. These defects may be caused by nervousness or debility, or too great eagerness to speak; and are often curable by careful training and exercise of the organs of speech. Many nervous diseases cause blurring or indistinctness of speech through paralysis of the nerves which control the speech-muscles. A curious disorder affecting speech goes by the name of aphasia (*which see*). Here it is rather the power of associating things with their right names which is lost. Thus a patient with aphasia may call a book a chair, or quite forget the right name of a familiar article, and describe it by circumlocution. Hysterical and insane people often present defects in speech which are due to their mental condition.

Spermaceti.—A kind of fat obtained from the head of the sperm whale. It is chiefly used as an ingredient of ointments (*which see*).

Sphincter muscles are bands of muscular fibre, usually arranged in a circle, whose office it is to close the openings which they surround. There is a sphincter muscle between the stomach and bowel; another at the anus, and a third at the neck of the bladder.

Sphygmograph.—An instrument for taking a pulse tracing by means of a lever which writes upon a moving surface. *See* PULSE.

Spica. *See* BANDAGES.

Spices include cinnamon, cloves, ginger, allspice, coriander, cardamoms, and other substances, all of which contain an essential oil, and may be suitably combined with sugar. *See* AROMATICS; CARMINATIVES; CONDIMENTS.

Spider's Web is sometimes used to stop bleeding, but is not to be recommended, owing to the dust which often adheres to it. *See* HÆMORRHAGE.

Spinach. *See* VEGETABLES.

Spina Bifida.—A condition in which the spinal canal is unclosed in some part of its course, usually from birth. It is sometimes curable; but children suffering from this complaint often die young.

Spine, spinal or vertebral column, consists of a chain of bones (*vertebræ*) placed one over the other, which form a series of bony arches behind, protecting the spinal marrow (*Fig.* 48). There are seven vertebræ in the neck, twelve with ribs attached, five in the loins, and a number fused together to form the sacrum and coccyx. (*See* PELVIS.) The bodies (or front parts) of the vertebræ are united by discs of cartilage, which increase the elasticity and mobility of the column. The column is largest below, forming a sort of long, slender pyramid, thrown into alternating curves to accommodate the chest-organs and preserve the

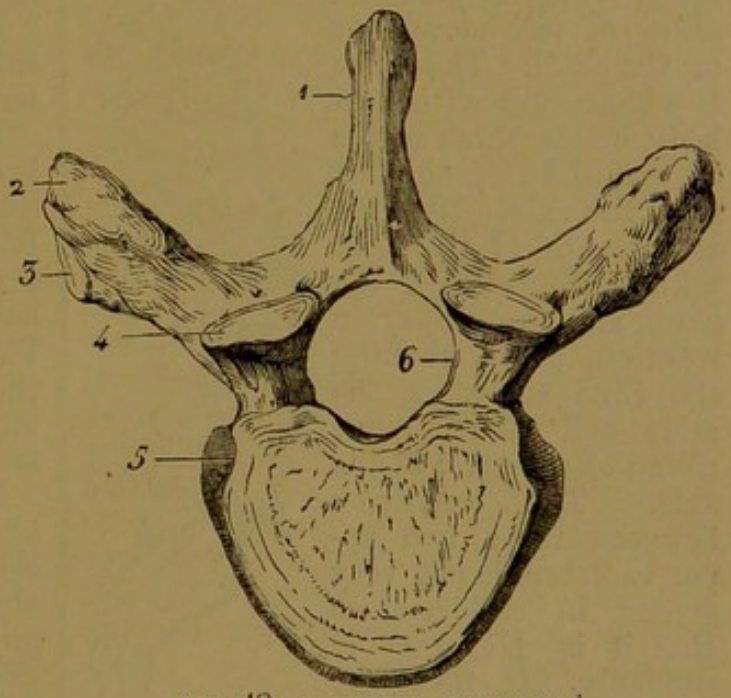

FIG. 48. A DORSAL VERTEBRA.

1, Spinous process; 2, transverse process; 3, facet for rib; 4, upper articular process; 5, body; 6, pedicle. The figure is placed inside the spinal canal.

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balance of head and body (*Fig.* 49). The arches of the vertebræ are united by elastic ligaments which stretch whenever we bend forward. The prominent middle point of each arch may be felt under the skin. This and other projections at the sides give attachment to muscles.

The spinal column is rather longer in the morning than at the end of the day, owing to the elasticity of the intervertebral discs of cartilage. The least movable part is that giving attachment to the ribs. The first two vertebræ in the neck, which go by the name of atlas and axis, are specially modified to allow of free movement of the skull. The atlas is a bony ring without a body, inside which moves a pivot-like projection from the axis. Nodding movements of the head take place between the skull and the atlas; in rotation, as in shaking the head sideways, the atlas and skull move round on the pivot of the axis. The connexion between these two upper vertebræ is not very strong in children, so that it is dangerous to suddenly lift them by the head. Such an action has been known to cause fatal displacement.

FIG. 49.
SIDE VIEW OF THE SPINAL COLUMN.
Showing the vertebræ placed one above the other, forming a series of curves, and united below to form sacrum and coccyx.

Spinal Bag. *See* HOT BOTTLES AND BAGS; ICE.

Spinal Cord. — This may be compared to a stick, of which the brain is the knob. It is placed inside the spinal canal, surrounded by protective membranes in which run the large blood-vessels, and between which is a watery fluid (*cerebro-spinal fluid*) forming a sort of water-bed for prevention of jars and shakes. Pairs of nerves are given off all the way down the spinal cord. The largest are distributed to the limbs, and communicate with one another before distribution, forming a sort of network or plexus. Each nerve arises by two roots, that in front being concerned with movement, the one behind with sensation. A section of the spinal cord shows it to be made up of a central gray core and an outer white crust. The core contains groups of nerve-cells from which arise the roots of the nerves. The white part is almost entirely made up of nerve-fibres which form communications between different parts of the brain and cord. An injury to the spinal cord may cause paralysis of the body below the injured part. (*See* PARAPLEGIA.) Some diseases have a similar result.

Spinal Curvature. — Several different diseases are included under this term.

ANGULAR CURVATURE or *Potts' disease*, is caused by inflammation of the spinal column, especially of its bones (*caries*). It is chiefly found in scrofulous or delicate children and young people, who have received a blow or other injury. The carious process usually attacks the front of the spine, and causes an unnatural prominence or loss to appear under the skin of the back.

The earliest *symptom* is usually pain at the affected spot, or reflected along the nerves to the front of the chest or abdomen. The pain is aching, severe gnawing, or shooting, increased by the slightest movement or jar. A child affected with this disease will walk very carefully, avoiding false steps and often helping itself by holding on to furniture. It will avoid all sudden movements, jumping or twisting; in picking up things from the floor it will bend the legs but keep the back stiff and upright; and in getting up from the floor will steady and support itself by pressing the hands on the thighs. It will give up all games, and prefer to keep lying down, as the pain is diminished by whatever takes the weight off the spine. When examined, a tender spot will be

found along the back, which may project at that part. A gentle tap at the top of the head causes pain at the tender part. When the disease is in the neck, stiff neck will be complained of, the child preferring to turn the whole body round rather than the head alone. If the disease is allowed to advance, a decided hump appears, and the health suffers. Matter forms in front of the spine, and finds its way down to the groin, where it gives rise to a swelling. During this process there is often fever towards evening, with a bright flush on the cheeks, and profuse perspirations at night, much as in some kinds of consumption. By many surgeons the disease in the spine is regarded as of the same nature as consumption and "scrofulous" inflammation of bones and glands. Occasionally the disease causes paralysis from pressure on the spinal cord; but under proper treatment this is often curable. The usual result in neglected cases is recovery with extreme deformity, after some years of suffering; but occasionally the child dies. On the other hand, if the disease is promptly attended to, it may be completely cured within a twelvemonth.

The TREATMENT is mainly to render the spine immovable and to support the strength by good food, fresh air, and suitable tonics. (*See* SCROFULA.) The spine may be fixed by a leather or felt jacket carefully moulded to the body, or by a plaster of Paris (Sayre's) jacket. The latter, if well applied, is decidedly the best, and may be worn for three months and then reapplied. Much depends on its proper application; if too loose it does not support the back; if too tight or unevenly applied it interferes with breathing and digestion, or causes pain or sores on the skin. The weight of the body is usually taken off the spine during the application of the jacket, either by the hands placed under the armpits, or by lifting from the head with a "Sayre's swing." When the disease is in the neck, this may be fixed by a jacket and a "jury-mast" of metal with bands under the chin, or by a broad, stiff felt or metal collar resting on the shoulders; or failing such methods, by sandbags placed in bed on either side of the head and neck. It is of extreme importance to avoid the slightest movement of these parts, as sudden death might follow.

LATERAL CURVATURE is chiefly met with in growing girls and delicate boys. It is really a sinuous twisting of the spine, caused by muscular weakness and bad habits of position or movement. School-girls sitting long hours on forms without any support to the back, or engaged in one-sided movements, such as sewing or writing in old-fashioned ways, are apt to become deformed in this way. Nursemaids who have to carry heavy children on one arm, servants who carry heavy weights, or overworked shop-assistants who are long on their feet, and get into the habit of standing on one leg, are also likely to be affected. Other causes are occasionally met with, such as, for instance, the wielding of a heavy forge-hammer by a young man whose frame is not yet properly set. It is also common to get lateral curvature from club-foot, lameness, or hip-disease; high-heeled boots have been credited with a like result.

The first noticeable *symptom* is usually a projection or "growing out" of one shoulder, which becomes a little lower than the other; the head is habitually turned slightly to one side, one hip projects more than the other, and the corresponding side of the body is unnaturally hollowed out. When the patient is stripped and a finger rubbed up and down over the prominences of the spine, the red line thus produced is seen to be doubly curved like the letter S. In early stages the patient can draw herself straight, and the deformity only appears when she gets tired by a few moments' standing. In more advanced cases the deformity can only be removed by the pressure of the hand or of a spinal support. After a while the bones become altered in shape, so that a perfect cure is no longer possible. Unequal projection of the chest is common in such cases, and the heart and lungs are compressed, so that the breath becomes short, palpitation comes on after exertion, and bronchial attacks are more than usually dangerous. The deformity is sure to

cause some discomfort to the patient, who always feels tired, and may be reduced to chronic invalidism.

TREATMENT.—Carefully avoid everything likely to aggravate the condition, such as long standing, one-sided positions or occupations, carrying heavy weights, or sitting without proper support for the back. Even habitually turning the head to one side may lead to spinal curvature in those who are not strong; and awkward habits of lolling in chairs, leaning on one elbow, and the like, are still more apt to produce it. Writing should be done with the body square to the table, the two arms placed symmetrically, and the paper held a little aslant, so that the up and down strokes are upright, and the head can be held straight. Whenever growing young people complain of backache they should be allowed to rest several hours a day on their backs. To further strengthen the muscles, tonics (*see* TONICS), good food, fresh air, and attention to the usual rules of health are of importance. (*See* HYGIENE.) Suitable exercise with the dumb-bells, Indian clubs, "chest expanders," and the like, are of the greatest value in developing the muscles; and the weaker side may sometimes be strengthened by one-sided exercises; although this must be left to the judgment of a surgeon, preferably one who has had experience in such ailments. While the house is being built, a scaffolding is necessary, which may take the shape of a light spinal support, which interferes as little as possible with muscular development. Rigid supports of felt or plaster of Paris are useful in extreme deformity, but not to be recommended in other cases. Where no support is used, the whole time must be given alternately to suitable exercises, and to rest on a couch or reclining-board. The latter may be made of cushioned boards at an angle of 30°, with a horizontal platform at the top. The patient lies face downwards, and rests her arms on the platform. The use of shoulder-braces and back-boards is not advisable, excepting as reminders of awkward positions. To draw back the shoulder does little or nothing to strengthen the back. Where spinal curvature is secondary to lameness, etc., the latter must first be remedied.

Rickety Curvature differs slightly from that due to other causes. It should be treated like rickets generally, together with local support. *See* RICKETS.

Other forms of spinal curvature are also met with, such as the rounded-back, so common in weakly infants and in old people, or in children who have outgrown their strength; and the incurved back, in which the natural hollow in the loins is exaggerated. The former, when it occurs in young people, may be treated like lateral curvature.

Spirits. *See* ALCOHOL; FERMENTED LIQUORS; STIMULANTS. For spirits of lavender, chloroform, etc., *see* LAVENDER; CHLOROFORM, etc.

Spirits, Low. *See* INSANITY; INDIGESTION.

Spirometer.—A machine like a small gasometer, with a tube, intended to measure the capacity of the chest. A full breath is drawn in, and forcibly expelled through the tube. Those with diseased lungs expel less air than those who are healthy. There is a fairly constant relation in health between the stature and the amount expelled. Thus at 5 ft. 1 in. the amount is 174 cubic inches, and for every additional inch, up to 6 ft., there are 8 cub. ins. more expelled.

Spitting of Blood. *See* BLOOD-SPITTING.

Spleen or *milt*, is placed at the left end of the stomach. (*See* ABDOMEN.) It is shaped like a flat cake with the edge forwards, the bloodvessels forming a sort of stalk. The capsule is elastic, and the internal texture spongy and brownish-purple in colour. During a late stage of digestion it swells up and contains much blood. It is supposed to be concerned in the manufacture and destruction of blood corpuscles. In disease of the spleen, the blood becomes pale and crowded with white corpuscles. The spleen enlarges in ague, typhoid fever, and some other diseases.

Splint.—A support for a broken limb. Splints are made of wood, metal, leather, poro-plastic felt, gutta percha, millboard,

and other materials (*Figs.* 50, 51). Very good splints are also made with linen, flannel, or paper stiffened with gum, starch paste, plaster of Paris, and similar materials. These are moulded to the limb while soft, and left undisturbed until they set hard. Care must be taken in using these, not to stop the circulation, which might lead to mortification of the limb. Temporary splints may be made with walking-sticks, umbrellas, or rolls of newspaper. *See* FRACTURES.

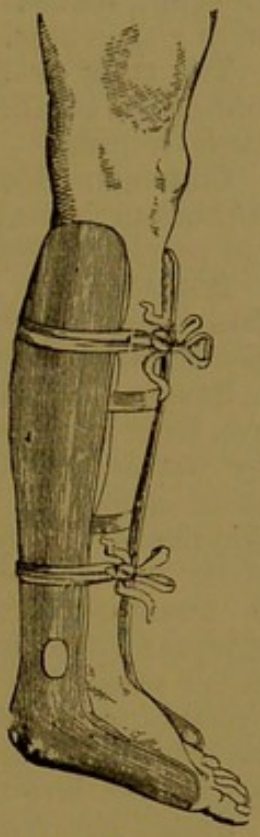

FIG. 50. SIDE-SPLINTS FOR LEG.

Sponges should be soft and free from gritty particles. If used in dressing wounds (which is not advisable) they must be thoroughly boiled with sanitas or corrosive sublimate (1 to 1000) before being used again. Neglect of this precaution might cause erysipelas or blood poisoning. Burnt sponge was formerly much used as a medicine for goitre.

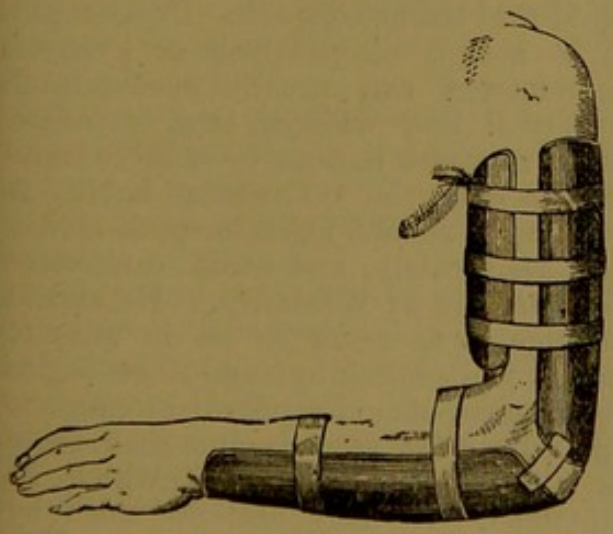

FIG. 51.
SIDE-SPLINTS FOR ARM AND FOREARM.

The virtue probably depended chiefly on the iodine which it contains.

Spongio-piline is a convenient and cleanly substitute for a poultice. Where there is pain, it may be sprinkled with opium or belladonna liniment; for counter-irritation, ten drops of oil of mustard may be put on it; for simple heat, it may be wrung out of boiling water. The chief objection to it is its expense.

Sporadic attacks of disease are such as occur in isolated cases instead of epidemics.

Sprain. — Forcible overstretching of the ligaments and muscles supporting a joint, without dislocation. The ankle and wrist are most liable to sprain; injury to more movable and less protected joints, such as the shoulder, usually resulting in dislocation. A severe sprain causes pain, swelling, and a sense of weakness in the injured part, together with more or less faintness. The pain and swelling soon interfere with the power of movement, and compel the patient to rest the joint. Sprains, however slight, should never be neglected, as they are apt in such a case to lead to permanent weakness. It is not uncommon for a fracture to accompany a sprain, so that surgical advice should always, if possible, be obtained. The damage may, however, be greatly diminished by prompt treatment, so that in the absence of obvious signs of a broken bone, a little household surgery is to be recommended. The first thing to do to a sprained joint is to bind it up firmly so as to prevent all movement. This may be done by means of an ordinary roller bandage, or with a handkerchief folded in three and soaked in gum, starch, or plaster of Paris. A roller bandage if available is decidedly the most convenient. (*See* BANDAGING.) It should be applied firmly, but not so tightly as to stop the circulation; and will very likely have to be readjusted when the limb swells. The injured part should be rested in an elevated position, to prevent the swelling as far as possible. This may be aided in one of two other ways; *viz.* by plunging the part into water as hot as can be borne, or by keeping it cool by means of a stream of cold water or an evaporating lotion (LOTION *No.* 1). If the latter is used, the bandage must be only of a single thickness, or the layer next the skin will get heated

and act as a sort of poultice. After this, if there is no sign of inflammation, the joint should be carefully rebandaged with a dry muslin bandage, cotton wool being heaped up under it over all the soft parts which are swollen, so as to restore them by elastic pressure to their natural condition. It will save time and discomfort to have this done by a surgeon. Still later, when all acute tenderness has disappeared, much good may be done by gentle shampooing or massage, and alternate bathing with hot and cold salt-water. Liniments (*Nos.* 1, 2, 3) are useful at this stage. How soon the limb may be used, is a point only to be decided by experience. If moved too soon, there is danger of inflammation and of long-standing weakness; if kept quiet too long, the joint may become stiff. This may be prevented by careful passive motion; but in a doubtful case it is better to rest the joint too long rather than too little. *See* BONE-SETTERS.

Spray Producers are of two kinds, in one of which the liquid is finely subdivided by a current from a hand-ball; while in the other it is mixed with steam from a small vessel. Of the latter, Siegle's and Lee's are well known varieties.

In Richardson's ETHER SPRAY, methylated ether is sprayed upon the skin in order to make it insensible for small operations. *See* ANÆSTHETICS.

Spray Inhalations. *See* INHALATIONS.

Sputum.—Material expectorated or coughed up.

Squill.—The sliced and dried bulb of a plant belonging to the lily tribe, brought from the shores of the Mediterranean. It is a valuable remedy for late stages of bronchitis, when the secretion is plentiful and difficult to expel. It also increases the flow of urine, and strengthens the heart. Large doses may cause vomiting and purging. The chief preparations are:

VINEGAR OF SQUILL ($2\frac{1}{2}$ ozs. bruised squill, 1 pint vinegar or dilute acetic acid; macerate for 7 days, press and strain, add $1\frac{1}{2}$ ozs. proof spirit, and filter). Dose, 15–40 minims.

OXYMEL OF SQUILL contains 1 part vinegar of squill, 2 parts honey. Dose, $\frac{1}{2}$–1 fl. dr.

SYRUP OF SQUILL contains 1 pint vinegar of squill, refined sugar $2\frac{1}{2}$ lbs.; dissolve with gentle heat. Dose $\frac{1}{2}$ to 1 fl. dr.

TINCTURE OF SQUILL is suitable for adding to alkaline preparations. Dose, 10–30 minims.

COMPOUND SQUILL PILL contains ammoniacum; suitable for chronic cough of old people, with profuse flow of mucus.

IPECACUANHA AND SQUILL PILL contains Dover's powder and ammoniacum. *See* EXPECTORANTS; IPECACUANHA.

Squint may arise from defects in the eye, from irritation of the nervous system by worms, teething, brain disease, and other causes, or from paralysis of the muscles of the eyeball. Internal squint often arises from "long sight," due to unnatural shortness of the eyeball; external squint from "short sight." In either case there is a tendency for one eye only to be used. An occulist should be consulted, and suitable spectacles worn. *See* EYE; SIGHT, DEFECTS OF.

Stab. *See* WOUNDS.

Stammering often arises from nervous debility. Children who have been growing fast, or overworking themselves at school, sometimes begin to stammer when they have previously spoken naturally. In other cases stammering is due to an inherited defect, appearing when the child first learns to speak. Occasionally it is a sign of paralysis or hysteria. Stammerers can usually speak intelligibly if they whisper, sing, or intone. Much may also be done by suitable training to cure the distressing habit. A stammerer should learn to speak slowly and deliberately, and avoid excitement or attempts at volubility. He should arrange so as never to be in want of breath while speaking; and if he begins to stammer, should avoid all attempts to speak for a few seconds, and then begin at the word or letter at which he stumbled. He may also do much by practising combinations which include the difficult sounds. When vowels are a difficulty, the stammer may sometimes be removed by a deep inspiration before attempting to pronounce them. Where the general health is not good,

tonics, fresh air, and good, wholesome food are serviceable.

Starch.—An important food-stuff, consisting chemically of carbon, together with the elements of water (hydrogen and oxygen). Many varieties exist, mostly derived from the vegetable kingdom. (*See* FARINACEOUS FOODS.) They are chiefly distinguishable by the microscopical appearance of the starch grains. Glycogen, which represents starch in the animal kingdom, is largely present in the liver. Starch when boiled swells up into a pasty mass (*mucilage of starch*), and becomes partly soluble in water. Heated to a higher temperature it is converted into "British gum." In cooking starchy food, the starch grains are cracked and prepared for the action of the digestive juices. Uncooked starch is very indigestible for the human stomach.

Starch is digested partly in the mouth by the saliva, and partly in the small bowel by the pancreatic secretion, being converted into soluble starch, malt sugar, and grape sugar. A similar change takes place in making malted foods (*see* PREDIGESTED FOODS) and in the germination of most seeds. In bread-making, some of the starch is converted by the living yeast plant into alcohol, carbonic acid gas, and water; these products, in escaping, cause the vesiculated condition of bread, which renders it more digestible. (*See* BREAD.) Starch paste is used in surgery for stiffening bandages and forming splints.

MUCILAGE OF STARCH—made by rubbing up 120 grs. starch with ½ pint water, and then boiling—is used as an enema in diarrhœa, some laudanum being often added.

GLYCERINE OF STARCH is useful as an application to broken chilblains, ulcers, and sore places. It is made by stirring up in a porcelain dish 1 oz. starch, 5 fl. ozs. glycerine, and 3 fl. ozs. distilled water, then heating, and stirring continuously until a transparent jelly is formed.

Starchy Foods. *See* FARINACEOUS FOODS.

Starvation is often present when little suspected, especially in children. To give food which is indigestible or unsuitable is little better than starvation, and may cause much the same symptoms. When people have been deprived of food by shipwreck or other accident, the power of survival depends greatly upon the supply of water, the amount of exposure to wind and weather, and the extent to which the body has been prepared for the ordeal. Sudden deprivation of food and drink causes death within about a fortnight, without much loss of weight. With a good supply of water, people can survive much longer.

Since food acts partly as a source of heat, keeping the body warm diminishes the need for food. This should be remembered wherever the powers of digestion or assimilation are weak. Where people are gradually starved, death usually happens when the body has lost two-fifths of its weights; which may happen at any period up to two months. Inflammation of the bowels, or of the eyes, is apt to show itself in ill-fed individuals. Diarrhœa in children is often due to insufficient or unsuitable food. Hence the frequency of this symptom in hand-fed infants which have been supplied with food only fitted for their elders. (*See* INFANTS' FOOD; RICKETS; SCURVY.) Relapsing fever especially attacks the half-starved.

Statistics.—In order to prevent disease, we must know its causes and distribution; and for this purpose accurate information is required as to (1) the population of each district; (2) the births, deaths, and marriages, prevailing diseases, etc.; and (3) the age, sex, condition, and cause of death of every person who dies. Such information, which is the subject-matter of "Vital Statistics," is obtained by the decennial census of the Registrar-General, by the notification of some diseases to the sanitary authorities, and by special inquiries made by medical officers of health and others for the Local Government Board, various friendly societies, etc. The subject of vital statistics is very clearly expounded in a work by Dr. Newsholme, from which the following facts are borrowed:

The DEATH-RATE in England has considerably declined since the passing of the Public Health Acts of 1872 and 1875. Before this, the death-rate per 1,000

living was about 22·6 for England and Wales; in 1888 it had declined to 17·83. The death-rate is lowest between 5 and 25 years of age; highest before 5 and after 55. *Infantile* mortality is always a valuable measure of the health of a district. It has been calculated that of 1,000 children born, 150 die in the first year, 54 in the second, 28 in the third, 18 in the fourth, and 14 in the fifth, making a total of 264 deaths for the five years. The chief causes for this mortality are natural feebleness and inherited weakness of constitution, improper food and the absence of breast-milk, and attacks of zymotic diseases, such as epidemic diarrhœa, whooping-cough, and measles. The neglect or inexperience of mothers has a great influence on infantile mortality. Hence this is much heavier among the poor and the children of mill-hands, and relatively heavier in the offspring of young parents. The use of soothing syrups is probably responsible for many deaths of young children. The *total* death-rate is greater among poor people than among those of better social position. It is also greater in overcrowded districts and houses. The "comparative mortality" of some of the chief trades and occupations in 1880–2 is shown in the following table:

All males	1,000
Occupied males	967
Unoccupied males	2,182
Males in selected healthy districts	804
Clergyman, Priest, Minister	556
Gardener, Nurseryman	599
Farmer, Grazier	631
Labourer in Agricultural Counties	701
Schoolmaster, Teacher	719
Grocer	771
Fisherman	797
Carpenter, Joiner	820
Bookseller, Stationer	825
Barrister, Solicitor	842
Draper and Manchester Warehouseman	883
Groom, Domestic Coachman	887
Coal-miner (six districts)	891
Plasterer, White-washer	896
Watch and Clock-maker	903
Tanner, Fell-monger	911
Shoemaker	921
Artist, Engraver, Sculptor, Architect	921
Commercial Traveller	948
Corn Miller	957
Baker, Confectioner	958
Builder, Mason, Bricklayer	969
Blacksmith	973
Commercial Clerk and Insurance Service	996
Tobacconist	1,000
Chemist, Druggist	1,015
Tailor	1,051
Printer	1,071
Wool or Worsted Manufacture (West Riding)	1,082
Cotton or Linen Manufacture (Lancashire)	1,088
Physician, Surgeon, General Practitioner	1,122
Law Clerk	1,151
Butcher	1,170
Glass Manufacturer	1,190
Plumber, Painter, Glazier	1,202
Cutler, Scissors, Needle, Saw, Tool-maker	1,273
Carter, Carrier, Haulier	1,275
Bargeman, Lighterman, Waterman	1,305
Musician, Music-master	1,314
Hair-dresser	1,327
Brewer	1,361
Cab, Omnibus Service	1,482
Chimney Sweep	1,519
Inn-keeper, Publican	1,521
Messenger, Porter, Watchman	1,565
File-maker	1,667
Earthenware Manufacture	1,742
Miner (Cornwall)	1,839
Costermonger, Hawker, Street-seller	1,879
General Labourer (London)	2,020
Inn or Hotel Servant	2,205

In those towns and sanitary districts in which there is *compulsory notification* of disease, smallpox, scarlet fever, diphtheria, typhus fever, and typhoid are invariably included in the schedule of notifiable diseases. In a few towns measles is notified. Epidemic diarrhœa should also be included. Notification is compulsory on either the doctor or householder, or on both. Considering the importance of the conclusions to be drawn from tables of vital statistics, and the great assistance which they give in preventing disease and diminishing the death-rate, it is obviously the duty of every householder to assist the authorities to the best of his ability in the collection of the necessary data. *See* OCCUPATION; ISOLATION; DISINFECTION.

Stavesacre seeds are used chiefly to destroy lice. The powdered seeds may be used, or the B.P. ointment, made by

crushing 4 ozs. seed, and soaking in 8 ozs. benzoated lard melted in a water-bath.

Stays. *See* CLOTHING; TIGHT-LACING.

Steel. *See* IRON.

Stertor resembles snoring. It is due to paralysis of the soft palate and other parts of the throat, and occurs in apoplexy and on the approach of death from other causes.

Stethoscope.—An instrument for conducting the sounds of the chest to the ear.

Stewing. *See* COOKING.

Sticking Plaster. *See* PLASTER.

Stiff Joint. *See* ANCHYLOSIS.

Stiff Neck. *See* NECK.

Still Birth (*see* MISCARRIAGE).—When a child dies in the womb, the mother frequently feels coldness and heaviness in the lower part of the abdomen. Her breasts become loose and flaccid, and if the movements of the child have been felt, they are no longer noticed. The child may be retained for as long as a month, or expelled after a few days. If an offensive discharge appears, together with the above-mentioned symptoms, it is almost certain that the child is dead. Sometimes, however, there are no distinctive symptoms at all. It is no certain sign of death that the movements are not felt. *See* CHILD-BIRTH.

Stimulants, in the widest sense, are essential to the comfort, if not to the life, of man. Three groups may be distinguished: one including alcoholic stimulants, ether, ammonia, and allied substances; another kreatin, and various other substances derived from meat, largely represented in Liebig's extract and ordinary beef tea; and a third group, including tea, coffee, cocoa, Paraguay tea, and a number of vegetable substances used in preparing restorative beverages. This is not an exhaustive classification; for many things taken as food or medicine have stimulating properties: fresh air, exercise, and bathing are powerful stimulants, and pleasurable emotions are equally potent in this respect. All stimulants lead to the liberation of energy. Many increase the heart action, and improve the circulation through the brain and other important organs. Excessive stimulation causes lethargy—as the late Dr. Anstey pointed out, most narcotics are, in small doses, stimulants, and stimulants in large doses act as narcotics. *Alcoholic* stimulants are referred to under ALCOHOL and FERMENTED LIQUORS. For the medicinal remedies of the same group, *see* AMMONIA; ETHER; CHLOROFORM; TURPENTINE; CAMPHOR; and CARMINATIVES. For the *second* group, *see* BEEF TEA and MEAT ESSENCES. The *third* group is referred to under TEA, COFFEE, COCOA, and TEA SUBSTITUTES. Many remedies, acting specially on particular parts of the body (such as stomach, lungs, or kidneys), are either stimulant or sedative. These are noticed under other heads.

Stings. *See* BITES AND STINGS.

Stitch in the Side may be excited by running, immoderate laughing, coughing, or sneezing. It appears sometimes to be muscular, but may occasionally be due to neuralgia or to embarrassed circulation through liver or spleen. It seldom requires any treatment. *See* SIDE, PAIN IN THE.

Stomach is placed under the diaphragm, at the upper part of the abdomen (*which see*), being partly overlapped by the liver, and having the spleen at its left end. The shape may be seen in *Fig.* 52. Food enters it by the œsophagus, or gullet, and leaves it at the pyloric end, where there is a sphincter, or closing muscle, to prevent the too ready escape of the contents. The stomach has four coats—an outer serous, or peritoneal (*see* PERITONEUM); a muscular, consisting of several layers; a submucous; and a mucous coat;—the latter being loose and thrown into folds, and presenting on the surface a number of many-sided depressions, in which may be seen the openings of the gastric glands. (*See* MUCOUS MEMBRANES.) Food is acted upon in two ways in the stomach, being partly broken up mechanically by the churning movements of the organ, partly digested by the *gastric juice.* This contains a ferment (*pepsin*), together with hydrochloric acid, salt, etc.; and converts albumen and gelatin into peptones, which can pass through the walls of the

stomach into the veins and lymphatics. Fat is liberated, but not otherwise digested; and starchy matters are also unaffected by the stomach. When the stomach is weak, food may be given in a partially digested form (*see* PREDIGESTED FOODS), or followed by pepsine and other aids to digestion (*Pr.* 1).

There is a great difference in the digestibility of articles of diet. Very fat foods are apt to disagree, as the fat coats the other constituents and prevents access of gastric juice, and may also be transformed into fatty acids, which irritate the stomach, causing heartburn and acidity. Cane sugar, if taken in large quantities, also irritates the stomach. Milk is curdled in the stomach, but afterwards redissolved by the gastric juice. If mixed with farinaceous foods, gelatine, barley water, and other similar substances, the clotting takes place in fine particles instead of in large lumps, and the milk is more likely to be digested. (*See* INFANT FEEDING.) Starch is not digested by the gastric juice. When the food has been sufficiently digested in the stomach, the pylorus relaxes, and allows it to pass into the small intestine, in the form of a thick fluid of the consistence of pea-soup (*chyme*). An average meal takes from 2½ to 5 hours to digest. (*See* INDIGESTION.) The chief *symptoms* of disorders of the stomach are pain, vomiting, and loss of appetite.

PAIN IN THE STOMACH varies from mere discomfort, or dull, heavy sensation of weight, to sharp, agonising pain. It is usually due to indigestion, but may arise from inflammation, ulcer, or cancer of the stomach.

INDIGESTION and VOMITING are dealt with elsewhere.

INFLAMMATION OF THE STOMACH may be acute or chronic. The *acute* form arises chiefly from intemperance or swallowing irritant poisons, but may be caused by unsuitable food—such as lobsters, decayed cheese, or unripe fruit. It is apt to occur when the venous circulation is interfered with—whether from heart, liver, or lung disease; also in gouty or rheumatic people, in whom attacks may alternate with affections of the skin or joints. The most prominent symptoms are vomiting of food or slimy fluid, with pain and tenderness at the pit of the stomach. The *treatment* should be in medical hands. No food should be given by the mouth for 24 hours, but ice in small pieces may be sucked to relieve thirst, and, if necessary, nutrient enemata injected. (*See* INTEMPERANCE; POISONING.) *Chronic inflammation* causes similar, but less urgent, symptoms. It usually arises from repeated indulgence in strong drink, imperfect mastication of food, or other errors of diet. It is often associated with disease of other im-

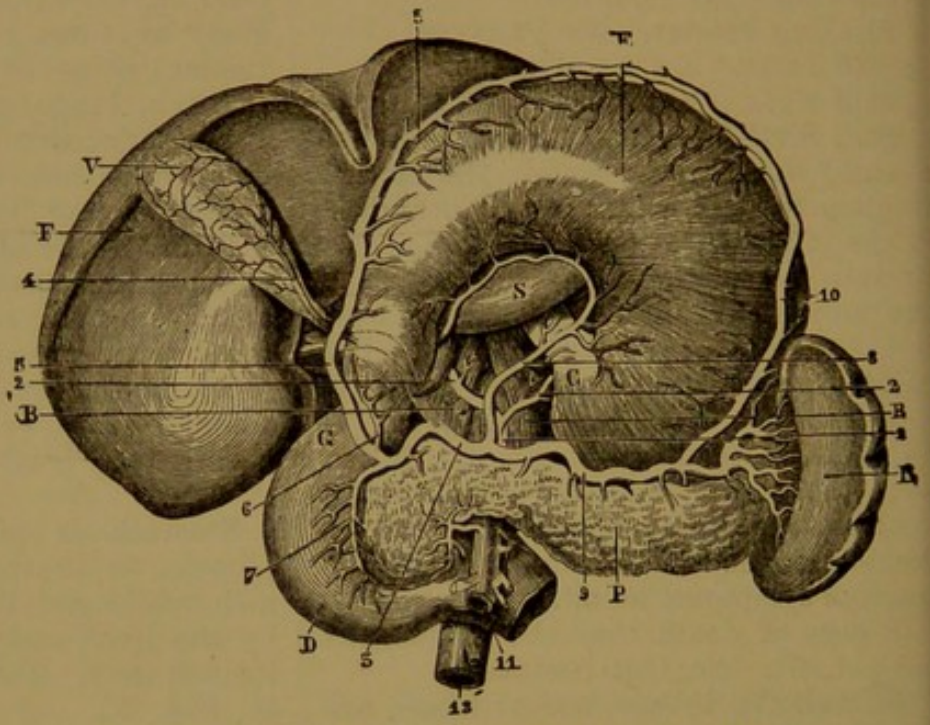

FIG. 52. STOMACH AND NEIGHBOURING ORGANS.

A, spleen; *B*, crura of the diaphragm; *C*, entrance of gullet into stomach; *D*, duodenum; *E*, stomach; *F*, liver; *G*, pyloric end of stomach; *V*, gall-bladder; *P*, pancreas. The numbers refer to bloodvessels; 12, aorta. The liver and stomach have been turned up to show the organs underneath.

portant organs, which must be attended to before attempting to improve the state of the stomach. It is often kept up by fermentation, which may be recognised by microscopic examination of the vomited matters. It is often useful to induce vomiting by drinking plenty of warm salt water (¼ oz. of common salt to 1 quart water) on first rising. This brings away thick mucus, which would, if left, cause fermentation. *See* DIET, IV. or VI.

ULCER OF THE STOMACH is found as a rule in pale young women with menstrual irregularity; another form is caused by intemperance. It causes acute pain, coming on soon after food-taking, relieved by vomiting; the pain is often of a boring character in one spot in the pit of the stomach or back, radiating thence in different directions, and may be so severe that the patient is afraid to eat. A tender spot is also often to be found. Sometimes there is vomiting of blood, either red or altered to a coffee-ground character. Wherever such symptoms are present, medical advice should be promptly obtained. Neglected ulcer of the stomach not infrequently leads to perforation of the stomach, which is often fatal.

CANCER OF THE STOMACH occurs chiefly in people past middle age. The symptoms are those of indigestion, with more or less pain and loss of flesh. Some medical skill is required to distinguish cancer from less serious ailments. Whenever there is long-standing indigestion in those no longer young, it is well to have it inquired into.

Stomach-Pump is used to empty the stomach in poisoning. It cannot be safely employed by the unskilled.

Stone. *See* BLADDER; GALL-STONE; KIDNEY.

Stone-Fruit. *See* FRUIT.

Stone-Pock.—An eruption of hard pimples. *See* ACNE.

Stools. *See* MOTIONS.

Storax.—A liquid vegetable balsam, obtained from Asia Minor. It is an ingredient in friar's balsam, and has properties similar to those of balsams of Peru and Tolu (*which see*).

Stoutness. *See* OBESITY.

Stoves are made to burn gas, coal, or coke, and may be open or closed. The open grate is described under the headings VENTILATION; WARMING. Various kinds of OPEN GAS-STOVES are made, in which the gas flame plays upon filaments or pieces of asbestos, coke, fire-brick, or iron. The two latter have the advantage of retaining the heat better, so that the gas is more thoroughly burnt and more heat radiated into the room. All such stoves should have a flue to conduct the products of combustion up the chimney. CLOSED STOVES radiate the heat from all sides, and are capable of more exact regulation than open stoves. They are therefore more economical, but, in the absence of special contrivances, are not so useful for ventilation. They are, moreover, apt to render the air unpleasantly dry, and may cause a disagreeable, stuffy, close smell through charring of organic particles which come in contact with the iron framework. This can be prevented by keeping the outside below 75° F., which may be done by surrounding the stove with an air-chamber in communication with the outside air (as in Farwig's modification of George's Calorigen, etc.). Hot iron allows gases to pass through its pores, so that this constitutes another objection to the use of iron closed stoves. Probably stoneware stoves (such as Doulton's) are not open to this objection. Pans of water placed on or near the stove will prevent undue drying of the atmosphere. Closed stoves which have no flue, and profess to condense the products of combustion, are unsafe, and should be carefully avoided. The use of gas as fuel has some advantages, such as ease of regulation. On the other hand, it is necessarily dearer than the coal which yields it; and many gas-stoves cause a disagreeable smell. This is, however, not universally the case. *See* VENTILATION; WARMING.

Straining. *See* BOWELS, ACTION OF; URINE, PASSAGE OF.

Stramonium.—The leaves and seeds of Datura stramonium, or thorn-apple, contain an alkaloid (*daturine*), resembling in its characters that of belladonna

(*atropine*). Cigarettes are prepared for the use of asthmatics, containing leaves of Datura stramonium and D. tatula. They are valuable for relieving the attacks of oppression and breathlessness, but must be used with care, and discontinued as soon as there is any dryness of the throat, or dimness of sight for near objects, or decided enlargement of the pupil. Powders containing stramonium and other substances are also prepared; these may be used by setting them alight, and inhaling the fumes. The pharmacopœial tincture is made from the seeds. It is not suitable as a domestic remedy.

Strangulation. *See* HERNIA; SUFFOCATION.

Strangury.—Painful urination. *See* URINE, PASSAGE OF.

Strapping. *See* PLASTERS.

Strawberry. *See* FRUITS.

Stricture. — A narrowing of some natural channel, such as the urethra, rectum, or gullet. When the term is unqualified, it usually refers to the first of these three. *See* GULLET; RECTUM; URETHRAL STRICTURE.

Stroke. *See* APOPLEXY; SUNSTROKE.

Struma. *See* SCROFULA.

Strychnine. *See* NUX VOMICA.

Stun. *See* BRAIN, CONCUSSION OF THE.

Stupor. *See* COMA.

Stye. *See* EYELIDS.

Styptics are applications which arrest bleeding. They are very numerous: an effectual one is made by dissolving pure tannin in its own weight of water, which forms a clear brown treacly solution. "Ruspini's styptic" is said to contain tannin; decoction of oak bark and infusion of nutgalls owe their virtues to the same substance. Of styptic minerals, the most reliable is solution of perchloride of iron. Mechanical styptics are also used, such as the puff-ball agaric. Whenever bleeding can be arrested by position, pressure, cold or heat, styptics should not be applied, as they may prevent speedy healing. *See* HÆMORRHAGE.

Subcutaneous Injection. *See* HYPODERMIC INJECTION.

Subsoil Drainage is very important to health, as a damp, ill-drained soil favours consumption, rheumatism, and other diseases. Drains for this purpose must let in the moisture above; so that it is usually advisable to have a separate system for sewage and rainwater respectively. *See* DRAINAGE; HOUSE.

Suckling is of the greatest importance to both mother and child, and should never be dispensed with if the mother is healthy and has a sufficient supply of milk. If she nurses her child, the mother is far less liable to diseases of the womb and breast, and diminishes the risk of too frequent pregnancies. And as regards the infant, breast-feeding is by far the best preventive of rickets, consumption of the bowels, and other wasting diseases which yearly carry off so many children in this country, or stunt and distort their frames.

EXCEPTIONS.—Where, however, the mother is consumptive or scrofulous, or has a tendency to insanity, it may be wise for her to relinquish her privilege of nursing her child. Should she become pregnant while suckling, it will also be necessary to wean the child, or obtain a wet-nurse. If the menses appear before the sixth month, it will be advisable to feed the child by hand during the period, or perhaps altogether. So also, if it does not thrive upon the mother's milk, it will be well to supplement this with hand-feeding, or to wean the child. If there is doubt about the quantity of milk taken, the child may be weighed before and after suckling. The difference should be not less than 3 ozs. under three months, and double this at six months.

RULES FOR NURSING. — The child should be put to the breast within six hours of birth, as this helps to contract the womb. The milk often does not flow freely until the third day, especially in first pregnancies. In this case, the child may possibly need a little cow's milk and water. The first milk secreted has aperient properties, and will help to clear the bowels of the child from accumulated secretion. For the first ten days the child may be put to the breast every $1\frac{1}{2}$ to 2 hours, according to its appetite; after this, till the end of the first month,

every 2½ hours; up to three months, every 3 hours; by six months, every 3½ hours, and after this every 4 hours. At night the intervals may be half an hour longer, and after the first month nursing may be omitted between 10 p.m. and 3 or 4 a.m., so as to give the mother a better night's rest. When the teeth appear, if there is plenty of milk, and the child is thriving, no change need be made until after the ninth month; otherwise, two meals a day may be given from the bottle in addition to nursing at other hours. (*See* INFANT-FEEDING.) To continue longer than this without beginning to wean the child is injurious to its health as well as to its mother's. The milk becomes poor, the child loses weight, and the mother suffers from dragging pain in the back, a sense of exhaustion after suckling, loss of appetite, constipation, throbbing pain in the head, and other signs of weakness; and if she become pregnant, the next child will be delicate. Blindness has occasionally been caused by unduly prolonged suckling.

The child should always in nursing be applied to both breasts alternately. At first the mother should always lie down to nurse the child; later on she may sit up and raise the child to a convenient height. Bending over it is not to be recommended. Sometimes babies are sick if they are fed while lying on the left side. In this case they should be held under the right arm when the right breast is used. It is a great mistake to feed a child whenever it cries; such a practice is likely to ruin its digestion. And it should never be allowed to fall asleep with the nipple in its mouth. The last drops of milk should always be wiped away in the mouth after each meal, and the nipple also dried.

REGIMEN FOR THE MOTHER. — The ordinary rules of health should be observed. She should keep regular hours, avoid parties and other causes of excitement, and cultivate an even, placid temper, free from violent emotions, which often injure the quality of the milk. Her rooms should be well ventilated, and she should take daily exercise in the open air. If she has been used to bathing, a daily shower or sponge bath of tepid fresh or salt water will be beneficial. Her food should be abundant but plain, rich or made dishes being avoided, as well as pickles, sour fruit, cucumbers, and other indigestible articles. Plenty of milk, eggs, and farinaceous food, with a moderate allowance of beef or mutton, chicken or fish, are the best to promote the flow of milk. Cocoa and chocolate are also useful where they agree. If there is much thirst, barley water may be taken. Stimulants are not necessary; where the mother has been accustomed to their use, she may benefit by taking a glass of good stout with her dinner. If the bowels are confined, she may suitably alter her diet, or, if need be, take a dose of castor-oil, senna, or cascara. Saline aperients, and some other drugs, act through the mother upon the child. Acid medicines taken by the mother are apt to cause purging in her baby. *See* BREASTS; CONSTIPATION; INFANT-FEEDING.

Sudden Death. *See* DEATH.

Sudorific.—A promoter of perspiration. *See* DIAPHORETICS.

Suet is prepared for making ointments, by melting it at a gentle heat, and straining.

Suffocation.—In this accident the air is prevented from entering the lungs by some agent which (unlike hanging or strangulation) does not compress the windpipe. It may be caused by things swallowed (*see* CHOKING), by "overlying" of infants by tipsy parents, covering of the mouth and nose with bedclothes, and in other ways. The practice of giving infants to suck a bag of wash-leather or cloth filled with sugar, or an unguarded feeding-bottle, is decidedly dangerous, and should never be allowed. Suffocation from entry of water is treated under DROWNING; that from entry of unbreathable gases under GASES, NOXIOUS; that from diseases of the air-tubes under BRONCHITIS, CROUP, DIPHTHERIA, and LARYNGITIS. *See also* CUT-THROAT.

TREATMENT, as in drowning.

Suffusion.—Bloodshot condition, as, for instance, of the eyes.

Sugar.—There are several classes of

sugar used medicinally or domestically. CANE-SUGAR (*sucrose*) is familiar to all. It is substantially the same whether derived from the sugar-cane, beetroot, maple, maize, or palm, slight differences in taste, smell, and appearance being probably due to impurities. Uncrystallizable cane-sugar is present in treacle. GRAPE-SUGAR (*dextrose*) and MALT-SUGAR (*maltose*) form another class, together with lævulose or uncrystallizable FRUIT-SUGAR. The first two are formed in the natural digestion of starch; they are present in malt extracts and malted foods. MILK-SUGAR (*lactose*) is less soluble and more gritty than the above-mentioned varieties. It is used in making medicinal powders and some kinds of infants' food. Other less important varieties of sugar are obtained from manna, honey, the flesh of animals, and other sources. Sugar of all kinds has, like starch, the chemical composition of a "carbohydrate." Being already soluble, it can be absorbed without further digestion, although some kinds of sugar may undergo transformation in the digestive canal. A large quantity of cane-sugar irritates the stomach; where cane-sugar disagrees, maltose may be used with advantage. In diabetes, every kind of sugar must, however, be avoided. Sweets should not be given to children excepting at or after meals. The stomach needs rest, like other parts of the body. *See* FOOD; SACCHARINE.

Sugar of Lead. *See* LEAD ACETATE.

Suicide is usually associated with mental unsoundness. The battle of life is in most civilized countries now-a-days so severe that the more sensitive or less robust minds are unable to withstand the strain. Very frequently there is physical disorder behind the mental want of balance, such as liver or kidney disease, or a tendency to epilepsy; and the cure of the bodily ailment would in such cases do much to diminish the suicidal tendency. The commonest mode of suicide appears to be by hanging or strangulation; after this, drowning; and in the third place, cuts, stabs, and other wounds. Whenever there is an inherited tendency to suicide or insanity, the bodily health and conditions of life should be carefully attended to. There are less suicides amongst those occupied out of doors. *See* EPILEPSY; HYPOCHONDRIASIS; INSANITY.

Sulphates are formed by the action of sulphuric acid upon a metallic base. Sulphate of sodium is Glauber's salt; of magnesium, Epsom salts; of copper, blue vitriol; of zinc, white vitriol; of lime, gypsum or plaster of Paris.

Sulphite and **Hyposulphite** of sodium contain relatively less oxygen than the sulphate, and form white crystals easily soluble in water. They are occasionally given internally to check fermentation and acidity, and in blood poisoning. Externally, the solutions are used to kill vegetable parasites.

Sulphur or brimstone is chiefly obtained from volcanic regions, but exists in minute quantities in all living organisms. It is used in medicine in two different forms—precipitated and sublimed; the latter consisting of minute crystals (*flowers of sulphur*), whereas the former is a pale yellow powder, free from grittiness. It is used externally to kill parasites (ointment). Taken internally, it is laxative, and when absorbed, acts upon the skin and mucous membranes. It has therefore been used in skin diseases, chronic bronchitis, chronic rheumatism, etc.

CONFECTION of sulphur is made by mixing together 4 ozs. sulphur, 1 oz. cream of tartar in powder, 4 ozs. syrup of oranges, and 18 grains tragacanth powder. It is chiefly used as a mild aperient in piles. Dose, 60 to 120 grains.

Another convenient preparation for internal administration is the compound LOZENGE as prescribed by Sir Alfred Garrod, containing 4 grains of sulphur and 1 grain of cream of tartar in each. Silver ornaments are apt to be blackened when sulphur is taken internally.

Sulphur OINTMENT contains 1 oz. sublimed sulphur to 4 ozs. benzoated lard. *See* ITCH.

Sulphurated Lime. *See* LIME.

Sulphurated Potash is a greenish solid, liver-brown when recently broken. It is used in the form of ointment, or bath

for treatment of rheumatism, the itch, and other diseases.

Sulphuric Acid, *oil of vitriol*, is a highly corrosive, heavy, oily liquid. Mixed with water it gives off much heat, so that the mixing should be done very gradually, the acid being added to a larger bulk of water, and continually shaken. If this precaution be neglected, the vessel may be cracked, or the water boil over and do much damage to clothes or person. Sulphuric acid corrodes and blackens paper and other organic materials. Chemically it is a combination of hydrogen with oxygen and sulphur, and is obtained by acting upon sulphurous acid with nitrous fumes in immense leaden chambers. Medicinally, sulphuric acid is used much diluted, to arrest diarrhœa, blood-spitting, night-sweats, and mucous discharges. It is also given in lemonade to painters and colour-grinders, in order to prevent blood-poisoning, the sulphate of lead being comparatively insoluble. (*See* LEMONADE.) AROMATIC SULPHURIC ACID contains cinnamon and ginger. Dose of this and the dilute sulphuric acid, 10 minims freely diluted. *See* ACIDS; ROSES, ACID INFUSION OF; and *Pr.* 2, 8, 14, 25, 35, 38.

Sulphuric Ether. *See* ETHER.

Sulphurous Acid (*sulphur dioxide*) is produced when sulphur is burnt. It is a gas with suffocating smell, and is more than twice as heavy as air. It is a valuable antiseptic and disinfectant. (*See* DISINFECTION.) It attacks iron, is absorbed by cloth and leather, and bleaches most vegetable colours. Hence, in disinfecting rooms with sulphur, iron and steel things must be protected with vaseline and lard, and leather and textile fabrics disinfected in other ways. The pharmacopœial solution, containing 5 per cent. of the gas, is used in parasitic skin diseases and offensive sores; as a spray in ulcerated throat and mouth, and internally in flatulence and acidity. Dose, ½ to 1 fl. dr., in glycerine and water. *See* INHALATIONS.

Sumbul, musk root, imported from Russia and India, is a stimulant and anti-spasmodic, useful in hysteria and other nervous diseases. It has a powerful smell and bitter, aromatic taste. Dose of the tincture, ½ fl. dr., in gum and water.

Summer. *See* SEASONS.

Sunburn is usually a kind of *eczema*, and requires similar treatment.

Sunstroke is met with in several forms, one resembling a fainting fit; another the state of shock found after severe operations or railway accidents; a third form being characterized by fever. Want of fresh air, fatigue, and damp winds greatly increase the tendency to sunstroke. Soldiers marching in hot countries should do so in loose order, and in the cool part of the day. The head and spine should be protected with pith helmets, puggarees, large fleshy leaves, and other familiar contrivances. If a person is struck down with sunstroke, he should be put in the shade, plenty of cold water poured over him, and diffusible stimulants given. (*Pr.* 4, 5.) Blood-letting does harm. Mustard poultices may be applied to the spine. After such an attack, brain fever may follow, or loss of memory or epileptic fits. Sometimes the recovery is perfect; but for some time after it is advisable to avoid heat, hard work, or worry.

Supper. *See* MEALS.

Suppository.—A solid preparation for introduction into the rectum. It is made with wax and cacao butter, or with glycerine of starch and curd soap, and moulded in the form of a cone. Suppositories contain opium, belladonna, and other powerful drugs.

Suppression.—The disappearance or non-development of a secretion. (*See* URINE; MENSTRUATION.) Suppression of a long-standing discharge should be treated by free purgation, in which case as a rule no ill-effects ensue. In old people diarrhœa should not be too suddenly checked, as the bloodvessels are sometimes over-full, and might give way under increased strain. For suppressed gout, *see* GOUT; for suppressed rash, *see* INFECTIOUS FEVERS.

Suppuration.—Formation of matter, or *pus*. *See* ABSCESS.

Suprarenal Bodies.—Organs of doubtful function, situated at the upper end of the kidneys. They are diseased in "Addison's disease."

Surgeon. *See* DOCTOR.

Surgery.—The treatment of external ailments, more especially by the knife and by outward applications.

Suspended Animation. *See* COMA; DROWNING; FAINTING; FITS; GASES, NOXIOUS; HANGING; SUFFOCATION.

Suture, in surgery, a stitch joining together the edges of a wound. In anatomy, the junctions of the skull bones with one another. *See* SKULL; WOUNDS.

Swallowing is a muscular action, partly voluntary, partly beyond the control of the will. Once the food is thrust through the fauces into the throat, it travels along by "peristalsis," or alternate contraction and relaxation of the gullet. This is why jugglers and others are able to swallow with ease while standing on their heads. DIFFICULTY IN SWALLOWING may arise from stricture or other diseases of the throat and gullet, paralysis of the muscular coats, pressure of tumours, or purely nervous causes.

Sweat.—The fluid excreted from the sweat glands of the skin. *See* SKIN; DIAPHORETICS.

Sweetbread. *See* PANCREAS; MEAT.

Sweetmeats should not be given to children excepting at or after meals. They are sometimes coated with poisonous colours. The following are harmless: For *red*, cochineal, carmine, beet juice, red currant juice, or red cherry juice; for *yellow*, saffron, safflower, turmeric, marigold, Persian berries; for *blue*, indigo, litmus, saffron blue; for *green*, spinach juice, and admixtures of harmless yellow and blue colours; for black, Chinese ink. Pure aniline dyes are probably for the most part harmless.

Sweet Spirits of Nitre. *See* NITROUS ETHER.

Swellings may be inflammatory, or otherwise. In the former case they are usually red, tender, throbbing, and painful. A surgeon should be consulted about all doubtful swellings. *See* TUMOURS.

Swimming is a healthy and invigorating exercise, provided the water is not too cold or too hot, and too much time is not occupied in the water. *See* BATHS AND BATHING.

Swine-pox.—A variety of chicken-pox, with globular vesicles.

Swing for broken legs. *See* CRADLES.

Swiss Milk. *See* MILK, PRESERVED.

Swoon. *See* FAINTING.

Symmetry of the two sides of the body is seldom absolute. Most people have one leg a little longer than the other, two eyes a little unlike, and two sides of the face and skull unsymmetrical, while the greater use of the right arm causes it to be quite different from its fellow. Extreme differences are, however, usually due to disease or deformity. Many diseases tend to appear symmetrically—for instance, gout and rheumatism, and some skin diseases. *See* DEFORMITY.

Sympathetic Nerve. *See* NERVOUS SYSTEM.

Sympathy.—Disease of one part of the body often causes pain in other parts through "sympathy." Thus in hip disease there is sympathetic pain in the knee; and in toothache, neuralgia may be felt in sound teeth or over the whole side of the face. These facts are explained by nervous connexion.

Symptoms of disease are the separate manifestations which together prove the existence of disease. Thus pain and swelling of the knee are symptoms of inflammation of the knee-joint. Symptoms which can be distinguished by the doctor himself are sometimes classed apart as "signs" of disease.

Syncope. *See* FAINTING.

Synovia.—The fluid secreted in the joint cavities, popularly known as the "joint-oil." *See* JOINTS.

Syphilis. — A constitutional disease usually classed as a venereal disease, but also occasionally originated in other ways. Beginning with a hardness at the seat of inoculation, and swelling of the glands, it gives rise later on to a number of different skin affections, ulcerations of bones and mucous membranes, inflammations of internal organs, etc. There is scarcely a single tissue of the body which may not be affected by this terrible disease; and not only may the disease be spread by secretions and discharges from affected persons, but it may be (and often is) transmitted by inheritance to the offspring. If suitably

treated with mercurials and other remedies, the disease may be usually eradicated within eighteen months. Sometimes, however, it lasts for years, and leaves after-consequences which are practically incurable. The wilful transmission of this disease is punishable by law. It has been spread at times by the use of drinking cups, blowpipes, and other articles. Wet-nurses have been inoculated by suckling syphilitic children: such a cruel accident ought never to be possible.

Syringes employed for medical purposes are made of indiarubber, glass, pewter, vulcanite, or brass. *See* ENEMA.

Syrup.—There are 17 preparations in the B.P. bearing this name. Some are used chiefly as flavouring agents; *e.g.* simple syrup, syrup of lemon, orange peel, orange flowers, mulberries, ginger, red roses, and hemidesmus. Of these the dose is 1 fl. dr. Syrup of rhubarb, senna, and buckthorn are aperient. Syrup of squills and Tolu are expectorant. Syrup of poppies contains a little opium; syrup of red poppies is used as a colouring agent.

Syrups should be kept in full bottles in a moderately warm place, to prevent crystallization of the sugar. If too little sugar is present, or air gets in, they are apt to ferment, when a froth collects on the surface. In some syrups, spirit is added to preserve them. It is best to make syrups with refined sugar.

Tabes Mesenterica. *See* MESENTERIC DISEASE.

Tamarinds are obtained from a pod-bearing or leguminous tree, a native of India, West Indies, etc. They are brought over dried or preserved in sugar. The pulp contains abundance of citric and tartaric acid; it is slightly aperient, and yields a pleasant, cooling infusion. This should be made with hot water, and allowed to cool.

Tamarind Whey is made by boiling 1 oz. tamarind pulp with 1 pint of milk.

Tamar Indien.—Jujubes sold under this name are stated to contain jalap and other substances in addition to tamarinds. They act well as an aperient with some people.

Tannin, or tannic acid, the astringent principle of gallnuts and many other vegetable astringents. It is sold in the form of a yellow powder, or of glistening scales, easily soluble in water. Ink is chiefly a tannate of iron; leather is formed by the action of tannin upon gelatine-yielding substances in the raw hide. The action of tea in hindering digestion is chiefly due to the contained tannin. GLYCERINE OF TANNIN is formed by dissolving 1 part of tannin in 6 of glycerine. LOZENGES ($\frac{1}{2}$ grain) and SUPPOSITORIES containing tannin are also prepared. STYPTIC COLLODION owes its virtues chiefly to the same substance. The dose of tannin for internal hæmorrhage is 2 to 10 grains in a little water. *See* ASTRINGENTS; GALLIC ACID; NOSE BLEEDING; SORE-THROAT; TONSILS, ENLARGED; GARGLE *No.* 4; INHALATION *No.* 9; LOTION *No.* 8.

Tapeworm. *See* WORMS.

Tapioca.—A starchy substance prepared from the cassava root. The juice, which is poisonous, is expelled by washing and heating, and the starch dried in grains. It is very easy of digestion. "British tapioca" is made from potato starch. It is quite wholesome. *See* FARINACEOUS FOODS.

Tapping.—The withdrawal of fluid from the body by means of a syringe or similar contrivance.

Tar is made by the dry distillation of pine and other kinds of wood. The wood is placed in a conical hollow in the side of a hill, kindled at the top, and covered with turf, so as to burn with access of very little air. The crude tar collects at the bottom, and runs off by a special channel. It is a complex mixture of creasote, acetic acid, tar oils, oil of turpentine, etc. When purified by heat, a dark, brittle substance is left which goes by the name of pitch. Wood-tar has been used medicinally from very early times, more especially for chest affections, and externally for some skin diseases. About a century ago, Bishop Berkeley wrote a dissertation on the virtues of tar-water, after which it was long regarded as a universal panacea. Tar is taken in the form of tar-water, tar-pills, or capsules. The American syrup is also a good preparation. TAR-

WATER may be made by pouring a gallon of cold water on a quart of tar, stirring with a flat stick for three or four minutes, leaving for forty-eight hours, and decanting the clear water for use. It should be made fresh for use, and the tar used but once. Half a pint may be taken night and morning in sugar and water, or with a drop of oil of nutmeg, or a teaspoonful of light wine. TAR-PILLS may be made by adding wax and powdered liquorice root to the tar. Each pill should contain 2 grains. The smaller capsules containing about the same quantity may be obtained from French chemists. One may be taken every four or six hours. SYRUP OF TAR: Pour cold water (12 parts) on half as much wood-tar; stir frequently for 24 hours, and then throw the water away. Pour on to the remainder 50 parts of boiling distilled water, stir for ¼ hour and set aside for 36 hours, stirring occasionally. Decant, filter, and add 40 parts of sugar. Dose, ½ fl. oz. TAR OINTMENT: Melt 2 ozs. yellow wax with gentle heat; add 5 fl. ozs. purified tar, and stir briskly while it cools. JUNIPER TAR or Oil of Cade is used externally for the same purposes as ordinary tar. An ointment of 2 drs. juniper tar with 1 oz. lard is useful in psoriasis. *See* CARBOLIC ACID; COAL TAR; CREASOTE; PITCH.

Tartar. *See* TEETH.

Tartar Emetic, or tartarized antimony, forms colourless crystals with triangular faces, but is more often sold as a white powder. It has a slight metallic taste, and dissolves in 20 parts of cold soft water, or less of hot. Externally it is a powerful irritant, causing the formation of pustules like those of smallpox. Internally in large doses (1 grain) it causes vomiting and depression; in smaller doses ($\frac{1}{24}$ gr.) it increases the secretions from the skin and mucous membranes, especially that of the air passages. It is chiefly given for inflammatory fever and inflammation of the lungs, but is not suitable for domestic use.

POISONING may result from a single large dose, or a number of small ones. A *large* dose causes a strong metallic taste in the mouth and throat, with heat, constriction, and soreness. Then come nausea and vomiting, pain and tenderness of the abdomen. Still later, diarrhœa usually follows, with cramps and a state of collapse. As little as ¾ gr. has proved fatal to a child.

Treatment. — Give tincture of cinchona bark or strong tea, or some other preparation containing tannin. If vomiting is not free, encourage it with large doses of milk, warm water, gum water, linseed tea, etc. Medical assistance should be quickly obtained. The extremities should be kept warm. (*See* COLLAPSE.) *Small repeated doses* have, in several instances, been administered in order to cause death, as in the Bravo case in 1876. The usual symptoms are diarrhœa, vomiting, and great weakness. *See* ANTIMONY.

Tartaric Acid is obtained chiefly from the grape, in which it exists as acid tartrate of potash, or cream of tartar. It is used in making effervescing mixtures, and to dissolve quinine and other substances. *See* EFFERVESCENCE.

Taste.—The sense of taste resides partly in the tongue, partly in the palate. It is, however, largely blended with smell, so that a cold in the head stopping up the nose will take away the sense of taste. Many flavours which are usually quite distinct are undistinguishable when the nose is pinched. A NASTY TASTE in the mouth may be due to local causes, such as a rotten tooth or decomposing secretions in the mouth or throat. It also frequently arises from liver disorders, or imperfect digestion in the stomach with foul eructations. It may also be caused by the use of mercury and some other drugs, or occasionally by damage to the nerves or central nervous system. *See* MOUTH; TEETH.

Tea is obtained from members of the camellia family growing in China, Japan, Assam, etc. In green tea the young leaves are rapidly dried over a wood fire; in black tea they are allowed to ferment in heaps before being dried. Many varieties exist, which differ in their source or mode of preparation. Gunpowder and hyson are dried at a higher temperature than the others, and contain less water. Caper tea consists of leaves rolled

up into lumps with gum or starch; it is much adulterated. Tea used to be extensively adulterated by "facing" with Prussian blue, indigo, and other substances. The practice is said to be less common now-a-days. Other adulterations are the addition of leaves from other sources, such as the sloe, beech, or hawthorn; or of sand and other mineral matters. Tea is chiefly taken for the sake of the contained *theine;* it also contains varying quantities of tannin and essential oil. Theine (which is believed to be identical with caffeine from coffee) is an alkaloid crystallizing in silky-looking needles. (*See* CAFFEINE.) Tea stimulates the brain, and may prevent sleep—especially green tea. On the other hand, it often relieves nervous headache and drowsiness. It tends to increase the secretion of urine; caffeine is therefore given as a remedy for some kinds of dropsy. Owing chiefly to the contained tannin, tea interferes with digestion in the mouth and stomach. This action is especially marked in coarse, highly astringent teas, but is noticeable in all kinds. Meat teas, or "high teas," are therefore not to be encouraged. It is far better to take tea at a time when there is not much food to digest, or digestion is already well advanced. Green tea, strong black tea, or weak tea taken in excessive quantities, is liable to cause not only indigestion, but also nervousness, sleeplessness, palpitation, and irregular heart action. Some people are extremely sensitive to its action, and have to avoid it altogether. It is a mistake to suppose that tea infused rapidly is free from the above objections. Long brewing causes the extraction of more astringent matter, and spoils the flavour; but the difference is chiefly one of degree. As a rule, tea should be infused not more than five minutes with boiling water; if kept longer, it should be poured off the leaves. Two breakfast-cupfuls per day are as much as is good for most people.

Besides tea and coffee, other vegetable substances containing theine are used in various parts of the world. Among these may be mentioned Paraguay tea, guarana, and the kola nut. *See* CAFFEINE; COFFEE.

Tears are secreted by the lachrymal glands under the upper eyelids at their outer side. They wash the front surface of the eye, and enter the little canals at the inner side of the eye which lead to the lachrymal sac and nasal duct (*Fig.* 53).

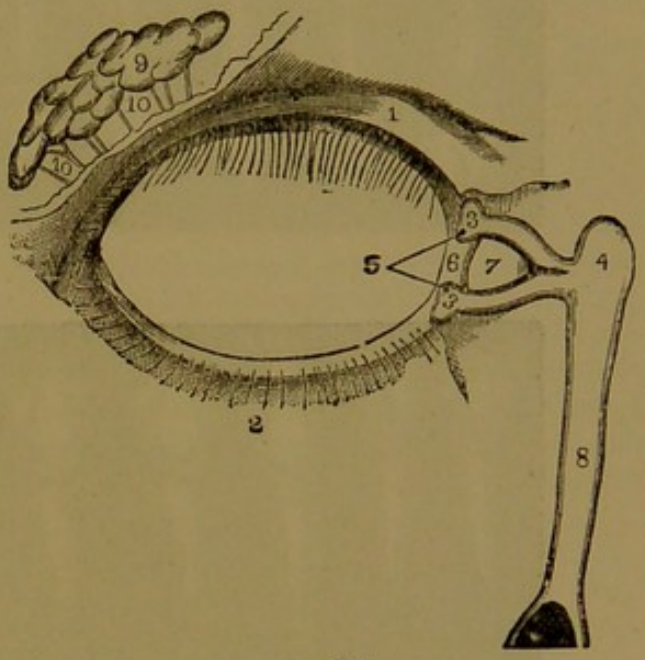

FIG. 53.
TEAR GLANDS AND DUCTS OF RIGHT EYE.

1, 2, lids; 3, canaliculi; 4, lachrymal sac; 5, openings of canaliculi; 6, rudiment of third eyelid; 7, caruncle; 8, lachrymal duct; 9, lachrymal gland with (10) its ducts.

When abundantly secreted or prevented from passing away into the nose by obstruction in the little canals, or paralysis of the eyelid, the tears overflow on to the cheek. This in time causes the skin to become sore and inflamed, and much discomfort follows.

Teeth.—Four kinds of teeth are found in the adult: *incisors*, or chisel-shaped teeth; *canines*, or dog teeth; *bicuspids*, or double-pointed teeth; and *molars*, or grinders with four or five points or cusps. Of the first there are two pairs in each jaw; of the second, one pair; of the third, two pairs; and of the last, three pairs, making thirty-two in all (*Fig.* 54). Children under six years of age have only twenty, being provided with only two pairs of molars in each jaw, and no bicuspids (*Fig.* 55). (*See* TEETHING.) Each tooth (*Fig.* 56) consists of a crown, neck, and fang. The crown is capped with enamel, a very hard, brittle substance, made up of microscopical six-

sided prisms; the greater part of the tooth consists of dentine, which is less hard, and made up of minute tubes in

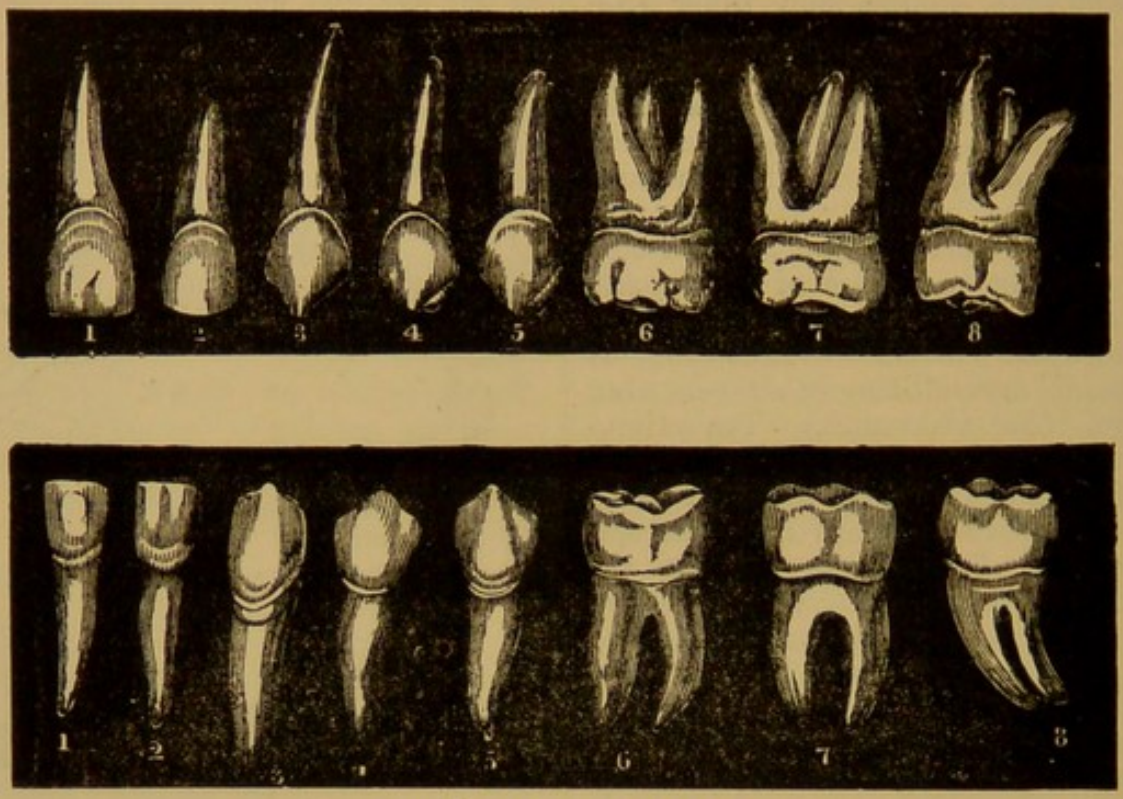

FIG. 54. PERMANENT TEETH.
1, 2, incisors; 3, canines; 4, 5, bicuspids; 6, 7, 8, molars.

communication with a pulp cavity inside the tooth. Coating the fang is an imperfect kind of bone. The tooth is placed in a socket in the gums (*which see*), and is supplied with bloodvessels and nerves through a hole at the end of each fang. The nerves are branches of the great fifth nerve, which also supplies the face, mouth, nose, ear, and muscles of the jaw. This explains the extensive radiation of pain in toothache (*Fig.* 57). The incisors and canines have each one fang. The bicuspids have a double fang; molars have two, three, or four. Chemically, a tooth consists of carbonate, phosphate, and fluoride of calcium, with a very small proportion of animal matter.

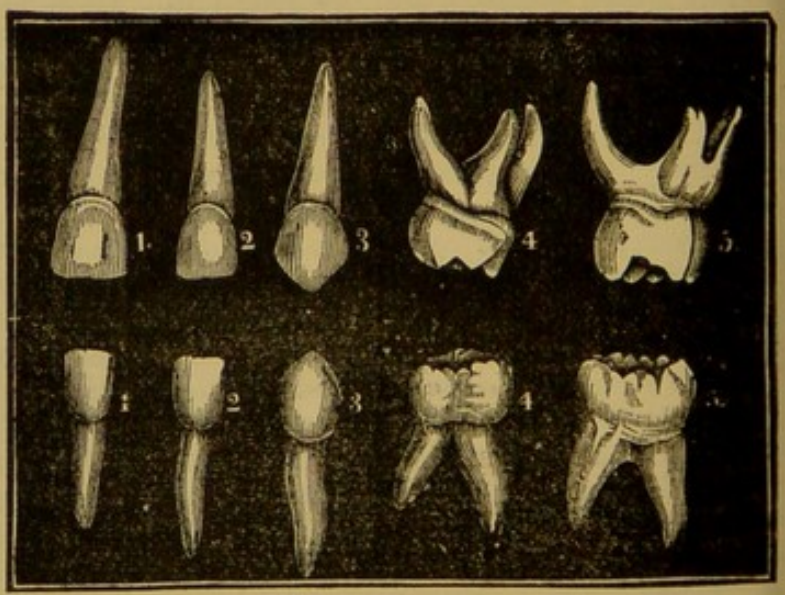

FIG. 55. TEMPORARY TEETH.
1, 2, incisors; 3, canines; 4, 5, molars.

TOOTHACHE may arise from decay or inflammation of the teeth, or from some general cause, such as debility, fatigue, or pregnancy. (*See* NEURALGIA.) It is sometimes darting or shooting, at other times aching, gnawing, or throbbing. When due to local inflammation, the tooth is very sensitive, and the gum near it tender and swollen. Toothache is often felt in a different tooth or even a different jaw to the seat of mischief. The pain is started by the slightest jar

or breath of cold air, or contact with hot or cold fluid. It is intensified by digestive disturbance and fatigue, so that it may often be relieved by an aperient, or by tonics, such as quinine, or stimulants (port wine, *Pr.* 4, 5), even if caused by a decayed tooth. In all cases of toothache such remedies are advisable, together with a generous, easily digestible diet. Hot fomentations, either plain or with poppy heads, may relieve the pain; but if there is matter forming near the root of the tooth, it is better to encourage it to burst inwardly by poultices or hot water held inside the mouth, or by extraction of the tooth. Other remedies for relieving the pain are mentioned under NEURALGIA. Where the tooth is hollow and decayed, a pellet of cottonwool may be soaked in a mixture of equal parts of laudanum and creasote, or of creasote, strong solution of ammonia, and friar's balsam, and laid inside the cavity. Another local application is strong carbolic acid carefully dropped inside the tooth, and protected with cotton wool coated with friar's balsam. The carbolic acid destroys the nerve and sweetens the cavity. Another application is made by dissolving a drachm of mastic in chloroform, and adding half a drachm of pure carbolic acid. When this is used, the chloroform evaporates, and the resin seals the cavity. Cotton wool applied to a decayed tooth should never be pressed down tight. If the pain continues, the wool should be removed and another piece put in. When matter forms at the root of a tooth, the pain can only be cured by giving it a vent, either by lancing or by extracting the tooth. (*See* GUMBOIL.) Toothache *in pregnancy* may often be relieved by taking quinine and iron, and washing out the mouth with salt and water or liquid magnesia.

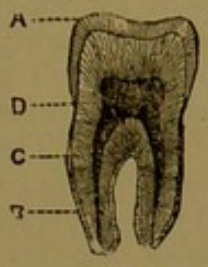

FIG. 56.
SECTION OF MOLAR TOOTH.

A, enamel; *B*, fang, with crusta petrosa; *C*, dentine; *D*, pulp cavity.

DECAYED TEETH are exceedingly common now-a-days, so that it is exceptional to find anybody with a perfectly sound set of teeth. There is reason to believe that the jaw is becoming a little smaller with the advance of civilization, so that the teeth are apt to be tightly packed and insufficiently supplied with blood. Crowded teeth are also more liable to decay because of the particles of food which lodge between them. Teeth frequently come through with defective enamel, so that they are imperfectly protected against hurtful influences. The constitutional strength has much to do with soundness of the teeth. Scrofula and other general disorders, severe attacks of illness while the teeth are developing, or neglect of the ordinary laws of health, may all leave their traces on the teeth. The abuse of mercury leads to the same result. Neglect of the teeth is another fertile cause. Par-

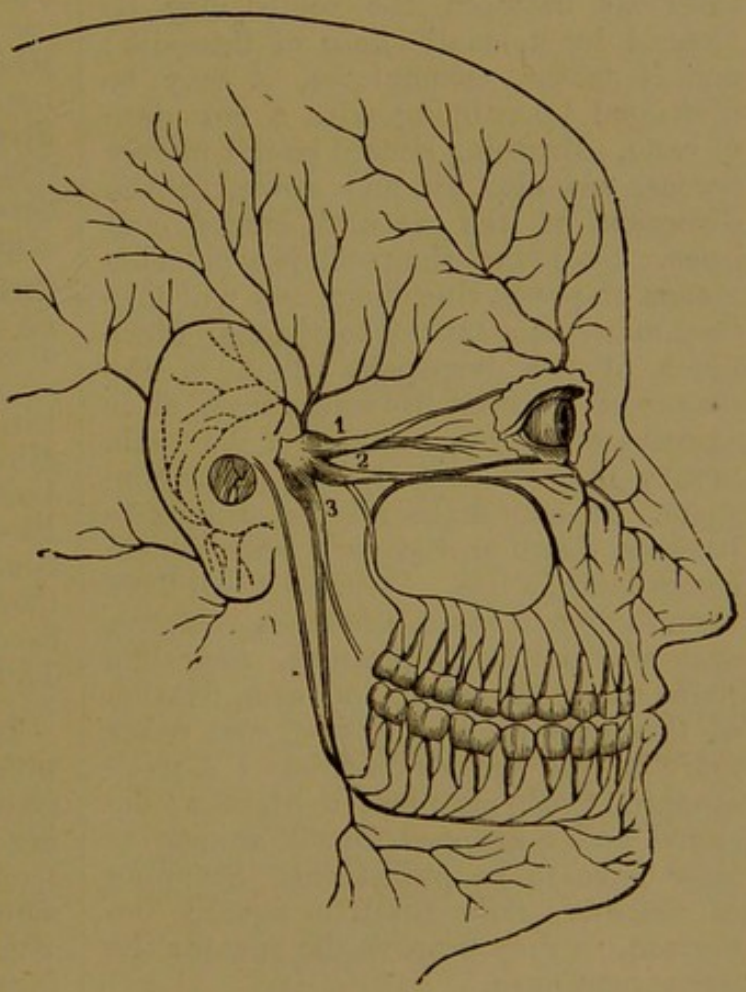

FIG. 57.
THE FIFTH CRANIAL NERVE, WITH ITS BRANCHES.

1, ophthalmic division; 2, superior maxillary division; 3, inferior maxillary division.

ticles of food left between the teeth undergo acid fermentation, and then attack the enamel. Minute forms of vegetable life find a congenial soil, and add to the trouble. Hard, gritty particles, nuts cracked with the teeth, and highly sweetened things, all injure the teeth; and so do very hot or very cold liquids (especially if taken alternately), mineral acids taken medicinally without sufficient care, or tooth-powders containing camphor. Scurvy and other causes of spongy gums loosen the teeth and expose them to decay below the enamel. The first sign of decay is usually some opacity or discoloration of the enamel. As soon as this is noticed the tooth should be "stopped." The teeth are best *cleansed* by brushing lightly and quickly with tooth-brush and suitable tooth-powder or paste. (*See* TOOTH-POWDER.) The intervals between the teeth may be cleared by a small skein of floss-silk; and if tartar accumulates, it may be dislodged by rubbing with a cut piece of cane. Brushing should be not merely across, but also up and down, in the direction of the natural curves and lines. STOPPING the teeth is a valuable means of preserving them, and will prevent many an attack of toothache. Since much of the dyspepsia which is the plague of civilized life arises from, or is aggravated by, unsoundness of the teeth, money is well expended in preserving them. It may make all the difference between death or recovery when illness comes later in life. Decayed teeth have been known to cause blindness, deafness, epilepsy, delirium, insanity, neuralgic pains down the neck and arm, fixation of the jaws as in lock-jaw, and other more or less serious disorders. A well-stopped tooth may last a lifetime; decayed and unstopped, it will sooner or later have to be pulled out. Stopping of defective milk teeth is equally important, as they prepare the jaw for the permanent ones.

LOOSE TEETH usually are so because of some affection of the gum, such as the sponginess due to scurvy or to scrofula. Accumulations of tartar may cause the gums to recede. Repeated pregnancies appear to have a similar effect. *See* GUMS.

EXTRACTION OF TEETH is now-a-days always done with tooth forceps. The use of these is a convenient accomplishment for an intending emigrant, which may be readily learnt by a few practical lessons from a dentist. Serious bleeding sometimes happens after extraction of teeth. The socket should in such a case be plugged with cotton wool, soaked in some styptic (*see* STYPTICS), and piled up so that the opposite jaw can press it down.

GRINDING OF THE TEETH in children is usually a sign of intestinal irritation or of brain disease. Worms should be looked for. In adults, rheumatism, gout, or acid dyspepsia lead to the same result. *See* TEETHING; TOOTH-POWDER.

Teething.—The following table shows the average time of appearance of the different teeth:

TEMPORARY OR MILK TEETH.

Middle incisors .	4th to 8th month.
Lateral „ .	12th „ 15th „
First molars . .	12th „ 15th „
Canines	16th „ 20th „
Second molars . .	20th „ 30th „

The incisors of the upper jaw appear a little later than those of the lower jaw; *i.e.* from the 8th to the 10th month.

PERMANENT TEETH.

First molars . . .	6th to 7th year.
Middle incisors . .	7th year.
Lateral incisors . .	8th „
First bicuspids . .	9th „
Second bicuspids .	10th „
Canines	11th to 12th year.
Second molars . .	12th „ 13th „
Third molars . . .	17th „ 25th „

Teething in infancy is often rather a troublesome process, rendering the child peevish and fretful. Early signs of teething are watering of the mouth and a tendency to put the fingers into the mouth or to bite things. The sleep is often disturbed, and the child may be feverish or suffer from diarrhœa or convulsions. When the gums are very hot and tense, it will do good to lance them with a gum lancet or a penknife, guarded with lint wrapped round to within $\frac{1}{4}$ in. of its point. For diarrhœa the best treatment is a teaspoonful of castor oil,

preceded by 2 grains of grey powder on the previous night, if the motions are offensive. Diarrhœa in infants is, however, more often due to other causes. (*See* INFANTILE DIARRHŒA.) If convulsions threaten, give a hot bath for 10 minutes. (*See* CONVULSIONS.) Feverishness may be partially relieved by *Pr.* 31 or 7. The *permanent* teeth seldom give much trouble in coming through, although occasionally epilepsy dates from the second dentition, and wisdom-teeth may cause irritation. Under such circumstances *Pr.* 18 will be useful.

Teetotalism. *See* ALCOHOL; FERMENTED LIQUORS; STIMULANTS; TOTAL ABSTINENCE.

Temper. *See* EMOTIONS.

Temperament is a somewhat vague term, denoting physical differences not obviously due to race or ill-health. Galen recognised nine temperaments, modern writers only recognise three; *viz.* sanguine, nervous, and lymphatic. Those of *sanguine* temperament are ruddy and strongly built, with large chest and relatively small head. They are active both bodily and mentally; but are liable to gout, acute inflammations, and active hæmorrhage. The *nervous* temperament is characterized by dark skin, large head, spare muscles, narrow chest, large mental powers, and capacity for endurance both physically and mentally. Its subjects are liable to venous congestions, neuralgia, and liver disorders. Those of *lymphatic* temperament are heavy and ungainly, with pale complexion, large flabby muscles, placid temper, good judgment, but slow movements and want of energy. They are liable to scrofulous diseases, and resist illness feebly.

Temperance is by no means synonymous with the temperate use of alcoholic drinks, nor with total abstinence from them. People may be intemperate in eating, working, or speaking, as well as in drinking. He who works all day with little food, and then eats to repletion, cannot be said to be truly temperate; and late hours and the immoderate pursuit of pleasure in any form are incompatible with temperance in the higher sense. All forms of intemperance, sooner or later, bring their own punishment, the severest being probably visited on the debauchee. *See* ALCOHOL; FERMENTED LIQUORS; MARRIAGE; STIMULANTS; TOTAL ABSTINENCE.

Temperature.—The degree of heat, usually measured by a thermometer (*which see*).

Temples.—The skull is very thin in this region, and may easily be broken by a blow. Where the "temporal artery" is cut or wounded, the flow of blood may be easily arrested by pressing its trunk against the bony prominence in front of the ear. *See* NEURALGIA.

Tenderness may indicate inflammation, or merely an unhealthy state of the nerves of the part, or of the nervous system generally.

Tendons, or "leaders," are strong fibrous bands by which the muscles are attached to the bones. They are provided with sheaths secreting fluid. (*See* GANGLION.) The large tendon behind the heel (*tendo Achillis*) is sometimes ruptured by sudden exertion. In this case a gap is felt at the injured point. It should be treated by keeping the heel drawn up by a suitable apparatus for four or five weeks, at the same time avoiding all use of the foot in walking. Contraction of the tendon is found in some forms of clubfoot (*which see*). *See* DEFORMITIES.

Tenesmus.—A sensation in the rectum which causes straining to empty it; a common symptom in diarrhœa, dysentery, and other rectal diseases.

Tent.—A contrivance used for dilating openings or plugging wounds. They are made of sponge, sea-tangle, and other materials, or improvized with lint, etc.

Terebene.—A colourless volatile oil, obtained by the action of heat and sulphuric acid on oil of turpentine, and possessing similar properties. It is used for inhaling in lung diseases and bronchitis, as an antiseptic application to wounds (diluted with 6 parts of olive oil), as a disinfectant and deodorant, and as a remedy for flatulence. *See* INHALATIONS; SANITAS.

Testicles.—The male organs, which come down about the time of birth into the scrotum or purse. Swelling in this

region may be due to hydrocele, inflammation, enlargement of the veins (*varicocele*) hernia, or some other disease.

INFLAMMATION commonly appears as the result of blows, venereal disease, mumps, gout, or rheumatism. Until medical assistance is obtained, absolute rest, a saline aperient, low diet, and avoidance of stimulants are the most suitable measures. *See* HERNIA; HYDROCELE; VARICOCELE.

Tetanus. *See* LOCK-JAW.

Tetter. *See* ECZEMA; SKIN DISEASES.

Theine.—The most important ingredient of tea (*which see*).

Theobromine.—The alkaloid of cocoa and chocolate (*which see*).

Therapeutic.—The art and science which treat of remedies for disease. *See* MATERIA MEDICA; MEDICINE.

Thermometer.—An instrument for measuring the degree of heat by the expansion of a fluid, usually mercury. That used to determine the body heat is called a *clinical* thermometer. It consists of a column of mercury in a thin glass tube ending in a bulb, and graduated in degrees and fifths or tenths of a degree. In this country the Fahrenheit scale is adopted, according to which the freezing point of water is 32 degrees (32°), and boiling point 212°.

By this scale the body heat is usually about $98\frac{4}{10}$, being higher in fever and lower in shock or collapse. On the Continent the Centigrade and Réaumur scales are used. In the accompanying table the three scales are compared:

Fahr.	Cent.	Réaum.
Boiling Point.		
212	100	80
203	95	76
194	90	72
185	85	68
176	80	64
167	75	60
158	70	56
149	65	52
140	60	48
131	55	44
122	50	40
113	45	36
104	40	32
103	39·4	31·5
102	38·9	31·1
101	38·3	30·6
100	37·7	30·2
99	37·2	29·8
98	36·6	29·3
97	36·1	28·8
96	35·5	28·4
95	35	28
86	30	24
77	25	20
68	20	16
59	15	12
50	10	8
41	5	4
32	0	0
Freezing Point.		

Each degree Fahrenheit = $\frac{5}{9}$ degree Cent. or $\frac{4}{9}$ degree Réaum. Or, in other words, 9 deg. F. = 5 deg. C. = 4 deg. R.

In using a clinical thermometer, it should be put either into the mouth under the tongue with closed lips, or into the armpit between the skin of the arm and that of the chest. In very thin subjects it may be put high up between the thighs; and in children it is sometimes more convenient to insert it into the rectum. It should be covered over and left for about five minutes, when it may be removed and read. In clinical thermometers there is usually an index consisting of a detached portion of mercury. The upper end shows the degree of heat. Anything over $99\frac{1}{2}$° F. should be regarded as fever. To feel the skin with the hand is a very uncertain test: so that every household should have its own clinical thermometer. *Bath* thermometers are usually mounted in metal or porcelain. Those for the *room* have boxwood mounts as a rule.

Thirst. *See* BEVERAGES.

Thorax. *See* CHEST.

Thorn Apple. *See* STRAMONIUM.

Threadworms. *See* WORMS.

Throat comprises the parts behind the mouth and nose. Separating it from the mouth are the two pillars of the fauces descending from the soft palate. (*See* PALATE.) The upper part of the throat, or pharynx, has in front the two openings of the nostrils, the mouth opening, and that into the larynx leading to the windpipe. High up on either side are the openings of the eustachian tubes from the ears; below is the beginning of the œsophagus or gullet. This runs down behind the windpipe to end in the stomach (*Figs.* 58, 4).

SCALDS of the throat usually arise from young children trying to drink from the kettle-spout. For such an accident, give ice to suck, and send at once for a doctor. *See* CUT THROAT; QUINSY; SORE-THROAT.

Thrombus.—A clot formed during life in a bloodvessel or lymphatic. Thrombi are apt to form where the coats of a vessel are injured, or the circulation is arrested. They are common in blood-

poisoning, and after childbirth or severe illness. *See* VEINS, INFLAMMATION OF.

Thrush.—An affection of the mouth which occurs chiefly in handfed children and in aged or bed-ridden people. In infants, after a few hours or days of constitutional disturbance, the lining membrane of the mouth is seen to be unnaturally red, and the surface of the tongue sticky and acid. Then white patches appear, run together, become yellowish brown, loosen, and finally peel off. There is frequently diarrhœa at the same time, with green and sour-smelling stools. The arms and buttocks may become red and sore. The membranes are whiter than those of croup, and the breath is not offensive, as in that disease, nor is there usually any fever. Crusts of milk may be distinguished by not being adherent. The disease is caused by a fungus which grows in the lining membranes.

The TREATMENT is to reform the diet, which is usually unsuitable in some way; to remove the patches with warm Condy's fluid, and rinse out the mouth frequently with a wash containing 30 grains of borax, 1 fl. dr. of glycerine, and 1 fl. oz. water. Another useful mouthwash consists of sulphurous acid solution with eight times as much water. Another is formed by dissolving 1 dr. sulphite of soda in 1 fl. oz. water.

ANOTHER FORM of thrush, which is not parasitic, consists of little vesicles which burst and become covered with a yellowish-white adherent slough, and surrounded by a bright red halo. The vesicles come out in crops. The mouth is hot and the breath offensive. This condition may follow measles or digestive disorder. It usually quickly gets well without any treatment.

Thymol.—A form of camphor obtained from the essential oils of garden thyme and horse-mint. It may be obtained in large, colourless crystals, with odour of thyme and pungent aromatic taste. It is a powerful antiseptic, and may be used for dressing wounds (1 in 800 water with 10 of spirit); also for disinfection, and to ease the pain of neuralgia and rheumatism. To ease pain, the solid is rubbed on to the skin; if applied too vigorously it may cause a little inflam-

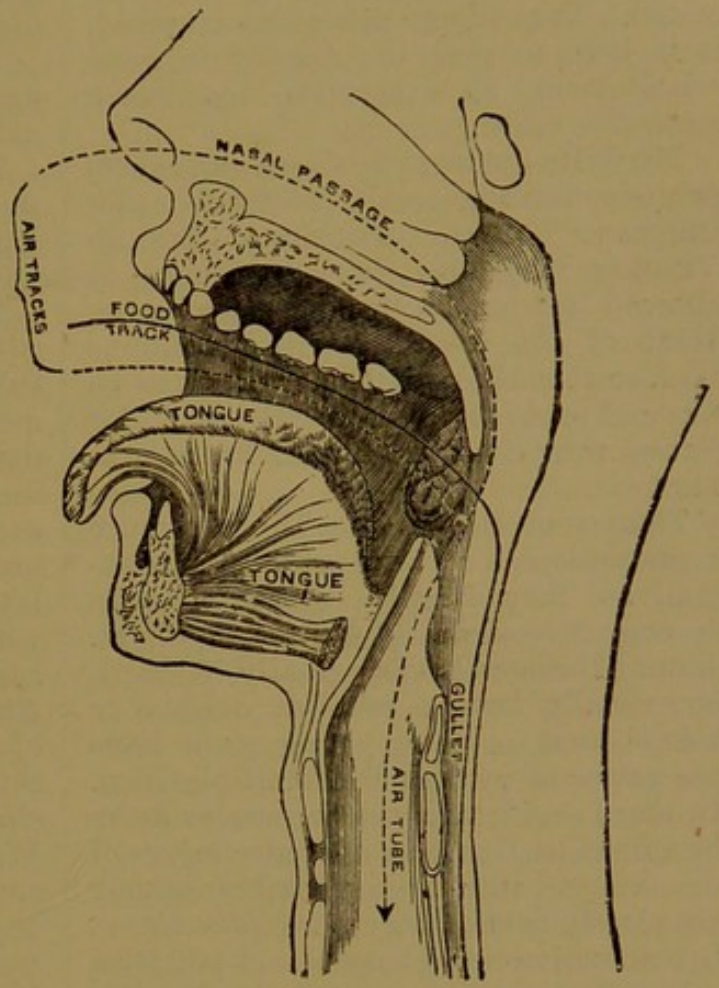

FIG. 58. DIAGRAM OF THE THROAT, MOUTH, AND NOSE, Showing course taken by food and air respectively.

mation. A solution in spirit (1 oz. in 3 fl. ozs. alcohol) is convenient for the sick-room. A tablespoonful of this solution added to half a gallon of water may be used for washing the face and body after infection, or for purifying the air by means of a spray-producer. *See* SPRAYS.

Thymus Gland.—This is situated behind the breast-bone. It is largest in early infancy, gradually wasting away later in life. Little is known as to its use.

Tic Douloureux. *See* NEURALGIA.

Tight-lacing. *See* CLOTHING.

Tinctures are solutions of drugs in spirit or in some spirituous fluid. The mode of preparation varies. Sometimes the drug is soaked in spirit, sometimes the spirit is made to trickle through in a suitable vessel, the drug being finally

pressed and the liquid strained. Tinctures usually keep well in stoppered bottles. Those made with strong spirit turn milky on addition of water, in which case mucilage should also be added. When large doses are required, it is best to give the remedy in some other form, as otherwise too much alcohol is taken.

Tin Salts are used by dyers and calico-printers, and are mostly poisonous. (*See* IRRITANT POISONS; POISONS.) TINNED VESSELS may also cause poisoning if allowed to remain in a greasy state. Much of the so-called "tin" contains lead, so that the symptoms will often be those of lead-poisoning (*which see*). For tinned provisions, *see* FOOD, PRESERVATION OF.

Tissues of the Body.—These require a microscope for their proper examination, as they largely consist of cells or corpuscles from $\frac{1}{200}$th to $\frac{1}{4000}$th in. diam. These cells vary greatly in shape, but usually have a rounded nucleus or kernel, and in their young state have the power of growth and multiplication. In blood and lymph the corpuscles swim in a fluid medium; in the outer layers of the skin and other lining membranes they are closely packed together (*epithelium*). In connective tissue they branch and form net-works, or are converted into bundles of fibres, and have between them more or less fluid material. In bone, the corpuscles are arranged in layers round the channels for bloodvessels, and are separated by hard calcified material. In cartilage or gristle the cells are unbranched and often arranged in groups, and are separated by firm but not calcified material.

CONNECTIVE TISSUES are those which bind together all parts of the body, forming sheaths for the muscles and other organs, and penetrating them in the form of a fine network. They consist of cells or corpuscles, fibres, and intercellular substance. Fatty tissue is a variety of connective tissue, in which oil has accumulated in the cells. Fibrous tissue (found in tendon, etc.) is another variety in which the fibres predominate. *See* BONE; CARTILAGE; MUCOUS MEMBRANES; SEROUS MEMBRANES; SKIN.

Toast, if taken dry and thin, is rather more digestible than untoasted bread. Hot buttered toast is very indigestible, the butter-fat surrounding the farinaceous particles and keeping off the digestive juices.

Toasted Cheese is well known as an unwholesome food, very likely to cause indigestion or nightmare.

Toastwater is made by pouring boiling water over well-toasted bread, and allowing it to cool. Some prefer to make it with cold water. (*See* BEVERAGES.)

Tobacco contains a poisonous alkaloid (*nicotine*). When burnt, other poisonous substances are formed. It is little used medicinally, and quite unsafe as a domestic remedy. When used for smoking, snuffing, or chewing, the effects vary according to the constitution, amount used, and other circumstances. It stimulates or irritates all mucous membranes with which it comes into contact, causing relaxed throat, hoarseness, and dyspepsia. At the same time it increases the flow of saliva, and causes more blood to pass through the brain, which is probably the chief reason for indulgence in smoking. With some people it prevents acidity and constipation; but these results might be better obtained by sucking gum lozenges and regulating the diet. *See* INDIGESTION; CONSTIPATION.

There appears to be some connexion between the production of cancer of the lip and the use of tobacco; but whether this is due to the kind of pipe, or to the tobacco smoke, is uncertain. If the lip or tongue becomes sore in a smoker, especially after middle age, it is only common prudence to abstain from smoking.

Tobacco-smoking and chewing is apt to cause the formation of sore or white thickened patches on the tongue and inside of the cheeks. Wherever this tendency is observed, smoking should be given up. Asthmatics sometimes derive benefit from smoking. They should, however, reserve it for their attacks of shortness of breath, as the effect is soon lost by habitual indulgence. On the other hand, those subject to bronchitis or laryngitis, or who have consumptive tendencies, should avoid smoking alto-

gether. Many people experience a soothing effect from their pipe or cigar. With others it causes nervousness, trembling of the hands, palpitation, and irregular heart-action, or even faintness and extreme depression. To some extent the use of tobacco must be decided by individual experience; but there can be no doubt as to the injurious effects on growing lads, or on adults who indulge in it when the stomach is empty. Probably it diminishes the craving for food, but such craving should be satisfied, not stifled. One form of blindness has been traced to the use of tobacco; and singing in the ears and deafness have been attributed to the same cause.

Toes. *See* FEET.

Tolu. *See* BALSAM OF TOLU.

Tongue.—The chief organ of speech and taste, also largely concerned in mastication and swallowing of food. It consists mainly of muscles running in different directions, covered with mucous membrane, which is thin on the under side, thick and shaggy above. The shagginess is caused by the presence of compound papillæ or projections, of which there are three kinds—filiform, or thread-like; fungiform, or like a toadstool; and circumvallate, or surrounded by a trench. Those of the second kind are scattered among the first, appearing as red dots; the last are grouped together in the form of a V towards the root of the tongue, and are the largest of all. The tongue itself consists of two symmetrical halves, imperfectly separated by a partition. It is attached to the hyoid bone, jawbone, and surrounding structures. (*See* LARYNX; MASTICATION; SWALLOWING; TASTE.) The condition of the tongue affords valuable evidence as to the general health. In weak and depressed states it is tremulous, and marked at the edges by the teeth. When the blood is impoverished, it is pale; if the circulation is sluggish, it becomes bluish red. In severe febrile diseases with great constitutional depression the tongue becomes brown or even black. It must, however, be remembered that the tongue may be stained by many different substances. Thus ink, red wine, mulberries, steel wine, and some kinds of cherries stain it black; tobacco, liquorice, fresh nuts or prunes, of a brown colour; chocolate, brownish red; saffron, laudanum, or rhubarb, yellow; and rhatany, raspberries, and some kinds of cherries stain it red. A COATED OR FURRED tongue may be produced in many different ways. One-sided furring happens in toothache, enlarged tonsils, and other unsymmetrical diseases. The tongue is also coated in fever and in digestive disturbances. In rheumatic fever the coat is thick and creamy; also in some forms of intemperance. In scarlatina it is often likened to a strawberry, the red fungiform papillæ showing through the white coat. In enteric and other prolonged fevers it is apt to become red and bare, and in severe attacks dry and brown, or raw from peeling of the fur in patches. Where the digestion is feeble, the tongue is often large and flabby. With an irritable state of the stomach, the tongue is usually narrow and pointed, with very red papillæ. A dry tongue in severe illness shows lack of strength; but the same condition occurs through sleeping with the mouth open. Much may also be learnt from the manner in which the tongue is protruded.

SORE TONGUE may arise from over-indulgence in smoking, or in alcohol. The use of hot or highly spiced food or drinks is stated to have a similar effect, especially in gouty people. Sore tongue may also be caused by jagged teeth or rough dental plates, as well as by various constitutional diseases, cancer, consumption, etc. In children, two other conditions are met with popularly classed as "thrush" (*which see*). A persistently sore tongue should never be neglected, as it sometimes becomes cancerous. All WARTS occurring on the tongue after middle life should be regarded with suspicion, and removed by a competent surgeon without delay. They may not be cancerous, but in any case their early removal gives the best chance to the patient. SMOKER'S TONGUE usually presents smooth, red, or livid patches, slightly depressed or covered with a thin, yellowish-white or brownish crust. In another form the patches are bluish-white or pearly, with a smooth surface and well-

defined edge. The cheeks may be similarly affected; there is usually no pain or tenderness, but there may be a feeling of dryness. Highly spiced dishes and fermented liquors give rise to a similar disease. TONGUE-TIE, in which the band of mucous membrane under the tongue is unnaturally short, is not so common as many suppose. It may easily be remedied by a snip with blunt-pointed scissors through the surface layer. Care must be taken not to cut too deep.

Tonics are remedies which increase the tone or vigour of the system; their effects are more lasting than those of stimulants. They are usually classed under several heads, according to the part of the body chiefly affected by them. *Digestive* tonics include bitters, mineral acids, salicine, quinine, etc. Among *blood tonics* and *nerve tonics* are included salts of iron, quinine, nux vomica, salicine, etc. A good and varied dietary, sufficiency of fresh fruit and vegetables, fresh air, and other hygienic influences greatly assist the action of tonics. Medicinal tonics should not be indefinitely continued, else they lose their effects, or cause irritation of the digestive organs. *See* DEBILITY, and *Pr.* 1, 6, 12, 13, 25, 34, 35, 36, 37, 38, 40, 42.

Tonsils.—Almond-shaped bodies situated between the "pillars of the fauces" on each side of the throat. (*See* THROAT.) They consist chiefly of lymphatic tissue, arranged in patches round follicles or little pockets which open on to the surface. Inflammation of the tonsils is usually called QUINSY (*which see*). Ulcers frequently appear on the tonsils in SORE-THROAT. ENLARGEMENT of the tonsils is common in children of scrofulous tendencies, or in those who have had quinsy or repeated sore throats. If neglected, it may do much damage to the health, as the enlargement, if at all marked, interferes with the proper expansion of the chest, alters the character of the voice, leads to breathing through the mouth, and imperfect development of the nose. The appearance of the face is therefore more or less spoilt. Deafness may also arise from blocking of the eustachian tubes. The best treatment is, in slight cases, to paint the affected parts with astringents, such as solution of perchloride of iron, or to use astringent gargles. (GARGLES, Nos. 1, 2, 3, 4.) If the enlargement does not subside, the tonsils will require to be removed by a surgeon. This is a comparatively painless operation. Constitutional treatment should be as in SCROFULA (*which see*).

Toothache. *See under* TEETH.

Tooth Powder should be neither gritty nor composed of materials which attack the enamel. Vegetable charcoal contains flinty particles, and is apt to scratch the teeth. Camphor and tooth pastes containing syrup or grape sugar chemically attack the enamel and soften it. The addition of some antiseptic is advantageous, and a little Castile soap increases the cleansing power. (1) The following is a good formula: Castile soap, 2 drs.; powdered orris root, 4 drs.; borax, 2 drs.; prepared chalk, 2 ozs.; mix and add a few drops each of oil of cloves and oil of lavender. (2) If the teeth are decayed, the following is preferable: Castile soap, 2 drs.; powdered orris root, 4 drs.; borax, 2 drs.; prepared chalk, 2 ozs.; mix and add ½ dr. oil of eucalyptus and ½ dr. carbolic solution (1 in 40). Use with a wet brush, and rinse the mouth freely (Sewill). (3) If the gums are spongy, the following may be used: Castile soap, 2 drs.; powdered orris root, 4 drs.; powdered cinchona bark, 4 drs.; powdered myrrh, 2 drs.; prepared chalk, 1½ ozs. Or the following: (4) Castile soap, 2 drs.; catechu powder, 2 drs.; powered myrrh, 2 drs.; prepared chalk to 3 ozs.

Total Abstinence from all fermented liquors is advocated on many different grounds. As far as health is concerned, there are few who absolutely require alcohol, or who could not with perfect safety abstain from its use. It is by no means proved that the moderate use of such drinks is hurtful to a healthy man; but "moderation" has a different meaning to different people, and many who fancy themselves "moderate drinkers" habitually take more than is good for them. Some people appear to be easily tempted to excess, the craving for drink increasing with its indulgence. For such, the only safe course is to take the

pledge, or to abstain without taking it. In some occupations, again, the temptations to excess are exceedingly great; and here total abstinence is advisable, both for the sake of the individual and for example to others. On the other hand, alcohol is useful to some people with weak digestion or feeble circulation, and if abandoned by them must be replaced by suitable medicines. Those who renounce the use of alcoholic stimulants will frequently do well to increase the proportion of starch or sugar in their diet. *See* ALCOHOL; FERMENTED LIQUORS; STIMULANTS.

Touch.—The sense of touch is sometimes unnaturally acute in hysteria, neuralgia, and local inflammation. Deficient sensibility is more common. (*See* NUMBNESS.) The temperature sense may or may not be affected with the sense of touch.

Tourniquet.—An instrument for compressing an artery to prevent loss of

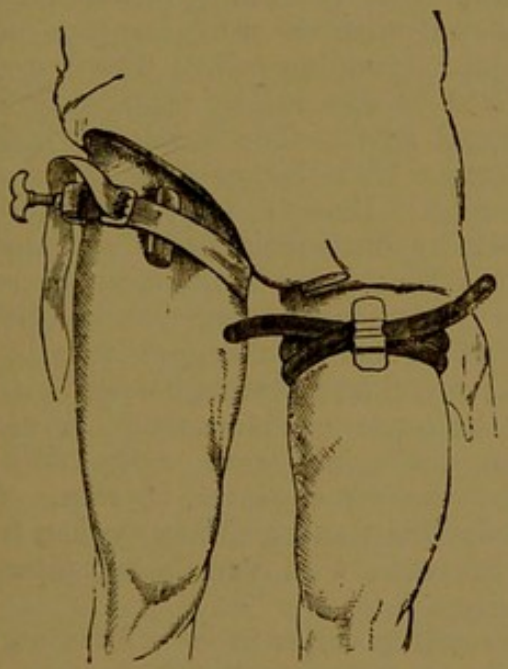

FIG. 59. TOURNIQUETS.

That on the left leg is Esmarch's; that on the right, Petit's. The pad is over the main artery.

blood (*Fig.* 59). Esmarch's consists of elastic tubing; Petit's of webbing tightened by a screw. An extemporised tourniquet may be made by knotting a smooth stone in a handkerchief, and tying this round the limb. The pressure may be increased by inserting a stick and gently twisting the handkerchief. The stone should press on the chief artery of the limb. *See* HÆMORRHAGE.

Tous les Mois.—A substitute for arrowroot, imported from the West Indies. *See* FARINACEOUS FOODS.

Tow is made from hemp. It forms a valuable material for padding splints, surrounding dressings in wounds, and applying elastic pressure in case of sprains. It is also used as a support for linseed poultices. It has more elasticity than cotton wool. Carbolized tow and finely carded oakum are valuable antiseptic dressings for wounds.

Town Life is far less healthy than life in the country, partly because the air is less pure, partly because the occupations and mode of life are less healthful. Some day the importance of open spaces in towns and of purification of the smoke from the chimneys will be more thoroughly realized. The health of our town dwellers may also be improved by proper attention to ventilation of rooms, removal of refuse, efficient drainage, provision of pure water, and other hygienic measures.

Toxicology.—The study of poisons (*which see*).

Trachea.—The windpipe, which extends from the larynx to the subdivision into two bronchi behind the top of the sternum. The trachea is placed in front of the œsophagus or gullet. It is strengthened on three sides by imperfect cartilaginous rings, which are deficient behind. In front of the upper part is the "isthmus" of the thyroid body (*which see*).

Tracheotomy.—The operation of opening the trachea, practised where the larynx is blocked up or inflamed, or for other reasons the passage of air through it is interfered with. *See* CROUP; DIPHTHERIA.

Trades. *See* OCCUPATIONS; STATISTICS.

Tragacanth. *See* GUM.

Training is hurtful or beneficial according to the soundness of the body. Training finds out the weak points, and if these happen to be heart or lungs, much harm may be done. With people of ordinary sound health, however, training, if judicious, will do nothing but good. It should not be too suddenly taken up,

and extreme feats of endurance should never be attempted until the muscles have been gradually prepared for the work. The food should not be widely different from that of other times, but should contain representatives of the different classes of foodstuffs as in an ordinary dietary. (*See* DIET.) The proportion of nitrogenous to starchy foods may be slightly increased, and the total quantity required may be somewhat greater than with ordinary work. Indigestible and highly seasoned dishes, made dishes, soups, pastry, and stimulants are best avoided. If there is a craving for the latter, half a pint of mild Anglo-Bavarian ale may be taken at dinner-time. Fruit may be taken after breakfast, and at supper a light, nourishing meal of porridge and milk, or some similar material. Regular hours should be observed, smoking eschewed, ventilation of rooms carefully attended to, flannel or woollen garments worn, fastened by a belt just below the hips, and the morning cold bath regularly taken. Exercise should not be taken within three hours of a full meal, nor when exhausted for want of food. During exertion, breathing should be regular and deep, as holding the breath puts an extra strain on the heart. *See* EXERCISE.

Trance. *See* CATALEPSY.

Transfusion.—An operation whereby one person gives blood to another. It has been tried with success after flooding and other accidents.

Traps are contrivances for preventing the passage of sewer air in one direction, while permitting the passage of liquids in the other. There are many kinds, but they may all be classed under four heads —the flap trap, ball trap, mid-feather, and syphon. FLAP TRAPS are hinged valves opening only in one direction. They are not very efficient. BALL TRAPS, in which the opening is closed by a rather larger ball, are seldom used in drains. MID-FEATHER TRAPS consist of a box with the entry at one side and the exit at the other, and one or more partitions reaching down between them. Many varieties are made, such as the ⊃ trap (D-trap), the bell trap, and the dipstone trap; but they are all unreliable and apt to become blocked. *The ⊃ trap* (*Fig.* 66), often found in old-fashioned W.C.'s, is so called from the shape of the box, which resembles a D put on its back. The tube of entry dips into the water contained in the box. If the tube becomes corroded or the box unsound, sewer gas can escape freely into the house. ⊃ traps have been appropriately termed death traps. The *Bell trap* is often used to guard the overflow pipe of a sink. The bell dips by its edges into a cup of water around the pipe. The water seal amounts to very little, often about ¼ inch, and may be absent altogether through filling up of the trough with solids or the evaporation of the water. *The dipstone trap* has a vertical partition dipping down from the roof into the water. SYPHON TRAPS (*Figs.* 67, 68) are probably the safest traps that are made; yet even these have special dangers. Chief among these is the danger of being emptied by syphon-action, either by flushing of another trap connected with the same soil-pipe, or by the pipe "running full." The first danger may be avoided by ventilating with a special shaft. The second by making the trap a little larger than the rest of the pipe. Unused traps become unsealed by evaporation of the water in them. Water should therefore be regularly poured down every W.C. in a house. The water seal of a syphon trap is seldom more than a few inches, so that unless the sewer is disconnected from the house drain, the trap may easily be forced during a storm of rain. (*See* HOUSE DRAINAGE.) Many syphon traps are provided with ventilating pipes or openings.

Travelling varies in its effects on the health according to its nature and the attendant circumstances. Habitual travelling acts very differently to an occasional journey; railway, coach, and steamboat journeys have each their peculiar characters; and much also depends on the temperament and health of the traveller, the motive of the journey, the existence of anxiety or worry, and the care taken to insure regular meals and sufficient sleep. During long or frequently repeated railway journeys, the continual vibration

after a while has an injurious effect upon the health, and renders the traveller irritable and sometimes feverish. Whatever food is taken while travelling should be thoroughly chewed and slowly eaten, and should, if possible, be of an easily digestible kind. The calls of nature must be regularly attended to. "Railway conveniences" are sometimes extremely useful, where there are few opportunities of relieving the bladder. Young children and old people are both apt to suffer from a long journey. A dose of bromide (*Pr.* 18) before starting is often useful in quieting the nerves. A smaller dose may be given to a child. *See* EXERCISE.

Treacle.—The uncrystallized residue from sugar-making. It has laxative properties.

Treacle-beer for lead workers: Treacle, 15 lbs.; bruised ginger, ½ lb.; water, 12 gals.; yeast, 1 qt.; bicarbonate of soda, 1½ oz.; and sulphuric acid, 1½ oz. by weight. Boil the ginger in 2 gals. water, heat the rest of the water and add it together with the treacle: put into a barrel with the yeast. When the fermentation is nearly over, mix the sulphuric acid slowly with 8 times its weight of water, and pour the mixture into the barrel. Finally add the soda dissolved in a quart of water. The beer may be used in three or four days. *See* LEAD-POISONING.

Trees. *See* VEGETATION.

Tremor, or *trembling*, is common in the intemperate or debauched, as well as in those who are enfeebled by other causes, such as overwork or insufficient food. Tremor is a symptom of mercurial poisoning and of some nervous diseases.

Trichinosis.—A disease caused by eating pork infested with trichina spiralis, a worm-shaped parasite measuring ⅛ in. or less in length. The immature trichinæ are found in pork coiled up inside a little capsule in the muscles (*Fig.* 60). When swallowed by man, the liberated parasites develop and multiply with enormous rapidity, so that it has been calculated that those contained in half a pound of meat may produce thirty million trichinæ in a few days. These bore through the walls of the bowel, causing nausea, vomiting, diarrhœa, and pains in the abdomen. After a while they find their way to the muscles in various parts of the body. Consequently muscular pains, stiffness, and paralysis are set up, with local dropsy (or *œdema*) and fever. The disease is not very common in England, but there have been large epidemics in Germany and America, probably because of the habit of eating sausages and hams which have been smoked but not properly cooked. During the migration of the parasites, which takes about a week, the patient's strength is greatly tried, and he often dies exhausted. Later on other complications arise; but if these are survived, the trichinæ encysted in the muscles become converted into little gritty particles. The disease may be recognised by microscopic examination of the suspected meat, or of the discharges from the bowel.

FIG. 60.
TRICHINA SPIRALIS ENCYSTED IN MUSCLE (MAGNIFIED).
(From Louis Parkes' "Hygiene and Public Health.)"

TREATMENT, to be of use, must be energetic in early stages. Brisk purgatives (*Pr.* 10, 11, 14, 59) must be taken twice a day for several days, so as to expel the trichinæ before they migrate. When muscular pains have set in, the patient's strength must be supported by plenty of easily digestible food, and fever medicines given. Tonics will afterwards be useful. (DIET, III.) *See also* TONICS.

Trocar.—An instrument for drawing off fluid from internal cavities of the body. It is usually fitted inside a canula, which remains to give passage to the fluid when the trocar is withdrawn.

Troches. *See* LOZENGES.

Tropics. *See* CLIMATE.

Truss.—A contrivance for supporting a *hernia* or "rupture." (*See* HERNIA.) Many kinds are made; but the chief are modifications of four forms. (1) Trusses with a SOFT BAND (Mocmain truss, etc.).

Pressure is put upon the path of the hernia by means of a pad, which is provided with a short lever-spring, an under-strap passing between the legs. The disadvantages are that there is no safeguard against displacement of the pad excepting the tightness of the under-strap and band. Also, in order to obtain much support, the band has to be worn quite tight. (2) The ORDINARY truss with padded steel spring (*Fig.* 61). This

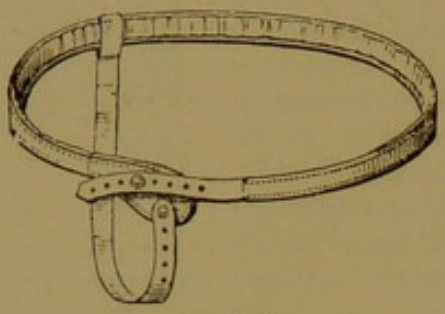

FIG. 61.
TRUSS FOR RIGHT INGUINAL HERNIA.

(*By kind permission of Messrs. F. Walters & Co.*)

In femoral hernia, the head is bent a little lower down.

may be worn with or without an under-strap, according to circumstances. The pad is placed over the opening of the hernial canal, or so as to close it higher up; the spring is shaped so as to cling to the body without exerting uneven pressure on sensitive parts; the soft end of the band is drawn well forwards so as to make the band lie close, and fastened on a stud or hook. When an under-strap is worn, it should take its purchase from a point rather more forward than that shown in *Fig.* 61, or it will tilt up the truss-head. The advantages of this kind of truss are, that the rigidity of the steel band prevents displacements of the pad. Being elastic, the pressure gives slightly with the movements of the body, and if well fitted, it obtains a firm hold without undue pressure by adaptation to the inequalities of the body. Many *modifications* exist, differing in the character of the spring and of the pad. German springs are stated to be very rigid. French and American springs are exceedingly elastic, curling up almost like a watch-spring. English springs are usually intermediate in this respect. This is an advantage in fitting, but usually not so comfortable when fitted. The pads vary in the material of which they are made (ivory, wood, vulcanite, blanket covered with soft leather, india-rubber filled with air, water, or glycerine, etc.); also in their shape, which may be round, pear-shaped, triangular, oval, or cleft. They may be adjustable by rack and pinion, or in other ways. They may be flat or convex, large or small. In some trusses they are prolonged into the under-strap. In Walters' Hydrostatic Truss the pad is an adjustable water pad. Trusses for *femoral* hernia are made curved down in front, so that the pad rests on the thigh just below the groin. To prevent displacement, it is a good plan to have a thigh-band attached to the pad, laced on the outside, otherwise the movement of the leg is apt to shift the pad. (3) SALMON AND ODY'S Truss differs from the ordinary kind in two important respects. It takes its bearing from a pad on the back, the steel band encircling one side of the body without being in close contact with it; and the front pad crosses over to the opposite side of the body (*Fig.* 62). Moreover the

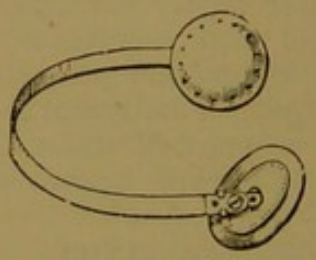

FIG. 62.
SALMON AND ODY TRUSS.

(*By kind permission of Messrs. F. Walters & Co.*)

pads are on ball and socket joints. In suitable cases these trusses are comfortable and efficient, but very often the ordinary form gives more comfort. (4) The BAG TRUSS is used for irreducible hernia. The bag may be of metal, silk net, leather, or other materials. The former is the most useful kind for large, irreducible hernias. Trusses for UMBILICAL hernia are often made with a large concave pad, strengthened with sheet-metal. It is sometimes convenient to have a pad with a slight, nipple-like prominence. DOUBLE TRUSSES are made of all kinds excepting umbilical. It is often advisable to wear a double truss

where only one side is ruptured, for the sake of precaution. BATHING trusses are made covered with india-rubber, vulcanite, or japan. Young children should have their trusses shielded in some such manner.

The CHOICE OF A TRUSS is a matter requiring some knowledge of surgery, as well as mechanical skill. A surgeon can seldom give the time and attention required to obtain a perfectly fitting truss; but as instrument makers do not necessarily possess any surgical knowledge, it is wise to consult a surgeon in the first instance. No kind of truss can be recommended as the best for every case of hernia. The kind must be chosen with reference to the condition of the patient and his hernia. It is a good plan to have two trusses, so that if one breaks down the other is available. Comfort will be promoted by frequent renewal of the coverings of a truss, which soon become saturated with perspiration. This also affects the durability. Linen covers are provided to slip over the truss bands and heads. A strip of flannel may be wound spirally round the band. This is especially convenient in double trusses.

Tubercle. *See* CONSUMPTION; SCROFULA.

Tumour.—A swelling. The term is usually restricted to swellings caused by new growths, such as cancer, sarcoma, fibrous and fatty tumours. Some tumours are of little importance, whereas others are certainly fatal unless early removed.

Turkish Baths. *See* BATHS AND BATHING.

Turmeric.—A yellow powder used as an ingredient of curry powder. It is a warm aromatic.

Turn of Life. *See* MENSTRUATION.

Turnip. *See* VEGETABLES.

Turpentine.—Common turpentine consists of resin dissolved in oil of turpentine or spirits of turpentine. The oil is used as a counter-irritant, and forms the basis of two *liniments* (turpentine liniment and acetic turpentine liniment) and an *ointment*. It may be used as an *enema* in intestinal flatulence. 1 fl. oz. oil of turpentine may be used for this purpose with 15 fl. ozs. mucilage of starch, or with 3 fl. ozs. castor oil and one pint of gruel. The first is best in diarrhœa, the second in constipation. The syringe should afterwards be cleaned with warm soap and water. Internally turpentine is given in large doses as a purgative, and for intestinal worms; in smaller doses for sciatica, internal bleeding, and chronic bronchitis. It is, however, not a convenient domestic remedy, as large doses are apt to cause nausea and vomiting, or a kind of intoxication; while smaller ones may give rise to violent inflammation of the kidneys. *See* RESIN.

H. D. M.

Twins. *See* CHILDBIRTH.

Twitching may arise from mere nervousness or emotion, or be an early sign of chorea. In high fever, twitching is usually a sign of exhaustion.

Tympanites. — Extreme distension of bowels with gas. An enema of asafœtida is often useful. *See* ASAFŒTIDA; TURPENTINE.

Tympanum.—The ear-drum. *See* EAR.

Typhoid. *See* ENTERIC FEVER.

Typhoid State.—A condition arising in the course of fevers, kidney disease, and other grave illnesses, probably due to extreme impurity of blood. There is usually muttering delirium, and dulness of sight and hearing, together with great weakness. The tongue is dry and brown or black, breathing hurried and shallow, pulse feeble, and urine and motions often passed unconsciously. Delirium passes into stupor, and convulsions may occur. The condition is a grave one, but may be recovered from. Treatment will, of course, be in medical hands. Stimulants in large doses are nearly always required; and the patient's strength saved as much as possible.

Typhus Fever is quite different from typhoid or enteric fever, with which it is still often confounded. Formerly it went by the name of jail fever, camp fever, spotted fever, or malignant fever. It is highly infectious, although the contagion does not spread far from the patient. At one time it was almost always prevalent in London and other large cities; but now it occurs in epidemics, especially attacking the under-fed poor who live in dirty, over-crowded rooms. The contagion is easily carried in clothes, rags, etc., so that all such matters

coming from a typhus patient must be destroyed or carefully disinfected.

Symptoms.—It begins after an incubation of about a week, with shivering, headache, or vomiting, and other early symptoms of fever. This increases moderately quickly; so that in a few days the patient is obliged to take to his bed, where he lies with a dull, heavy, stupid expression, and dusky flush upon the cheeks, much like one who has been intoxicated. At the end of the first week, a rash appears, consisting of small, roundish, dirty pink spots, together with an indistinct grayish mottling of the skin. The spots appear first on the abdomen, spreading to face and arms; they come out in one crop, and soon leave permanent stains on the skin like flea-bites or bruises. During the second week the patient is prostrate with high fever, and often in a "typhoid state," with muttering delirium, and a torpid condition which may deepen till the patient dies. In more favourable cases there is sudden improvement on the fourteenth day, with rapid recovery during the third week. The disease is fatal to about ten per cent. of those attacked, danger increasing with the age of the patient. Pregnancy increases the risk; abortion always follows infection, and the woman often dies. Relapses are rare, and second attacks seldom occur.

TREATMENT must be left in medical hands. The strength requires to be supported by careful feeding with suitable articles; and stimulants are often needed. During convalescence the patient's strength must not be taxed, as the heart is very often weakened, and needs time for recovery. Isolation and disinfection must be scrupulously attended to, as in other infectious fevers. *See* DISINFECTION; ENTERIC FEVER; FEVER; DIET, II.; FEVER DRINKS; INFECTIOUS FEVERS; ISOLATION; RELAPSING FEVER.

Ulcers.—Open sores, due to inflammation or loss of substance. In ulceration the flesh is destroyed in particles, whereas in gangrene (or mortification) it dies in a mass. (*See* ABSCESS.) SIMPLE OR HEALING ULCERS, such as are found after injury to a perfectly healthy person, have level floors covered with uniform small pink elevations (*granulations*), gradually shelving edges, with a delicate bluish line where the skin is growing over the new flesh, and more or less thick yellow creamy matter. They may be dressed with plain water dressing, or a lotion or ointment of boric acid may be used. (*See* DRESSINGS.) All ulcers should be kept at rest, and shielded against injury or irritation. The matter should not be wiped off the wound, but only from around it. An INFLAMED ULCER is very red and painful, with a dusky flush around it. It should be treated with warm moist applications, such as linseed poultice or starch poultice or warm lead lotion. The part must be elevated, and kept at rest. Aperients are often needed. INDOLENT ULCERS have thick, hard borders, with pale or dusky floors and few granulations. They discharge a thin and often offensive discharge. SLOUGHING ULCERS are those in which pieces of tissue mortify and are cast off as gray, dirty-looking masses. They are apt to be painful and to bleed, and require careful bandaging and stimulating dressings (such as sanitas ointment, *Lotions* 14, 17, 18). Martin's bandages are useful, if the skin is not too sensitive to confined perspiration. A large sheet of wadding round the limb often helps the healing of an ulcer. Ulcers may be unhealthy from local irritation, or from constitutional weakness or disease. ECZEMA, CHILBLAINS, VARICOSE VEINS, and GOUTY DEPOSITS, are all liable to be complicated with ulceration. Where there is eczema, this must be treated as usual, and the ulcers like inflamed ulcers. Those following chilblains must be kept warm, the circulation being improved by tonics, exercise in the open air, and other measures. Where there are varicose veins, they should be supported by careful bandaging (which is always an assistance to the healing of ulcers). In gout, boric lint is a good application, and suitable diet and medicine. (*See* GOUT.) SCROFULOUS people are very liable to the formation of ulcers with undermined edges, over lymphatic glands in the neck and other places. Stimulating ointments are

required (as in *sloughing* ulcers), with cod-liver oil, tonics, generous diet, and usually sea-side air. (*See* SCROFULA.) Ulcers IN OLD PEOPLE should never be trifled with; they are apt to end in mortification. Ulcers also arise from other causes, such as SCURVY, CANCER, INJURY TO NERVES, etc. As a rule, it is wise to obtain surgical advice for an ulcer, and the foregoing hints are chiefly given for the sake of those who from circumstances are unable to do so. *See* BANDAGING; DRESSINGS; MARTIN'S BANDAGE; OINTMENTS; STRAPPING.

Umbilicus.—The navel. *See* CHILDBIRTH; HERNIA; INFANCY.

Unconsciousness may arise from many different causes. In a fainting fit, the heart-action is arrested. In asphyxia or suffocation, drowning, and the like, the purification of the blood is interfered with. In poisoning and intoxication, unconsciousness also arises from impure blood, and a similar result may occur in Bright's disease, diabetes, and various fevers. Apoplexy and injuries or diseases of the brain must also be mentioned as possible causes. Sunstroke and exposure to extreme cold may also produce loss of consciousness, while this is a common symptom of an epileptic fit. To distinguish between these many different conditions is often a matter of extreme difficulty, even for a medical man of experience. *See* ALCOHOL; APOPLEXY; COLD, EFFECTS OF; EPILEPSY; FAINTING; HYSTERIA; INTOXICATION; NARCOTICS; POISONING; SUNSTROKE.

Uræmia.—An impure state of the blood, due to imperfect action of the kidneys in Bright's disease, etc.

Ureters.—The tubes by which the urine flows from the kidneys to the bladder.

Urethra.—The passage for the urine from the bladder. It is longer and more curved in males, and therefore more liable to disease. It may be blocked by gravel or small stones, or by the narrowing of the canal (*stricture*). The latter complaint usually arises from inflammation, often caused by irregularities of conduct in early manhood, or less frequently by accidental injury. However caused, it gives rise to diminution and twisting of the stream of urine, with difficulty in emptying the bladder. If neglected, the penalty will be an attack of retention, or disease of kidneys or bladder. All such disorders call for the advice of a competent surgeon. The very worst thing that can be done is to consult one of the numerous quacks who trade on the ignorance and the fears of the public. *See* BLADDER; URINE, RETENTION OF.

Urinary Organs consist of the kidneys, bladder, and their ducts. Urine is secreted by the kidneys, and flows down the ureters into the bladder, whence it is periodically discharged by the urethra. *See* KIDNEYS; BLADDER; URETHRA; URINE.

Urine when healthy is of a clear, pale amber colour, with slightly aromatic odour while fresh. The *colour* varies with the degree of concentration, being paler when much urine is passed. Certain drugs influence the colour. After taking rhubarb it is of a deep gamboge yellow, turning red on addition of a little hartshorn. Senna gives rise to a brownish colour; logwood, reddish; santonin, orange yellow. When tar or carbolic acid is used, the urine may be nearly black; and the same thing may happen when creasote is taken internally. Smoky urine usually contains blood (*see below*). The *smell* is also influenced by food and medicines which have been taken. Turpentine gives rise to a smell of violets. After asparagus or garlic, the urine is somewhat offensive. In diabetes it is sweetish, like hay; or after standing has a sour smell. The *quantity* naturally passed is 2 to 2½ pints in 24 hours, but is influenced by the amount of fluid taken, and by the action of the skin. When there is much perspiration, as in summer, or when the bowels are relaxed, the urine is diminished. On the other hand, a large draught of water will increase the quantity. Occasional variations in the quantity are of no moment; but if habitually different from the standard, it may be because of disease. Hysterical women often pass large quantities of pale urine after an attack. In diabetes and one

form of Bright's disease, the quantity is increased, sometimes enormously; in other diseases the quantity may be much diminished. The *specific gravity* of urine shows the density as compared with distilled water at 60°. It varies in health from 1015 and 1025. (*See* URINOMETER.) If habitually different from this, a medical man should be consulted. The condition may be of no moment, but may be due to serious disease. The *acidity* is tested by litmus paper, which is reddened by fresh healthy urine (as it is by vinegar and water). After standing, urine becomes alkaline, and turns litmus paper blue. This change takes place sooner in a dirty vessel. The urine passed immediately after a meal is sometimes neutral or slightly alkaline. In disease of the bladder it may be always alkaline when passed.

No DEPOSITS should be present in urine, at most a scarcely perceptible cloud of mucus should be deposited on cooling.

(1) When the urine is high-coloured and stains the vessel on standing, or leaves a pink deposit which disappears on warming, this usually points to liver disorder. Such staining may occur in health where the urine is much concentrated by extreme perspiration or other causes, and also in very cold weather; but if habitual, or if there is noticeable deposit, it must be attended to. The bowels should be regulated (*see* CONSTIPATION), less butcher's meat and alcohol be taken, fish, farinaceous food, and unfermented drinks being substituted. Plenty of active exercise in the open air will be needed. (*See* LIVER DISORDER.) The same condition occurs in fever.

(2) Sometimes with a very acid urine little grains like cayenne pepper are passed; these consist of uric acid, and point to a gouty tendency of constitution. (*See* GOUT.)

(3) A white deposit increased by heat, but disappearing on the addition of a little acetic acid, will probably consist of phosphates. Such a deposit is often found in those whose nervous systems are exhausted from overwork or any other cause. It also occurs in disease of the bladder.

(4) A grayish-white or yellowish deposit of mucus or matter, may be due to disease of kidneys, bladder or other part of the urinary tract. If the urine is alkaline when passed, and the deposit clings to the vessel, the bladder is almost certain to be diseased.

(5) Deposits may also be due to the presence of blood and other matters. (*See* BRIGHT'S DISEASE, and below.)

ALBUMEN IN URINE causes no deposit, although often associated with one. It is recognised by heating over a spirit lamp in a test tube and adding a drop of nitric acid, when the albumen appears as a white deposit. If albumen is believed to be present, the patient should go to bed and send for a doctor, taking diet as in Bright's disease. There are often less serious causes for albumen in the urine, but it is best to be on the safe side.

SUGAR IN THE URINE is usually found where the quantity is great, and the specific gravity over 1025. The usual cause is diabetes (*which see*).

The EXAMINATION OF THE URINE is best left in medical hands, and the foregoing details have been given entirely for the sake of those who are unable to obtain skilled advice. The tests require practice to apply, and knowledge to interpret; and although the urine should always be sent for examination where the health is not good, a nervous anxiety as to the state of the urine is not to be encouraged. In sending a specimen to the doctor, choose either that passed before breakfast, or part of the whole day's urine, collected in a single clean vessel and kept in a moderately cool place. Put it in a clean bottle, without addition of scent or anything else, and label with name, date, and time of passing. This will enable the doctor to do justice to your case.

BLOOD IN THE URINE, if in large quantity, appears in clots which are usually easily recognised. When it comes from the urethra, it may show itself before the urine passes. When from the prostate, it may be chiefly squeezed out with the last few drops. When from the kidneys it usually is mixed up with the urine so as to give it a smoky tint, and may be thrown down as a chocolate coloured

deposit on standing. Blood corpuscles are altered in shape by the urine, but can nearly always be recognised with the microscope. The chief causes are inflammation of the kidneys or bladder; false passages with a catheter; enlarged veins associated with piles, and perhaps started bleeding by curing the piles; new growths or stone in the bladder or kidneys; and a few other diseases. Some drugs, such as turpentine or cantharides, may cause blood to appear in the urine. In Egypt and Mauritius certain parasites act in the same way. In women, the possibility of menstrual blood being mixed with the urine should be remembered.

The treatment depends on the cause, and should be left in medical hands. Until the doctor arrives, lie down quietly, avoid alcohol, even if faint, and if there is very great loss of blood take hamamelis (*Pr.* 33) internally, or suck pieces of ice, or drink a little vinegar and water.

Urine, Incontinence of, involuntary passage of urine, bed wetting, is a natural condition in earliest infancy, but passes off before long if the child is healthy and of ordinary intelligence. Sometimes the habit continues up to the time of puberty, in which case it may be difficult to cure. More often it is an ailment which appears about the period of second teething, either from weakness of the muscles closing the bladder, or irritability, or undue irritation of its nerves. Children affected in this way are often highly nervous, with active brains and ill-developed muscles; but an opposite condition may be met with, in which the child is dull and unintelligent, with a big sluggish frame. The disorder may be due to the presence of worms in the bowel, a stone in the bladder, or an adherent or overlong foreskin in boys. Late suppers, and the habit of drinking large quantities of liquids towards bed time, are likely to encourage such mishaps; as also may too soft or warm a bed. In older people involuntary passage of urine usually arises from the bladder being over-full—"retention," not incontinence of, urine. This is a serious matter which needs prompt advice. Coming on suddenly, not an hour should be lost before a doctor is consulted. A similar condition is also met with in those weakened by fever or long illness, or suffering from paralysis.

TREATMENT IN CHILDREN.—Remove all possible causes (*see* WORMS, INTESTINAL; BLADDER, STONE IN THE; CIRCUMCISION). Let the child sleep on a mattress, not a feather bed, guarded with macintosh sheeting, and a "draw sheet" of the same material a yard square. See that the bladder is properly emptied at bed time, and later on (about ten or eleven o'clock) wake the child to pass water again. Give *Pr.* 22, or, if there is debility, *Pr.* 34 or 35 during the day, and *Pr.* 22 at bed time. Should the child complain of thirst, or the pupils of the eyes become dilated during treatment, the remedy must be withheld. All obstinate cases, or those of uncertain nature, should be submitted to a doctor.

Incontinence of urine IN ADULTS is quite unsuited for domestic treatment.

Urine, Passage of, should be free and painless. In old men, with enlarged prostate, the stream is feeble and drops nearly vertically. Where a stricture is present, the stream though perhaps forcible, is small and twisted. In either case a surgeon's advice is necessary. Pain in passing urine may be caused by stricture, gravel, etc. For *involuntary passage* of urine *see* URINE, INCONTINENCE OF; for *stoppage see* URINE, RETENTION OF.

Urine, Retention of, occurs as the result of obstruction to the outflow from the bladder. In young people and adults a common cause is stricture (*which see*). In elderly men an enlarged prostate may lead to a similar result. In the first instance the attack may come on suddenly, with little warning; especially after a chill or indulgence in intoxicants. When due to enlarged prostate, the bladder has usually been imperfectly emptied for some time previously, and the urine has been cloudy or ammoniacal from decomposition of the portions retained. Gradually the calls to pass water became more frequent, until there is constant dribbling from an over-distended bladder, or a sudden attack of retention. When this happens, send for a surgeon; avoid straining, and take a hot bath, or hot hip bath.

It is also advisable to abstain from all fluids until relieved, as well as from medicines to increase the flow of urine (*diuretics*). The passage of a catheter by skilled hands will give immediate relief. (*See* CATHETER.) It may be necessary to habitually use a catheter in future; directions should be obtained from the surgeon in attendance. Retention of urine is also not uncommon during childbirth and after operations on the rectum.

Urinometer.—An instrument for taking the specific gravity of urine. It is made of glass, contains a little mercury, and is marked with a graduated scale. The denser the fluid, the higher it floats. In distilled water at 60° F. it sinks to the top of the scale (0° = sp. gr. 1000); in healthy urine to about 15 or 25 (= sp. gr. 1015—1025). The urine should be allowed to cool, and the urinometer allowed to float in it free from bubbles and away from the side of the vessel. *See* URINE.

Urticaria. *See* NETTLERASH.

Uterus. *See* WOMB.

Uva Ursi.—Bearberry, a low creeping shrub found on rocky ground throughout Northern Europe. The leaves, which roughly resemble those of box, are used to prepare an infusion (1 oz. to 1 pint) given for inflammation of the bladder. Dose, 1 to 2 fl. ozs.

Uvula.—The central pendent part of the soft palate. In relaxed sore throat the uvula is sometimes elongated, causing violent coughing whenever the patient lies down. *See* SORE-THROAT.

Vaccination.—Inoculation with cow-pox matter, introduced by Dr. Jenner as a safeguard against small-pox. It was already in his time (1798) a matter of popular tradition that those accidentally inoculated with the cow-pox were not susceptible to small-pox; and Dr. Jenner, by careful observations, proved the correctness of the tradition, and introduced the practice of vaccination. The first Vaccination Act passed by Parliament was permissive, but in 1853 the practice was made compulsory, with the result of enormously diminishing the mortality from small-pox. It has been abundantly proved that vaccination greatly diminishes the risk of catching small-pox, and also diminishes the danger of death in an attack, rendering it altogether milder and less likely to disfigure or blind the sufferer. The protection is not absolute, any more than an attack of small-pox itself is an absolute protection against a second attack; and what protection there is becomes exhausted by about the age of puberty, so that revaccination is advisable at that age. The amount of protection depends largely upon the thoroughness with which the vaccination has been done, increasing with the number of places, and being much greater where they are well marked. Of unvaccinated persons attacked with small-pox 35 per cent. die, whereas of those with one good mark, less than 8 per cent. die, and with four good marks only one in every 200 (Marson). The objections to vaccination are that occasionally children have been inoculated with syphilis, or have suffered after vaccination from erysipelas, eczema, and other ailments. Many of these ailments, however, are due rather to constitutional weakness in the child than to the vaccine lymph, or (as in erysipelas) are brought on by carelessness, the vaccinated arm being allowed to get dirty or chafed by the clothes. The instances in which syphilis has undoubtedly been transmitted by vaccination are so rare in this country, that a well-known surgeon with a large practice declares that he has for eighteen years been looking for such a case, and without success. With proper precautions there is no reason why a child's constitution should be damaged by vaccination, while, on the other hand, there is no other satisfactory way of avoiding the risk of small-pox, which, when unmodified by vaccination, is a terrible and highly destructive disease. Calf-lymph is free from some of the objections urged against humanised lymph, but is apt (according to some authorities) to produce, for the time, more active disturbance of the health. The nature of cow-pox is still uncertain. Many regard it as small-pox modified by passing through the body of the cow. Others consider it as a distinct disorder. The chief peculiarity is that it is not infectious through

the air, whereas small-pox is eminently so. The attempt has been made in Leicester to do without vaccination of infants. Every case of small-pox that arises is promptly isolated, and the clothes, rooms, etc., disinfected. This is rendered possible by the fact that those who necessarily come in contact with such cases have themselves been vaccinated. Otherwise they would almost certainly catch the disease, and transmit it to others. Moreover, a risk is being run like that which overtook Leipzig in 1871. For nearly twenty years this town had followed the same system as in Leicester, with similar freedom from outbreaks. Then, by some means, small-pox was introduced, and spread with frightful rapidity, causing a large mortality. The best *age* for vaccination is within four or six weeks of birth. According to law it must, in the absence of special reasons to the contrary, be done within three months. No child suffering from fever, diarrhœa, or any skin disease should be vaccinated until these ailments have passed away, unless there is an epidemic of small-pox in the neighbourhood. Vaccination should be postponed if there has been recent exposure to scarlatina, measles, or erysipelas. The *lymph* should be taken from a healthy infant, a clear vesicle free from angry blush on the eighth day being selected, and great care being taken not to draw blood. When desired, the lymph may be taken from a healthy calf with similar precautions. The best *method* is vaccination from arm to arm, done with a perfectly clean bright lancet, in at least four places. A part should be selected where the marks will not cause disfigurement. This is especially important in the case of girls. Lymph stored on ivory points, in capillary glass tubes, or between slips of glass, may be used; but the arm-to-arm method is preferable when it can be done. The lymph should be allowed to dry on, and the part left unwashed for a day or two and protected against chafing or injury. Small shields are sold, which may be used if desired. By the third day a little pimple appears, which becomes vesicular by the fifth or sixth day, pearly, firm, and dimpled by the eighth day. A ring of inflammation forms around, after which a scab appears and finally falls off, leaving a scar. Some feverishness is usually present from the fourth day onwards. Glands in the arm-pit may swell, and sometimes a red rash covers the body for a short time. In unhealthy infants an abscess may form in the arm-pit, or an ulcerated sore over the place of vaccination. If the part begins to inflame, a water-dressing may be applied.

Re-vaccination is necessary after the age of ten, and later whenever there is danger of small-pox. The vesicles run their course more quickly and imperfectly than in primary vaccination.

Vagina.—The passage leading to the womb, or the "front passage" of women. It is sometimes closed from birth or through inflammation, causing retention of menstrual discharge. *See* Menstruation, Deficient.

Inflammation of the vagina may result from chills, injury from strong injections, childbirth, contagion, sexual and other excesses, fevers or a weak constitution. It causes pain and burning, scalding pain on passing water, a sense of bearing-down and weight or throbbing in the lower part of the abdomen. A yellow offensive discharge is usually present, and the outer parts are red, hot, swollen, and tender, and may become ulcerated.

Treatment.—Rest in bed, take saline aperients (*Pr.* 11), and plenty of bland drinks, such as barley-water or linseed tea, avoiding alcoholics and rich or indigestible food. Apply hot-water injections, with or without a few poppy-heads, according to the amount of pain. Anoint the uninflamed parts with vaseline or cold cream, to shield them against the discharge. Hot hip baths are useful. The result may be complete recovery, or chronic inflammation with less intense discomfort. *See* Whites.

Vaginal Injections.—In giving these the patient should lie down with the hips well raised and the rest of the body low down. The fluid should then be injected slowly by means of a suitable apparatus, and retained for some time in contact with the interior of the vagina. A

Higginson's enema syringe may be used, or a syphon douche or a bidet. Special double-current douches are also sold, in which the fluid enters by one channel, and returns by another.

Valerian Root is used as a remedy in hysteria, spasms, faintness, etc. It has a disagreeable smell and a bitter, biting, camphor-like, nauseous taste. Cats are so fond of the smell that they will roll over the plant. An *infusion* is made with ¼ oz. of the bruised root to ½ pint boiling water. Dose, 1 to 2 fl. ozs. Of the *tincture* and *ammoniated tincture* the doses are ½ fl. dr. given in peppermint water with a little syrup or mucilage.

Valerianic Acid and valerianates of zinc and quinine are usually prepared from fusel oil. They are nerve tonics, with properties somewhat like those of valerian.

Vapour Bath. *See* BATHS AND BATHING.

Varicella. *See* CHICKEN-POX.

Varicose Veins.—When the walls of the veins are weak, or the circulation of blood obstructed, the veins become swollen, knotty, and tortuous, causing aching pain, cramp, or a sense of fatigue. Such a condition is common in the lower limbs during pregnancy, and in those who have much standing about, especially if tall. Wearing tight garters, tight lacing, costiveness, over-indulgence in alcohol, heart or liver disease, or tumours in the abdomen, are also causes of varicose veins. If neglected, the swelling increases, the valves of the veins become obliterated, and their walls imbedded in dense fibrous tissue, which increases their strength, but impairs their elasticity. Swollen ankles, eczema, and ulcers are common consequences, and the veins may burst, causing dangerous bleeding; or clots may form inside, or the vein inflame—both of them serious complications.

TREATMENT.—Avoid the causes, and remedy constipation, debility, rheumatic or gouty tendencies. Wear elastic stockings or a spiral bandage. *Pr.* 33 is sometimes useful. In extreme cases, surgical operations are sometimes necessary, although the cure is seldom permanent.* *See* BANDAGES; ECZEMA; EMBOLISM; HÆMORRHAGE; ULCERS; VEINS, INFLAMMATION OF.

Variola. *See* SMALLPOX.

Vaseline, or petroleum ointment, is a yellow, semi-solid substance obtained from crude petroleum. It is much used for making ointments, protecting chapped skin, and similar purposes, as it does not turn rancid like true fats.

Vasomotor Nerves are those distributed to the walls of the bloodvessels; they are concerned in blushing or turning pale. The "heats and flushes" of the change of life are caused by disorder of the vasomotor system.

Veal. *See* MEAT.

Vegetables include *green vegetables*, useful for the mineral salts which they contain; and *roots and tubers*, such as turnips, carrots, beetroot, parsnips, and potatoes, which also contain starch and sugar in more or less abundance. Vegetables are of great importance in daily diet. Without them there is a tendency to constipation, scurvy, and other ailments. They should always be eaten fresh, and carefully cleansed, as otherwise there is danger of swallowing the eggs of parasites. Taken raw (as in salads), they are less digestible than when cooked. Of the various members of the cabbage tribe, cauliflowers are among the more digestible; seakale, artichoke, and asparagus are also easily digested. The latter acts upon the kidneys, and gives a disagreeable smell to the urine. Beetroot, when well cooked, is easy of digestion. It yields much sugar, together with a beautiful colouring matter. Turnips, carrots, parsnips, and common cabbage are apt to cause flatulence. This is diminished by the addition of pepper. Celery should always be stewed or boiled for invalids and dyspeptics; taken raw it is indigestible. Onions and allied bulbs contain a volatile pungent oil. They are chiefly used as flavouring agents, but have laxative properties. Potatoes contain so much starch

* In pregnancy, the veins over the privates may become enlarged and painful. In this case, spermaceti ointment on lint placed between the labia and supported by a firm bandage will be useful.

that they may be classed with farinaceous foods. Peas and beans are also highly nourishing, and contain much nitrogen in combination. *See* LEGUMENS; POTATOES.

Vegetarianism. — There is no doubt that more meat is eaten in England than is necessary or advisable; and the spread of vegetarianism will do much good in correcting this. It is perfectly possible to live in health on vegetables alone, even excluding eggs, milk, cheese, and butter (which are admitted by many vegetarians). Whether it is desirable to do so is open to question. It is unnecessary here to deal with sentimental reasons advanced in support of a purely vegetable diet.

Most of the easily digestible vegetable foods are deficient in nitrogen, so that the real point of importance is to determine how far meat can be replaced by nitrogenous vegetable foods. Bread and cereals generally contain too little nitrogen for this purpose, while leguminous foods (such as peas and beans) are, as a rule, far less easily digested than meat, and need more careful cooking. Speaking generally, vegetable food is more bulky, contains more indigestible ingredients, and is less stimulating. These are not unmixed disadvantages. Food which is entirely digested is apt to cause constipation, especially in those with sedentary occupations, and an unstimulating diet is useful wherever a gouty tendency exists. But to entirely substitute vegetable for animal food is to greatly increase the work of the digestive organs, leaving less energy for higher purposes. Where milk, cheese, and eggs are included in the dietary, and can be taken in sufficient quantities, a vegetarian diet is less open to objection; but these do not agree with everybody. As Dr. Newsholme ("Hygiene") aptly observes: "Man is not an eating machine; he requires food which is easily converted into the body-substance, and this is supplied by the flesh of animals, milk, and eggs, with a due proportion of non-nitrogenous food; sheep and oxen work up indigestible vegetable materials into easily assimilable mutton and beef." Vegetarianism is good for those who cannot afford to buy a sufficiency of meat, or who have gouty tendencies; but in most cases a mixed diet is preferable. *See* DIET.

Vegetation has a great influence on climate, and indirectly on the healthiness of a district. Trees planted near a house may be useful in screening off cold winds; but if too near, are apt to interfere with the free circulation of air, and render the house damp. Vegetation is a good guide to the character of the soil. Where Scotch firs and heather grow, the soil is usually sandy and dry. Long, rank grass indicates a damp soil. Sunflowers and eucalyptus trees are remarkable for their power of drying the soil. The eucalyptus has rendered malarious districts in France and Algeria perfectly healthy, partly by drying the soil, partly through the aromatic emanations from the trees. Pine trees, aromatic herbs, and many other plants give off appreciable quantities of peroxide of hydrogen. (*See* SANITAS.) Vegetation has on the whole an equalizing influence over both temperature and moisture, diminishing both extreme heat and extreme cold, and promoting a medium humidity. *See* CLIMATE.

Veins.—(*See* BLOODVESSELS; VARICOSE VEINS.) INFLAMMATION of the veins is dangerous if neglected. The patient should lie up, bandaging the limb with cotton wool and a flannel bandage. A doctor will be required. For wounds of veins, *see* HÆMORRHAGE; WOUNDS.

Vena Cava.—The name given to the two largest veins in the body; the upper brings blood to the heart from the head and arms, the lower from the trunk and legs. *See* BLOODVESSELS.

Venereal Disease should never be neglected; by early treatment a complete cure may usually be effected, whereas neglect will often cause much suffering and ill-health both in the wrongdoer and in other perhaps quite innocent people. Terrible stories are known to the profession where a man has ruined the health of himself, his wife, and children; or where a friend has been infected by drinking from the same glass, or a wet-nurse by suckling an infected baby, and the infection has spread to yet other

persons. The least that can be expected of any one suffering from a disease of this nature is that he should seek advice promptly, and do his utmost to prevent the infection of others. It is also necessary to observe that there are many quacks who without sufficient knowledge pretend to treat diseases of this kind, and trade on the fears of those who fall into their clutches. It will be well to give such pretenders a wide berth.

Venesection. *See* BLOOD-LETTING.

Venison. *See* MEAT.

Ventilation.—The process by which impure air is removed from inclosed spaces and replaced by pure air. The air of inhabited houses is fouled partly by respiration, partly by combustion of fuel and lighting materials. Air that has been breathed has lost about 5 per cent. of its oxygen, and gained about 4 per cent. of carbonic acid gas, together with ammonia and organic matters, which, although present in minute proportions, have a powerfully depressing influence upon the health. In practice, it is found convenient to take the proportion of carbonic acid gas as a standard of purity. Atmospheric air in the country contains 4 parts of carbonic acid in 10,000. Indoors it may contain 6 parts without being perceptibly impure; air containing more than this has a close smell, and is liable to cause headache, languor, drowsiness, and other evil consequences. Hence enough fresh air should be introduced to keep down the proportion of carbonic acid to six parts in 10,000. It is found by experiment that for this purpose 3,000 cubic feet per hour are required for each person. For infants half this quantity is sufficient; for children between 1 and 8 years old, $\frac{4}{5}$. Calculations based upon the amount of carbon oxidized in the body into carbonic acid lead to similar results.

RELATION TO SIZE OF ROOM.—In order to provide 3,000 cubic feet of air per hour, the air of a small room will have to be more frequently changed than that of a large room, and the currents of air will have to move proportionally faster. A current of air moving at the rate of 1 mile per hour, or 18 ins. per second, is just perceptible; any greater velocity is felt as a draught, at the average temperature of our climate (50° F.). In a room of 1,000 cubic feet the air may be changed three times per hour with ordinary means of ventilation without discomfort. If changed more frequently, the room feels draughty and cold. Hence dwelling rooms should have an area of 1,000 cubic feet per head. Soldiers in barracks are allowed 600 cubic feet, and the inmates of lodging-houses at least 300 feet, but both these figures are too small. In sick-rooms and hospitals a larger space is desirable: in St. Thomas's Hospital, 1,800 cubic feet are allotted to each ordinary patient, and 2,500 to each fever patient. In calculating the size of a room for purposes of ventilation, a height of more than 12 feet should only be reckoned as 12 ft. A lofty ceiling will not compensate for an insufficient floor space. About 84 square feet per head should be provided. In barracks 50 square feet are prescribed. Allowance must be made for the space occupied by furniture: 10 cubic feet may be allowed for a bed.

INLETS AND OUTLETS.—About 24 sq. ins. per head should be provided for inlets, and the same amount of outlet. If less is provided, the air has to move faster, and will cause a draught. When cold air enters in a body, it is also felt as a draught. Each inlet should not be larger than 48 to 60 sq. ins.; the outlets may be as large as 1 sq. ft. Where there is a fireplace (which should be in every dwelling-room), the chimney is an important outlet for bad air, especially when the fire is lit. Other exits may be provided in the shape of a Boyle's valve (*Figs.* 63, 64) into the breast of the chimney, or a ventilating gas-burner, or some other outlet through the ceiling

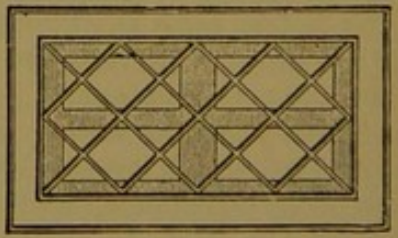

FIG. 63. BOYLE'S VALVE, FRONT VIEW.

Showing four talc flaps behind a grating. (Newsholme's "School Hygiene.")

(McKinnell's ventilator, Boyle's air-pump ventilator, etc.). Inlets are better provided through the window or walls.

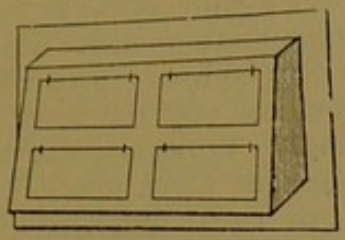

FIG. 64. BOYLE'S VALVE, BACK VIEW.
Showing attachment of talc flaps. (Newsholme's "School Hygiene.")

An open window is the best means of ventilating a room when the weather permits it. Whatever other means are employed, it is advisable to thoroughly flush a room several times a day by opening doors and windows. The top of the window is sometimes made to work on a hinge. Another plan is to raise the lower sash, and fill in the interval with a piece of wood (Hinckes-Bird). The air then enters between the sashes. Other methods are, perforating the glass with a Cooper's "rose" ventilator, or a Louvre, in which a number of parallel pieces of glass like a small Venetian blind are inserted into the window. Another good plan is to cut away the wainscot under the window for a foot, and place inside the room a baize screen reaching to the floor, the space at the top and sides being boxed in with wood.

Convenient inlets through the walls

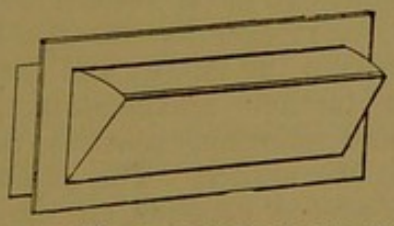

FIG. 65. SHERINGHAM VALVE.
From Newsholme's "School Hygiene."

may be provided in the form of Tobin's tubes, Sheringham's valves (*Fig.* 65), and Ellison's conical inlets. The Tobin's tube pierces the wall near the floor, and reaches up to a height of about 6 ft. A grating may be placed at the outer opening, and a gauze sheet diagonally across the tube from top to bottom. This stops much of the dust. Sheringham's valves are placed near the ceiling; they may be fixed in any position by means of a cord. Ellison's inlet is based on the fact that a current of air entering a funnel by the small end causes little or no draught. Another method is by Sylvester's cowls, as used on board ship. All the above methods are apt to cause draughts in cold weather, as the incoming air is not warmed. To do this, a ventilating stove or fireplace may be used, or the inlet placed near the mantelpiece; or the incoming air passed over hot-water pipes or some similar arrangement. *See* STOVES; WARMING.

Public buildings are usually ventilated by some kind of machinery. Two systems are employed, in one of which air is forced into the building by means of a fan or a bellows; while in the other air is sucked out of the building by a fan or screw, or a steam jet passed into the chimney.

Veratrum Viride.—Green hellebore, from the United States—is sometimes used as a remedy in fever. It contains several powerful alkaloids, one of which (*veratrine*) is used externally in the form of an ointment in neuralgia. It is intensely poisonous. For symptoms and treatment of poisoning, *see* ACONITE.

Verdigris.—An acetate of copper, made by acting on copper plates with impure vinegar or fermenting refuse from the grape. It is apt to form on greasy copper dishes or saucepans, and has in this way given rise to poisoning. *See* IRRITANT POISONS.

Vermicides.—Drugs which kill intestinal worms. The chief are male-fern, santonin, turpentine, pomegranate bark, and possibly quassia and nux vomica. *See* WORMS, INTESTINAL.

Vermifuges.—Medicines which expel worms from the intestinal canal. Such are calomel, scammony, jalap, and other active aperients. *See* WORMS, INTESTINAL.

Vertebral Column. *See* SPINE.

Vertigo. *See* GIDDINESS.

Vesication. *See* BLISTERING.

Vesicle.—A blister containing clear fluid, as found in chicken-pox, eczema, and shingles.

Vichy. *See* MINERAL WATERS.

Vinegar.—An acid fluid obtained by fermentation of wine, syrup, and other

bodies, and containing about five per cent. of acetic acid. Several varieties are in common use, the most important being white wine vinegar, Bordeaux vinegar, and malt vinegar. The latter is made from malt and unmalted grain, and as usually sold has a brown colour from the addition of burnt sugar. A more objectionable addition is sulphuric acid, of which one-thousandth part may legally be added, in order to preserve the vinegar from further changes. Metallic impurities may also be present through contact with lead or copper. Vinegar may be made at home in several ways: (1) Boil half a pound of coarse brown sugar and half a pound of treacle in two gallons of water; stir, put into a large jar, and, when lukewarm, place in the mixture a vinegar plant, which may usually be obtained from a vinegar cask. Leave for two months; boil, strain, and bottle, using the plant for a fresh lot. (2) Get a small cask of vinegar, and as it is used, add sour wine, keeping in a moderately warm place. Instead of sour wine, fluid obtained by exhausting the refuse from wine, or from raisin wine, may be used. Should the vinegar be too weak, freezing and removing the crust of ice will strengthen it. If wanted colourless, let it stand over animal charcoal for three days (1 oz. to a pint).

Medicinal Uses.—Equal parts of vinegar and brandy applied externally form a valuable remedy for flooding. Vinegar used to be recommended as a remedy for obesity; it has, however, little influence, unless enough is taken to disturb the digestion, an obviously undesirable result. Warm water with one-sixth part of vinegar is useful as a gargle in relaxed throat. *See* Acetic Acid.

Dietetic Uses.—Used in moderation in the form of salad-dressing, etc., it is wholesome for those in health, especially in hot weather. Vinegar and water is used as a common drink by the Spanish peasantry; it readily quenches thirst. Meat is made tender and savoury by being soaked in vinegar before it is cooked.

Aromatic Vinegar is used for bathing the face and for inhalation in faintness. It consists of 16 fl. ozs. strong acetic acid, 1 oz. camphor, and 1 fl. oz. each of oils of lavender, cloves, and lemon (Beasley.) There are other receipts. It used to be regarded as a disinfectant; but its powers in this respect are feeble. Mixed with water, it may be used to check profuse perspiration and cool the body in fever.

Raspberry Vinegar, when diluted, forms a pleasant fever drink. Make as follows: Put equal quantities of picked raspberries and white wine vinegar into an unglazed stone jar, cover with muslin, and stir every day for a week. Strain, add loaf-sugar (a pound to a pint), dissolve by stirring, stand the jar in a saucepan of boiling water, and boil gently for an hour, skimming carefully. When cold, cork, bottle, and seal.

The vinegar plant is a fungus which causes acetic fermentation in sour wine, etc. It forms a tough, leathery, slippery layer on the top of the fluid. *See* Fermentation.

Violet Powder. *See* Dusting Powders.

Viper. *See* Bites and Stings.

Vision. *See* Sight.

Vis Medicatrix Naturæ.—The natural tendency to recovery possessed by the body. This often accounts for improvement attributed to the medicines taken. The problem of the medical art is to assist this natural tendency.

Vitriol, Oil of. *See* Sulphuric Acid.

Voice.—The larynx is a musical instrument which produces musical notes by the vibration of the vocal cords. These are set in motion by the blast of air expelled from the lungs; and the sounds undergo further modification in the mouth and adjoining cavities, resulting in articulate speech. The pitch of the notes produced depends on the number of vibrations per second, and is determined by the length and tension of the vibrating cords. The quality of the notes depends partly on the character of the vibration, partly on the way in which it is modified by the cavities beyond. Noises are probably caused by regular or isolated vibrations, while musical notes are the result of regularly recurring and equal or harmonious vibrations. During speaking and singing, the vocal cords are tightened and rendered parallel by suitable muscles.

Loss of Voice, or *aphonia*, together with *hoarseness*, is caused by anything which prevents the adjustment or free vibration of the vocal cords. It is a common symptom of catarrh, accompanying sore-throat or a cold in the head. (*See* Laryngitis; Sore-throat.) Ulcers, or new growths on the vocal cords, also interfere with the clearness of the voice. Another common cause is paralysis of the nerves which control the larynx; and still more commonly the voice is lost in consequence of a shock to the nerves, over-fatigue, or hysteria. The *treatment* depends on the cause.

Vomiting is usually preceded by nausea, although this is sometimes absent. Vomiting is a complicated process, in which many different muscles co-operate. The causes, which are numerous, may partly be referred to the stomach, partly to the nervous system in other regions of the body, and partly to the blood.

(1) *Stomach.*—The presence of irritating or indigestible food in the stomach is probably the commonest cause. Irritant poisons also give rise to vomiting. Over-indulgence in fermented liquors acts in the same way; and so probably does the entry of bile into the stomach from the same bowel. Improperly fed infants almost invariably suffer from vomiting. Again, the fault may be in the stomach itself, rather than its contents. Vomiting is often found in cancer or ulcer of the stomach, or in the chronic inflammation caused by "nipping" or following after poisoning. Tight lacing by pressing on the stomach renders it unduly irritable and ready to expel its contents; and so does the unaccustomed shaking which causes sea-sickness.

(2) *Other parts of the nervous system.*—Irritation in the throat or bowels often causes vomiting. The tickling of an elongated uvula may bring it on; and tickling the throat with a feather is one way of inducing vomiting when poison has been taken. Those who suffer from hernia (or rupture), and allow it to become strangulated or obstructed, suffer from urgent vomiting which later on becomes fæcal. Vomiting under such circumstances should never be neglected, as delay may be fatal. In children, vomiting often depends on the presence of worms in the bowel. Since the lungs are supplied by the same nerves as the stomach, violent cough (as in consumption or whooping-cough), frequently causes vomiting. Amongst other causes may be mentioned diseases of the womb, pregnancy, the passage of gall-stones, or stones from the kidney, and other extremely painful disorders. Wax in the ears has been known to cause vomiting; so also, much more frequently, do disgusting tastes, smells, or sights. In all the above conditions, the machinery for vomiting is set going by irritation of the ends of nerves; but disease of the *brain* itself may also have the same result. In this case there may be little or no nausea, and the vomiting is quite independent of food taking, retching continuing when the stomach has been emptied. There is usually no disgust for foods, and no other symptoms of dyspepsia need be present. Headache is prominent and appears early.

(3) *Blood conditions.*—Vomiting often occurs as an early symptom of infectious fevers. Those who suffer from poorness of blood are very liable to it, especially on rising in the morning, and after long fasting. The same is true of pregnant women; and in habitual topers, in whom however there is probably a different explanation. The vomiting which accompanies disorders of the liver may be due to impurities in the blood.

Treatment.—Try to ascertain the cause. If there be an irritant in the stomach, or symptoms of dyspepsia, give an emetic, followed by copious draughts of water, and then abstain from food for some hours. (*See* Liver Disorders; Megrim.) Should the vomiting continue, quiet the stomach by sucking small pieces of ice, or by taking *Pr.* 16, 17, or 30. Soda water and effervescing drinks generally are useful. Brandy and soda water is a favourite remedy, but a dangerous one, as the brandy often irritates the stomach, and keeps up the sickness. When food must be taken, it should be of the blandest description. Milk taken cold in small quantities, mixed with an equal quantity of lime-water, is most likely to stay on the stomach. The main point is to give

quite small quantities at a time. A teaspoonful of milk every half-hour will often stay down when four every two hours would be brought up. So long as the stomach is irritable, it is better to lie on the left side. Where the liver is out of order, and constipation exists, a "liver pill" or powder (*Pr.* 57, 60) will be of use. If the irritation is not in the stomach, medicines may be given to diminish the irritability of the nervous system (*Pr.* 18, 29); but treatment must also be directed to the removal of the source of irritation. In sickness from relaxed throat an astringent gargle or lozenge (*Gargles* 1, 3, 4, or tannin or chlorate of potash lozenges) will be proper; if there are worms in the bowel they must be removed (*see* WORMS, INTESTINAL). Hernia too will, if present, require immediate attention. (*See also* MORNING SICKNESS; COUGH; BLOOD, POORNESS OF). IN VOMITING IN CHILDREN, regulate the diet. If there is diarrhœa as well as sickness, give milk and lime-water (2 to 1); if constipation, milk and water, with half a teaspoonful of carbonate of soda to the pint, will be more appropriate. If both of these fail, substitute veal broth or chicken broth, with sopped bread for the milk. Where the milk is forcibly expelled immediately it is swallowed, *Pr.* 29 will be useful. (*See also* INFANT-FEEDING; CHILDREN'S DIET.) In hand-fed infants, vomiting and diarrhœa may often be stopped by giving 2 grs. of pancreatic extract twice a day immediately after food.

Wadding. *See* COTTON WOOL.

Waistcoats. *See* CLOTHING.

Wakefulness. *See* SLEEPLESSNESS.

Walking. *See* EXERCISE.

Walls and wall-papers are sometimes the cause of disease. Damp walls increase the tendency to rheumatism, sore throats, catarrhs, and similar ailments. Wall-papers are apt to retain infection after illness, so that they should be pulled off when the room is disinfected. The practice of papering over the old papers is very objectionable. Decomposing size, paste, and other matters, besides being unhealthy in themselves, increase the danger from arsenical wall-papers. It is good practice to require a guarantee with all wall-papers that they are free from arsenic. Green, although often an arsenical colour, is by no means necessarily so, nor is it the only one. (*See* ARSENIC.) Flock-papers are objectionable, as they collect the dust. In sick-rooms and bedrooms it is better to have a white-washed or colour-washed surface instead of paper, or better still to have walls of polished Keen's or Parian cement. They can then be washed down whenever necessary. Lincrusta-Walton and other washable materials are now largely used as substitutes for wall-papers, but are somewhat expensive.

Walnuts. *See* NUTS.

Warming of houses may be done by open grates, open or closed stoves for gas, coal or coke (*see* STOVES), hot-water pipes, steam or hot air. An OPEN STOVE is somewhat wasteful as compared with other methods of heating, but is useful as a means of ventilation. HOT-WATER PIPES are convenient for heating large houses. There are two systems, in one of which (Perkin's patent) thick pipes are employed, which pass through the fire, no boiler being employed; in the other (low pressure system) there is a boiler from which water circulates all over the house, and to which it returns when cool. The latter is probably the safer system, but requires rather more pipes. STEAM distributed by pipes is not so safe or so equable a method as the hot-water system. Warming by HOT AIR is done by passing the entering air over the flue of a furnace, and then by pipes to floor gratings in various parts of the building. Where this method is employed windows cannot very well be opened, so that the greatest care is needed to ventilate the house. A less objectionable method is to warm the incoming air by a ventilating stove, as already mentioned.

Warm Fluids. *See* BEVERAGES.

Warm Baths. *See* BATHS AND BATHING.

Warts are enlargements of the papillæ of the deep skin with thickening of the epidermis over them. (*See* SKIN.) They are especially found in children and in those advanced in years. Sometimes they are caused by heat and moisture, or by local irritation; but they are strikingly under the influence of the

nervous system, which will account for their disappearance after "charming." They may in children be removed by touching with strong acetic acid, guarding the surrounding skin with a layer of soap. Another plan is to paint daily with arsenical solution; the same remedy is often useful internally. In old people warts sometimes become cancerous. Warts on the face or lips are always suspicious.

Washing. *See* ABLUTION; CLEANLINESS; HOUSE-CLEANING; SCAVENGING.

Wash-leather. *See* CLOTHING; PLASTERS.

Wasp. *See* BITES AND STINGS.

Wasting is present in most acute diseases, such as the infectious fevers and inflammations of various organs. It also appears wherever there is long-standing interference with the supply of food, or loss of substance through vomiting, diarrhœa, or discharges of blood or matter. In infancy and childhood the commonest causes are unsuitable food, chronic vomiting or diarrhœa, intestinal worms, rickets, consumption, mesenteric disease, diabetes, heart disease, and other grave constitutional or local disorders. LOCAL WASTING may arise from interference with the blood supply or nervous supply of a part, or from disuse or overuse. Those who seldom take any active exercise have feeble wasted muscles. On the other hand, blacksmiths may get wasting of the muscles of the arm from overwork.

Water is needed for drinking, for cleansing and cooking, for water-closets and sewers, for manufacturing and municipal purposes, for domestic animals, and for various medical purposes. Dr. de Chaumont calculates that the average QUANTITY required per head is as under:

1	gallon	for drinking and cooking.
2	„	for ablutions.
3	„	for bath.
3	„	for clothes-washing.
3	„	for share of utensil and house-washing.
5	„	for W.C.
17	gallons.	

Adding to this 8 gallons for general baths and unavoidable waste, 5 gallons for municipal and 5 for trade purposes, we get a total of 35 gallons per head as necessary to health in a town. The water supply to English towns and cities sometimes exceeds, and at other times falls short of, this amount. Norwich has 16½ gallons per head; Glasgow, 50. A scanty water supply usually means imimperfect cleansing and consequently greater liability to disease. The QUALITY of the water supply is even more important than the quantity; it depends partly on the source, partly on methods of storage and delivery. The following table from the sixth Report of the Rivers Pollution Commissioners illustrates the difference between water from various sources:

Wholesome.	1. Spring water	very palatable.
	2. Deep well water	
	3. Upland surface water	moderately palatable.
Suspicious.	4. Stored rain-water	
	5. Surface water from cultivated land	
Dangerous.	6. River water to which sewage gains access	palatable.
	7. Shallow well water.	

(*See* WELLS.)

Hard water contains large quantities of salts of lime and magnesia. These render it pleasant to drink, but wasteful of soap and bad for cleansing and cooking. Moreover, hard water is liable to disturb the digestion in some people. But on the other hand, if leaden pipes are used, the lime salts, by coating over the lead, prevent it from being dissolved. The hardness of water may be diminished by boiling, or the addition of a small quantity of lime. *See* CISTERNS.

As regards STORAGE AND DELIVERY: In the case of large towns reservoirs are always required; also distribution pipes of cast iron, lead, or some other material, and cisterns in or near the houses. The chief dangers to be guarded against are contamination by sewage, coal gas, lead, and in the cisterns various kinds of filth. The danger is greater where the supply is intermittent than with a constant supply. Empty pipes are apt to suck up impurities from their immediate neigh-

bourhood, as it is almost impossible to prevent some leakage. (*See* WATER-CLOSETS.) Lead is more readily dissolved by soft or impure water than by hard and otherwise pure water. The presence of acids from the soil increases the liability to lead contamination.

IMPURITIES OF WATER.—The most important of these are due to contamination with sewage and other organic matter. This tends to be changed in time into ammonia and then into nitrites and nitrates. Hence the presence of these may be evidence of contamination. Water rendered pink with Condy's fluid will be decolourized and turn yellowish brown if organic matter is present. By comparing two large glass vessels, one filled with pure water, and the other with the suspected water, some idea may be formed as to the purity of the latter. Very impure water has a nasty smell on standing, or possibly deposits a sediment which blackens on heating, or shows the presence of organized particles under the microscope. A water may, however, be dangerously impure which is bright and sparkling and inodorous, and shows no appreciable change with Condy's fluid. The chief *diseases* caused by impure water are diarrhœa, dysentery, enteric or typhoid fever, cholera, diphtheria, ulcerated sore throat, erysipelas, ague, and intestinal parasitic disease. Water may be *purified* by boiling and filtering. This is the only absolutely reliable method. (*See* FILTERS.) The presence of plants and fishes in moderate numbers in a reservoir helps to purify the water. London is largely supplied with water polluted with sewage. The proper remedy in such a case is to put a stop to the pollution, rather than attempt the difficult task of purification. *See also* ABLUTION; AFFUSION; BATHS AND BATHING; BEVERAGES; CLEANLINESS; FOMENTATIONS; LOTIONS; POULTICES; WET-PACK.

Waters in pharmacy consist of water holding in solution very small quantities of volatile oils and other substances. They are mostly prepared by adding the oil or the plant from which it is derived, to the water in a retort, and distilling. Some are pleasant vehicles for other drugs; some are also carminatives. (*See* AROMATICS.) The following may be used: caraway water; cinnamon water; dill water; elder-flower water; fennel water; lavender water; orange-flower water; peppermint water; pimento water; rose water; spearmint water. These may be taken internally in doses of 1–2 fl. ozs. For goulard water, *see* LEAD. *See also* BARLEY-WATER; TAR-WATER; TOAST-WATER.

Water Beds and Cushions are valuable means of preventing bed-sores and giving comfort to the bed-ridden or emaciated. The pressure is equally distributed through the water inside, and injurious pressure on prominent parts avoided. WATER BEDS were originally introduced by Dr. Neil Arnott. They were replaced by water-mattresses, which were formerly made in one large compartment; but are better made in sections, as otherwise they must be filled very full to prevent flattening out with the weight of the body. It is a good plan to make them three-fourths full with water and then blow in a little air. This gives rather more elasticity than water alone. The advantage of a water bed over an air bed lies chiefly in the greater coolness of the former. In addition to this, air beds to bear heavy pressure must be blown very full, which renders them less comfortable. WATER CUSHIONS are made of several shapes, such as the circular, horseshoe, plain square, and square with a depression. These contrivances are supplied at surgical instrument makers' shops, india-rubber warehouses, and invalid furniture depôts. They may be obtained on hire.

Water-brash, *Pyrosis*, is characterized by bringing up of clear fluid, either sourish or tasteless. This is not, properly speaking, vomited up, but rises up into the mouth without any painful effort. It is a common symptom of dyspepsia (or indigestion) due to innutritious or monotonous diet, especially of a vegetable nature. It often occurs among the Scotch peasantry who use half-cooked oatmeal. It is sometimes preceded by burning pain at the pit of the stomach; and indeed seldom occurs alone.

TREATMENT. — Regulate the diet,

giving more digestible food and a more varied dietary. Give bismuth (*Pr.* 16, 17), or dilute hydrochloric acid (*Pr.* 1) before food. Where the fluid is alkaline, and nausea is present, the acid should be given after meals. Insure a regular action of the bowels. *See* INDIGESTION.

Water Closets are of many different kinds, the chief being *pan closets*, *valve closets*, and *wash-out closets*.

PAN CLOSETS are objectionable, although still commonly used. They consist of a conical basin, with a metal pan below it containing a little water. The contents of the pan can be tilted by a pull-up apparatus into a second pan or container, which is connected by a short pipe with a D trap (*Fig.* 66). This form almost invariably becomes fouled with filth; the D trap may become corroded; and at all times a very insufficient protection is afforded against entry of sewer gas into the house.

VALVE CLOSETS have no container, but are provided with a movable water-tight valve exactly fitting the lower edge of the basin. They require an overflow pipe which should be made with a syphon bend, and so arranged that the water enters it each time the closet is used (*Fig.* 67).

WASH-OUT CLOSETS need have no metallic fittings at all. There is usually a large outlet at one side, into a syphon trap, which should be ventilated at the highest point near the soil pipe, to prevent emptying by suction. The contents of the basin are driven by the first flush of the water into the syphon bend, which then empties the basin by syphon action. The opening is closed in some forms by a plug lifted by a handle or by rising from the seat. In others the only protection is the water in the basin and syphon bends. A good wash-out closet is far superior to a pan-closet. The chief danger is of blocking in the syphon bends (*Fig.* 68).

HOPPER CLOSETS are often supplied for the use of servants. They consist of a funnel-shaped basin ending in a syphon bend. The sides are apt to become fouled by fæcal matter, especially if they have a long slope. "Short hoppers" are unobjectionable. The syphon bend must be ventilated, or it will be inefficient.

UNTRAPPED CLOSETS may be safely used in Mineard's system, as there is a constant down-draught through the soil pipe, and complete disconnection with the sewer. Under other circumstances they are objectionable.

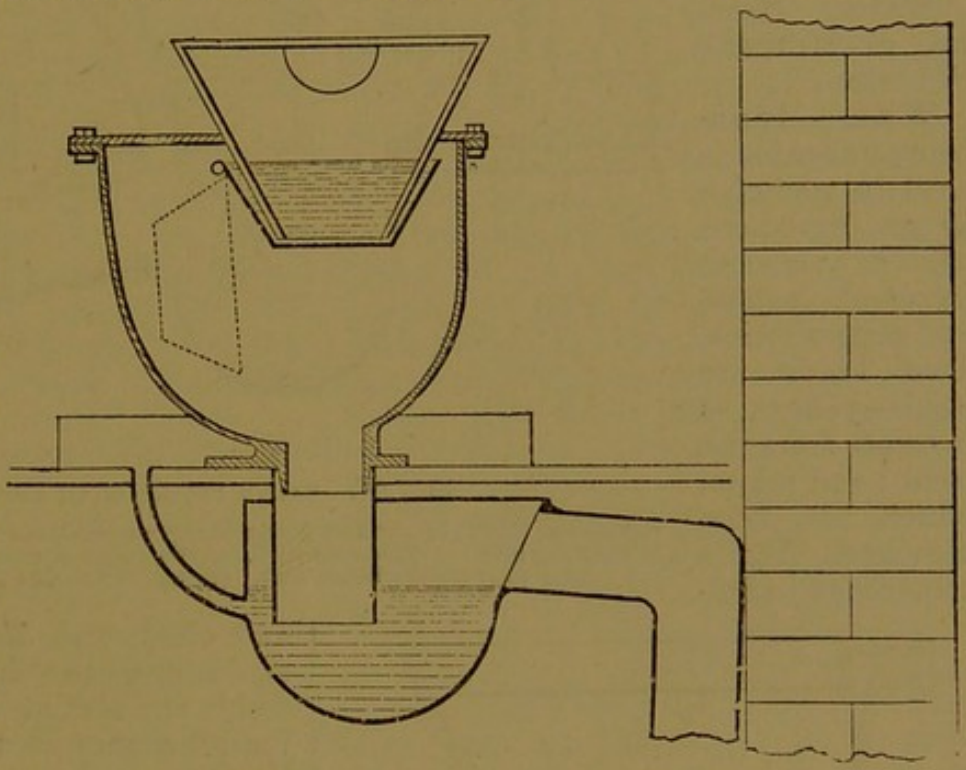

FIG. 66. PAN-CLOSET, WITH CONTAINER AND D-TRAP.
Under the container is a safe, which is drained into the D-trap.
(From Newsholme's "School Hygiene.")

For large collections of people, trough closets and tumbler closets may be used.

A TROUGH CLOSET consists of a number of seats placed over a trough sloping towards a common drain, and closed by a plug. This is lifted by an attendant once or twice a day, and the trough washed out and filled with water.

A TUMBLER CLOSET resembles the last, but is flushed at intervals by a bucket into which water drips, and which tips

over when full, washing the contents of the trough into the drain. These two systems are reliable, if the soil drain is thoroughly ventilated. *See* HOUSE DRAINAGE.

Water Dressing. *See* DRESSINGS.

Water in the Chest. *See* PLEURISY.

Water on the Brain. *See* BRAIN, WATER ON THE.

Water, Mineral. *See* MINERAL WATERS.

Wax from honeycombs is used in medicine as an ingredient of ointments (*cerates*), plasters, and suppositories. Two kinds are used—yellow, as it comes from the comb; and white, which has been bleached. Wax is sometimes adulterated with starch. This can be detected by its turning blue with tincture of iodine.

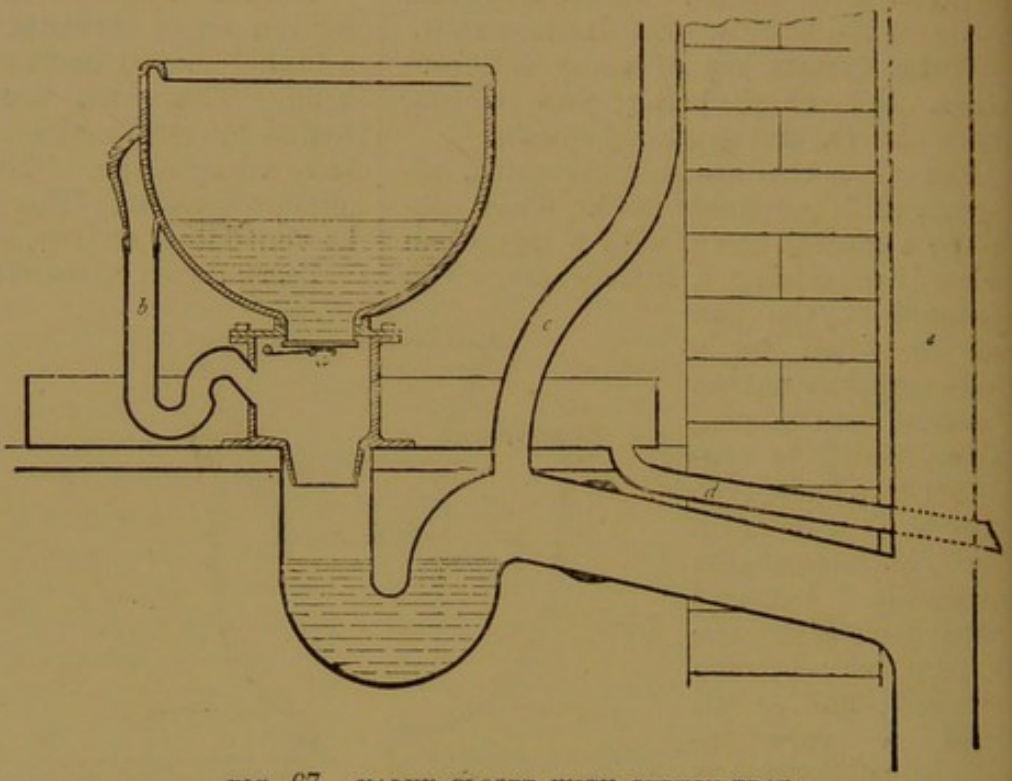

FIG. 67. VALVE CLOSET WITH SYPHON-TRAP.

a, valve of closet; *b*, overflow pipe with syphon bend, opening into soil pipe above trap; *c*, ventilating pipe for syphon trap; *d*, overflow pipe of safe disconnected from soil pipe; *e*, soil pipe outside house wall. (From Newsholme's "School Hygiene.")

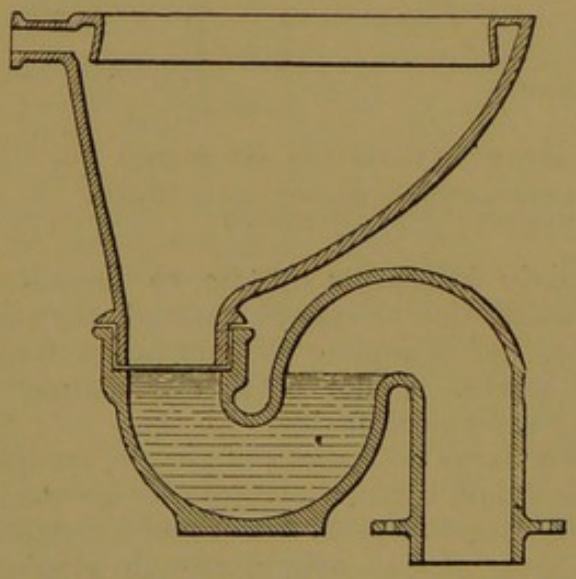

FIG. 68. WASH-OUT CLOSET WITH SYPHON TRAP.
(From Newsholme's "School Hygiene.")

Waxen Kernels. *See* ABSORBENT SYSTEM.

Weakness. *See* DEBILITY; PARALYSIS.

Weaning may as a rule be begun at eight months, and completed by ten or twelve months. To continue to nurse longer than this is bad for both mother and child, and if the former becomes again pregnant her offspring will be feeble and sickly. As it is not very rare for pregnancy to occur in spite of suckling, especially when prolonged, there is no reason for postponing weaning, and every reason for beginning it in proper time. At first one meal a day of artificial food may be given, consisting of broth thickened with biscuit powder or of one of the prepared foods. (*See* INFANT-FEEDING.) The number of such meals may be gradually increased, until at twelve months the breast is entirely given up. At this time the child may have one midday meal of milk pudding and beef tea, or bread crumbs soaked in gravy, or a lightly boiled egg; and four other meals, consisting of milk or milk porridge, or bread and milk. Fish, fowl, or meat should not in robust children be begun before eighteen months of age, but if the child is delicate may be given earlier. Simple meat soups may of

course be made part of the daily food as early as eight months. To prevent discomfort in the mother, she should take saline aperients and very little liquid of any kind; and apply belladonna plaster or cooling lotions to the breasts. Ten months is a very good time for weaning healthy children, as there is usually a pause in teething after that. (*See* TEETHING.) If the teeth are very backward, or the child be ailing with a feverish attack, or cold on the chest, or other trifling disorder, it will be best to postpone the weaning to a later period. It is well to remember that the smell of the mother's milk excites a craving for it in the child, who should therefore be separated from its mother for a time.

Weather. *See* CLIMATE; SEASONS.

Weeping Eye. Continual flow of tears over the cheek commonly arises from stoppage of the passage from the eye to the nose. An oculist should be consulted, otherwise a nasty raw spot may be produced on the cheek. *See* EYEBALL; TEARS.

Weights and Measures. By the last edition of the British Pharmacopœia the avoirdupois pound, ounce, and grain are directed to be used for weighing out medicines, the old apothecaries' weight being discarded. 1 lb. = 16 oz. = 7,000 grains, so that there are 437½ grains to the oz. An ounce of distilled water at 62° F. is taken as the standard of fluid measure; the fluid ounce is divided into 8 fluid drachms and 480 minims, so that a minim is the measure of about $\frac{9}{10}$ grain of water. 20 fl. ozs. = 1 pint, and 8 pints = 1 gallon. This weighs 10 lbs. In France the metric system is used in prescribing, and all liquids are weighed. The standard of weight (*gramme*) = 15·432 grains, or nearly 15⅜ gr. A centigramme is one-hundredth of a gramme, and a kilogramme (2 lbs. 3¼ ozs.) = 1,000 grammes. Other subdivisions are not used in prescribing. *See* SCALES.

Wells are of two kinds: deep wells, which penetrate the impermeable stratum of clay or rock found in most parts under the soil; and surface wells, which are above this layer, and usually less than 20 ft. deep. Where deep wells take their supply from between two impermeable layers, they are called artesian. Surface wells are always liable to contamination by sewage and other filth, and should never be used for drinking purposes. Sewage will sometimes find its way a long distance underground through cracks in the soil. A good well should be at least thirty feet deep, and away from all stables, drains, or cesspools. Its walls should be carefully finished, the top protected with a stone coping and proper cover. The water is best raised with an iron tube and pump.

Wen. *See* SCALP.

Wet-nurse. In choosing a wet nurse, a young woman of strong constitution between twenty-five and thirty years of age is to be preferred. She should have a full chest, white, healthy teeth, well coloured lips, and clear complexion, and be free from all scars or blotches about the neck or elsewhere. Her breasts should be firm, knotted, pear-shaped, moderately large and equal in size, with well-formed nipples and not too prominent veins. The milk drawn into a spoon should be white with a slight bluish tint, and not too thick. Dropped into water it should form a light cloud, and not sink at once to the bottom in heavy drops. She should, if possible, have had two or three children, and her own baby should be healthy, with a perfectly clear skin, and of about the same age as the nursling. Any blotches about the buttocks or legs, or appearance as of a cold in the head of the baby would disqualify its mother for a wet-nurse. It is a disadvantage if the nurse is usually unwell during nursing, so that this should be inquired into. The moral and intellectual qualities of a wet-nurse are not a matter of indifference. She should, in addition to other obvious requirements, be even-tempered and able to withstand temptations as to food and drink, which easily affect the health of the nursling. It is uncertain how far the nursling is mentally influenced by its food. As a rule it is advisable to let the doctor see the nurse before engaging her. The *diet* of a wet-nurse should not be strikingly different from what she has been used to. It should as a rule consist of milk and farinaceous food, with a moderate

allowance of meat. Stimulants are not by any means always required, and the practice of taking stout is often more honoured in the breach than the observance. Where such beverages are taken, it should be in accordance with the rules laid down under the heading of ALCOHOL. The nurse should rise early, and do some work every day, as this helps to keep her in health. Daily exercise in the open air should be insisted on, with regular hours, absence of excitement, daily attention to the bowels, and other details as described under SUCKLING. If the menses appear, or still more if the nurse becomes pregnant, another must be obtained. Should the nurse's milk prove insufficient, there is no reason why it should not be supplemented with well-chosen food after the first few months. *See* INFANT-FEEDING.

Wet-pack.—This may be applied by wringing a sheet out of hot or cold water, wrapping it round the body, and surrounding it with several blankets. The cold pack is more stimulant than the hot-pack; both increase the activity of the skin and soothe the nervous system.

Wetting the Bed. *See* URINE, INCONTINENCE OF.

Wheat. *See* CEREALS.

Whey.—The watery fluid left after removal of the curds in cheese-making. *See* WHITE WINE WHEY.

Whisky. *See* FERMENTED LIQUORS.

White Lead.—A carbonate of lead. *See* LEAD.

White Leg.—A disease usually complicating pregnancy or delivery, but sometimes following upon severe attacks of fever, disease of the womb, and other ailments. The second week after delivery is the most frequent time for its appearance. It usually begins with aching pain and tenderness in the groin or down the thigh, with some swelling and feverishness. When fully developed the leg is swollen, tense, white, and glossy, like polished marble. All movement is painful, and indeed scarcely possible. The pain is often severe, disturbing the night's rest. The disease usually tends to get well after a time, but some stiffness and pain on movement may remain. The chief danger is that of detaching the plugs in the inflamed veins of the leg, an accident which may cause sudden death or lead to blood-poisoning.

TREATMENT.—Rest and warmth, good food, tonics, in early stages hot fomentations, and later on careful bandaging, friction, and other measures to restore the power of the limb. Friction must be done in such a manner as not to displace the plugs in the veins. Medical attention is always advisable.

White Motions. *See* STOOLS.

White Precipitate.—Ammoniated mercury; a white powder used in the form of an ointment for killing lice, and for curing some skin diseases. *See* MERCURY.

Whites.—*Leucorrhœa*, a discharge from the vagina or front passage in women. It is probably the commonest complaint of the female sex, and arises from many different causes. Sometimes it follows inflammation of the vagina, at others it occurs independently. A yellow or white discharge IN CHILDREN usually arises from scrofula or debility, or from irritation by threadworms. The privates are often a little swollen and tender. Rest is essential to recovery; wet lint soaked in warm goulard water should be placed between the two sides, and the parts syringed with some more of the lotion. Cod-liver oil and iron tonics are usually needed, and if there are worms the appropriate treatment. (*See* WORMS, INTESTINAL.) IN ADULTS a *glairy* discharge like white of egg usually points to disease of the womb, and can only be successfully treated by application of remedies through a speculum. A *watery* discharge is common during pregnancy. This does not call for treatment. After childbirth there is also a discharge. (*See* CHILDBIRTH.) *Offensive* discharges result from cancer, or from retained and decomposing secretions, membranes, etc., left after pregnancy or miscarriage or stillbirth. Such conditions also require skilled advice; but antiseptic lotions may be used, such as weak carbolic lotion (1 in 40) or sanitas lotion (half strength). A *yellowish or white* discharge is common in weakly, anæmic, or

scrofulous young women, or at the change of life; also in those subject to gout or rheumatism. It may only appear before and after menstruation, or replace it altogether. Or it may be always more or less present. Sometimes it is caused by want of cleanliness, chill, sexual excesses, or other injurious influences. If there is pain, swelling, heat, and tenderness of the external parts, the treatment should be as in *Vaginal Inflammation* (*which see*). If these are absent, give good food and tonics (*Pr.* 1, 34, 35, 37, 38), and apply cold douches, cold baths, cleansing injections of tepid water twice a day, followed by others of an astringent character. (*Lotions*, 4, 7, 8, 16; *and see* VAGINAL INJECTIONS.) Sea air and sea bathing are often beneficial. The bowels should be regulated if necessary by means of suitable aperients. If the constitution is gouty or rheumatic, appropriate remedies should be given. *See* GOUT; RHEUMATISM.

White Swelling.—A kind of chronic inflammation of a joint (such as the knee joint), common in scrofulous children. The joint becomes swollen and elastic, the skin white, tense, and smooth. There is usually not much pain, but unless arrested by surgical measures the disease ends in more acute inflammation, with formation of matter and disorganization of the joint. Rest in splints is an important element of treatment.

White Vitriol. *See* ZINC SULPHATE.

White-washing with lime is a cheap and efficient mode of purifying walls and ceilings of dirty or neglected rooms. It appears to have a decided influence in preventing the spread of fever. The local sanitary authorities have power to enforce this mode of purification in suitable cases.

White Wine Whey.—To half a pint of boiling milk add one to two glasses of sherry. Strain through a fine sieve, and sweeten with sifted sugar.

Whitlow.—Abscess in a finger or thumb. Four kinds are met with; one just under the skin, another deeper in the pulp of the finger, a third in the sheath of the tendon next the bone, and a fourth in which the inflammation starts in the bone itself. The first two usually arise from some prick or injury, or absorption of irritating matters, such as the juices of dead animals, etc. Constitutional disorder is often present; and it is probable that in some instances both are due to a common cause. The deeper forms are almost invariably of constitutional origin. *See* BOILS; CARBUNCLES.

Symptoms are those of inflammation: swelling, tenderness, and throbbing pain, and redness when near the surface. There is also some feverishness, and more or less debility. The more superficial kinds usually burst through the skin, which causes great relief; and after a while the part heals up. Sometimes, however, when the skin is thick, the inflammation spreads to deeper parts, which greatly increases the danger. If the sheaths of the tendons become affected, the whole hand may become swollen and inflamed, and if not promptly treated by a competent surgeon, much destruction may follow, leaving a permanently damaged limb; or fatal blood-poisoning may ensue. Where the bone is inflamed, the risk is still greater; and there is every probability that the finger will be shortened even if it regains its usefulness.

TREATMENT.—In order to prevent these serious consequences, it is important to give the matter a way out as soon as possible; and when it is remembered how greatly this relieves the pain, and diminishes the danger to life and limb, few will be so foolish as to refuse to have the finger lanced. Where the abscess is just below the skin, and bursts before a surgeon can be consulted, the finger may be dressed with carbolic oil (1 in 20), and the hand rested up in a sling. Where it is under the nail, it is often possible to cut out a wedge-shaped piece with a sharp-pointed pair of scissors. Constitutional treatment depends upon the state of the patient. Usually tonics with aperients are needed. Sulphide of calcium is said to be useful. (*Pr.* 45, 35; *see* TONICS.)

Whooping Cough or *chin cough.*—An infectious fever common in childhood, but also attacking adults. It begins

with what appears to be a common cold on the chest. After ten days or a fortnight, the cough comes on in violent fits, ending in a long breath with a shrill whistling sound; the cough comes on again and again, leaving the child half suffocated, blue in the face, and exhausted. Vomiting is common in these attacks; the face becomes puffy, and small bloodvessels may burst in the nose or white of the eye. The attacks are usually more frequent at night, but may be provoked by anything which irritates or disturbs the child. As a rule there is some warning of a coming attack in the shape of a tickling in the throat; and the child will, if old enough, often leave off playing and grasp a chair or table, or its nurse, in order to support itself. Mild cases last three or four weeks; but the disease may continue for six months, the attacks becoming gradually fewer, and finally leaving nothing but a sort of nervous trick reminding one of the "whoop." The disease is particularly fatal to young children, and causes almost as many deaths as scarlatina. Moreover its complications are serious; coughing fits sometimes lead to convulsions; and there is a great liability afterwards to rickets and consumption. Whooping cough is infectious from the earliest stage onwards. The disease may be communicated by clothes as well as breath. Those who have recently had measles are more liable to catch whooping cough, and girls suffer more than boys.

TREATMENT.—Put the child into a warm, well-ventilated room. During the early stage, treat as for a severe cold. (*See* CATARRH.) Isolate from other children, and as far as possible from others not engaged in nursing; use disinfectants as in other infectious complaints. (*See* DISINFECTION; ISOLATION.) Give simple and easily digestible food, such as milk, broth, and the like. Where the food is vomited, give some more directly after a coughing fit. If the child is thirsty, he may have the usual fever drinks. Avoid, as far as possible, over-tiring or vexing the child, as this or giving injudicious food may bring on a fit of coughing. If the attack is a bad one, it is wisest to have medical advice. Several drugs are useful in quieting the cough, but (with the exception of *Pr.* 22) they are not suitable for administration by amateurs. Most of the advertised "patent medicines" contain opiates, and are therefore dangerous for children. Such remedies quiet the cough, but allow of the accumulation of phlegm in the chest, so that the child is suffocated. After six weeks have gone by, change of air is useful to get rid of the last vestige of cough and improve the general health. A warm, dry, and moderately bracing place should be chosen. Tonics are usually required at this stage, such as cod-liver oil, tincture of steel, or quinine. (*Pr.* 34, 35, 36, 37, 38.)

Willow Bark.—An old fashioned remedy for rheumatism, now superseded by salicine and salicylates (*which see*).

Wind. *See* FLATULENCE; CLIMATE.

Windpipe, *or trachea*, is about 4½ ins. long, extending from the voice-box or larynx to a point behind the top of the breast-bone, where it divides into two bronchi for the two lungs. The windpipe is placed in front of the gullet. Its walls are strengthened in front and at the sides with imperfect rings of cartilage. In front of it is placed the thyroid body, which is enlarged in goitre or Derbyshire neck.

Wine. *See* FERMENTED LIQUORS.

Wine, Mulled.—Boil some spice, cloves, nutmeg, cinnamon, or mace in a little water, just to flavour the wine. Then add a wineglassful of sherry or any other wine and some sugar; bring it to a boiling point and serve with sippets of toast; if claret is used, it will require more sugar. The vessel for boiling the wine should be scrupulously clean.

Winter Cough. *See* BRONCHITIS.

Womb, or *Uterus*, is situated in the pelvis between the rectum and bladder, excepting in pregnancy, when it rises up into the abdominal cavity. (*See* ABDOMEN.) It is roughly triangular in form, and held in position at the two upper angles by the broad ligament-folds of peritoneum. Inclosed in these are the ovaries and their ducts (*Fallopian tubes*). The womb is largely composed

of muscular tissue. This undergoes enormous development during pregnancy, as a preparation for child-birth; after which it again returns to its ordinary dimensions. Where this fails to take place properly, "subinvolution" is said to be present. In such a condition, in which the womb is unnaturally heavy, it is liable to displacement, either backwards or downwards (*prolapse*). *See also* WHITES.

Women. *See* CHANGE OF LIFE; CHILD-BIRTH; CHILDREN; EDUCATION; GROWTH; MARRIAGE; MENSTRUATION; PREGNANCY; PUBERTY; SEX; VAGINA; WHITES; WOMB.

Wood-wool.—A preparation of pine wood, introduced as a dressing for wounds.

Wool. *See* CLOTHING.

Woolsorter's Disease. — A disease caught from the hides and carcases of animals who have suffered from splenic fever. A small red pimple appears at the point of inoculation, which rapidly extends, so that in a few hours a large red swelling may be present. A vesicle forms upon it, which bursts and discharges blood-stained fluid. The centre then sloughs, and is surrounded by a ring of vesicles. Severe prostration follows, with headache, vomiting, or pains in the limbs; and the sufferer usually dies within a week. Inoculation may be internal, when the symptoms are somewhat different. The disease is due to the presence of a special bacillus (*see* BACTERIA), and especially attacks woolsorters, rag-pickers, tanners, and others brought into contact with the infection. Other names for this disease are malignant pustule, anthrax, and charbon. The only hope of cure lies in early treatment of the pimple. Infected carcases, hides, etc., should be burnt, as burial does not destroy the bacilla, which are (as shown by Pasteur) brought to the surface by earth-worms. Pasteur has proved that animals may be protected against splenic fever by inoculation with a modified virus.

Worms, Intestinal, are of many kinds; but the only common ones in this country are round-worms, thread-worms, and tape-worms.

ROUND-WORMS, or ascarides, roughly resemble an earth-worm, but are more pointed at both ends, and pale yellowish-red in colour. Their length is four or five inches to a foot or more. They inhabit the small bowel, or, rarely, the stomach, and may exist singly, or in scores, or even hundreds, although usually there are not many together in the same individual. They produce hundreds of eggs, which passing into drinking water may infect other people.

The *symptoms* they produce are very variable. Sometimes no discomfort at all is excited, and their presence is only known by one being expelled by the anus. At other times, they cause nausea or vomiting, griping pains, and disturbance of digestion; or, on the other hand, convulsions, delirium, and other nervous symptoms.

Treatment.—Give santonin, 2 grs., mixed with sugar, and sprinkled on bread and butter, or two of the B.P. lozenges, followed by a full dose of castor oil or some other aperient. (*See* APERIENTS.) The remedy should not be taken more than three days running. Adults may take 5 grain doses, but even this amount may cause yellow vision, spasms, and tenesmus.

THREAD-WORMS, seat-worms or *oxyurides* (formerly called ascarides), are like animated pieces of fine thread, about $\frac{1}{3}$ to $\frac{1}{2}$ inch long, with a fine, tapering tail. They exist, as a rule, in hundreds or thousands, inhabiting the whole of the large bowel, from the cæcum outwards; and at night are apt to wander out of the anus and cause much irritation of surrounding parts. For this reason, and for the great discomfort they often cause, they should be promptly expelled when known to be present. Especially is this important in children before the age of puberty, in whom the irritation may encourage bad habits, or lead to convulsions and other grave nervous disorders. It is not uncommon for sufferers to re-infect themselves by scratching the anus, and then introducing the eggs into the mouth. Probably another mode of infection is by the use of uncooked vegetables.

Treatment.—In children, iron and quassia mixture (*Pr.* 34 with 10 minims of

tincture of quassia to each dose) should be given three times a day after meals, and brisk aperients every morning. (*See* APERIENTS.) At the same time, cold water enemas should be given every night, with the addition of 1 teaspoonful common salt to the pint. The anus should be carefully cleansed with soap and water after action of the bowels; an ointment of 20 grs. calomel to 1 oz. prepared lard or vaseline is useful to allay the irritation. Habits of biting the nails and of scratching the anus must be cured, to prevent infection. Quassia injections or lime water injections are also useful in killing the para site. In adults, the disease is less easy to cure; *Pr.* 54, 58 at night followed by Friedrichshall or Hunyadi water every morning, together with a steel tonic (*Pr.* 34, 35) after meals, is probably the best treatment. Copious enemata containing turpentine (*see* TURPENTINE) are useful.

FIG. 69.
TAPE-WORM, NATURAL SIZE.
The head is at the narrow end. (From Roberts' "Theory and Practice of Medicine," after Davaine.)

Of TAPE-WORMS, three kinds are commonly found in the human bowels. One of these is derived from badly cooked pork, another from beef, and a third is supposed to be derived from the flesh of pike and other fresh-water fish. A tape-worm consists of a number of joints, which really form a colony (*fig.* 69). The head containing the apparatus for attachment to the wall of the bowel is considerably smaller than the rest of the chain. In the pork tape-worm it is provided with suckers and a ring of hooklets. The beef tape-worm has only suckers, and the fish tape-worm has a head of different shape. Tape-worms may grow to as much as twenty-five feet long. They are usually single. Eggs are produced by the lower joints of the tape-worm; when these are swallowed by the animal host (pig, ox, or fish) the embryos, boring their way through the bowel, become encysted in the flesh of the animal. In the same way, the eggs of the tape-worm of the dog, if swallowed by man, become encysted in the liver and other parts.

The *symptoms* of tape-worm are variable and not characteristic. Sometimes none at all are produced, and the disease is only recognised by the passage of joints with the motion. At other times colicky pains, variable appetite, diarrhœa or constipation, giddiness, faintness, or epileptic fits occur, and cease when the parasite is expelled.

To *prevent* the occurrence of tape-worm, food should be thoroughly cooked. Butchers and cooks should avoid putting their knives into their mouths. Measly beef or pork should not be sold at all. To prevent the spread of the disease, strong carbolic acid should be poured over the motions of those who harbour the parasite.

To *expel the tape-worm.* Take a light tea and no supper. Just before bed-time, take an ounce of castor oil and lie down at once so as to guard against vomiting. Next morning, after the bowels have acted, take *Pr.* 44 or 1 drachm of liquid extract of male fern in milk. No food should be taken until the bowels have acted freely. Look carefully for the head, as its presence in the motions shows that the parasite has been expelled. In children, smaller doses are required. Where male fern fails to expel the tape-worm, pomegranate or kousso may be tried. *See* POMEGRANATE; KOUSSO; *see also* HYDATID DISEASE.

Wormseed. *See* SANTONIN.

Wormwood.—The source of absinthe (*which see*). It contains a volatile oil and a bitter principle. The former is highly poisonous, and in sufficient doses may cause trembling, stupors, convulsions and death. The bitter principle is a tonic to the stomach; but safer preparations exist.

Wounds are classified by surgeons into incised, or simple cuts; bruised and lacerated wounds; punctured wounds; gunshot, and poisoned wounds. These differ in their character, mode of healing, and suitable treatment. *Clean-cut wounds* should be cleansed by a stream of cold water or carbolic solution (1 in 40), bleeding stopped, the sides brought accurately together, and supported by strips of sticking plaster or pads of dry lint held on with a bandage. If the part becomes red and angry in a day or two, cold water dressing should be substituted. (*See* DRESSINGS.) Small clean-cut wounds may be sealed up with friar's balsam on linen after cleansing; or else carefully dried and sealed up with flexible collodion. In large wounds, bleeding must be stopped before the wound is closed, as the pressure of a large clot of blood will prevent union. (*See* HÆMORRHAGE.) Stitches are often required.

In *bruised and lacerated wounds* there is usually less bleeding, as the vessels have become twisted and sealed. But, on the other hand, pieces of dead tissue remain, which have to be cast off before the wound can heal. The wound should not be sealed with dry dressing, as matter is certain to form; and if confined this will cause inflammation and fever. Apply rather a wet dressing with carbolic acid or chlorinated soda, inserting a small strand from the bottom to the lower angle of the wound. This will form a channel for the escape of matter, and may later on be gradually shortened. If during the first few days there is much fever, open up the wound, as there may be matter unable to escape. *Punctured wounds* are usually more dangerous than more open cuts. A large vessel may easily be pricked, and dangerous bleeding take place; or some other important internal organ injured. *Gunshot wounds* resemble bruised and lacerated wounds. Much shock is usually present; and there may be considerable bleeding. *Poisoned wounds* are such as are received by medical men during dissection, or by cooks in handling meat; or in which decomposing matter is introduced into the wound. Another form is treated under the heading, BITES AND STINGS. There is always much inflammation and fever, and matter is formed as in lacerated and bruised wounds. To prevent these consequences as far as possible the wound should be thoroughly cleansed, or in extreme cases cauterized with caustic. Poultices and hot-water dressings may be necessary; and a generous diet with some stimulants.

GENERAL TREATMENT of the wounded. After a wound has been received, the patient should be kept quiet and made to rest the injured part. If there is shock, this should be treated with hot bottles, etc. (*See* SHOCK.) If there is constipation an aperient will be required (*Pr.* 11, 14, 53, 58). Diet should be light and easily digestible during the first few days, and still longer if there is fever. Where much matter is produced and escapes freely (as it should), a more generous diet is required, and some stimulant will probably be useful. The above remarks are made for the sake of those unable to obtain surgical advice. Where a surgeon is available, his aid should always be sought.

Wrist Drop.—Paralysis of the extensor muscles on the back of the wrist, usually caused by slow lead poisoning. The *treatment* is as in LEAD POISONING. Electricity suitably applied is often useful.

Wrist Joint. *See* ARM; HAND; JOINTS; SPRAINS.

Writer's Cramp.—A peculiar kind of weakness and painful cramp caused by over-much writing. All other movements but those of writing can be readily performed, but directly this is attempted, the irregular movements or pain compel the person to stop. A similar affection attacks pianists, violin players, etc.

Wry-neck may be congenital or acquired. In this disorder the muscles on one side of the neck are permanently contracted, or else are subject to spasmodic jerking contraction, which may be so violent as to produce a sore place on the shoulder. The disease is difficult to cure. A suitable screw apparatus fitted by a surgical instrument maker will often do good; but an operation may be necessary. Disease of the spine in the

neck often causes bending of the neck to one side, but must not be mistaken for wry-neck. Such a mistake might cost the life of the patient.

Yawning. *See* GAPING.

Yeast.—Beer yeast is a yellowish or grayish viscid frothy liquid, with a characteristic smell, and a bitter taste. Under the microscope it is seen to consist of numerous round or oval cells. These, if placed in a solution containing sugar, multiply by budding, and at the same time transform the sugar into alcohol and carbonic acid gas—a process of fermentation. Yeast has been given internally for depressed states of the system, and applied externally as a poultice to sloughing sores. It is a remedy of doubtful utility. *See* FERMENTATION.

Yellow Fever always prevails to some extent in certain parts of the West Indies and of North and South America, but becomes epidemic from time to time. It occurs almost entirely in crowded dirty cities on the sea coast or shores of large rivers, and in ships and seaports infected from them. It does not extend beyond 48° N. latitude, nor in places with a lower temperature than 72° F., nor as a rule more than 2,500 feet above the sea-level. The disease has sometimes been found in European seaports, but has not spread into other parts of the country. Like other infectious diseases, it rarely attacks the same individual twice.

Symptoms. — The attack is usually sudden, after an incubation period of variable length; although occasionally the disease creeps on more slowly. There are usually headache, pains in the limbs and back, and alternate chills and flushes; there is tenderness at the pit of the stomach, nausea, and perhaps vomiting. The fever rapidly increases, and these symptoms continue from 1½ to 6 days. Convalescence then sets in, if the attack be a slight one; but more often the apparent improvement ends in a stage of collapse, in which there is great depression of strength, cramps, jaundice, black vomit containing bile and blood, and sometimes suppression of the urine. The patient may die within a few days of the seizure with delirium and convulsions, passing into coma. Should he survive the sixth day without either black vomit or suppression of urine, there is good chance of recovery.

TREATMENT.—To prevent the spread, isolate the sufferers, observe the utmost cleanliness both indoors and in the streets, and disinfect clothing, excretions, rooms, etc., as in other infectious fevers. If possible remove to a colder climate or a more elevated spot; ventilate freely, and see to purity of the water. Medical advice should always if possible be obtained; but if this cannot be done, recovery may be assisted by giving in the earliest stage, a brisk purge and emetic (*Pr.* 11, 27). After this, promote the action of the skin and kidneys by hot mustard foot-baths, *Pr.* 7, 26, 32, avoidance of chills, and a diet of "slops," with plenty of barley water, lemonade, and similar drinks. When the patient begins to improve, he should still be kept strictly lying down; as the heart is often very weak, and death has resulted from rising at this period. If much prostration follows, plenty of suitable liquid nourishment should be given (DIET, II.). Sometimes champagne is useful; but alcoholic drinks must be given with great caution. For vomiting, sucking small pieces of ice is useful; and if the urine be suppressed, dry cupping over the loins, and cold water enemas by the bowel. *See* DISINFECTION; ISOLATION.

Yew Berries are highly poisonous. *See* IRRITANT POISONS.

Zinc.—Several compounds of this metal are used in medicine. Ointments made with the oxide and carbonate are largely used as external applications to ulcers and sore places. Oxide of zinc is a white, tasteless powder; it forms an ingredient of some useful dusting-powders for infants. *See* DUSTING-POWDER.

CHLORIDE OF ZINC solution is caustic, disinfectant, and antiseptic. *See* DISINFECTANTS; BURNETT'S DISINFECTANT.

SULPHATE OF ZINC (or *white vitriol*) forms white crystals like those of Epsom salts, but with a bitter astringent taste. Twenty grains dissolved in a wineglassful of water act as an emetic. A solution of 1 grain to the ounce of distilled water is useful as an astringent gargle or eye

lotion. *See* EYE DISEASES; SORE-THROAT. A stronger solution is applied to ulcers with large flabby granulations. Several preparations of zinc are given internally for neuralgia, epilepsy, and other nervous diseases.

ZINC OINTMENT.—Rub up 80 grains of finely powdered zinc oxide with 1 oz. benzoated lard.

ZINC CARBONATE OINTMENT.—Carbonate of zinc in powder 1 oz., benzoated lard 5 ozs.

ZINC CARBONATE LOTION.—Carbonate of zinc powder 40 grains, zinc oxide 20 grains, glycerine ½ fl. drachm, water to 1 fl. oz.

Zona or *Zoster*. *See* SHINGLES.

Zymotic Diseases. — A term derived from the Greek word for ferment, and applied to endemic, epidemic, and contagious diseases, which have certain analogies to the process of fermentation. *See* DISEASE GERMS; DEATH, CAUSES OF; INFECTIOUS FEVERS.

Butler & Tanner, The Selwood Printing Works, Frome, and London.

MEMORANDA.

Tests – to ascertain pres^ce^ of organic matter in water – v Water – Condys –
" – Copper to ascert: pres^ce^ in pickles p 265.

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