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OURSELVES, OUR FOOD,
AND
OUR PHYSIC.

DR BENJAMIN RIDGE.



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OURSELVES, OUR FOOD,

AND

OUR PHYSIC.

ALEX. NAPIER, PRINTER,

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OURSELVES, OUR FOOD, AND OUR PHYSIC.

(AN ENTIRELY NEW EDITION);

ILLUSTRATED BY COLOURED DRAWINGS OF THE TONGUE.

BY

BENJAMIN RIDGE, M.D., F.R.C.S.E., ETC.,

AUTHOR OF

“A SYSTEM OF GLOSSOLOGY; OR, THE ADDITIONAL MEANS
OF DIAGNOSIS OF DISEASE TO BE DERIVED FROM INDICATIONS
AND APPEARANCES OF THE TONGUE.” “ON VACCINATION.”
“HEALTH AND DISEASE, THEIR LAWS; WITH PLAIN PRACTICAL
PRESCRIPTIONS.” “PHYSIOLOGY OF THE UTERUS, ETC.”
“AND OF TWO NEWLY-DISCOVERED MEMBRANES IN THE ANIMAL
ECONOMY.” “PRINCIPLES OF ORGANIC LIFE,” ETC., ETC.

“Let not your ears despise my Tongue for ever,
Which shall possess them with the heaviest sound,
That ever yet they heard.”—SHAKESPEARE.

“NULLA SINE CAUSA NOTA.”

LONDON:
CHARLES HIGHAM, 27A, FARRINGDON STREET, E.C.
1884.

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PREFACE.

IN 1861, I published a small work, under the same title as the present book, which reached its fifteenth edition of 1000 copies each in 1880, and I have to record many gratifying proofs from home and colonial correspondents of its usefulness. One of my reasons for its temporary withdrawal was that after another twenty years of practical observation, I had advanced my views on the laws which govern health, as well as those of the countless diseases and their treatment, to which our bodies are subjected. These I now incorporate in the present edition, which I have entirely reconstructed upon the lines of the old one. It is generally admitted that the practice of medicine is an occult art, and a mystery, even to medical men. How much more so must it be to the general public? Health, all value, though ignorant of the laws which maintain it; but all know that disease, in any form, is a departure therefrom, and that it is often as difficult to discover its cause, as to administer to its treatment.

The uncertainty of medicine itself, and also of its administration, has called forth at various times the objurgations of the very highest authorities in the practice of it. So much so, that a "CLINICAL SOCIETY" was established in 1868 to investigate all medical subjects more carefully, and by discussion, to arrive at something more definite and satisfactory.

"THE LANCET, of 18th *January*, 1868," records that this "SOCIETY" was opened by the late SIR THOMAS WATSON, BART., M.D., &c., as its first President. In his opening Address he said, "We know tolerably well what

we have to deal with, but not anything like so well, How to deal with it." * * * "We want to learn distinctly what is the action of drugs upon the bodily organs and functions." * * * "To me it has been a life long wonder how vaguely, how ignorantly, how rashly, drugs are often prescribed. We try this, and, not succeeding, we try that, and, baffled again, we try something else; a haphazard practice, both dangerous in itself and discreditable to Medicine as a Science; always fluctuating in a sea of doubts, of this the evidence is plentiful and constant, a standing reproach to the calling we profess." "There are diseases in which it seems to be our main business to stand by and look on, and see that Nature has fair play; to watch recovery and not attempt to cure; such as all the specific fevers that run a definite course." * * * "But as there are many shapes of diseases of which the true nature and origin are still doubtful, we may peradventure be led to discover their laws."

Seven years after this, "THE BRITISH MEDICAL JOURNAL, of 20th February, 1875," recorded that this "SOCIETY" was presided over by SIR WILLIAM JENNER, BART., K.C.B., M.D., F.R.S., &c., &c., who said in his Address, "As far as my knowledge extends, there is no disease, even the most common, respecting which there are not undetermined questions in regard to its pathology and treatment. There is not a single disease, however common, respecting which it can be said that its etiology (or true causes) is quite determined. There is no disease respecting which it can be said that the symptoms which mark its very outset and its course; the symptoms which mark its decline; the symptoms which enable us to tell at the outset what will be its course; the effects which follow after the disease has apparently ended, and the influence which pre-existing conditions of health and disease, as well as that which drugs and other therapeutic agents exert on its progress, termination, and sequelæ—are perfectly known. Regarding all these points in every disease, even the most common, there are undetermined questions. Many of these questions admit of answer; many of them ought to be answered; and that many of them are not answered, is, I think, discreditable to us as a profession." * * * "Little is

known of certain conditions of the system which render *something* sufficient to the production of disease in one person, while in another it is inert. Little is known of what this SOMETHING is."

These views are fully borne out by equally eminent men, as the following paragraph, which has been going the rounds of the Public Journals, testifies. (A.D. 1880).

"Truly ignorance is sometimes bliss. It is commonly understood that the science of medicine is far from a state of perfection, but still it is regarded as having a tendency to prolong life, and to ameliorate some of its sufferings. Medical men, however, seem to know better, and their superior knowledge has induced them to mercilessly assail their profession in a way which no one unskilled in its mysteries would think of. In a lecture delivered by a distinguished physician, some of the many condemnations, or rather the practice of it, by medical men were grouped together, and thus grouped they have an effect which is somewhat distressing. Here are a few of them by men of great celebrity:—'The older physicians grow, the more sceptical they become in the virtues of their own medicines.' 'Of all sciences medicine is the most uncertain.' 'The vital effects of medicines are little understood.' 'The science of medicine is a barbarous jargon.' 'Every dose of medicine is a blind experiment.' 'The medical practice of the present day is neither philosophy nor common sense.' 'Gentlemen, ninety-nine medical facts are medical lies.' 'Mercury has made more cripples than all wars combined.' The charge against medicine is surely bad enough, and the indictment need be prolonged no further than by another, who says:—'The science of medicine is founded on conjecture and improved by murder.'"

Thus, after long years of practice, the most eminent men confess how little they know. Similar opinions are uttered by Savants in other parts of Europe. I will give one example, that of the Great MAJENDIE, who, on assuming the Professor's chair of Medicine at the College of France, thus addressed the assembled students:

“Gentlemen, Medicine is a humbug ; I know it is called a Science. Science, indeed ! it is nothing like Science. Doctors are mere empirics when they are not charlatans. We are as ignorant as men can be. Who knows anything in the world about medicines ? I must tell you frankly that I know nothing in the world about medicine, and I do not know anybody in the world who does know anything about it. I read the bills advertising the course of lectures at the medical schools : one man teaches anatomy—another pathology—a third, physiology—a fourth, therapeutics and materia medica. What is known about these ? Why, at the School of Montpellier, they discarded the study of anatomy, and taught nothing but the dispensary, and the doctors there are quite as successful as any others. Who can tell how to cure the head-ache, or the gout, or diseases of the heart ? Nobody ! You tell me doctors cure people, how ? Gentlemen, Nature does a good deal ; imagination does a good deal ; doctors do very little when they don’t do harm ! When head physician at the Hotel Dieu, I divided the patients into three classes : with one I followed the dispensary, and gave them the usual medicines, without having the least idea why and wherefore ; with another I gave bread pills and coloured water ; and to the third class nothing whatever, though they grumbled because they were not well drugged. All the patients in this class got well, Nature, invariably, came to the rescue ; there was little mortality among those who took bread pills and coloured water ; the greatest mortality was amongst those who were carefully drugged according to the dispensary. Now, we have come here to study Nature, and not to spin fine theories—*leave them to the Germans*, who, for once they are right, are wrong a hundred times, and by their theories they are never sure of knowing assuredly what they do know.”

The question may be asked—What has the Clinical Society done to advance the laws of disease and its treatment during its sixteen years of existence ? What have the thousand meetings of medical societies done, discussing so many papers, and not establishing one great fact ?

What have the large medical associations done, headed, as they have been, by the foremost men of the profession? This may be answered by their own cry of *misericordia*.

THE BRITISH MEDICAL JOURNAL, of 27th January, 1883, records the addresses of Sir William Gull and Sir James Paget, repetitions (by the way) of papers read in 1882, before "The Metropolitan Counties Branch of the Medical Association," advocating "The collective investigation of disease by men of every branch of the profession, according to a given programme," which, as Sir William Gull said, was "to help us to a better knowledge of our profession,—not to be realized at once; not, indeed, until the Sun of Science has risen far higher in our sky than now."

Nor are these generally admitted opinions without a real foundation, as there is not the least pretension on the part of the whole medical profession, from the highest to the lowest, to the knowledge of what health is in the abstract. Though so much is known of the chemical constituents of the body, no chemico-vital balance of them has ever been suggested as the probable cause of its integrity, and which we designate as health. Yet, on the other hand, it is readily admitted that disease is a departure therefrom, and is treated by chemical agents to arrest or cure it, whatever it may be, but not knowing the chemico-vital condition to which the body is to be restored, the application of medicines must always remain speculative.

Sir Andrew Clark, in a Lecture on Alcohol, July 7th, 1881, admits this dilemma of what health really is. Whatever it is, it must be the foundation for all the links of the great chain of disease and medicine to be attached to. Sir Andrew Clark said :—

"For twenty-five years at least I have been physician to one of the largest Hospitals in this country, and I do not know to this day what health is. I cannot define it

because it is indefinable. Health is that state of body in which all the functions of it go on without notice or observation, and in which existence is felt to be a pleasure, a kind of joy to see, to hear, to touch, to live. That is health."

I may be pardoned for saying that these are only some of the EFFECTS of it! whilst many persons may enjoy a condition of bodily health without being able either "to see," "to hear," &c., &c.

CELSUS of old recorded pretty much the same ideas, for chemistry was not much known in his day, we must, therefore, take the latest authority on this subject, and that Sir Andrew Clark represents the opinion of the whole medical faculty. The practice of medicine then must be like a very fine ship, fully armed and provisioned, but without rudder or compass, and manned by a crew who know nothing of latitude or longitude, winds, tides, currents, or sails. Thus, it gets tossed about in every possible direction. A certain number of chief officers, assuming a greater knowledge than others, direct the sailing, changing the ship's course to every possible direction, who, in due time, are succeeded by others, for the ship never lacks officers or crew, and all more or less satisfied with the glorious uncertainty of the voyage. What can be the cause of all this obscurity? Can any new light be thrown upon our present physiology? Much of it is open to doubt and even disbelief. A body of 30,000 medical men or more in this country alone seem to be the sole depository of some quaint knowledge, which none of the thirty millions of outsiders even get a glimpse of. They feel how hopeless it is to attain any knowledge of themselves or their diseases, yet fully aware how little the faculty itself knows of them, as judged from its own confessions. Bodily ailments fall to the lot of every one, and come and go away again often without any interference, but are frequently aggravated by

medication. Many are tempted by the advertisements of Quack or Patent Medicines, apparently suited to their cases, and so risk the good or ill effects of their credulity, and this too by Imperial approval and sanction.

“Nearly 20,000 persons in Great Britain hold Government Licenses for the sale of Patent Medicines, these, and the stamp duties thereon, yield to the Imperial Exchequer at least £130,000 per annum.”

Surely this “GREAT TROY” of “QUACKERY” can only be said “to stand by *our weakness*, not her own strength.”

The prospectuses accompanying quack nostrums abound in physiological extracts from the logs of the Imperial ship for the information of the unlearned, and tend curiously enough, in an indirect way, to educate ignorant minds on these subjects. Our Educational Boards have also introduced anatomy, physiology, and chemistry into their schools, so that the minds of the present and future generations are for the first time in the epoch of the world, to be imbued with some knowledge of their own bodies. This is, indeed, stealing a march upon what has been hitherto the sole province of a close guild, whose opinion on these great subjects, as far as medication is concerned, has been previously recorded. Let it be hoped that what may be more generally and publicly taught will approximate more to the truth.

The object of this book is to give some account of the construction of the human body, its organs, and their uses, as well as the chemical constituents both of its solids and fluids. To approximate the character of these as a whole, in order to get some fixed law respecting them which can be designated as the condition on which health depends. Then to point out the first causes of the departure from such healthy standard, tracing the progression and retrogression of disease. The sequel to this being to elucidate

the character of medicines to be used in the various phases of disease, and to place them hand in hand with hygienic remedies and diet. Not the least important part in view, is to show what marvellous sympathies *THE TONGUE* has with various organs of the body, not only illustrating distinctive classes of diseases, but their stages, and the condition of the secretions generally. This is of the highest importance, pointing out when they are to be corrected, and when assisted in power, for it is to their healthy condition that we have health, and to any deviation therefrom, that we have disease, and that by and through them all diseases are cured.

There will not be found in this work much mention of specific symptoms, as there are so many different diseases with similarity of symptoms, and many symptoms common to dissimilar diseases. The hysterical girl will often exhibit symptoms of almost every disease. Therefore, symptoms misunderstood often lead to many errors of medication.

It will be seen that I differ on many points of physiology which are now currently believed in, but I have not done so without sufficient consideration. I submit this book to the public, hoping it may be found as useful as its predecessors. Whatever new opinions and ideas there may be found herein, are the result of close observation and the practical experience of many years. These are offered in all sincerity to those who covet more certainty in the relief of human suffering :—an end desired by the mightiest and the humblest who look to medicine for assistance, and by the highest and the lowest whose vocation it is to study and administer it.

BENJAMIN RIDGE,

M.D., F.R.C.S.E., &c., &c.

8, Mount Street, Berkeley Square :

January, 1884.

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OURSELVES, OUR FOOD, & OUR PHYSIC.

CHAPTER I.

THE ANATOMY OR GENERAL STRUCTURE OF THE BODY.

EVERYTHING in Nature is acknowledged to be governed by Law. It is singular, however, that while science endeavours to reduce this to actual fact in all other studies, those of HEALTH and DISEASE have not hitherto been arranged under any law whatever. In the investigation of these subjects it is absolutely necessary to be acquainted with the constituent parts of the body—to know their uses and properties, and to take an enlarged view of their whole inseparable phenomena. This I purpose doing in the briefest language.

ANATOMY is the study of the general structure of all organized bodies, the human frame being composed of the following parts:—

THE BONES.—Man in his exalted position in Nature is erect, his body being supported by a framework of bones; his feet, curiously and beautifully formed act as pedestals and support him in all the duties of locomotion. To facilitate this, the five toes of each foot are jointed and are composed of many bones, whilst the four large bones forming the foot are webbed together. Attached to these are the ankles, having each eight small bones, and it is to these that the foot is indebted for its flexibility. The Monkey tribe make as much use of their feet as their hands, and people born without hands or arms attain great facility in the use of their feet. The leg resting upon each ankle has two bones up to the knee, and the thigh above resting upon the upper part of them has one bone, which form a beautiful hinge joint, whilst a knee-cap bone protects the front of it. Each thigh bone is inserted into a composite bone, called the pelvis in front, the hips on either side, and a wedge-

like bone at the back, which forms the base of the spinal column. This with the hips being circular and well united, will be seen to be the centre of strength, on which all the upper members rest, and wherein the lower limbs move easily. The spinal column, or the backbone, consists of a series of bones called *vertebræ*; the lower, numbering five, are called the lumbar or loins; above these are twelve, called the dorsal or back, then seven above these, called the cervical or neck; these are surmounted by the head. Between each vertebra are natural buffers called cartilages, all held together by strong ligaments, so that the whole column can bear the heaviest weights or pressure; concussion from either leaping or jumping being thus prevented. There is a continuous hollow through every vertebra for the lodgment and security of the spinal marrow, which is a continuation of the same nerve matter as the brain. The head or skull, apparently but one bone, consists of several: that portion forming the face is also composed of a variety, namely, the nose, sockets for the eyes, cheeks, &c.

The ear bones are thick and strong, and form the base on each side from which the arches of the skull arise. The distinct bones of the head are the forehead, the sides, and the back part. The ribs are circular bones fixed at one end to the back *vertebræ*, and coming round to the front, are inserted into the straight flat breastbone, by which arrangement the cavity of the chest is formed. At the top of the ribs in front there are the collar bones, which connect the shoulders on each side to the breast bone, and at the back two blade or shoulder bones, which help to form the sockets for each arm. These have one bone from the shoulder to the elbow, and two from the elbow to the wrist, forming the fore-arm, whilst the wrists and hands are composed of many bones similar to the ankles and feet. The bones themselves are porous, the long shaft bones being hollowed, and having an internal pith or marrow. Externally they are covered with a thick tough skin peculiar to them, which adds greatly to their strength. The number of bones of the body have been estimated by various anatomists at 260, 253, and 197, the difference being simply in their divisions, especially of those which are so combined as to form apparently only one, yet may be separated into more.

JOINTS, WITH THEIR CARTILAGES AND LIGAMENTS.—Every joint is formed of two or more bones, having their ends protected by cartilage or gristle, and are held together by strong ligaments, thus forming a more or less hinge-like apparatus. Within them there is a fluid secreted called synovia, vulgarly joint-oil, for their proper lubrication. The thick fibrous skin coverings of all cartilages and bones are serous membranes or natural sponges to retain inorganic fluid elements.

THE MUSCLES.—The general configuration and symmetry of the body depend on its muscles or flesh. These arise from one part of a bone and are inserted into another part, or from one bone and become inserted into the next. They have direct as well as antagonistic actions and extend or draw in the limbs under the direction of the will by combined hydraulic and electric forces. The fleshy parts of these are the muscular structure, whilst their thinner terminations are called tendons. All muscles can be more or less distinctly traced by their skinny coverings, which give them an easy play over each other, hence anatomists have been able to separate, trace, and name them. Their number amounts to about 350. It must not be supposed that these muscles are solid portions of flesh; quite the reverse, they consist of myriads of fibres, through which large quantities of inorganic fluid elements pass for their lubrication. The value of these fluids must be borne in mind, as they have wonderful influences on life, whether in health or disease, and will be frequently mentioned in this work.

FAT, CELLULAR TISSUE, SKIN, ETC.—Over the muscles Nature has provided certain fatty deposits and a beautiful fabric, called the cellular tissue, which nourish the parts beneath and the true skin immediately above, whilst an upper skin covers all. A small watery space lies between these two skins, yet so closely connected are they, that until a gall or a blister separates them, they would be scarcely known to exist as two distinct organisms. This, then, is the general framework of the body as it appears externally; parts of it being protected with hair, and the termination of the toes and fingers with nails, the uses of which are patent to all. The facility of movement of the whole or parts of the body, and its powers, need no illus-

tration. Dancers, acrobats, wrestlers, and those who indulge in gymnastics, and every one in fact, who takes riding, walking, and other exercise, must appreciate its wonderful flexibility and endurance, and how exhaustless must be the inorganic fluid elements to keep up flexibility and prevent friction.

THE CAVITY OF THE CHEST.—This is formed by the ribs and the back and breast bones; the upper parts being protected by the collar bones, and the lower floor supported by a muscular partition called the diaphragm or midriff, which is attached to the breast bone and the lower ribs and vertebræ of the back, and separates this cavity from the abdomen. In the chest this midriff is arched, and in the abdomen it is dome-shaped, it moves upwards and downwards according to the inspiration of air into or expiration of air out of the lungs; thus mechanically assisting the act of breathing. The cavity of the chest contains—

THE HEART, LUNGS, WINDPIPE, GULLET, ETC.—The heart is in the middle suspended in a muscular bag, which is always partially filled with an inorganic fluid, so that in whatever position the body may be, the heart is always in a water bed. This gives it great freedom of action, which it should have as the great centre of the circulation of the blood. The lungs are on each side. The windpipe comes down at the back of the heart and divides into two portions, one going into each lung. It is called the windpipe until it is thus divided, then each portion becomes the commencement of the bronchial or breathing tubes, whose name is legion, penetrating every part of the lungs. At the back of the windpipe and to which it is attached, is the gullet on its way through the diaphragm to the stomach. The windpipe is composed of cartilaginous rings, in order to keep the tube open for the free ingress and egress of air, while the gullet is a muscular bag protected and held up by the windpipe. As it would be impossible to fill a sack without its being held open, so the windpipe holds the swallowing sack or gullet, which dilates with everything passing down it and contracts above when food has passed into the stomach. There are other anatomical contents of this cavity, but not necessary to be named here.

THE CAVITY OF THE ABDOMEN contains the *stomach*,

inclining from left to right ; below which is the residuary stomach or *duodenum* ; then follows a very extensive gut, called the small *intestines*, which terminates in a cavity very low down within the right hip, called the *cæcum*, or head of the LARGE INTESTINES. I must draw especial attention to these, as they have *four great* divisions. The first or ascending portion passes up the right side over the right kidney as far as the ribs, there it rests upon the great lobe of the liver. The second or transverse portion passes over and rests upon the two stomachs and partially upon the spleen or milt. The third or descending portion extends from the spleen downwards, passes over the left kidney towards the left hip and makes a double curve like the letter S, so that this intestine touches at its back part all the abdominal organs, over which it has remarkable duties to perform of a gaseous character. The fourth and last part of this intestine is curved and is called the rectum, where it ends at the sphincter formed by strong circular bands of muscles, which relax for the passage of all excrementitious matter from the bowels and close when it has passed.

THE LIVER is on the right side under the dome of the diaphragm, partly protected by the ribs and touching the stomach and portions of the large intestines.

THE SPLEEN OR MILT occupies a similar position on the opposite side, and touches the stomach and colon.

THE PANCREAS OR SWEETBREAD is a large salivary gland lying at the back of the two stomachs. It rests upon a very important Plexus of nerves, called the SOLAR PLEXUS, which is often styled the abdominal brain. This is evidently a great signal station between the upper and lower extremities. Electric currents or messages going and returning on either side up and down get to a part of it, when it is called on that side the semilunar plexus. Both these being anatomically combined, are called the solar plexus.

THE KIDNEYS are situated one at each side of the last two back and first two loin vertebræ. Long ducts called ureters descend from them into the BLADDER, which is situated in front of the pelvis before the rectum. The kidneys are always more or less embedded in fat, to which they

are firmly attached in their centres by ligamentous bands, through which inorganic fluids pass to mix with and carry away the salts eliminated by them from the blood, as well as any excesses of fluids from the abdomen, as frequently happens in dropsies. In front of the back bone are the great blood-vessels of the heart, which convey the blood from, and carry it back to, that organ, which will be hereafter explained. All the organs of the abdomen are in apposition, there is no space between them, and all are kept together by the pressure of its walls, so that however fat or however thin a person may be, Nature provides for this compactness.

THE HEAD.—**THE CAVITY OF THE HEAD OR SKULL**, contains the **BRAIN**, which consists of two distinct parts:—the large or reflecting portion is situated in the front, sides, and top and is divided into two hemispheres; the smaller, or instinctive brain is situated at the back part of the skull.

The brain has no arterial blood-vessels of any size passing through it, but is covered with a network of them, the whole being protected by a very tough membranous covering. The volume of blood contained in this network is considerable. All fluids return from the brain through the veins, which are situated in indented channels in the skull. This prevents any pressure upon the brain. The front portion of the brain is divided into two hemispheres, each having a hollow ventricle or small open space which always contains a serous or inorganic fluid for the lubrication and moisture of the general brain structure. When this is in excess, as frequently happens with children, it produces what is called water on the brain. A larger quantity of fluid is carried away from the brain in proportion to what is sent to it by the arteries. This is owing to the natural law of self-generating protoplasmic elements within the brain itself.

THE NERVES are given off from the lower part of the brain and supply all the senses, hence they are called the sentient or feeling nerves. There are others also of a distinctive character called motor, or nerves which regulate motion. The spinal marrow also gives off its two classes of nerves, one of motion and one of sensation.

THE ARTERIES, VEINS, AND CAPILLARIES.—The blood

vessels are named arteries and veins, the termination of one and the beginning of the other is called a capillary ; these traverse the whole of the body and every organ, and have their accompanying nerves : there are also other vessels, called the *lymphatics*, *absorbents*, and *lacteals*, which collect and convey large amounts of extraneous fluids from all parts of the body to other parts for their uses and conversion into other forms.

THE MEMBRANES.—These are of two distinct kinds and to them I would draw especial attention.

First. THE MUCOUS MEMBRANE.—This lines the eyes, eyelids, the nose, the mouth, the throat, and windpipe, and traverses all the air-tubes of the lungs, also the gullet and all the intestines from the mouth to the rectum.

Secondly. THE SEROUS MEMBRANE.—This membrane covers the outside of all organs, such as the lungs, the heart, the bag of the heart, the gullet, the windpipe ; the parts above and below the diaphragm or midriff, the outside of the liver, spleen, and stomach, and all the intestines and the inner walls of the abdominal cavity, the outer parts of the kidneys, bladder, &c. Not only does it exist here, but the covering of every muscle and bone has the character of this membrane, as well as the external coverings of all nerves and blood-vessels. It also lines the innermost parts of joints, all of which are lubricated by the inorganic fluid elements as previously mentioned and thus preventing friction.

The sexual organs of the male and female, and every part that enters into the general structure of the body, comes under the head of its general ANATOMY, whilst the uses of all these are termed its PHYSIOLOGY.

The whole fabric of the body and all its component parts and organs are composed of solids, fluids, and gases. Taking the weight of a man of ten stone or 140 lbs. ; 100 lbs. consist of fluid and gaseous elements, while the remaining 40 lbs. are capable of further reduction. It will be seen that the fluids and gases predominate, and in the living state how small a quantity of really solid matter is necessary to uphold its structure. The fluids and the gases, therefore, command our greatest study and consideration, for they constitute our true vital forces.

CHAPTER II.

PHYSIOLOGY; OR THE USES OF ORGANS.

THE first process to be spoken of in the uses of organs is DIGESTION. This will include the use of the mouth, the teeth, the tongue, the salivary glands, and the two stomachs. The mouth first receives the food, the teeth masticate it, and the tongue assists in moving the mass about in every possible manner, so that it is sometimes difficult to find an offending morsel. All the glands and mucous cavities wherever situate are always largely supplied with inorganic fluids for the purpose of moisture. At the time of taking food, the saliva, which is a salt composed of an acid and an alkali, has a predominance of acid, while the alkali is in excess when the glands are not in such active action. The stomach also at the time of taking food eliminates a fluid, more or less in quantity, called gastric, or stomach acid, nearly resembling muriatic acid in its character; whilst at other times when the food is not being taken this secretion is in abeyance. It is generally believed that every secretion is made from the blood, even including the gastric acid. A doubt may reasonably be cast upon this, on account of the blood being admitted to be a purely alkaline fluid. The free alkali of the saliva mixing with the food, which must always be considered of an alkaline character, renders it more fit to be acted upon by the gastric acid. The solvent and other properties of its secretion are very remarkable, that for instance of being of an antiseptic character, or having the power of not only preventing putrefaction, but annulling it. If carnivorous birds and animals, which swallow putrid meat or carrion, be killed soon after a meal the mass will be found sweet. The digestive powers and stomach apparatus of all animals depend on their food. Those which eat flesh are more simple than those which consume only vegetable substances, and as man partakes of both characters of animals, his stomach and its powers are formed accordingly. The stomach, if it be possible, will let nothing pass

out of it without having first disintegrated it completely ; and one of the great requirements of the stomach is to have something solid to act upon. There is no greater mistake than to imagine that this organ is either to be humoured with only soft, well-masticated, or triturated diet, or to have heavy lumps and masses always thrown into it, the happy medium is the best. The fibre of meat and soft solids gives it some work to do, and we know from the fact of cases from injuries or wounds, external openings have been formed, and pieces of meat put directly into it ; digestion takes place of such matters within a given time, but not so perfectly as when it has had the benefit of the salivary process. The mass of food when digested is called CHYME, which is a thick creamy substance having more an acid than an alkaline quality. In this there are many oily and fatty substances which the stomach acids cannot convert, but which are more or less changed by the alkali of the saliva. As fast as the chyme is formed it escapes into the second stomach to be acted upon by certain alkaline substances jointly, such as saliva from the sweetbread, and bile from the liver. These unite together in one tube, and, as a single stream, are discharged into the second stomach. Whatever surplus or stomach acid, therefore, may be contained in the *chyme* is quickly neutralized, whilst all fatty and oily matters are converted into a soapy consistence.

This mass, then, no longer retains its first stomach character but takes the new name of CHYLE, and is the last result of the digestive process. It now escapes into the small intestines or the appropriating organs, where it is well mixed with the fluid elements of the mucous membranes of this long and tortuous passage. Many pounds of this inorganic fluid being calculated to be used therein in every twenty-four hours. The nourishing particles are absorbed into certain vessels, which always begin small and enlarge as they get filled. It was formerly supposed that the absorbent vessels had open mouths, so that it is recorded in our text books that the "open mouths of the absorbents took up this nourishment." This, however, is a fiction. Absorption of this valuable new matter for the regenerative processes is done by what is called *osmose*, that is, the fluids are actually strained through the mem-

branes, as if by the finest sieves. There is abundant reason for concluding that some mechanical power is exercised by the small intestines for this purpose, as their action is not dissimilar to that of hand-washing of linen or the grinding of corn by millstones. Their healthy condition depends upon their inner sides being always in close apposition. This fact, coupled with the movements above described, constitute what is called the vermicular or peristaltic action. So that, beginning from the moment fresh matter or CHYLE enters into them, the action continues progressively to the end, for no such similar action takes place in any other intestine. It has been supposed to exist in the large intestines, but this is contrary to the nature of this viscus. Thus, the solid constituents are forced onwards and downwards, becoming more and more consistent until, as an effete mass with its fluid nourishment extracted, it finds its way into the large intestines, which immediately shut it off by a valve from this part of the appropriating canal. Thus, stomach digestion having first done its work, and chemical transformation completed it, the system appropriates the result. The fluids that are taken into the stomach at meals assist to dilute the mass and suspend the animal properties; wine and spirit if taken albuminize the mucus so largely secreted, the watery portions of which pass off, while the stomach digests the more solid coagulated masses. Milk for example is curdled by the stomach acids, the whey passes off and the curd too frequently remains a long time undigested and this gives rise to many primary forms of disease, especially in children.

We now take our leave of these great natural actions and come to the fourth and last, which is as great and as important as all these three together. The large intestines have already been described as going all round the abdomen from the right to the left side: they receive that portion of the digested food which comes under the denomination of non-nutritious. Their very size, length, and extent show their importance; and their duties are of a far higher character than are popularly assigned to them. To say they are only recipients of faecal matter awaiting the natural desire to be evacuated, is absurd. If that had been all that were required of them, they need not have

been a quarter the length, but they appear to be formed to retain a very large mass before it is allowed to escape. From whence does Nature get her large amount of vital gases? We find a solution to our question, viz., from this very source, and if I may use the term in an agricultural sense, it is her forty-acre field on which she spreads her manure, and without which she can get no crops. It is absolutely necessary to health that this great field should be always two-thirds full or covered: one-third being disposed of at certain intervals, as having yielded its due share of gaseous elements, then to make way for the new deposit. It is here that the nitrogen, ammonia, phosphorus, hydrogen, and other gases, except oxygen, are formed in all their varied combinations. I may here remark that all the mephytic or poisonous gases are more or less compounds of the hydrogens, and here they are seen in great force; so that we are actually generators of poisons. These gases permeate the membranes in a similar manner to the fluids in the small intestines, and traverse the whole living body. What then could be the idea of Nature in generating them, except that she would not only render them innocuous but beneficial for other ends by combination with the oxygen which they meet with everywhere, and in this their union form inorganic fluid elements, which again undergo the further process of inspissation by carbon or heat, and in this way FAT is formed and deposited where needed. The phosphates generated in the large intestines are more especially absorbed by the nerves, and are carried by them up the whole length of the spinal column to the brain. It is to their presence that the nerves and brain have their truest value and their greatest powers, and from which we derive all our natural intelligence. Loose bowels make loose brains and over physicked children never make strong minded men and women, no after education can ever repair the early damage thus done to nerve and brain matter. Can we wonder at the prostration caused by a brisk diarrhœa or by a cholera? The ancients and moderns have fought many a battle, with more or less acrimony, over this poor body of ours. One of their greatest contentions being over the solids and fluids. One sect declaring that life, health, and disease, depended on the

fluids or humours, hence they were called "HUMOURALISTS;" the other declared for the solids, hence they were called "SOLIDISTS;" and even now the dispute is not settled. But they have not taken into account the laws of the gases; we may expect, therefore, some day to have a new sect called the "GASEISTS." However, it is to be hoped we shall get wiser, and see that an equilateral triangle can be made out of these theories. Solids, fluids, and gases are all so necessary, co-existent, and useful, and so merge into and actually form one another, that each is of equal importance in life and health, and in the cure and treatment of disease, instanced daily in a thousand ways. Man, however, will make arbitrary rules for health, which, coming as they do with some stamp of authority, are more or less obeyed. Thus the edict has gone forth that the bowels should act every day, and that when anything untoward happens to the system, the first duty is to empty the large intestines, and that no treatment can be correct unless these parts are effectually kept open. Now let us read Nature's book, and throwing all these cherished rules aside, judge for ourselves. She requires manures to get her vital gases, we have seen the size and form of her field, and how careful she is that it should not be robbed. A vast number of persons have a regular daily action, and thus part with *one-third* of the contents of the large gut, reserving the other *two thirds*. Another class unable to eliminate these so readily, require a longer time to do so. Well! Nature says, "take more time," and it is found they are just as healthy by the delay in such an act as the others are by a daily regularity. In another class, even a longer period is necessary. "Take your time," says the good dame; whilst in others, especially among females, who, from sedentary habits, loss of appetite or otherwise are unable to take sufficient solid food, several or even many days are needed to get the due supply of feculent matter or manure for this field. It must follow then, that if it be attempted to reduce these latter to the state and condition of the former, the greatest evils will arise. As well may it be sought to bring the daily regular evacuants to the condition of the latter, and keep their bowels confined. They would become feverish, suffer headaches, and a host of ailments.

and the others, by being constantly purged, be reduced to a wasted, emaciated, and nervous condition. Little as people suppose it, there is no greater wisdom in the whole practice of medicine, than to know when, and when not, to act upon the bowels. Diseases are often caused by the pernicious use of aperient medicines. Great ignorance prevails in the treatment of certain fevers, where Nature always will lock up the bowels and man always will open them; that is, he tries to do so, but cannot always succeed, for Nature will not let him have his own way at all times; when he does succeed, he kills. The only satisfaction being, that the patient died by the rules of art. A sudden fall that will shake a man to the very centre has often ended fatally from these false rules of schools, insisting on the obstinate bowels being opened. Middle-aged people who have, up to a certain time, been of regular habits, will become constipated. I have seen this amongst all classes, and in medical men themselves who have led studious lives; but whether it is themselves or others, these obstinate bowels give them more trouble than enough. They work away at them at a time, when Nature is clearly pointing out, that she retains her fæcal elements to get a greater amount of vitalizing gases, to restore on the one hand either injuries received or the powers that are otherwise declining with age. Purging of the bowels after severe surgical operations, or serious injuries, or after confinements, in order to prevent what is called inflammatory actions or fevers, often produces them, for Nature always endeavours to restore lost power, which man from a mistaken notion will take away. I do, therefore, warn the public, who fly to aperient medicines for every ailment, to desist. I have no hesitation in saying that aperient medicines are used at least seventy-five per cent. more than they ought to be. Natural actions of the bowels often depend on the quantity of food taken. If insufficeint, why expect the same results as if sufficient had been taken, Nature wisely retains the insufficient quantity longer to get all she can out of it. More thought should therefore be given to the great value and uses of the large intestines and their contents, for without the latter in fair proportion the system would soon perish.

THE KIDNEYS.—The object of these valuable organs is to remove so much excess of the uric acid constituents of the blood as is not required by the system generally, or the parts below them. It is said that the kidneys purify all the blood of the body, this can only be in a degree, as urea and uric acid are essential elements of the blood. In this duty the kidneys act as regulators. They never cease their secreting action, but as the receiving parts in them, called the pelves, are so small in comparison to the quantity of urine made, a duct runs down from each kidney into a receptacle called the bladder. These ducts are always full, the pressure of fresh urine from above forces the whole contents of these tubes, and so the bladder is filled drop by drop. It is supposed that the whole mass of urine is secreted by the kidneys from the blood, but this is impossible. The urea and their salts are excreted from the blood, but the large fluid mass which holds them in solution comes through the fat which surrounds the kidneys, and permeates into their receptacles or pelves and so washes the salts out of them. If it were not for this arrangement they would remain where they were deposited. Excess of any inorganic fluids in the body thus finds its way into the kidneys and thence into the bladder. When urine is largely charged with albumen, instead of its coming from the blood, as is supposed, it is a product of the inorganic elements. Probably very little indeed is excreted by the kidneys themselves. The inorganic fluids going into the kidneys either as natural diluents or as excesses to be got rid of, follow the same law of osmose as the new elements of food do through the membranes of the small intestines, and the gases through those of the large intestines.

THE BLADDER.—The use of this organ is to receive the urine as above described, to be retained or voided according to the will and convenience of every individual. As it is a purely excrementitious fluid the quantity and quality varies according to many circumstances. Excess of uric or other salts will coalesce and form various kinds of calculi or stones. The mucous membrane of the bladder may get into a degenerative state when a species of catarrh will ensue, similar to that of the nose or throat,

and a great quantity of a flaky mucus be discharged. This may last for years without much detriment to the system, and when it occurs no formation of calculi ever takes place.

THE PANCREAS OR SWEETBREAD is a large salivary gland situated behind the two stomachs and the transverse arch of the large intestines. Its secretion is in proportion to its magnitude, being one of the great chemical agents in the second act of digestion, viz.:—to supply a salivary alkaline fluid to *dilute* the more caustic alkali of the bile. All salivary glands are peculiarly susceptible to the action of the mercurials, as indicated by their salivation by them, with all their attendant evils. Their action on this gland has hitherto been unthought of, and while the liver has been supposed to have been acted upon by them, it could only have been by sympathy, whilst much harm has been done to this gland; the mercurials, therefore, deserve every anathema. If salivary secretion is in excess, the bile is more diluted, rendering it less active on the fatty elements of the chyle. If less than is required, the bile has a greater effect upon them. In both cases producing functional disturbance. Why, then, should not the sweetbread be as much blamed as the liver? but this is not considered.

THE LIVER is an organ of considerable size, owing to the duties it has to perform. It has hitherto been considered a gland, but it has not the character of one. Glands secrete certain salts from fresh protoplasmic fluids, whereas the liver has sent to it from all the abdominal organs nothing but refuse matter, abounding in many kinds of alkalies which would be injurious to the system if retained therein, but which the liver purifies by some transmuting or chemical process into one powerful caustic alkali called the Bile.

It is, therefore, a very hard-working organ, but at the same time the most vilified of any in the body, without a friend and with ten thousand enemies. It is kicked and spurred, and has every conceivable and inconceivable disease laid to its door, and when all the work can be got out of it that is possible, it is then spurred and kicked again and again, and called *sluggish*. The poor organ has every opprobrium heaped upon it. Has any one a headache—it

is the liver! a pain between the shoulders—it is the liver! a stitch in the side—it is the liver! a nausea of the stomach—it is the liver! a shooting of the corns—it is the liver! a depression of the spirits—it is the liver! a costiveness of the bowels—it is the liver! a relaxed condition—it is the liver! a want of appetite—it is the liver! a ravenous or constant craving for food—it is the liver! Everybody, in fact, is BILIOUS, consequently has something the matter with the liver; no matter what the ailment, from the simplest to the greatest, the liver! liver! liver! and nothing but the liver! is all the fault, and no doubt thousands wish they never had a liver. The great host of patients come, and the first thing they say is:—"I must tell you, sir, I'm very bilious; all the doctors say my liver is out of order." Tell them that they have a stomach and its secretion after digestion is called CHYME, and that they probably may be *Chymous*; that the contents of the second stomach is called CHYLE, and that they may be *Chylous*; no, nothing but BILIOUS will satisfy them. Tell them a thousand things, anything, in fact, but about the liver, and you may as well talk Sanscrit; but just tell them their livers are out of order, and their satisfaction is immense. After forty-five years' practice of every description of case, and a large experience in post-mortem examinations, I can truly affirm that the liver is never half or a quarter so diseased as imagined. I have seen many people with livers enlarged by mercurials, but which have gone down to their natural size by their disuse;—cases in which the liver was pronounced the largest ever felt, the post-mortem examination revealed the smallest ever seen. Not once in a hundred times that the liver is deemed the cause of the patient's malady, is it a fact that it is so. There are so many reasons against this, that it is surprising how long this delusion has been tolerated. If it is to make bile, observe how many organs it depends upon. A man may eat an aldermanic dinner to-day, and be upon short commons to-morrow, so that he calls upon it to do the duty of a giant one day and that of a dwarf the next. Sometimes he takes a long fast, at others he is eating and drinking by instalments all day. At one time he eats more than the liver can supply bile for; at another, when it is active and makes bile in quantity,

he does not give his system enough for that bile to act upon. Yet he is always expecting it to do its duty, and so it does when he lets it alone, and allows Nature to right herself. A sympathetic action in the system always regulates this. To be perpetually taking medicines, especially the mercurials to act upon the liver is most pernicious, for when this has been done, and the liver exhausted of its bile, there is none left when a meal is taken. It is often made to yield a quantity at a time when it has nothing to act upon, and crude bile therefore flows through the intestines, causing diarrhœa. But, strange to say, many physiologists affirm now that the mercurials do not act upon the liver at all, therefore they can only exert a violent cathartic action upon every secretion in the alimentary canal, the bile amongst the rest, and thus upset the whole system.

Then, again, for want of bile, crude masses pass without being acted on at all by it, and then the cry is for more mercurials, more and more spurring, for the liver is sluggish. All this is a prolific cause of its enlargement, as well as of frequent debility and wasting of the body.

Why not lay the blame to all the various inconsistencies of dieting, and the over-worked and under-worked stomachs, instead of to one poor friendless organ, the liver.

Follies like these amount to an universal monomania, and are the fruitful causes of disease, of suffering, and of death. Again, all stimulating medicines given for the liver act as aperients, and remove from the small intestines new and valuable matter from fresh-taken food before nature can appropriate it, besides the vitalizing gases from the large intestines; and so lessen the powers of life. Independently of the emaciation of the body, the foundation of organic disease is laid or, if present, increased. This begets glandular enlargement, shatters the nervous system, debilitates the mind, filling it with hallucinations, thus opening the door to lunacy and a thousand evils.

I have no hesitation in saying that the inordinate use of the mercurials and aperient medicines in all their forms, excesses in alcoholic drinks and religious monomania, are the greatest causes of lunacy.

Before concluding the subject of the liver, I should speak

of a valuable appendage to it—the gall-bladder, a reservoir for bile, which becomes more or less inspissated therein. Its powerful alkalies will sometimes become concreted and form what are called gall-stones. In favourable circumstances these will range from the size of a pin's head to that of a small horse bean, and of a smooth character. The smaller ones will pass freely without much pain, the larger ones give great pain, because of their diameters being so much greater than the ducts they have to pass through. On the other hand, some are ugly jagged ones like dice with sharp edges and all shapes. The sufferings of those who are thus afflicted are indescribable during their passage, and if they cannot pass they cause death.

THE SPLEEN, OR MILT, is the next organ to be noticed. This has no secreting powers ; an immense amount of blood, principally arterial, flows in and out of it, simply changed in some form. It is evidently a great reservoir to supply the stomach and other organs in this locality with arterial blood largely charged with oxygen. In some fevers it becomes much engorged, and even when it does not act properly, inconvenience arises in the system, of which THIRST is the prevailing symptom. Those who seldom or never suffer from thirst, are not subjects of fever or inflammatory actions, and seldom have anything the matter with the spleen. On the other hand, those who do suffer from continued thirst, are in consequence more liable to fever and inflammatory actions, and have splenetic disorders. I have therefore associated this organ with the phenomenon of THIRST, and think that it may in some way furnish the bitter element of the bile ; and as long as this is in due quantity in the system, thirst does not ensue, but when it is deficient, then thirst is present. Hence bitters will allay thirst in the absence of the natural element.

These, then, are the uses of the abdominal organs or *viscera*. I will now take the next cavity, the CHEST, with its contents.

THE HEART AND LUNGS, TOGETHER WITH THE CIRCULATION OF THE BLOOD.—These organs are so mixed up in their functions, that I cannot speak of their uses without including also the circulation of the blood. The heart is divided into four cavities, the right auricle and ventricle,

and the left auricle and ventricle ; the auricles being at the upper and the ventricles at the lower part.

A conglomeration of fluids brought together from all parts of the body through several distinct channels, first undergo certain processes of purification through other organs, and then the residue goes to the right auricle of the heart. From thence into the right ventricle, which propels it into the lungs ; it then comes from the lungs into the left auricle, descends from this to the left ventricle, which propels it all over the body. Simple as these facts appear, it took many hundreds of years to complete this knowledge satisfactorily, and was only done step by step at long intervals, the discovery being made by our own Harvey, in the reign of Charles II. He, however, did not discover the entire circuit, because he failed to perfect the connection between the terminations of the arteries with the small radicle commencements of the veins. These vessels, invisible to the naked eye, were afterwards found by the microscope to be of a distinctive character, and were then called THE CAPILLARIES. They were discovered by Dr. Young about the beginning of this century—220 years after HARVEY shewed the circulation through the heart and lungs. But without the capillaries the circulation of the blood could not be said to be completed ; these form the most important links in the chain. No doubt HARVEY believed that there were some such passages, though he could not find them, for how else could the blood be returned. After 300 years he received as much credit for the thought, as if he had discovered them himself. In process of all natural discoveries, it appears to me that when we cannot actually prove things, they should be well thought out and expressed, and somebody afterwards is sure to find them. Thus it may be truly affirmed that HARVEY found out the upper circuit, and Dr. Young the lower circuit of the blood, the connecting link of a continuous stream. The blood has hitherto been considered as a perfect fluid, to regenerate every part of the body, to keep it in health or to restore it when diseased in whole or part—to cure injuries of the smallest or most aggravated kind—to renew every structure—to pass into a given number of organs, in order that other secretions may be

made from it. As there is much of this to be questioned, it is of the greatest importance to know how the blood itself is first made, and then to ascertain whether it really has the powers and duties with which it is now accredited. I shall speak of this in another place.

THE LUNGS.—Independently of the uses of these organs to purify the blood, they are designed to breathe the air, and are capable of resisting its coldness by having new warm fluids constantly sent into them, and thus generating heat by combustion ; and from the peculiar construction of the very deepest bronchial tubes they always retain a large portion of warm air within them, which acts as a *diluent* to that which is newly taken. Nature has, however, other wise provisions, for the air passing through the nose or into the mouth and down the windpipe, gets warmed over these surfaces on its way into the lungs. A healthy condition of the lungs is most important, as they regulate the supply of wind to aid us in using our voices in talking or singing, from the lowest whisper to the loudest sounds, the fine apparatus for this purpose being situated in the throat. Nor can we wonder at their diseases from the extent of the air-tubes, which are all lined by mucous membranes, and seem immeasurable, though their aggregate area has been estimated at forty square feet, which are always subject to atmospheric and aërial impurities. Externally they are covered with serous membranes, which are always in apposition with similar ones lining the walls of the chest, so that they have free movement one over the other in the contraction and expansion of the lungs.

This completes the contents of what is called the trunk ; the next part is—

THE SKULL, OR HEAD, which contains THE BRAIN. This having been explained in the previous chapter, we have now only to notice in connection therewith :

THE FACE, which forms the front part of the head, is the seat of the most important of our senses and, their distinctive organs. First, the *eyes*, situated and protected in their bony sockets with sufficient fatty and soft matter round their external globes to enable them to move freely at their bases, while the fore part of the ball of each is covered with a mucous membrane, beautifully reflected

under the lids, so that both can traverse over each other, without the least sensation in the healthy state. The lids are furnished with lashes at their margins, which, when brought together, act as veils to prevent foreign substances entering, and if anything does enter, then the action of the eyeball itself, having a tendency to cause everything to gravitate towards the inner corners, keeps the eyes always cleansed from foreign substances. The inner globe, containing the sense of sight, is divided into chambers, having fluid humours as well as soft-solid, and highly refracting portions. The coloured circle is called the iris, which differs in all individuals ; whilst that part on which objects impinge, and are discerned by the sense of sight, is called the *retina*. The iris contracts and expands according to the amount of light falling upon it, so that it is in fact a natural and involuntary protector of the nerve. It also contracts or dilates according to the passions or excitement of the individual. The sense of sight forms a wonderful optical study. The nerves of the eyes are the largest of all the nerves of sense. The diseases of the eye are both simple and complex ; simple when only functionally disturbed, but complex when organically affected. This has led to the distinctive practice of oculists, who in all that concerns many delicate operations thereon are an eminently useful class, but in their medical treatment, they labour under the same errors from which the present state of medical practice generally suffers.

THE NOSE is the distinguishing feature of the face. It has double nostrils, and a very extensive mucous membrane which traverses upwards, and then goes backwards in a direct line of the face to the top of the windpipe, so that it performs the double duty of the external inhaler and exhaler of air from the lungs, as well as for the sense of smelling. The air inhaled thus gets warmed in its passage, as before stated.

THE EARS have given to them the sense of hearing : the ear bones are the first formed in the embryo, from which the arches of the skull arise, they have their diseases, deafness being the invariable result. There is a great difference in individuals in this respect : age may commonly be said to put on this first decay of the sense, but not

always. Many families suffer deafness from a very early age. Great care should always be exhibited in the treatment of recent deafness, while on the other hand, permanent deafness often arises from the excess of zeal and the over use of remedies in endeavouring to cure it.

THE TONGUE.—To this organ is assigned principally the sense of taste. Nature particularly protects all the senses on which the happiness of her creatures so much depends. In no organ is she more careful than in this; but if some physiologists are to be relied on, she would appear to be very careless. The papillæ or red dots on the anterior portion of the tongue, more marked at one time than another, have been hitherto set down as terminations of nerves. They are not so, as I have most distinctly proved, but are terminations of arteries, in fact, small arterial bulbs rising out of a little fosse or ditch within which are the terminations of the nerves of taste, so that these are not only nourished but protected by the artery as well as by the pile of the tongue. All matters to be tasted, if not actually sapid or moist, are made so by the mucous secretions of the tongue, and these flow down into the little fosse or ditch where the nerve lies concealed. The misconception of the papillæ being nerves, has arisen from the fact of a small saline particle being instantly tasted on its being applied to them. The physiologist forgetting that the arterial bulb is always moist, and that this moisture dilutes the said particle immediately. The solution is instantly carried into the fosse to the nerve, which being protected by the surrounding pile of the tongue, retains the taste. It would have been unwise of Nature if she had not protected so delicate a fabric as the termination of a nerve.

At the back part of the tongue are numerous eminences, hitherto called papillæ, having a cup and saucer-like form, the base of the cup being attached to the bottom of the saucer, so that it can move freely about in it. Their uses are for the secretion of fluid to keep the throat moist, so that they partake more of the character of small glands, for when the tongue is not protruded, they are down in the throat, and by constant action of the tongue, are always under irritation to excite secretion. The prominence or distinctiveness, or even perfect obscuration of the arterial

bulbs in the fore-part of the tongue, shows the state of the circulation of the blood. There are very few of these papillæ on the lung tract of the tongue.

The sense of taste is not confined to the tongue, for filaments of the nerve of taste are largely distributed about the palate and mouth. The tongue as a mechanical organ is wonderfully useful. Its duty is to arrange every mouthful of food for the teeth to masticate, and to prepare and help to carry it to the throat. As an organ of speech, too, it excites our utmost admiration. It has, however, other noble duties, such as its diagnostic appearances in disease, a few of which are only recognised. I will not speak now of the attributes it possesses in this last field of its usefulness, but reserve them for another place (see Chap. VI).

In concluding this part of the subject relating to the head, I will reserve also my observations on its various divisions as diagnostic of disease in other parts of the body.

THE MUCOUS AND SEROUS MEMBRANES.—These have infinite uses, not the least is their elasticity to contract and expand. They act as natural sponges, to hold a large amount of inorganic fluid; that in the mucous membranes is very viscid, and protects them from the action of the air, to which they are always more or less exposed, but it frequently becomes very tenacious, and has a tendency to organize into a filmy state. This is seen in the first stages of childhood, producing Croup and Whooping Cough, a portion becoming attached to the membrane. In more severe cases it becomes attached all round the membrane of the windpipe, and produces what is called DIPHTHERIA. The decay and repair of these membranes are continually going on precisely as the external skin. The exposure of the skin to the atmosphere, though it is always exuding, makes it dry; the confinement of the mucous membrane, which is always exhaling, keeps it moist; but if it were exposed to the air it would also become dry. The one may be called a dry mucous membrane, and the other a moist skin. This is prettily defined in the lips, the redness of which is intermediate between the two, so that it is that part which is partially dry and partially moist. If we take the skin and mucous membrane as one organ, it is the largest of the body;

but when taking the two separately, they constitute then the two largest.

The SEROUS MEMBRANES perform the duties of separating and keeping distinct all organs, muscles, &c., which they cover, allowing them to play over each other. The difference between mucous and serous membranes is, that the former are always more or less exposed to the air, or the direct action of oxygen, whilst the latter are not, and if air is forced in or on to them, an inflammatory action is produced.

Thus, as natural sponges, they both hold a vast amount of lubricating fluid, for which they were designed, and which their uses plainly demonstrate, but have no powers of their own to make or manufacture it, for when they have in it excess and cannot rid themselves of it, they become congested, and when they are deficient of it they become inflamed.

The next portions of the fabric which command attention are—

THE NERVES.—Not a single part of the body is uninfluenced by these wonderful chords. No clear definition of their uses could be brought home to the popular understanding until the electric telegraph was discovered, which, wonderful as it is even now deemed to be, yet bears but a faint analogy to that of the nervous system. The nerves perform the electric duty to the whole body; the great central office being the brain, whilst hundreds, nay, thousands of stations of more or less magnitude are distributed all over it. The greatest, next to the brain itself, is situated behind the stomach, and has often been called the *abdominal brain*, from the quantity of nerve matter there collected. The name given to any collection of this kind is *plexus*, which signifies a mass crossed and intertwined; secondly, a *ganglion*, meaning a knot or small bundle, which is a smaller plexus. A great number of nerves going down from the head and neck and upper extremities of each side, and a number coming up from the lower extremities of each side, and meeting at a given spot behind the stomach, is called the *half-moon plexus*; whilst the union of these two is called the *solar plexus*. There are *ganglions* everywhere; not the smallest length of nerves

can exist without a number of these being collected together. No part of the body can be touched without its immediate appreciation at the head office. So wonderful does this appear that we can almost imagine a nerve leading direct from the part touched to the brain ; but this is not required, for Nature provides even a more efficient power. A local influence has to be considered quite as much as a direct one, and this is exemplified by the recurrent action. It is this which gives and intensifies pleasure or pain. The use of the ganglions are evidently to strengthen the forces and convey the sensation through the plexuses ; and as each knot or network is reached, renewed force is gained, and thus it passes through hundreds, or even thousands, before it reaches the appreciating, or head office. It does not stop at these knots and networks ; these stations are simply passed through. But then, again, they have a reflex function, which causes the sympathy of one part with another. The impression on hearing thrilling music vibrates through the whole frame. After the impression on the head office has ceased, the twitching of the limbs and vibrating of the nervous wires on the more distant parts of the body, bring back again to the mind its pleasurable sensations. Now let us reverse this. Suppose we have a wound or sore ; the pain is not only felt in the part affected, but is sensibly appreciated at the head office, the Brain. When the pain has ceased, the thought of it will sometimes bring it back again to its original part, of course through the same chords. Independently of this there is a local sympathy, for pain affects the nearest ganglions, and these again return the action, either prejudicially or beneficially. If the latter, it helps the curative action ; for it is to the strength and health of the nerves that we owe much of the power of healthy action, and proper and regular circulation of all fluids through all their distinct channels, and always accompanied by a certain hydraulic action. A strong reflex action may, in some cases, cause more temporary sensitiveness to a diseased part than a direct one. It is this that often produces local sympathy to so large an extent as to deceive us in obscure diseases, leading us away from the true source of the ailment, for no positive currents take place without being immediately followed by negative ones,

whilst ganglions and plexuses, increase and further the impressions of the electric aura. Man's humble imitation of these powers in his discovery of the electric telegraph, is to have *relays*, which, when reached, intensify and pass on the force with renewed power. A succession of positive currents becomes weak; but, if a negative current is returned, which answers to the reflex action of the nerve-force, the next positive action becomes more powerful with precisely the same electricity used. All the actions of sensation and feeling in connection with this class of nerves, combined with those of motion, make up the grand total of all the phenomena we witness. The retention of sensational action in the great trunks of nerves from a number of remote ones, is often beautifully illustrated after the amputation of a foot or hand, by the feeling of apparent currents from those lost members. The nerves are covered and surrounded everywhere by their own network of vessels. Congestive, as well as inflammatory conditions of the serous membranes, appear to cause a greater intensity of pain than the mucous membranes. Thus, the ball or globe of the eye will suffer more from either of these states than the white of the eye. Disease of the external covering of the lung, as in pleurisy, will produce more pain than bronchitis, which is inflammation of the mucous membrane lining the lungs. In fact, there is very little if any pain felt when the mucous membranes are inflamed. So also with the external covering of the intestines in comparison with the internal coat; and the inner membranes of joints, or those covering the muscles, in comparison with the external skin. I have often seen the mucous membrane of the large intestines highly ulcerated, a state that had existed some time, and then terminated the life of the patient suddenly: yet scarcely any pain has been felt by the patient, or any tenderness experienced on pressure of the abdomen when alive. If the serous or external membrane of the bowels be inflamed, even to a limited extent, the pain is not only intense, but external pressure cannot be endured. All this is the result of what is called nerve force, and to be explained by the course and distribution of these wonderful telegraphic wires, and according to their positive and negative powers and capabilities of being acted on. Thus it is seen that any

action occurring contrary to the true condition of health is conveyed and reflexed through the nervous system, or electric telegraph of the body. Any wound; blow, bruise, or concussion produced externally does the same; and lastly, as the brain is the seat of thought, instinct, and reason, every effect arising from these, whether generated from within or impressed upon them from without, excites certain actions and sympathies through the whole nervous chords, positively as well as negatively, direct and reflex. We can thus see the whole force of what is called the ganglionic system.

CHAPTER III.

THE CHEMICAL CONSTITUENTS OF THE BODY.

EVERY part of the body, whether fluid or solid, has been carefully analyzed, and each resolved into its primitive elements of hydrogen, oxygen, nitrogen, and carbon; and, as these combine in certain atomic proportions, so solids, fluids, and gases are formed.

THE BONES.—The bases of these consist of the animal properties of gelatine and albumen, also of earthy matter, such as lime, magnesia, and soda, combined with phosphoric acid, thereby furnishing phosphate of lime, magnesia, and soda; or with fluoric and carbonic acids, and so taking the names of fluuate or carbonate of lime, magnesia, soda, &c.

THE MUSCLES contain fibrine, albumen, gelatine, and a distinct animal matter called *osmazone*, to which all soups made from meats owe their peculiar odour and taste; besides phosphates of soda, ammonia, and lime, and sulphates of potass.

BRAIN AND NERVE STRUCTURE, contain a greater proportion of phosphates than any other substance of the body, namely, 110 parts in every 1000; the other 890 parts consisting of water, fatty matter, albumen, and other in-

organic elements, whilst 1000 parts of blood contain only *three quarters of an unit* of phosphates; therefore it is clear that the nerves and brain substance cannot get their phosphates from the blood, as it is supposed they do, neither can they the 890 parts of the inorganic matter. The nerves are their own purveyors of their own elements, and may take rank as absorbents, deriving only their oxygen from the blood.

FAT: in the living body is of an oleaginous consistence. It is made by the union of oxygen and hydrogen gases, first forming an aqueous element which becomes inspissated by their combination with carbon. After death it becomes solid and consistent. During life it is deposited at fixed places especially where there are glands, in which these are always embedded, and from which they obtain their inorganic elements to combine with their own natural secretions as diluents. Fat is the great oil-can of the body and is not derived from the blood. It is found in the greatest quantity where there is the least blood, and none or very little where there is the most. Thinness and obesity vary with the idiosyncrasy of individuals.

HAIR is composed of many elements—sulphate of lime, lactic acid, lactate, phosphate, and muriate of potass, iron, silica, and sulphur, all which give it its peculiar odour, while variety of colour depends on its oily matter. Its roots spring from the fatty tissues.

LIGAMENTS, TENDONS, CARTILAGE, AND SKIN.—These are composed principally of gelatine and coagulated albumen.

THE BLOOD contains nearly eight hundred parts of water in every thousand. Its properties consist of fibrine, albumen, colouring, oily, fatty, extractive, and animal matters; albumen combined with soda, chloruret of sodium and potassium, alkaline phosphates, sulphates, carbonates, and subcarbonates of lime and magnesia, iron and peroxide of iron, urea, &c. Analysts are constantly finding other properties. Its colour is influenced by the action of the oxygen both in as well as out of the body. Arterial blood contains more fibrine and red particles than venous blood, the latter more carbonic acid and less oxygen. In adult life it is plentifully supplied with corpuscles or albuminous globules, whilst during foetal formation it has

no fibrine and but few albuminous globules, but has a larger proportion of gelatine, and very little, if any, of the phosphates. It is universally admitted to be alkaline; its thick and fibrinous parts are preserved in a liquid state by the soda and ammonia which it contains, assisted mechanically by the constant beating action and movement of its albuminous globules.

THE SALIVA is chiefly composed of muriate of potass and soda, sulphate, phosphate, acetate, carbonate, and sulphocyanide of potass, phosphate of lime and ammonia, besides albumen and mucilage. Its changes, from a direct acid to an alkaline condition in eating or fasting, have been noticed under the head of digestion.

THE GASTRIC, OR STOMACH ACID.—This is secreted in the lower portion of the stomach, evidently by an intermediate fabric situated between its muscular and membranous parts, which has never been properly defined, but may be seen in well-dressed tripe, or after it has been cooked. It appears to be as distinct a structure as a gland. It is impossible that the gastric acid can be a secretion from the blood, for it resembles free muriatic and acetic acids, which do not exist in the blood.

THE MUCUS, of the mucous membranes, is gelatinous, and of a saline taste; it contains, besides the animal properties of gelatine and albumen, common salt and water, muriate of potass and soda, lactate of lime and soda, and phosphate of lime. The quantity constantly supplied and used along the alimentary canal amounts to many pounds in every twenty-four hours; some physiologists say as much as forty. This secretion protects the membranes from the air and from anything having a tendency to injure them. Being a highly animalized substance, it organizes quickly, undergoes rapid metamorphoses in mixing with food and other substances, and much of it is re-absorbed. It plays a prominent and important part in the great functions of the body, for if it is in excess of natural requirements, the vital forces are also in excess, when all those diseases ensue which are of a congestive character, and if it is deficient, then there is loss of vital forces, in which case diseases of an opposite character ensue, such as fevers and inflammations.

THE SERUM, of the serous membranes, has properties resembling the mucus of the mucous membranes, its natural quantity in the body being enormous.

THE BILE.—This is an alkaline secretion composed of albumen, resin, colouring matter, picromel, or a bitter-sweet substance, cholesterine, or a species of spermaceti or fatty matter, soda, phosphate of soda and lime, sulphate and muriate of soda, oxide of iron, and common salt. It is made from heterogeneous elements collected from all the abdominal organs, which flow into certain veins as common receivers; mixing with their other elements, which are principally the exhausted fluids of the arterial blood, carrying no oxygen or vital principle whatever. The united mass goes into the liver, which forms from it a concentrated element called THE BILE. Thus the liver is a great purifier of much dross and many natural alkalies, fabricated in the body itself, though physiology teaches that bile is made from the blood, whereas many of its elements are not found in the blood at all. All animal, earthy, and chemical properties which constitute the elements of the body act on each other in every form of combination, having a constant tendency to reproduction. Solids, fluids, and gases are renewed, and those elements which are unfit to be retained, and known as excrementitious, are thrown out of the body as no longer required. These consist of, first—

THE URINE.—This contains urea, which is a compound of carbonate of ammonia and uric acid, which form urate of ammonia, and free lactic acid, lactate of ammonia, and animal matters, mucus of the bladder, sulphate of potass and soda, phosphate and muriate of soda and ammonia, earthy matter, lime, &c., besides other substances. All its salts are derived from the blood through the kidneys, but all the water which holds them in solution comes from another source.

PERSPIRATION.—This contains muriate of soda and free acetic acid. All know the vast quantity exuded in violent exercise; but even when no exercise is taken, there is always an insensible action or radiation taking place over the whole body in a light fluid or gaseous form, being a simple exudation from the inorganic fluid circulation. The same phenomenon takes place into and through the mucous and serous mem-

branes. There is a great affinity in all this. Heat will drive fluids from the centres to the surfaces when they are evaporated, whilst cold impinging on the surfaces will drive fluids to the centres, which in excess and unable to be appropriated are condensed and carried off by the kidneys.

Thus we find that ANIMAL MATTERS consist of gelatine, albumen, fibrine, osmazone, &c.

The EARTHY MATTERS—lime, magnesia, ammonia, sulphur, silica, common salt, phosphorus, &c.

The VEGETABLE MATTERS (acid and alkali)—soda, potass, mucilage, resin, spermaceti, oil, acetic and lactic acid, &c.

The MINERAL MATTERS—sodium, potassium, iron, sulphuric, muriatic, nitric, phosphoric, and carbonic acids, &c.

The GASES—oxygen, hydrogen, nitrogen, and carbon, &c.

The union of these animal, earthy, vegetable, and mineral matters, and gases of all descriptions, produce all the chemical and chemico-vital phenomena we behold.

The most wholesome, nutritious, and beneficial things that the body requires to nourish or support it, with all those already present in the body, have certain atomic laws of combination, any addition thereto, or the withdrawal therefrom of any atom, might transpose a healthy combination into the most virulent poison. To illustrate this more fully, all chemical combinations are measured by the atomic theory of Dalton; thus, hydrogen stands as 1; oxygen as 8; nitrogen as 14; carbon as 6; so that by this rule their uniting powers are valued. Water, for instance, is composed of one part hydrogen and eight parts oxygen, or one of each, according to their value as a chemical expression. The following example will illustrate the composition of animal substances in every hundred parts.

	Hydrogen.	Oxygen.	Nitrogen.	Carbon.
Gelatine contains about.....	8	27	17	48
Albumen " "	7	23 $\frac{3}{4}$	15 $\frac{3}{4}$	53
Fibrine " "	7	12 $\frac{1}{2}$	20	53 $\frac{1}{2}$

If we take one equivalent of sulphate of potass at about 87, there will be 40 parts of sulphuric acid and 47 parts of sulphur; and if this substance be separated, the sulphur is sought by other acids, and the sulphuric acid seeks other alkalis with which it can readily combine. This process is always at work in every salt throughout the body, and

whatever affinity one element has most for another, new combinations always result. Constant changes can therefore well be imagined. All matter, whether organic or inorganic, however combined in definite proportions, cannot rest, but at every instant of life its variations are infinite, so that this perpetual giving and receiving, depositing and taking away, mixing and combining, form solids, fluids, and gases. These again, obey the laws of their own elements, decompose and re-combine again in other forms. The wear and tear of every structure of the body, and everything that enters therein, show it to be always in a perpetual transition state. Life then, as well as all the bodily organs, being clearly dependent on chemical decomposition, seems to represent one great battle-field between the acids and alkalies in all their various combinations, whether in gases, fluids, or solids. Every fresh form they undergo produces another force, which is HEAT or CALORIC, than which nothing can be more important, as this affects all substances, and aids them in producing exhalations. The regularity or irregularity of the distribution of heat characterizes many forms of disease. Again, there is another act which is of the highest importance, and this is the elimination of the free gases in the system, which, in their combination with one another, produce both fluid and solid constituents and renewals of structure. It is not alone that the fluids act on one another, and on the solids, and *vice versâ*, and in their union produce gases, but that these gases act again on them, and on each other. So careful however is Nature, and so wonderful is her bounty, that exhaustion of her structures would soon take place if she had not a laboratory for the distinct elaboration of the vital gases. She has therefore assigned this to the LARGE INTESTINES, as I have previously mentioned. The body being everywhere porous, these gases find their way through every structure. Although the lungs produce the largest amount of carbonic acid gas, and consequently heat, yet this gas is also formed in the stomach. Caloric or heat is productive in health of a general warmth, and the natural temperature of the body has been reckoned about 97°. Much has been written on the subject of the sources of caloric or heat in the body, but it needs no great amount of knowledge when we reflect, that no two sub-

stances of like or opposite characters can come together without some chemical electric action, friction, &c., all producing heat in their union or even repulsion, and this is why, and how, every part of the body is kept warm. Thus it matters not whether a man be living in the hottest or the coldest regions, the tropics or the poles, his animal temperature remains the same, and this is absolutely necessary to carry on the vital functions of life. Another great source is that of *inspiring* constantly the oxygen of the atmosphere, and *expiring* carbonic acid gas. At various times and conditions of the individual, the gases exhaled from the lungs show the presence of soda and potass, oxalate of lime and urea, uric acid, urate of sodium, carbonate and sulphate of lime, chlorate of ammonia, &c., many of these are elements of the calculi, and might be deposited in their usual places at any time, quite independently of the blood. The pressure of the atmosphere on our bodies is fifteen pounds to every square inch ; still we have a greater resisting power in ourselves caused by all the vital actions, so that our evaporation and radiation is opposed to the gravitation and pressure of the atmosphere. We thus find man on the one hand a constant consumer of fresh aliment to renew his structure, and on the other we must be struck by the economy of Nature in making him a self-dependent being, in so far that he actually makes upon an average four-fifths of his own vital forces against one-fifth of what he takes to renew them. This will account for some of the phenomena of how little food is required to support life at given times. It frequently occurs both in man and in other animals that life is sustained without food or drink for many days or even weeks. The peculiarity of some animals called Hibernators, which live all through the winter without food or drink is well-known. As these are facts borne out by much testimony, I find that it has never occurred to physiologists to ascertain how the young of man and other animals first derive their great self-dependent powers. As well may any one attempt to set up a great trade without capital, as to imagine an animal, especially man, being able to set up the great trade of life without capital to start with. While yet unborn there is life, but this is supported without food or air, and resembles in one respect vegetable

existence, being a simple addition without waste. In fact, animal fœtation is simply vegetation more animalized on account of the excess of albumen, with a dash of organic matter, which vegetation has not; but directly he becomes a distinct atom, he inspires atmospheric air, and waste immediately ensues from the action of the oxygen and from myriads of chemico-vital changes, yet all the nourishment that is given him is MILK. Whatever this may be supposed to do, it cannot form the sole support of life, seeing that certain structures must undergo metamorphoses to produce others, and which would soon be exhausted, if there were not some temporary element or capital for this being to draw upon, before it could make a return to the system by what may be called the incomings or profit of trade.

This problem I fortunately solved some thirty-five years ago, by the discovery of a distinct structure covering the true mucous membrane of the alimentary canal of the infant, and in fact the young of all animals, and which, like all Nature's acts, served more than one great purpose. Thus before birth this structure offers a mechanical obstruction to the absorption of any foreign matter, as it protects the true mucous membrane beneath it. Anything finding its way, during fœtal life, into the alimentary canal is called the Meconium, which keeps it open, while this natural stuffing is enclosed in its own peculiar envelope or MECONIC MEMBRANE. This of course lies on the new structure, which I named the RETE VASCULARE, meaning a network of blood-vessels. Soon after birth the natural stuffing or meconium comes away, leaving the new structure to be acted upon by the food and air, which gradually decompose it. The amount of animal matter evolved in this process is that which sustains life with the assistance of milk, which is poorer in the human female than in any other animal. An infant only wants *quantity* for the mere dilution of the structure now gradually decomposing. In course of time this structure becomes entirely absorbed, having served its wonderful purpose. The first portions that decompose are those situate in the stomach and small intestines; so that the absorbing vessels of these latter are set free to take up the new elements along with those which the little body itself has yielded. The last parts that

remain of this wonderful provision are those which are situated in the large intestines, thus bearing out the fact of the great use of these in generating and retaining the larger amount of animal or vital gases. The account of these and their uses I published in 1845 (see programme at the end of this Book.) This, then, I consider the starting-point for all those great chemical actions which usher in the beginning of life, until the whole of the bodily powers can be brought into the working train of the great wear and tear and repair as I have previously described. Without this provision no infant life could be at first sustained. It could not resist the waste that immediately ensues with even the first breath, and no amount of aliment could support it; more especially when we consider that all that infants have is milk, and that their stomachs are mere bags or gangways for this to pass through. They have, moreover, no digestive apparatus, and this fact will show the folly of giving them anything beyond the consistence and poor character of the mothers' milk. If the mothers are unable to suckle them, and they are fed with milk of a richer character, such as the cows', which their systems are unable to digest or appropriate, it subjects them to fits and convulsions, which are purely and truly infant apoplexies.

Air, earth, and fresh and salt water support both animal and vegetable life. Air, which has four-fifths nitrogen and one of oxygen, is constantly exhausted by its natural consumers, animals and vegetables; while these latter yield again to the air properties for its renewal. Vapours and exhalations from the earth and waters also contribute their elements, so that the air always keeps a natural standard peculiar to itself. Water and all fluids have analogous laws. All animals consume air and water, besides animal and vegetable matter. One great principle of their organic and chemical life is to deposit at certain parts of their structure the elements peculiar to these parts, such as bony matter for bone; muscular matter for flesh, &c.; the glands secrete their own proper fluids, and whilst life lasts the elements from the decomposition of every structure of the body yield their properties towards its support.

The earth itself having first, by apparently similar laws,

converted all organic matter into a purely alkaline humus, is thus fitted for the support of vegetable life. All organized matter has excess of acid while living, but after death, alkaline predominates. We find the worm tribe living on and consuming this purely alkaline substance ; yet in themselves obeying the same laws of all animal life, in being four-fifths self-dependent beings.

Life, then, as far as human intelligence has arrived, appears to rest on chemical bases, and thousands of laboratories are always at work to produce and sustain it. The chemical actions have specific influences on the nerves, and every known power that produces either electric or galvanic currents out of the body, produces the same within it. There is the friction of the circulation through the blood-vessels ; of muscles on each other ; organ against organ on the one hand, and the union of acids with alkalies on the other ; all producing electric and galvanic action accompanied by caloric or heat. In addition to these they are aided and assisted by the hydraulic action of all fluids and gases upon all erectile or muscular tissue. But that which sets everything in a higher state of vital energy is the moment of birth, when the air first gets into the lungs and develops their action.

Then commences the most rapid progress of life ; the friction of air and the double action produced thereby ; the blood becoming oxidized. This is the moment when the electric current has a specific influence on the instinctive and reasoning powers, and, not only do the forces so lately in a negative state, become positive, but the nerves for the first time, through the agency of breath or air, become sentient. Until the air has entered into the lungs to produce the first pabulum of life to the body, it is a question if there is any sentient feeling, though we know there is motor or moving action. The effect of the air being thus wonderfully shown, ten thousand batteries keep the nervous chords or telegraphic wires of the body in constant action.

Observe the plexal or combining system of the nerve apparatus, see how it is charged, and note the remarkable character of the two sets of nerves always running in pairs. The branches of the *motor nerves* terminate in an

ACID FLUID, the natural secretion in the body which keeps up the vital forces, though more or less excrementitious ; while the branches of the sensient nerves have an ALKALINE REACTION, because all fresh elements used in their formation are of an alkaline character. Ten thousand Leyden jars filled with electric matter could not supply the vital forces these do ; as many galvanic batteries, with acid acting on zinc plates, could not perform the duties of the acids of the body on even the alkaline substances of the bones ; no amount of electrifying machines could produce electrical actions equal to the friction of the muscles and organs, with the circulation of the blood through its vessels : nor would twenty millions of all these combined be able to produce, on any known matter whatever, those wonderful powers called instinct and reason. These are due to the numberless combinations and changes that living animal matter constantly undergoes, which no chemical analysis can ever reach ; which gives the brutes their instinct and man his reason and his vast variety of mind and thought. He gains electricity from light and air,—he forms it in every action of his living body,—he retains it in every nervous chord,—he increases it by every sense of sight, hearing, smelling, touch, and taste. He imparts a force to it by every emanation of his mind ; it feeds on what itself produces, and increases the more he uses it. Energy and exercise help to fabricate it, thought to strengthen it, and education and high cultivation to purify it. It is an essence that keeps him under his own management and direction ; with it, he is a free agent,—for no one knows his thoughts. If I were called on to say what two powers most develop the human mind, and in their freedom exalt it, I should name civil and religious liberty of thought, for with these everything can follow in their train.

My reader will now see that before he could possibly understand any fact in relation to health or disease, he must first have some knowledge of his body, its composition, its organs and their uses, and some general information on the laws which regulate it.

CHAPTER IV.

PROTOPLASM, AND ITS INORGANIC FLUID ELEMENTS.

AN epitome has now been given of the bodily frame, together with its various organs and their uses ; also a short account of the chemical analyses of its solids and fluids. The solid parts are always found in fixed positions. Certain portions of fluids circulate in tubes, whilst a larger amount than is contained in them, flows freely everywhere. So vast are all these phenomena considered as a whole, and constituting a living body, that it is a natural question to ask,—From what source do they arise? It is generally admitted that the rudimentary foundation is a *Proteine* element called PROTOPLASM. This is a mere pellicle, composed of albumen and gelatine, and wholly inorganic in its character. It cannot be ascertained even the class of animal to which it pertained, nor can chemistry find a trace of the structures it will hereafter reveal. Its vitality is evinced by a low process of degeneration evolving gaseous elements, which immediately unite with certain component parts of the pellicle itself, as well as with one another. Great activity prevails in all surrounding parts where it is first deposited, and from which it gains enormous inorganic subsidies. Though beginning without a trace of organic matter, this becomes gradually evolved, but never reaches beyond three to five per cent. in any animal. The inorganic elements are, therefore, always in excess. The evolutionary actions set up in the pellicle itself cause many distinct rudimentary deposits, which increase by simple aggregation, and keep to their special forms and given chemical standards. As fast as organs and parts are formed, certain

excesses of a fluid character result, some of which are used up again, some are lost, and some are appropriated in various ways. The former possess the chemical characters of the sources from which they are derived, and are conveyed away in tubes or vessels. The formation of these appear to arise from the thickening of albumen and gelatine, causing an environment of the more aqueous portions, and elongate as fresh fluids press onwards, and thus vessels and tubes are gradually developed. Those fluids of a vagrant character find their way indiscriminately everywhere, but not in tubes or vessels, thus keeping all interstitial places moist. Every part, therefore, in process of formation by proliferation of protoplasm, throws out its own vessels to carry away its *débris*, which is rich in valuable formative properties. In order that no regurgitation of their contents should occur, valves are formed within them, and a simple hydraulic pressure urges their streams to their several destinations. Anatomists could give no better names to these natural outlets than ABSORBENTS, LACTEALS, and LYMPHATICS.

The LACTEALS appear to contain a milky fluid, which they convey to certain glands during their formation, and assist in this action, as also in their secreting powers, some more particularly than others, such as the mammary glands, which, in the female of all animals, secrete the milk for their offspring after parturition. They also receive, through their absorbents, the fresh made fluid elements after digestion. Including the whole alimentary canal, this forms a large field of operation, and we see how the new material and the old combine. Even the new matter becomes largely diluted with protoplasmic elements from the mucous membranes before going into the lacteals. The proportion, however, of the old considerably exceeds that of the new. A proper condition is insured of well-combined old and new elements entirely protoplasmic in character, and well fitted to the keeping up of all the original or primary formations. The Lymphatics seem to act as scavengers, and seize upon everything valuable, especially lymph, which consists of 926 parts of water and 61 parts of albumen, with certain salts. These streams pass in their transit from the upper and lower extremities through many

structures, which they also assist in completing, and thus part with all their protoplasmic matter; after which the residue therefrom, with that of the lacteals, is discharged into the VEINS, which are the common receptacles of all secondary refuse from the whole of the body. That which they receive from the abdominal organs is rich in alkalies, which they convey to the liver, as previously stated, for the formation of bile. The refuse from this process unites with a corresponding one coming from the upper and lower extremities of the body at the thoracic duct, and in one stream reaches the right side of the heart. It is, however, a very conglomerate mass, but kept fluid by attrition and molecular dissolution by passing into the right auricle and then into the right ventricle previously to its passage into the lungs. Here, as previously described, it has to undergo aërial purification.

We must now retrace our steps, in order to speak of another set of vessels, called the CAPILLARIES, which are the connecting links between the arteries and veins. The calibres of these vessels are very small, and when in a healthy condition, no arterial blood can pass through them; but when they are *inflamed*, they lose their character and become terminations of arteries, and arterial blood passes through at such places. In their healthy states only very liquid serum, containing white blood corpuscles, passes through them, carrying probably small quantities of oxygen, which may give a colour to the fluids in the veins. Their duties appear to be as much of a mechanical character as anything else, as they ventilate the arterial streams by the process known in hydraulics as pneumatical. As such their integrity is of equal value to both arteries and veins, and their healthy or unhealthy conditions will be hereafter illustrated, when speaking of disease or wounds.

We now return to the conglomerate fluids which have reached the lungs for aërial purification, and when this is accomplished, a pure fluid results, especially adapted for receiving oxygen direct from the atmosphere, which vitalizes it, and then, for the first time, it comes under the name of BLOOD. All previous fluids, in whatever vessels or tubes they may have been conveyed, cannot legitimately

be called blood. We have seen how the primary ones are rich in protoplasm, and the secondary ones in alkalies; the one to complete formative processes, the other for secreting purposes. We have seen step by step what wonderful care has been adopted to make a fluid fit to be the conveyor of the vital principle throughout the body.

Every pulsation of the heart appears to supply a volume of arterial blood equal to what was exhausted by a previous one, and so the full quantity is kept up.

The arterial blood contains so few elements of a structural character, that they cannot furnish any for these purposes.

The arteries themselves, being perfectly unimpeded vessels, their contents flow freely and rapidly until they reach the capillaries, at which points they become exhausted.

We have seen how Nature first constructs her fabrics, and she never deviates from her first laws in upholding them in the same manner afterwards.

We come now to the inorganic fluids which do not flow in tubes or vessels, but percolate everywhere, and are larger in quantity than all those previously spoken of put together. They keep the whole body moist, and help to sustain and repair structure wherever injured; not only this, but being largely charged with gases, they give to the body its general contour and plump appearance. The sudden loss of large quantities of these fluids from incised or other wounds frequently endangers life, and is often mistaken for loss of blood. A small quantity of blood will colour large protoplasmic masses without any real injury to blood vessels. Any one who has witnessed the immense amount of albumen and gelatine and water of which these are composed, must know that they cannot have come from the blood. If arteries are injured they are quickly repaired, and the sufferer lives from the very fact of having sufficient oxygen supplied to the system through them for its vital purposes. The loss of the protoplasmic fluids is that which most endangers life. The first symptoms are extreme thirst and exhaustion. If large gashes or wounds can be staunched quickly, protoplasmic proliferation is so great and so rapid, that life is preserved to structural parts; but if these are robbed by excessive

losses, death ensues, because the first link of the chain is broken. This does not apply to those cases where large arteries are directly severed, when blood and oxygen rapidly escaping, quickly causes death. Protoplasm being, therefore, the true first formative power, it keeps all parts for ever afterwards in as perfect a state as possible, and can alone repair them if injured ; hence we may infer, that not the minutest part of the body is without its own elementary matter for its own integrity, whilst every part depends upon the oxygen carried to it by the arteries for its vitality. It is irrational to suppose that great centres have control over everything ; every part of the body is governed by its own laws, and is the seat of a vital principle, yet there are enormous sympathies one part with another, however near or however distant.

The inorganic protoplasmic fluids have not been sufficiently acknowledged as a separate existent circulation, whilst their independent presence explain many phenomena of life. Nature is always most careful in securing a large amount of these as an actual working capital to start with. For example, when young fish escape from their envelope ; their umbilical bags are quickly absorbed within them. So again with the chick, just emerging from its shell, with a bag of unused protoplasm. Suddenly this is absorbed into its abdomen, which immediately closes upon it. At first it can scarcely stand upright, with its heavily-laden pot-belly : this is its first stock-in-trade, which it gradually assimilates within its tissues. With the infant these excesses are thrown off into an envelope or amniotic bag in which it is enclosed ; nature having first provided it with a sufficiency of them in her natural sponges, the mucous and serous membranes, and with a quantity which permeates through all interstitial spaces. Thus, the protoplasmic fluids abound everywhere, and form three-fourths of our entire weight.

Amongst the most valuable of the protoplasmic elements are the phosphates, and where they most gravitate they furnish the elementary matter of bones and nerves. Any excess, or that which does not solidify, remains pulpy, and is conveyed, along with albumen and gelatine and other fluids, into the spinal column during its formation, and

makes a continuous channel through all its vertebræ. As it increases, it finds a receptacle for bulk in the head, and forms brain. This, like all other protoplasmic matter, condenses, and evolves a *débris* or refuse. The purified elements become hereafter the sentient nerves, whilst the refuse, chemically altered in character, is collected and carried away outside of it down the same spinal space, and becomes what is known as the motor nerve matter. So that nerves are their own factors, and are supported and regenerated in the same way as in their first formation, for exhaustion of their structure is always taking place as in everything else. There are perhaps no parts or organs of the body so dependent on the vital action of the oxygen as the nerves. They are, consequently, surrounded with a network of arterial vessels for this purpose, which protects them like sheaths, and no doubt their sensitiveness is owing to the excess of vital forces thus supplied to them. No injury can take place to them without many small arteries being injured also. Whilst protoplasmic elements repair these vessels they do the same also for the nerves, and moreover so quickly, that they may not be exposed or impeded in their actions.

Everything upon the earth is subject to an atmospheric pressure of fifteen pounds to every square inch of surface. It needs no great stretch of imagination to believe that there must be a corresponding resisting force in whatever media animal life exists. The calculated pressure of water at great depths led to the supposition that animal life could not live under it. The voyage of H.M.S. Challenger, however, disillusioned this.

The protoplasmic fluids, with their contained gases, are not only resisting forces, but are great motive ones also. The gases are subjected to a species of compression when muscles are contracted, and are set free again by their expansion; these show both electric and hydraulic actions.

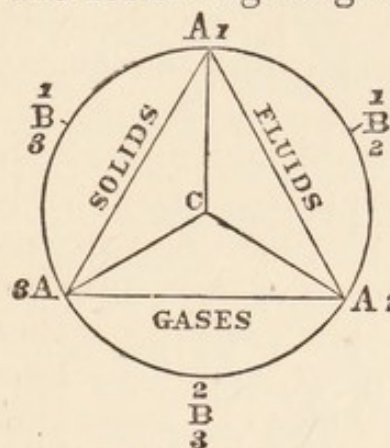
If the inorganic elements are obstructed in their free circulation, power is lessened in that part, wherever it may be. The slugs and snails move along, giving out a protoplasmic slime for their roadway, leaving their trail behind them; they make a great quantity of it, and are a mass of it themselves. These creatures must have muscular fibres

to expand and contract, which can only be done by hydraulic action of low power ; whilst the rapid motions of fish or the undulatory ones of the eel or the snake will have this in a higher and more active state. "The staff of H.M.S. Challenger brought up specimens of living animals from depths exceeding four miles, at which the pressure was four tons on the square inch, considerably exceeding that exerted by the hydraulic presses used in packing Manchester goods" (*Prof. Carpenter, "19th Century," April, 1880*).

The very presence of the gases in these deep-sea living animals constitute part of their resisting forces to the pressure under which they live. If it were possible to find them forty miles under the sea, with forty tons pressure upon every square inch, the same laws would give them more than forty tons resistance. Deep-sea animals move by their hydraulic powers, but never get away from their medium of atmospheric pressure, if they did it would be fatal to them. Our balloonists know this fact as regards themselves. All fish are indebted to their living positions to their air or swimming bladders, these being situated in the lower part of the belly, keep them with this part downwards, but as soon as they die, these bladders collapse, and, being no longer a gravitating quantity, they turn over on their backs. The air bladders are, therefore, simple provisions for buoyancy, and not for motive purposes.

Prof. Carpenter says: "In regard to the *animal life* of the deep sea, 'The Challenger' researches do not seem likely to yield any new general result of striking interest." I am of a different opinion, for it proves the condition of animal life under a new phase, and one, too, of the greatest importance, and challenges Prof. Carpenter's rationale of deep-sea life "as containing no air but consisting of solids and liquids only." How these can co-exist without the presence of their natural gases, I cannot conceive, seeing that their very vitality depends upon them. Gases are used in the body for mechanical purposes. All erectile actions are due to them, of whatever character they may be. Instantaneously generated they become suddenly fixed in the parts excited, have sustaining powers over a given time, then relax or subside. This is shown in the development of the passions. They are always in unison

with the electric, calorific, and hydraulic actions, which would be inefficient without them. For instance, paralysis or extreme exhaustion, or absence of a due quantity of gases, causes universal or partial inertness or loss of motive power. The formation of a molecule may be illustrated by the following diagram.



1st.—Whenever and wherever elements of any character, containing even similar or different properties, come into contact—whether they be solids, fluids, or gases—evolution of gases is a certain result. A *solid* and a *fluid* meeting at A 1, evolution of gases takes place, the lighter radiate and the heavier centralize. But as there is considerable pressure all around, the lighter are consequently forced downward and surround the substances evolving them as at B 1, B 1. These gases have certain characters resulting from the sources from which they were derived, and at the moment of contact produce caloric or heat, which gravitates to the centre, C, and thus *one-third* of a cell is formed.

2nd.—Simultaneously an union takes place between a *gas* and a *fluid* at A 2, and a similar result is obtained, other gases are generated, and these radiate to $\frac{B}{2}, \frac{B}{2}$, each side, whilst carbon being generated as before, gravitates also to the centre C. Thus *two-thirds* of a cell is formed.

3rd.—Again, with equal rapidity and simultaneously, a *gas* and a *solid* meet together at A 3, with similar results, gases being evolved radiate to $\frac{B}{3}, \frac{B}{3}$, whilst carbon or heat is centralized again at C—and so the circle is perfected. The different gases evolved from their three distinct sources meet each other at their points of contact, combine and coalesce in endless proportions and work in harmony, in one continued and continuing circle.

All these actions and combinations of elements are required to form an “atom,” or a “cell,” or a “blastema,” and all are entirely of an *inorganic* character, and energetically progressive. They multiply indefinitely and constantly, for the formation of new parts or in the repair or reconstruction of old ones. They may begin from the

millionth part of an inch and in myriads, and then coalesce. It is clearly seen that the gases are largely given off everywhere, and we are informed by Faraday of their wonderful powers of liquefaction and of their entering into fresh combinations.

If such be the first formation of "atoms," "cells," or "blastema," similar processes may easily be conceived in the formation of the "plasma" or "protoplasms." There can be little doubt that it is to the gases we owe the largest amount of the inorganic protoplasmic fluids and their constant reproduction to uphold the great phenomena of life.

The fluids are always in excess of the solid elements in the body, and the inorganic elements both solid and fluid in excess of the organic in a ratio of 90 to 95 per cent. What the percentage of the gases is no one can tell, because of their evanescent character. The oxygens and hydrogens are always uniting to form fluids which combine with carbon, and produce fat by a process of inspissation, and which is a great supporter of life. Throughout all physiological works the gases may be and are certainly mentioned as *incidences* but not as *POWERS*, as I wish to show them to be.

All scents or odours are in a great measure due to the action of different gases coming together at certain parts or matrices and a new one eliminated. This is very distinctive in flowers, yet some are non-odoriferous, having no scent matrices. Colours derive their character through the gases also. Odours may be pleasant or unpleasant, beneficial or injurious. They are mostly of protoplasmic origin, each animal has its peculiar odour. In man they often indicate the conditions of his bodily secretions, both in health as well as disease. There are a class of gases which can best be designated as effluvia, and are not only stinking but carry small particles from the sources which yield them. Old writers called these *Corpuscular effluvia*, which are of a contagious character. Those who are infected by them have no doubt certain morbid conditions of their own secretions analogous thereto and often spontaneously generate a zymotic disease themselves; but those who have pure secretions are not affected by them. Nature is never idle in her production of organisms from certain

corrupt protoplasmic conditions, even in the living body. We see animaculæ under the skin and roots of the hair, producing diseases in both and in dirty people vermin outside. Science has lately exhibited microscopical animaculæ, such as the "bacillus" and "bacteria," to whose presence is attributed some diseases, but may they not have been produced by degenerative states of protoplasm. Science says destroy the "bacilli" and the "bacteriæ" and the disease yields; but that can only mean the destroying or in some way altering the condition of the protoplasm which produced them, and they die for the want of the food or diet in which they were generated.

Rapid evolution in either forming or keeping up of structure causes many motive actions. All the involuntary ones arise from this source which no power of the will can arrest. Instance, the action of the heart, all infantile movements and those during sleep or the tossings about in fevers: these imply the ever onward movements of hydraulic forces aided by the electricity produced by thousands of myriads of protoplasmic cells in constant evolution. During walking and active exercise of either mind or body or both, these processes go on until a weariness takes place, called fatigue, which is simply a temporary exhaustion of their actions. Sleep or rest then results, during which, however long or short it may be, Nature recoups her gases, thus storing her cells with electricity, the first movements of the body setting them all in active operation again. Nevertheless, involuntary action is always going on whether in digestion and assimilation, the circulation of fluids in vessels, or the simple act of an abscess discharging its pus largely during sleep. Regularity in the storing of molecular heat is one of the prime conditions of life.

When the molecules are too abundant and large to circulate through interstitial spaces they press upon nerve batteries and give pain. This is the cause of congestive rheumatism. When they are deficient, there is less lubricating action, especially in the tissues and muscular fibres, and they get agglutinated and cause pain from incapacity of movement; this produces inflammatory rheumatism. When there are excesses of gases in the protoplasmic fluids in any given part which cannot escape one way or

another, they cause what we know as Cramp, a most painful affection while it lasts, and totally incapacitating the muscles from all movements. These are well-known occurrences outside the body, but they have their analogy from the same causes within it, which are called spasms. All spasmodic actions are universally attributed to flatulence, therefore Cramps and Spasms can have but one physiological explanation.

Lumbago and sciatica are rheumatisms known and named according to the places in which they exist, such as in the back or loins and the hips.

Neuralgia and ticdoloureux are rheumatisms most affecting the nerve batteries under the same protoplasmic conditions. None of these many affections have anything to do with the blood in any way. Science has never defined the true physiology of all these most common complaints, but may they not be associated with and explain the physiology of pain generally, wherever it may occur in or outside the body.

The gases alone will produce colicky pains by distension of given parts of the alimentary canal. It would be very inconsistent to suppose that special disease of nerve tissue should be the cause; for nerves are designed as indicators of irregularities, which, as soon as they are relieved, cease giving such intelligence. All pains therefore may come under these heads, excepting always direct injuries to the nerves themselves. Gout is entirely an arterial blood disease, arising from an alkaline excess therein, which often escapes in the form of chalk through the capillaries, mostly at the joints, though I have seen this on the back and shoulders; the pain is caused from pressure on nerve batteries. When no exudation takes place the pain is often as intense from the swelling and engorged condition of the vessels.

Rheumatism may be more or less permanent from ill-conditioned states of the secretions, or it may be transitory from their cooling too suddenly after violent exercise, and so being temporarily arrested. Physical exercise is therefore necessary to warm up the molecules again and hasten their circulation. Instance, a pair of post-horses after going a stage of ten or twelve miles, very little over an hour, in an enormous state of perspiration but with every muscle

pliant. After a rest they are called out again to do the same journey back ; having cooled down, they come out of the stable as if walking on wooden legs, in fact, stiff from rheumatism. For the first mile or so their pace is slow until their protoplasmic molecules are excited into action and generate heat largely, when they lose their rheumatism by another sweating. To witness such conditions in perfection, the night should be somewhat foggy, and the lamps of the carriage brilliant, when luminous and electric rays are seen to envelope them. The whole body furnishes its boiling protoplasm, which radiates most rapidly to all the external parts. Any great physical exercise we take ourselves, and to which we are unaccustomed, makes us feel very stiff the next day, or even for several days, with a certain amount of aches or pains from mere protoplasmic exhaustion or its obstructed volition. By friction, hot baths or more exercise, which is the best thing, we lose this artificial rheumatism, for such it is nothing more nor less. No part of the body is itself dependent upon the great centres more than it is on any proportional part for renewal of force ; each must contribute its quota of restoration of power. The electric and hydraulic currents of the upper extremities assist the lower in like proportion as these do the upper ones. In childhood these mutual forces are not yet established, whilst in old age they become disestablished. An old person cannot kneel down, or stoop or rise from a chair, without depending upon the arms and shoulders for help. If a pedestrian's arms are bound tightly round his body, he cannot walk so well, certain forces are shut off. In carrying heavy weights any distance, the lower extremities lose the benefit of the forces of the upper ones, because they are themselves over exhausted and do not receive sufficient powers from the lower ones. The upper ones also feel the weight heavier as progression goes on, not that it is actually so, but that the powers to carry it lessen. Remove the load, and the lower extremities get new force from the upper ones being relieved, and *vice versa*. Thus the protoplasmic circulation obeys every call upon it from all parts internally and externally to wherever it is most wanted, or where most exhausted.

The act of walking in our upright position obeys the same

laws as those of an animal on all fours. The right arm acts simultaneously with the left leg, and the left arm with the right leg. In running, the arms are doubled at the elbows and these move in the same manner, while the close swing of *each* upper arm and shoulder aid the lower extremities by hydraulic action. A person cannot run so well if the arms are extended or swinging. Take the reverse of this, as with the flight of birds; they double their legs up and keep them closely pressed against their bodies, their thighs no doubt have similar actions to our arms. It is not sufficient to say that they double up their legs in order to offer less resistance to the air in their flight. In all these actions the independent protoplasmic circulation is one of the great mysteries of physiology not yet understood.

The circulation of fluids in vessels, of whatever kind they may be, have nothing whatever to do with the phenomena of locomotion, they have important duties to perform, and are not under or regulated by any control or the power of the will; whilst the protoplasmic fluids are in a measure subject to it. Instance paralysis of one side; the sound side loses the benefit of the electro-hydraulic forces of the other which are in abeyance, yet the circulation in the vessels is still carried on in a normal state *in both*.

It is a question if even the nerves are directly instrumental to locomotion, for they must first derive their actions from the electric currents of the protoplasmic fluids, and are excited or depressed in proportion to their forces.

Protoplasm always maintains its own wonderful properties, and is obedient to the same laws from first to last. For instance, take a clean cut through the skin to the flesh. If the parts are brought together protoplasmic circulation soon heals them. The blood has nothing to do with this. If any blood vessels are cut through, they bleed, but their own protoplasm soon restores the integrity of the tubes. Take again a *scratch* wound. How ragged, jagged, and torn are all the parts. Healing is here rendered very difficult, because no complete apposition of parts can take place. It is like trying to bring the imperfect edges of two saws together. Hence, arterial blood keeps oozing from vessels divested of their capillaries, thus actually preventing any

healing process. It is a long time before scratch marks leave from this cause, and they do not until capillary integrity has taken place. Here is one instance of the blood being in the way of the healing process. Therefore, it is not blood that heals or restores, but protoplasm.

Take a puncture from a needle or pin, or from a thorn, or the sting of a wasp or bee; on their being withdrawn the skin closes up. Some destruction of protoplasmic cells, however, takes place, and if retained they are converted into a purulent matter, which, by hydraulic laws, is thrown off as is seen by a festery head. At other times this disintegrated protoplasmic matter decomposes somewhat rapidly, sometimes slowly, and being dead obeys the laws of putrefaction and becomes poisonous. Then it is said the puncturing thorn or sting carried a poison with it. This may occasionally occur, but the poison is often self-generated in the above manner. It is a wise act in surgery to cut or incise a punctured wound in order to get a free opening in the skin for any pernicious element to escape.

In ill-conditioned bleeding wounds, the capillaries become terminations of arteries when no healing process can take place, the blood being actually in the way of its doing so. By cauterizing them the blood is shunted back into the arterial streams, and healing takes place by protoplasmic deposits, in the same manner as in first formations. In operations on internal structures the actual cautery or red hot iron is the most efficacious proceeding, as it destroys both capillaries and terminations of arteries and veins—blood being shut off entirely, healing takes place as above described, and the small vessels soon resume their integrity.

The schools have a very imperfect physiology on these points, as the following quotation from Dr. Aveling's *Biological Problems* will show: he says—

“The healing of wounds. A man is from some cause suffering from a large open wound. *From the blood vessels around is poured out what the Doctors call ‘organizable lymph,’* a fluid that, examined ever so carefully under the microscope, presents no trace of the structures that are to be restored. And yet very rapidly this organizable lymph becomes transformed into tissue-muscle, nerve, skin—and the parts are restored.”

There was no blood originally to make the parts ; the healing of them, therefore, is upon the same principle as in their first formation. I am impressed with the idea that all the curious kinds of nævus or mother's marks are natural capillary defects showing arterial circulation outside, but compensated by capillary integrity within.

In sea scurvy as well as land scurvy (*purpura hæmorrhagica*) or in the petechiæ of typhoid and other fevers, we see ill-conditioned states of the capillaries. Of late years this has shown itself in what is called *Hæmatophilia*, a new disease, caused evidently by a want of tonic and integrity of these vessels. In too high and healthy state of the body, producing vigorous arterial force, they bleed. An intermediate state between a too low condition and excess of vigour is needed for those who suffer from this rare condition. In general, the pus from healing wounds does not often take on a putrid character but what is called "healthy." It is decomposed protoplasmic matter from many injured structures, each contributing a share of their own peculiar fluids. Elements are also thrown off during the formation of new structures, or repair of injured ones, and mix with the pus, which has no distinct chemical properties, and true protoplasm will not vitalize with it, but, on the contrary, often renders it innocuous. Superficial abscesses soon heal. Deep seated ones should not be cut into too soon, as this act produces a lipped wound which often takes a long time to heal. Free vent for perfect exudation of both old and new matter, of which there is always an excess, is absolutely necessary. Nature will always do this by her own hydraulic forces, but if they are arrested or shut up by bandages, great evils arise.

Within a short time of a limb being broken, these fluids gravitate largely to the part, for repair of the fracture, a cogent reason for not putting it into too tight splints or bandages, which impede curative actions, and cause great suffering. In simple fractures, the limb placed on a pillow and tied gently round with tape is all sufficient ; it has room to swell and if hot can be cooled with lotions. Even in the most complicated fractures, sufficient extension to keep the bones in apposition is all that is necessary, but all surrounding compression is to be avoided. The free proto-

plasmic fluid circulation should always possess a certain tenuity, for it is to the body what the percolating waters are to the earth. Upon the well-known principle that all waters meet their levels, so it is with these. They flow to whatever parts are open. Thus, a burn or a scald produces a bleb, the size of which does not show the quantity of water or serum immediately under it, but the gravitation of it from neighbouring parts.

The true physiology of the use of blisters is very hazy, their indiscriminate use shows this. The larger the blister the greater derivation of protoplasmic fluids, even from distances. An effective one on the chest producing great discharge of serum will relieve pains of congestion round the shoulders, neck, collar-bones, back and even the loins, independent of the parts sought to be relieved both externally and internally. Thus a congestive rheumatism often gets relief from them when they have been used for other ends. But, like blood-letting, they are injurious in all inflammations, fevers, &c., for in all these cases there is a deficiency of protoplasm, and to attempt any removal of what little remains does mischief. But in this, like many other acts of Nature, she rebels against the doctor, for no blebs will rise! How can they? Therefore, they are useless in all these cases, and so are all other counter irritants.

All organs within and all parts outside the body consume their own specific quantity of the protoplasmic fluids regularly and quickly. If, from some functional cause, one or more do not, then these fluids gravitate elsewhere, such as to the lower extremities, producing a dropsical fulness. In organic diseases, dropsy is mostly a sequence, the organ affected being unable to use or appropriate its due share of these fluids. These accumulate in the system, and though all the other organs and parts endeavour to consume them, but as they are incapable of doing so, the excess flows into the large cavities, such as the abdomen, &c. In mere functional disorders these may pass away through the bowels, the skin, or by the kidneys, and so disappear. This, however, is not the case in organic diseases, its persistency proclaims danger, and that the offending organ can never again resume its integrity. Dropsies have nothing whatever to do

with the blood circulation, nor with that of any other circulation of fluids in vessels ; which do not, on the one hand, supply them, nor can they, on the other, consume them ; for they can only hold and carry their own allotted quantities for all the purposes for which they are designed.

Protoplasmic fluids are subject to many chemical changes, and when thus affected, throw off to the surfaces such meretricious elements as are detrimental to the system, in the various forms of skin diseases. Some of which are of a very ichorous character, and would produce similar conditions by inoculation, whilst others are harmless. The mildest effect of these is the common itching of the skin unattended with any eruption, and is relieved by scratching. Again, a small exudation may take place, dry up and produce a pimple, which we soon dispose of, but if it occurs where we cannot get at it, it bothers us. Various rashes will show themselves similar to those produced by nettles or the tread of insects. These may pass away, but they always indicate a degenerative state of the fluids, often producing eruptions with serous discharges capable of inoculating surrounding parts, and so spread a disease over the whole body or parts. It is, therefore, of the greatest importance to prevent this by drying up the virus as fast as it exudes. The most effectual way is by the free application of goulard lotion. Many have seen the effects of a poultice put upon a sore or small swelling, how many minute spots come all about and around its area, all which exude more or less an ichorous matter. If ointments are used and the parts shut up, increase of heat follows, and the ointments with the morbid exudations mix together and inoculate adjacent parts. To this do many skin diseases owe, not only their germ, but their advance and virulence. Many skin diseases are of a local and superficial character, others arise in deeper seated structures ; these latter always have a pustular character ; the morbid elements gravitating internally as well as externally. This is shown by small pox pustules in the mucous membranes of the mouth or intestines.

SMALL POX AND VACCINATION.

The young of all animals depend at birth on the natural

protoplasmic secretion of their mother's milk. This varies very much in character. In some animals this consists of quality and *not* quantity, in others of both quality *and* quantity, whilst in a third, as in the human animal, it is in quantity and *not* quality. In all three cases, there will occur excesses and deficiencies. The young of all animals of every description are gluttons. Instinct as much directs the mothers of all animals below man to encourage this early vice, as an imperfect reason prompts the human mothers to do the same even to repletion. They are not content with what they themselves supply, even when they have enough and more than enough, but stuff their infant gluttons with other supplies of a stronger character than their own. The great boon to the lower animals is that they cannot do this, and so their young are saved from many diseases. Natural laws come to the relief of all animals, especially infants, to get rid of these excesses by puking, vomiting, or purging, or artificially by medication, but if they remain unappropriated or are not got rid of, infants will dwindle away precisely as if they were without nourishment at all; else, on the other hand, they begin early to show numerous forms of skin eruptions, such as white-gum, red-gum, or dandriff on the head, or sores about the ears and fundament, all of a scabious character from morbid protoplasmic secretions and excesses. These are the first great barometers. The next stages will exhibit the purulent forms, such as glass-pock or chicken-pock, and if these reliefs do not come through the skin they become the subject of their own self-generated internal diseases, such as measles, &c. We see the same laws exhibited in the lower animals in their infantile diseases, such as mange in the canine tribe, swine-pock in pigs, cow-pock in the bovine species, &c. Nevertheless, all these actions require development, especially in the human system; at the same time, they are of a more virulent character, on account of its higher organization. From such sources the great army of skin diseases arise, which the ingenuity of observers have named and classed to the extent of about 600 varieties. These facts show how careful Nature is in getting rid of morbid elements of the body by carrying them out of it through the skin.

The highest state of pustular disease which an universal degenerative condition of protoplasmic matter takes, is known as small pox. It is not incident to every individual, only to a certain percentage of the whole community. Accident threw in the way of a great observer (Jenner) the fact that milkmaids, who got their hands inoculated with the virus from the small pox pustules on the udders of cows, became exempted from the human small pox. These pustules becoming outlets to the surface of morbid elements. Now these milkmaids were more or less in adult life. Those who had not had the human small pox evidently escaped, and those who had, got Vaccinated perhaps over and over again. Jenner seeing all this, devised the plan of inoculating the human family with the small pox of the cow, though at an earlier age than that of the milkmaids, and he called it Vaccination, and we all know with what success. This shows how Nature can be anticipated in her laws of evolution by the introduction of a milder form of poison, to destroy a more malignant one, and, moreover, drawing it from the body to a more convenient spot. All laws of protoplasmic matter being unknown, it was believed then, as it is now, that small pox is a blood-poison which it is not, nor cannot be.

As Vaccination is enjoined by law; an important question arises respecting the time when it should be primarily performed. With the higher and middle class and well-to-do people, where there is attention to cleanliness, early medication, good air, &c., &c., the earliest time should be when infants are five or six months old or just before weaning, when they would have the mother's last consoling care. In the lowest classes, where sanitary laws are much neglected, it may be done earlier; yet infant life is tolerably healthy even amongst these, for their mothers do not go to the expense of adventitious food, and also nurse their infants longer than other classes.

All infant protoplasm is well used up for growth and expansion, and with judicious care would not get into early morbid conditions; certainly not into those that would produce such a high state of degeneration as a pustular disease like small pox. This seems to be confined to certain localities and classes far below the higher and middle

ones, who kept so clear of it in the year 1881, though it created in them a scare. A statistical record would soon show where this disease originated, the rank of life it affected and where it stopped.

It is not always, nor is it universally prevalent, nor is it a sequitur of life. It is more like a periodical visitor in given localities under certain atmospherical conditions, and affecting only a given number of individuals who at such times are as likely to generate it themselves as to get it by infection or contagion. It is a purely protoplasmic disease, as evidenced by infants being known to have been born with it, at a time when they are little more than a simple mass of protoplasm. From a large experience in all classes, I do not agree with a too early primary Vaccination.

The many objections offered to Vaccination at the present time must arise from some grave causes, and not improbably from the introduction of pus or purulent matter, instead of pure lymph or virus. Thus, a large percentage of those vaccinated are not only not protected against small-pox, but become subjects of scabious diseases, which remain for life an integral morbid pest in the system. Hence has arisen much suffering, much distrust of its usefulness, and a rooted objection to it by many.

The rule followed by the profession is that eight times twenty-four hours after a successful vaccination, the contents of the pustules may be used for others. This is a most disastrous conclusion. A pustule matures or suspends its growth according to the idiosyncrasy of the individual vaccinated. In some a pure lymph is ready for use in five or six days, but after this it becomes opaque, and, consequently, purulent. This should not be used. At another time, from some delaying process in maturation, active lymph is not formed for twelve or even more days, therefore, there can be no benefit from it if used before this time. Lymph should be as clear as crystal. A drop put upon a highly polished piece of glass should not be visible, the least opacity or milkiness betokens that it is no longer lymph, but pus. Moreover, the vesicle chosen to abstract lymph from should have no pink surrounding edge. When this occurs, a secondary action of an inflammatory character is being set up, and with it a certain de-

composition of lymph and adjacent tissues. Therefore, the true condition of the pustule and the lymph to be used should be visible to the eye, and I would rather vaccinate from the infant taking this simple discrimination than direct from the cow or the calf, where it is more difficult of discernment. Those who vaccinate from these animals direct are just as liable to do so with pus as with lymph. With respect to the OPERATION, the lymph should be merely inserted between the two skins, and no deep incisions made which will reach the blood vessels below the second skin. The lymph being only designed to affect protoplasmic matter. It is the safest plan to vaccinate one subject direct from another, where the condition of the pustule which contains the lymph to be used is seen as above described.

A correct knowledge of the fluid secretions of the body is quite as important as that of its general anatomy, especially so are the uses and laws of that enormous mass known as protoplasmic matter. The normal standard of this is the mainstay of health, and all departures from this in their general character, excesses or deficiencies, cause diseases of great and infinite variety.

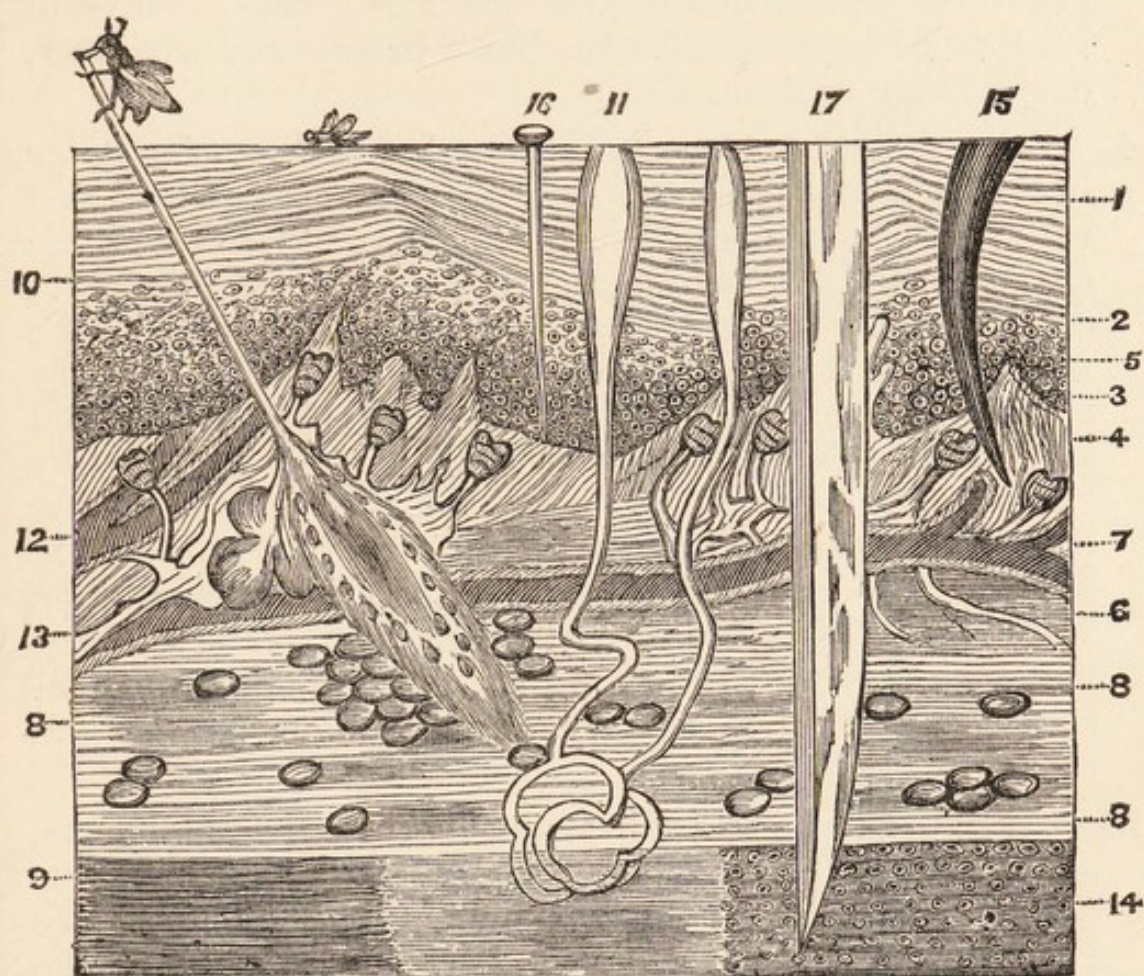
I will conclude this chapter by showing that it is to protoplasmic matter that we are indebted for the electricity of our bodies, which, together with the oxygen conveyed everywhere by the arterial blood, form our two great vital powers and forces.

THE NERVE BATTERIES.

Nerves have been compared to electric wires, and as these are influenced through their batteries, so must nerves be also. The following diagram represents a section of a portion of skin, with the parts beneath magnified 550 times.

To what is represented under the lens, foreign bodies have been introduced into the drawing, such as a "pin," a "thorn," and the "point of a pen-knife," and on the outer surface a small insect, and a fly settling upon the single hair. The object being to illustrate the action of the electric battery of the nerves, and to show that any exter-

nal part of the body, however small it be, if only touched by the finest point, or even a feather, or the passing breeze, is felt and appreciated.



DESCRIPTION OF THE DIAGRAM AND ITS VARIOUS PARTS:

- 1.—The upper skin, composed of flattened-out cells, becoming hardened by the atmosphere to a given extent, but always more or less porous.
- 2.—A second layer of cells gradually rise underneath, and get more and more flattened, as they take the place of those above them, which, in the form of skin, is always wearing away from use and friction.
- 3.—Is the deep or living layer of molecular protoplasmic cells, every one showing a small disc or spot in its centre which contains gas or air. According to the parts selected for microscopic examination, these molecular cells will be found of different shapes and sizes, but wherever they are, they are constantly breaking up, and in doing so,

cause a certain amount of heat and electricity. They are unceasing in their movements, and are propelled by hydraulic forces. These two sets of cells form what is called the serum or water between the two skins, and have no connection with the blood in any way whatever, derivatively or otherwise.

- 4.—Is the second or true skin, soft, pulpy, and very irregular in the surface, in fact, this represents a series of hills and valleys. The evident design being that the protoplasmic current should not circulate too quickly, which it would do if it had not to overcome these obstructions. The molecules themselves, therefore, collide forcibly in every conceivable manner, and get rapidly broken up and dispersed. As fast as this occurs, they are used up by the second layer above them, and so become wholly destroyed by assuming a condensed shape, and ultimately forming the outer skin. This second skin rests upon fatty and cellular tissue, from which it derives a continual moisture. The rapidity of all these movements constitutes an electric battery of marvellous power and sensitiveness.
- 12.—Within this second skin are seen numerous small bulbs, about $\frac{1}{300}$ of an inch long, which the terminal nerve filaments wind round till they reach their tops, where they dip down in depressions in their centres. Thus, the nerves, situated in the moistest portions of the hills and valleys, with their batteries above them, are in the very best position to be acted upon by the least excitement disturbing the electric current, which is absorbed into the bulbs themselves, and, of course, quickly conveyed away.
- 13.—These are white-like expansions of the nerves, known as the ganglions, which contain the electric aura sufficiently long to increase its power and urge it forward. A feather drawn over the skin, or an insect crawling upon it, or a fly alighting upon a single hair, or even a breath of wind, will disturb the electric currents in the batteries, and be instantly felt; though, as it is clearly seen by the diagram, the nerves themselves are not touched. We should not be able to endure life if they were exposed.

Where there is a deficiency of protoplasmic molecules between the two skins, as often happens in fevers or from other causes, the nerve batteries are correspondingly weak. Small injuries, such as continued puncturing or pricking the skin, give more pain than a heavy blow. The latter deadens both battery and nerves at once. In regard to punishment, one or two dozen stripes with "the cat" are quite sufficient for most cases; all after these are like thrashing wires disconnected from their batteries, and only cause lacerations of the muscles below without much pain. It is well known that before Anæsthetics were discovered, the first cut in surgical operations gave the greatest suffering, because it was an incision through the nerve batteries. I know the sensation myself well, and it is like the passing of a red-hot iron over the surface. The batteries being thus destroyed, cutting through the bodies of the nerves, is like cutting through telegraphic wires, they communicate nothing to head-quarters. Anæsthetics arrest the electricity in the nerve batteries operated upon, and, if kept up long enough, prevent the return of their integrity.

- 7.—Are the small blood vessels situated in the base of the second skin, which are lost in the soft tissues beneath it. The white line is the ARTERY, and the dark line above it is the VEIN. Many filaments *radiate from* the former, whilst others, as absorbents, *gravitate to* the latter, thus performing their own independent duties, as before described.
- 8, 8.—Are round fatty lumps scattered about in the tissues beneath the true skin, which coalesce in certain conditions of the body, or dissolve when it is in a state of waste, thus helping to keep up the protoplasmic condition as long as possible. Fat supplies the oily, unctuous and watery elements, and, therefore, may be considered the oil-can of the body, to which the glands, more than any other organs, are greatly indebted, for they are always inbedded in it.
- 11.—The rope-like structures rising from the soft tissues and terminating on the surface of the outer skin, are the sweat glands. Their uses being to purify unused protoplasmic fluids, and carry them through all the structures

above them to the surface in what is known as the pores of the skin. Two or three thousand have been counted to the square inch in the palms of the hands and soles of the feet. In other parts, there are only a few hundreds to the square inch: but, throughout the whole surface of the body, they may be reckoned by the million. We have seen the chemical purification of some of the fluids through the liver, and the aërial purification of others through the lungs, both streams being conveyed to them by vessels. Now we see the purification by exudation of the vagrant protoplasmic fluids through the skin.

- 10.—Is seen a single hair traversing the nerve battery. The root or bulb arising out of a fan-shaped matrix in the fatty tissues which supplies it with constant nourishment, whilst a club-like appendage adjoining it is a subsidiary gland. The crop of hair on all parts of the body well indicates the amount of inorganic protoplasmic matter consumed, independent of what is otherwise eliminated. The single hair itself passing through the nerve battery is so far free, that when touched by hand or by a fly resting upon it, it excites the nerve battery and conveys a knowledge of it. From its muscular origin, the hair has voluntary and involuntary actions, like the feathers in birds, and both birds and animals evince their passions in their hair and feathers. With ourselves, fear will make our hair stand on end.
- 15.—Is a thorn, or a dog's tooth, passing through the battery, and
- 16.—The point of a pin. The pain arising from either is proportionate, as they pierce the battery only, or, in doing so, puncture the nerve itself.
- 17.—Represents the point of a pen-knife penetrating through all the structures down to the muscles, cutting, of course, through small blood-vessels. Whether the wound be large or small, and the discharge therefrom great or little, the proportion of protoplasmic fluid to blood is as 95 to 5 per cent., the latter only colouring the mass. Bleeding soon ceases from the healing of the blood-vessels, but inorganic fluids will still ooze out from the wound, as they have to do the remainder of the repair.

- 9.—Are the layer of muscles. The centre light one shows the skinny covering or fascia. That on the extreme left represents the fibres of the muscle closely attached to each other, having no protoplasmic fluids passing between them, which limits the action of the muscle itself, producing pain by attrition, a cause of one class of rheumatism, and the muscular pains in fevers. The flesh of animals in this state is tough.
- 14.—Represents the fibres of the muscle separated by the passage through them of the inorganic molecular fluids, consequently the flesh of such animals is tender.

The injuries from punctured wounds depend very much upon their depth, the character of the instrument inflicting them, and the parts injured, whether more or less in the protoplasmic matter itself, the blood-vessels or the nerves, and whether such instruments carried with them any poisonous elements. This will bear illustration with regard to poisoning by snake-bites. The best authorities on these admit "that nothing is known of them save that the poison seems to act through the circulation, and kills by some occult influence on the nerve centres." Whilst in some cases, "the blood of the animals poisoned is also poisonous, but not the flesh, as it is eaten by the servants." But this fact is clearly seen, namely, that the poison does not emerge from the blood, if it did, all the protoplasmic fluids would be poisoned, and as they circulate through all the muscles and their fibres, and so become parts and portions of them, could not be eaten as flesh. This is another proof that these inorganic fluids do not come from the arterial blood, but are derived from other sources.

It is important to know that all bites of snakes do not kill or produce apparently any bad effect upon the system; whereas, when they do kill, some will do so through the blood, and some through the nerves. Those where the poison takes no effect are like an unsuccessful vaccination. The protoplasmic circulation is rich in fat and albumen, which are antiseptics, and these may render the poison innocuous, and may account for the small proportion of the deaths to those bitten, though they are unfortunately very numerous. The same results may probably occur in many other cases of inoculation by poisons in other ways.

CHAPTER V.

LIFE IS FOUR-FIFTHS SELF-SUPPORTING, THROUGH THE EVOLUTION OF THE GENERAL ELEMENTS OF THE BODY ITSELF, AND REQUIRES ONLY ONE-FIFTH NEW ELEMENTARY MATTER TO UPHOLD IT.

HEALTH IS DUE TO THE NATURAL BALANCE OF THE GENERAL SECRETIONS OF THE BODY OF FOUR-FIFTHS ACID AND ONE-FIFTH ALKALI. THE BODY ITSELF SUPPLIES THE FORMER, AND WHAT IS TAKEN INTO IT THE LATTER.

N.B.—ANY DEVIATION FROM THESE LAWS CAUSES DISEASE AND DEATH, ACCORDING TO THEIR MAGNITUDE OR DURATION.

HAVING reviewed the various structures of the body, and their chemical properties, suppose we were to speak of it commercially. Our first duty would be to see how the balance stands between its incomings and outgoings, and the value of its trading property and effects, and what constitutes a credit balance or a deficiency. Anything beyond a proper balance, being excess, must be withdrawn as not being required, and any deficiency must be supplied by a reserve fund. Without this inquiry, it seems impossible to understand the general economy of the factory; when to withdraw or when to add to the working agents. It is seen to have both goods and capital to start with; four-fifths of which are manufactured on the premises, and one-fifth received as raw material from without, to be worked up with those that are within. The principal working capital is its ACIDS; the raw material, its ALKALIES. A healthy condition of the whole can only exist by a

PREDOMINANCE OF ACID OVER THE ALKALINE ELEMENTS, (which represent the protoplasmic.) So long as this continues, all the vital duties are carried on with integrity; ample provision being made to carry off excessive accumulation of acids by the skin, kidneys, and other excretory organs. This fact must be fully recognised, for when deficiency of these occur in the body, fevers and inflammation are the result, and the skin and kidneys cease to act, or act but feebly. That the condition necessary for health may exist for many years without any derangement, is amply borne out by persons who have never been known to require medicine for any disease whatever during a long life. Others again have only needed the slightest artificial assistance; whilst a third class are always out of order. A certain standard of health must form the elementary basis for everything in connection with the body; but though so much has been written on all its wonderful combinations, no one has hitherto established any broad principles on which it most depends. The body, as the analyst reveals it to us, presents almost every chemical property and action we know. It is entirely owing to fixed and immutable laws that the chemist can know anything. What then regulates his proceedings? What powers and what elements does he use? He has his arbitrary standard of proceeding in all his manipulations. He furnishes his laboratory with acids, alkalies, and neutral agents; with heat, with electric and with galvanic powers. By certain defined rules and theories, he becomes acquainted with the chemical and electrical forces: he communicates his thoughts, his ideas, and his commands to the greatest distances, simply by means of a wire, sulphuric acid, and zinc plates. If he were asked what were the chief elements whereby he works and solves all his problems, his answer would be, by his Acids. In all his manipulations the predominant use of these agents is apparent.

Why has he never seen this in the vital economy? The healthy condition of a long life (after the epoch of infancy has passed, which may not have been exempt from disease) depends on some fixed principles. Infant life cannot be supposed to escape disease, and it shows how soon the system may get out of order by an excess of acid over the

necessary quantity. The fluid secretions exhibit this by some morbid alterations from their healthy standard in the form of red-gum or small red spots over the body. Any increase of this state is exhibited by a higher class of eruptions, such as chicken-pock, or, in fact, any of the squamous class of skin diseases, or measles. The one being the natural act of getting rid of the excess of acids through the skin; the other by aëration through the lungs.

All these have their origin in the inorganic or protoplasmic secretions alone. No other disease but small-pox has been hitherto prevented by inoculation of similar elements of a milder form than those which are the cause of it; nor do I think it ever can be. Measles cannot, nor can scarlet fever, nor cholera. What may be called the choleraic-poison, or measles-poison, or fever-poison, may be sought for long enough; for none of these are of so specific a character as that known as small-pox. The infant takes its stand in the world as a comparatively healthy animal until this balance is destroyed by a vitiated state of the inorganic fluid elements. This circulation has its own laws of health and disease, with powers to expel morbid elements through the skin; so that instead of small-pox and such kindred disorders being blood diseases, the blood has nothing whatever to do with them, from first to last, the morbid elements being ejected before they get into the blood.

During infancy and childhood diet must be attended to, as well as air and exercise, and what is of the greatest importance, the due cleansing of the body. With adults the time for taking food depends upon the occupation of every person: the regularity is not of so great importance as the quantity and quality taken in every given twenty-four hours, so as to repair according to the waste. Sometimes more sometimes less, may be taken or be required according to circumstances. The worst of all principles is that of the dietitian, who eats and drinks by rule, so that one day he ceases to repair waste, at another he feeds when it is not required. The stomach should never be paid by instalments, but always satisfied in full of all demands at certain times.

MENTAL EXERCISE.—One great inducement to health is

occupation. No man should be without employment, professional or otherwise. If he be independent, he is most unfortunate if he cannot make an occupation that will command a due portion of his time every day. The body being employed, the mind always accompanies it; nevertheless, the mind should have an additional occupation of its own, independently of business or professional pursuits. A well-regulated, well-stored mind becomes strong, is satisfied and reasonable in all its desires, and is healthy. An ill-regulated mind is never satisfied, but tossed about by morbid influences and therefore is diseased. The body may be healthy; but thought and imagination often cause it to droop and lose its vigour, and if this continues, no food nourishes it. The mind must cure itself by all those arts which it can alone engender from its own resources. A rational enjoyment of life in the happy unanimity of body and mind, the one producing health to the other in turn, constitutes the perfection of a tranquil existence. A laudable ambition, coupled with great industry, will often attain the end sought after; but if they do not, the purpose is answered in one way at least by the right usage of time. Non-success should never discourage any one. The greatest men and those of high aspirations have often the hardest trials and most disappointments, of which the unambitious know nothing. Many have the desire for fame or position but not the necessary mental qualification to gain them. Others that strive for these may not be sufficiently persevering, and whether they succeed or not, live in a happy philosophical state of mind of having done their utmost for some good and worthy end. These men never look for rewards, but take them modestly if they come. Society is pleasing and necessary because it leads to diversity of thought and ideas, and like judicious study and reading of books of information, much wheat may be gathered from many stores. The recluse often misses the opportunity of improvements which comes through the contact and influence of others. So complicated and subtle is all that relates to mind and matter that we can only see facts to wonder at them without the remotest chance of tracing their deeply hidden causes. Thus a powerful and brilliant intellect may accompany an equally strong physical frame, it may also

exist in a weak one, whilst the strongest body may have the weakest intellectual powers. Nothing seems incompatible with nature. So much can be said on this that it is difficult to stop short in the course of reasoning on the subject. The condition of the mind is a prime element of health, because it keeps everything in action. A true balance of the bodily secretions has a great influence on the mind. Deviations from the one, cause deviations in the other. The avoidance of unnecessary medication, and leaving nature to right herself is often more consistent with reason and for health also. Food for the mind like food for the body should always be the best that can be obtained; the reverse of these debases both. Early education in directing the mind and afterwards the employment of it in all the duties of life, from the lowest occupation to the highest, ought to be always accompanied by industry and perseverance.

BODILY EXERCISE.—This is next in importance, for as the mind is the governing power, so exercise is the main-spring of the motive power. Heat, one of the greatest vital agents is engendered by it; elements produced in excess by the body are more quickly evolved and chemical metamorphoses and combinations induced. Those who in the absence of exercise become inert or in a morbid condition are roused by it. It is clear that muscular activity acts first mechanically, exciting the chemical and electrical actions in all parts of the body, and while it hastens the circulation of aqueous fluids rouses them to beneficial actions, and removes morbid elements, consequently produces health; whilst idleness and sloth engender disease, by causing elementary matter, especially the inorganic, to move too sluggishly in its streams, producing thereby molecular condensation, and wherever this occurs rheumatism is a sequence.

ABLUTION, OR CLEANLINESS, is another great health-producer when practised in every reasonable and seasonable manner. It removes saline particles, the bases of which are acid; oily fatty matter from the skin itself, which would block up its pores and check radiation or perspiration; thus retaining in the system excrementitious matters. With respect to the varied means of ablution a few words are necessary. It is not every one who can stand shower-

baths, plunge-baths, cold baths, sea or river bathing, the air-bath, or perfect denudation. No specific rules will suit everybody ; for all have what is called an idiosyncrasy, or character of system, peculiar to themselves, which is regulated by their own organic powers. I have seen many diseases of the heart and head produced by injudicious ablutions, both from hot and from cold water. The reasons are simply these : that when a person is stripped and applies cold water suddenly all over his body, the heat of the surfaces is driven to the centres. The benefit should therefore arise by the centres throwing the heat back again to the surfaces by the reflex functions, assisted by the process of rubbing and towelling, producing a return glow. But suppose they do not, as is frequently the case, the internal organs become depressed by a mass of congested matter, from which they are unable to free themselves for many hours. The heart cannot propel the blood fast enough, the glandular secretions are retained in their organs, the mucous and serous membranes become congested, and not until exercise has resolved these, and brought the heat again to the surfaces, does the system recover freedom of action. What is likely to be the result of this, even on the healthy system, if persisted in ? Some organs must soon show it, and no part sooner than the heart. This organ, having a great amount of work to do, succumbs, and though it might have continued perfectly healthy without this strain upon it, it becomes first mechanically injured, and then takes on specific disease ; a penalty too great to pay to fashion or to morbid ideas of cleanliness. In some persons the blood will rush to the head, and cause a curious sensation as though this organ were three or four times larger than natural, and unless this be quickly reduced permanent disorders may ensue. Another act that militates against health is the pernicious use of the foot-bath. Considering the uses of the feet, they are often very badly treated. Shut up as they are, they should be cleansed, on the same principle every day as the hands, not put only occasionally into hot water and parboiled. Nothing is so injurious to them, or more pernicious to the system generally. In females at certain ages and times the greatest evils result from this practice, producing the very reverse of what was wished or intended. Stopping an expected

function at a critical time in some, or bringing it on prematurely in others. In a state of health a hot foot-bath will in some persons cause and keep up the condition of what is called tender feet, and in others produce a more or less morbid condition of the brain. It is very important that the toe-nails should never project beyond the flesh, which should always form a cushion. Encased as the feet are, any backward pressure of the nails often produces inflammation of the upper part of them. They can bear a moderate side pressure but not a backward one, therefore, all boots and shoes should be at least three-quarters of an inch longer inside than the feet, then the toes grow straight, but if this allowance is not made, the toes get crumpled over each other; this is a fruitful source of bunions. Infants should never be washed except in warm water, nor their bodies exposed to cold air. Their circulation is carried on more actively externally, and their greatest heat is on their surfaces. To check this is one of the most fruitful sources of many of their ailments. Keep them externally warm; if cold drives the heat to the centres, and the internal organs become clogged or congested, how can they conquer this with their extremely limited powers? I need not say that fatal seeds are thus early sown in otherwise healthy systems. Glandular enlargements are induced, which never ultimately yield; strumous or scrofulous tendencies are produced, and if the infants survive, it is only to witness these latent actions developing themselves in that fatal malady,—CONSUMPTION. Old age cannot resist the cold: this may be perhaps more readily understood from being more apparent. An activity of mind, with warmth and nourishment, may keep the aged body in health; but over-exercise and cold take too much out of it.

Good air and free ventilation of dwellings, especially sleeping-rooms, are necessary for a healthy condition of mind and body. All have experienced the close smell of a bed-room in the morning, however well ventilated; this arises from the body being more freed from covering, and the increase of natural exhalations from a long-sustained warmth, as well as from the carbonic acid gas from the lungs. As long as the skin is whole, and no wound or sore present, every vital agent undergoes a regularity of the

transition state ; but if a wound, or sore, or ulcer exists, and remains unhealed for some time, every one knows how perceptible is the animal matter or discharge therefrom. This is at once a proof of the necessity of keeping the body in a sound state. Nature is bountiful, and provides even for our excesses. Taking occasionally more than is absolutely necessary often hastens the secretions and excretions of the body and rids them of morbid matter ; but to do this habitually produces disease. The same in this as in mental and bodily exercise ; the capabilities and powers of the body and mind are not brought out except on emergencies or excesses.

Vitality consists in the constant regularity with which certain active predominant elements act upon passive ones of an opposite character, constantly producing others by a regular and incessant metamorphosis. It is by the regularity and integrity of these actions that the body is kept in health. To use a homely phrase, there must be a constant supply of oil and wick in due proportion for the great lamp of life to burn with regularity and vigour. Disease, however, abundantly shows that there may be plenty of oil at one time, and no wick ; or wick enough at another time, and no oil. The actual meaning of health implies uninterrupted action in the production of everything that conduces to it, whether from within or from without.

The state of the atmosphere has an important action on the body as well as the mind, producing at one time a depression, at another an elasticity, within it. Health should not therefore be viewed from its effects, but from its causes ; disease must also be measured by the same rules.

The cause of the greater health of the community now in comparison with former times, is from the more rational mode of living, and the general altered habits of mankind in civilized communities, their more rational tastes, occupations, and amusements, the greater development of the mind in healthful pursuits, and general hygienic rules of air, water, ventilation, draining, and all its accessories. These take by far the highest place, while the practice and administration of medicine take the very lowest. If it were possible to place the world a half-century back with

all the diseases and epidemics and endemics of those days, medicine, as now practised, would be just as powerless as then. Nothing shows this clearer than the government inquiry into the epidemic cholera of 1854. The united efforts of the whole body of the profession exhibited great incapacity in the treatment of that malady, and probably would again if it returned; or even that of any other epidemic, because medical treatment is founded on the quicksands of opinion only. The institution of hygienic rules for the prevention of disease is a very different thing to the administration of drugs for disease, when it is present. The one is merely parish-officers' work, and is certain; the other belongs to the *art and mystery* of medicine, and is uncertain. There is not a hospital where physicians and surgeons do not teach a practice of medicine differently. The empiricism and opinion of each being alone the guide. Let us ask what the Hospital for Consumption has done for that disease? Many new remedies have been given and tried, yet the disease remains, like cholera or fever, an opprobrium to the medical art. It is said that fevers are better treated now, simply because less is done for them. So by leaving Nature to burn out her own fuel, credit is taken as if the administration of medicine had cured. There is as great a revolution required in the arrangement of disease as in the administration of physic. Take for instance, the diseases of the various organs. Here we see excess of the vital forces on the one hand and a deficiency of them on the other, and both requiring the most opposite treatment by medicine, diet, and hygiene. But now they are all so huddled and confused, that it seems almost a miracle that any one gets better who is obliged to submit to physic. Yet, we often see how Nature, who always strives for life and health, will resist both physic and disease. If she herself contributes four-fifths elementary matter to sustain Life and keeps a balance of four-fifths given secretions for Health, it is but reasonable to suppose that in the greatest percentage of disease she would contribute four-fifths to their cure, if let alone. So indistinct is the reasoning on the action of medicines, that when a patient recovers to a certain extent from disease, he is recorded as being cured by them, when no such thing could possibly be

the case. Some alteration in the distribution of matter, or excitement of a diseased action elsewhere, relieving that which appeared most prominent, may happen. This is often exemplified by the mercurials, causing great glandular and mucous action, and so relieving inflammation in serous membranes. But it is not sufficiently understood that the action of these horrid chemicals produces a low chronic inflammation in the glands and mucous structures, and makes a different disease, and so plants the germ, that shall destroy the system, in another form. No authority of names can make such practice correct. Both Health and Disease are governed by simple and natural laws. Functional disturbances are the first steps to a departure from Health and ought to be soon relieved, if not, specific diseases follow, and these come before us without any mistake in their identity; the result of neglect in the patient on the one hand, or produced by medical errors on the other. Primary disorders in the system are either checked or aggravated by a variety of means. It cannot be supposed that Nature herself is indifferent or careless in the matter, for she always strives for health and life, and will keep them both as long as she can, the latter, even in the highest state of disease. To do this she often seems to act unwisely, but this she never does, for all her acts are under, and in obedience to, given laws.

CHAPTER VI.

DIAGNOSIS OF DISEASE. MORE ESPECIALLY BY THE INDICATIONS AND APPEARANCES OF THE TONGUE.

A PERSON suffering under any malady always shows it more or less in his general appearance. His complexion and general colour and condition of skin, the state of his body, whether plethoric or emaciated, its movements, whether excited or sluggish, the regularity or irregularity of his pulse denoting the state of the circulation of his arterial blood, or by pain or suffering in any distinct part of the body. By auscultation and percussion or the sounding of the chest, disease may be discovered in his heart or lungs. Hereditary taint and other causes may exist, and in addition to all these his own sick tale, which is not always to be relied upon. Chemistry also aids discovery of disease by the analysis of the secretions and excretions, showing the difference between mucous and purulent matter; the structure of tumours, discriminating those of the organic or fatal, such as cancer, from those that will not affect life. Every mental and nervous action, whose name is legion, should be duly noted. All which confuse and frighten the non-medical public, who are often led to imagine they have disease when none actually exists. There are many symptoms in common with the most simple functional disturbances and the highest class of disease, which often lead to the most erroneous opinions. The urine may exhibit many varieties of character, but as often clears itself. Urinary tests are often fallacious and lead to much error in medication and diet. Symptoms are very illusory, because similar effects are produced by many opposite causes, organically, functionally and imaginary. This shows the importance of tracing the sympathies of one part of the

body with another, in order to fix the locality and ascertain the character of disease, whatever it may be. This end cannot be better attained than by a careful study of

THE TONGUE AND ITS APPEARANCES.

To these I will direct especial attention and point out facts on which our medical works are now silent. The tongue shows from its varied appearances the general state and condition of the secretions, upon which all diseases depend. It also shows the law of progress and retrogression of disease and what parts of the body are primarily and more frequently affected, and have consequently the best chance of coming under the more immediate control of remedies.

A GREAT EPIDEMIC DISEASE, CALLED INFLUENZA, visited this country in 1836-37. It was of a new and inexplicable character; its many varieties of symptoms and phases baffled the whole faculty; and, after lasting eight or nine months, slowly subsided without a record or an historian. It carried off more lives directly and indirectly than any two choleras we ever had during this century. I saw much of it, from its advent to its decline, and I owe to it the discovery of the various appearances and characteristics which the tongue presented, in all classes and ages of the community. I found, in fact, that some of the important organs of the body had a local sympathy with certain parts of the tongue. Following this up as a special study, I read a paper on it before the Physical Society of Guy's Hospital, on 4th November, 1843, which I published on 5th January, 1844, and up to this day (1883) I have never seen occasion to alter a mark or line therein set forth. I called it "GLOSSOLOGY: OR, THE ADDITIONAL MEANS OF DIAGNOSIS OF DISEASE TO BE DERIVED FROM INDICATIONS AND APPEARANCES OF THE TONGUE." I never vaunted it as anything exclusive of all other means of diagnosis of disease, but simply placed it as of "ADDITIONAL" value to them.

The TONGUE itself is made up of five pairs of muscles. Three pairs upon its surface, and two pairs underneath: dividing the tongue into two symmetrical halves down

the centre; the first pair of muscles are in close proximity to the centre and each other; the second pair are outside these, one on each side, this pair form the largest portion of the tongue. The third pair are again outside of these last, one on each side, and form the edges, and are the smallest of the three upper pair. The first underneath pair converge towards the tip, forming the upper half of a cone, whilst the other pair divide, so that each muscle terminates at each side between the smallest part of those at the edges and the pair which make up the tip. Thus, their anatomical arrangement is very complete, giving to the whole mass as a single organ all its most wonderful movements and flexibility.

THE TONGUE—ITS DIVISION AND TRACTS.

Fig. I.

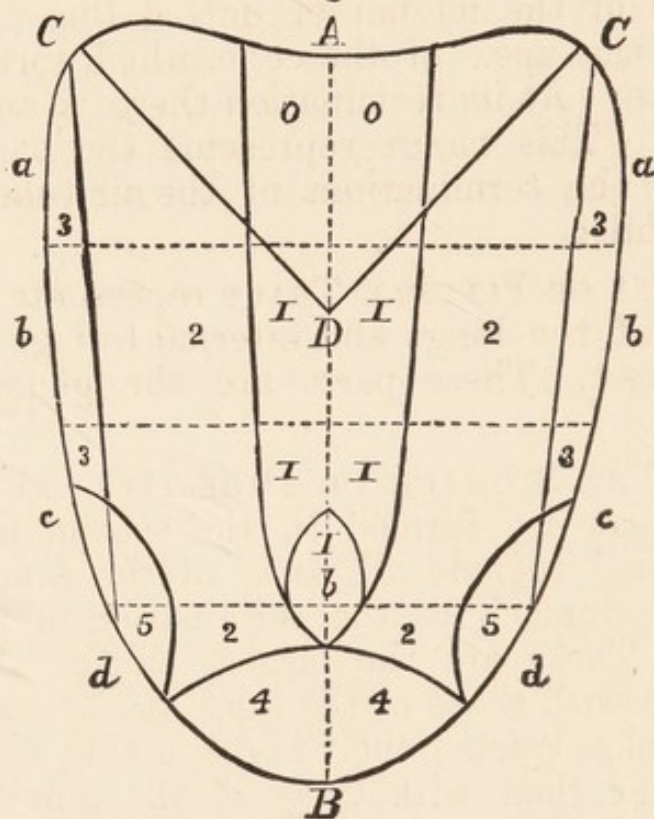


Fig. 1. 1st—Into two symmetrical halves by the dotted line down the centre from A to B.

2nd—The posterior third from C C to D in the form of a wedge. This is its most muscular part, giving it motive power for protrusion and withdrawal, and is not

seen unless it is protruded, and is therefore always in the throat ; it assists the food into the gullet and closes it afterwards.

3rd—The anterior two-thirds are exceedingly flexible, and in them are situated the principal organs of taste.

The portions of the tongue which sympathize with certain organs or parts of the body I designate as "TRACTS." Thus, O O (Fig. 1) is the wedge, which sympathizes with the throat and its adjacent parts, being always in apposition therewith. Whatever condition, therefore, the one may be in the other corresponds thereto. This is seen in the congestive as well as the inflammatory states. I have, therefore, named it "The Wedge," or "THROAT TRACT." Next follows

1, 1, 1, 1. THE RESPIRATORY OR LUNG TRACT.—This is formed by the first upper pair of muscles situated on each side of the mesian or dotted line, and reaching down to the apex of the cone, which forms the tip of the tongue. At its termination there is an OVAL space within it. This TRACT represents the parts from the throat to the terminations of the air tubes within the lungs ; whilst

¹_b THE OVAL OR PLEURAL TRACT represents the external covering of the lungs and internal linings of the walls of the chest. These parts are the general seats of Pleurisy.

2, 2, 2, 2. THE STOMACH OR DIGESTIVE AND APPROPRIATING TRACTS are formed by the second upper pair of muscles, and include all parts of the alimentary canal from the stomach to the termination of the small intestines. These are the largest pair of all, and are in apposition with those of the lung, the brain, the kidney, and the colon tracts ; their fibres mixing more with the three latter than with those of the lungs. It will be seen by these divisions that the lung and brain tracts do not mix, and I have noticed the fact that the brain is never much affected by diseases of the lungs alone, as it is with those of other parts of the body.

3, 3, 3, 3. THE BRAIN TRACTS are formed by the third

upper pair of muscles, and extend down on each side to a portion of the KIDNEY and COLON TRACTS.

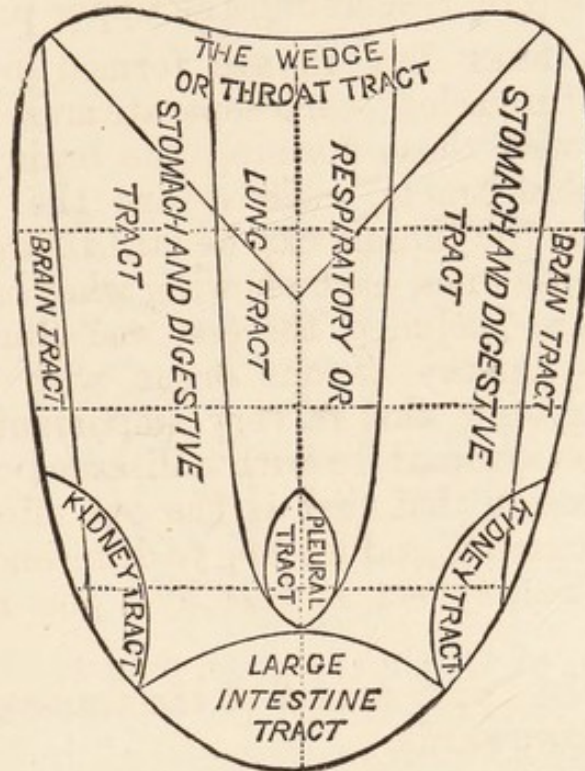
- 4, 4. THE LARGE INTESTINE OR COLON TRACT is formed from the first under pair of muscles which terminate together at the TIP, resembling the upper part of a cone.
- 5, 5. THE KIDNEY TRACTS are formed by the second under pair of muscles ; each separate muscle terminating and mixing with those forming the brain, the stomach, and the colon tracts. These are the perpendicular divisions, but the tongue can be still further divided by four transverse ones, each showing what organs or parts of organs are included therein, and illustrate further the great sympathy of one organ with another. In medical diagnosis, this is very important, as a sound organ may so sympathize with a diseased one, as to lead to the conclusion that that is the one affected. A fact too often occurring, and leading to differences of opinion, only to be rudely set at rest by a post-mortem examination.

Beginning at the upper fourth of the transverse divisions, and going downwards :

- a, a.* Includes the throat and upper part of the windpipe ; the salivary and other glands about the mouth ; portions of the gullet and posterior and smaller brain.
- b, b.* A second portion of the windpipe, until it divides into two parts, one going into each lung, being the commencement of the bronchial tubes, and extending to the centre of the lungs. The largest portion of the stomach. The remaining portion of the smaller brain and part of the larger brain.
- c, c.* The terminating extremities of the bronchial tubes and portions of the pleural tract. The remaining portion of the stomach, and the whole of the secondary digestive tract, and part of the small intestine tract. The remaining portion of the larger brain tract, and part of the kidney tracts.
- d, d.* The remainder of the pleural, the small intestines and kidney tracts, and, lastly, the whole of the large intestine tract.

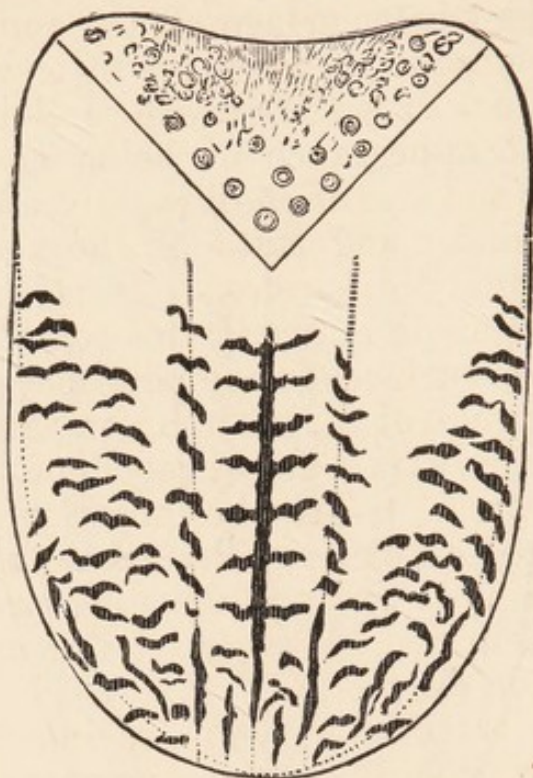
Below are the divisions of the tongue, with the names of the tracts for more easy reference.

Fig. 2.



THE HEART has no distinctive tract, yet its character is often shown upon the tongue by a chapped and fissured state of surface, perpendicular lines or fissures down the first two-thirds, in the Lung, Stomach, Colon, and Brain Tracts will indicate dilatation or large cavities and thin walls; whilst horizontally chapped and cracked states in and about the same places will show hypertrophy or thick walls. These two conditions may be separate or co-exist. They may be produced from disease such as a severe rheumatism of this organ, but then they are more or less transitory. In all such cases the tongue is always broad and large and very seldom much furred, except in patches. It is generally of a pale rose-leaf colour. In the congenital state the possessor of such a tongue may be justly said to be born with a large heart, which indicates much character in the individual, especially kindness and sympathy.—This cracked and fissured appearance seldom occurs at the posterior THIRD or WEDGE.

Fig. 8



Dr. Addison, of Guy's Hospital, paid much attention to the Heart, and was President of the Physical Society before which I read my "*Paper on Glossology*" in 1842. He did not believe then that hypertrophy and dilatation of the heart could be congenital, but became afterwards convinced of it from many post-mortem examinations, and would tell his class that "we are indebted to an old Pupil of this Hospital for the discovery." He always called this "*crinkled*" tongue "the Battersea cabbage tongue," a name given to it by his predecessor, Dr. Babington. No one ever attached any meaning to it, until I discovered it, whilst Dr. Addison proved its truth and admitted it. We know that there are hearts of varied characters, hard as well as soft. I have reason, from much study of these for saying, that I never knew a person born with a large heart, as above described, ever dying of a diseased one. This seems only to occur in those who have small fibrous ones.

THE TONGUE is distinctly divided into MOTOR and GUSTATORY, or moving and tasting portions. The difference too in the quality of these parts, and also in their appearance, is clearly defined in the usual ox-tongues that are placed on our tables. The posterior third being juicy, fatty and

tender. The anterior two-thirds more fibrinous and close in texture. The whole surface of the tongue is covered with a thick membrane, on which are little white eminences, known as the pile. It is the growth or elongation of these that gives it the appearance of being coated or furred. This both grows and dies off most rapidly, and from this fact the general condition and state of the secretions of the body can be readily discovered. It is therefore of the greatest importance to notice if this coating or fur covers the whole of the surface, or one part more than another. Hence the advantage of ascertaining on which of the tracts this occurs, or if any tract be entirely denuded of fur whilst others are covered. On the anterior two-thirds are situated many red dots or papillæ: these are terminations of arteries, arising out of cuplike structures, at the bases of which are the nerve batteries of the organs of taste, already noticed in chapter II.

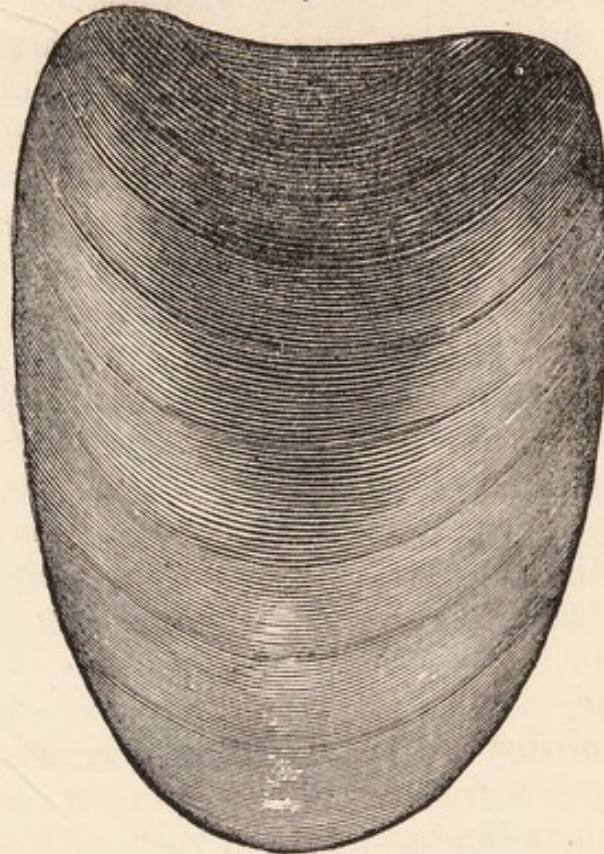
The Stomach tract may clean, leaving the Lung tract covered with fur, then Bronchial congestion is present; or, the Lung tract may clean, leaving the Stomach tract in a furred state, or congestive. It often happens when this is the case, that the Lung tract cleans too rapidly and becomes quite free of fur and red; then Bronchitis is a distinctive feature of the case.

The character of diseases, whether congestive or inflammatory, are hereby well defined. Their study indicated to me the law I have already laid down as the basis of health, being a chemico-vital balance of forces, any departure from which produces some form of disease. They show the most marvellous order and arrangement, the advent and advance of disease on the one hand, and the gradual decline of it on the other: a diagnosis of the utmost value in the treatment of infants and children; whilst the crowning benefit consists in pointing out the form of remedial agents to be used in all distinctive diseases, and in those which are not distinct, but mixed in their character, such as a state of congestion in some parts and inflammation in others, as illustrated by a foul stomach and sore throat or even a bronchitis. The diagnostic value of the tongue lessens considerably the errors in the administration of medicines.

The FOULING AND CLEANING of the tongue obey certain laws, which cannot be overrated as means of diagnosis.

The FOULING OR FURRING is the first indication of the commencement of disease, and is shown by the growth or elongation of the pile forming the fur, gradually coming down from the back part, and spreading from edge to edge towards the tip, in ELLIPTICAL lines.

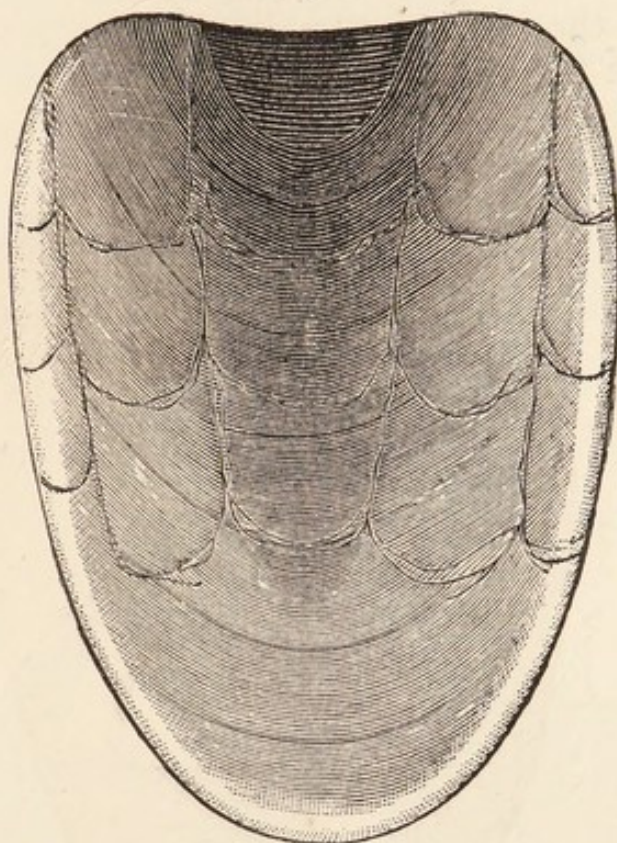
Fig. 4.



All the portions of the body are, therefore, taken consecutively. The first organs affected are the throat, gullet, and upper part of the windpipe, as indicated by "The Wedge." Then the lung, stomach, and lesser brain tracts, all of which almost always exhibit the greatest amount of furring, and the organs they sympathize with are the most numerous for treatment. Then follow the deeper seated portions of the lung and bronchial tubes. The kidneys become more or less implicated. The large intestines and greater brain tracts are the last parts to become furred, and their sympathizing organs the last to be affected in disease. These tracts never become so thickly coated or furred as any of the others.

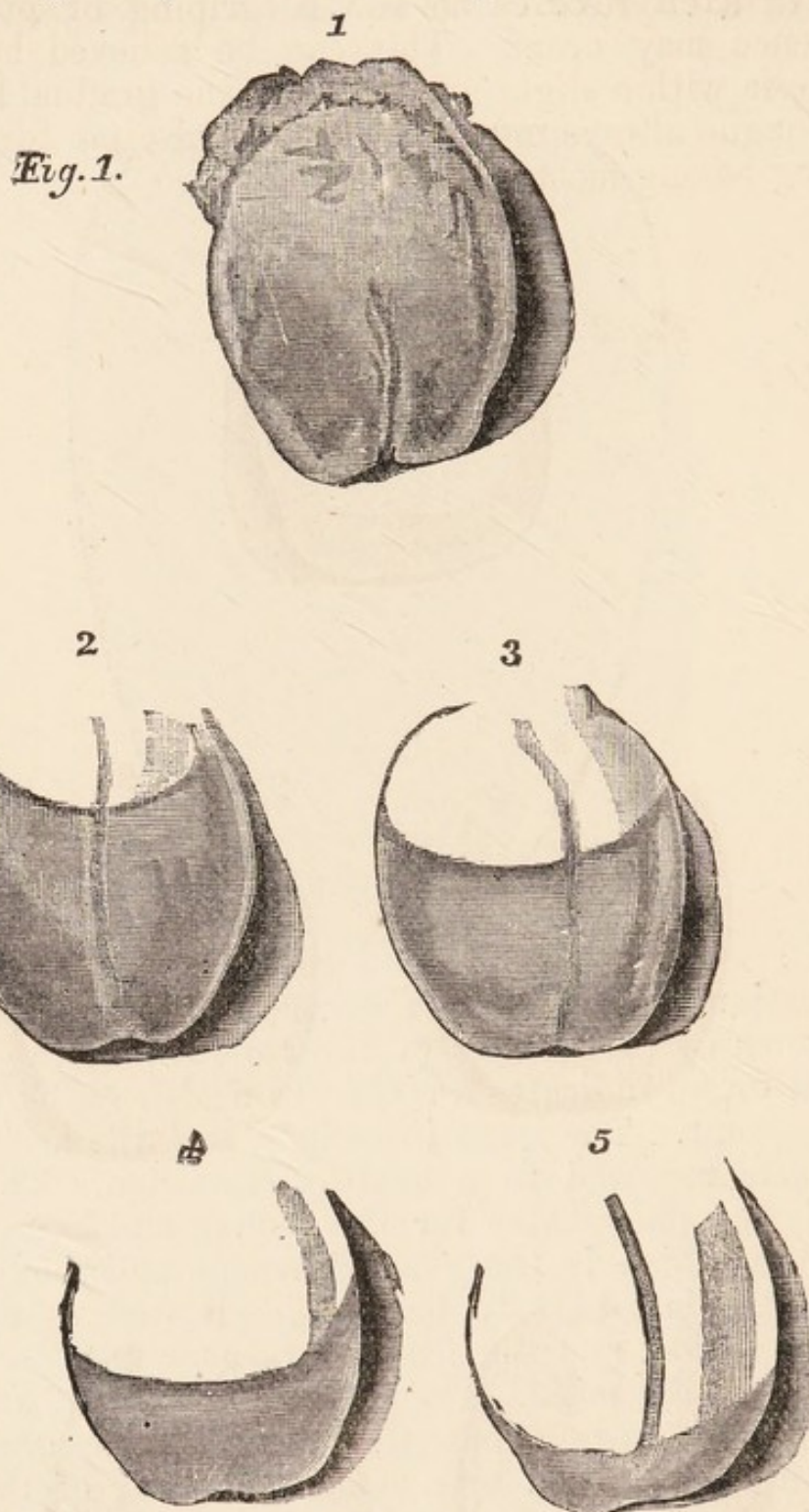
The **CLEANING** of the tongue.—As disease declines, the fur gradually leaves the tip and edges, and recedes in the form of a **CONE** or **CONES** towards the back part. As the

Fig. 5.



progression of disease, and the organs gradually implicated, are shown by the fouling of the tongue; so the cleaning of that organ indicates a return to health as by a reverse arrangement. The large intestines and the brain are the first parts restored to a healthy condition. The one to provide the phosphates for the nerves and brain; whilst the brain, which is the seat of reason and thought, shall also be the last part to become implicated in morbid or diseased action, and the first to recover for the especial integrity of the mind. The great sympathy between these two organs is very apparent. When all the organs have been affected, as seen by a general coating of the tracts, the tongue may clean pretty regularly throughout its surface, but very often some or one of the tracts will not do so, and yet obey the same law of individual cleaning afterwards, shown in Fig. 5, by the cones on each tract.

We must admit that all infants are born in a healthy state, consequently with clean tongues, as seen in Fig. 1.,



No. 1. Very soon after they take foreign aliment into their stomachs, their tongues somewhat lose their normal appearance, by fur gradually coming down from the back parts, as seen by Nos. 2, 3, 4 and 5. All this showing simply

functional disturbances. Then their little distresses and discomforts arise. A natural vomit, or one produced artificially, often relieves them. A griping or purging, or flatulence may occur. This can be relieved by a little magnesia with a slight anodyne, but the gradual furring of the tongue always indicates excesses of vital forces; over feeding having most to do with these.

Fig. 2.

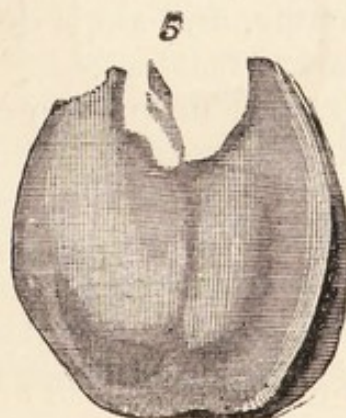
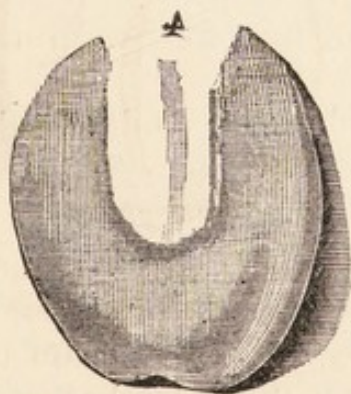
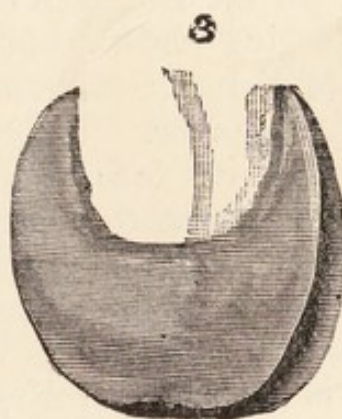
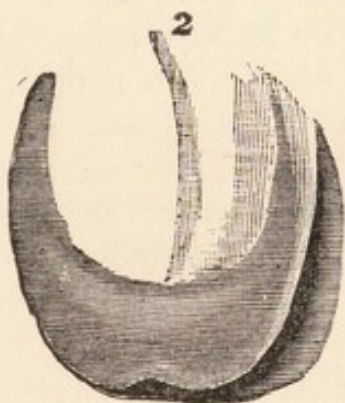
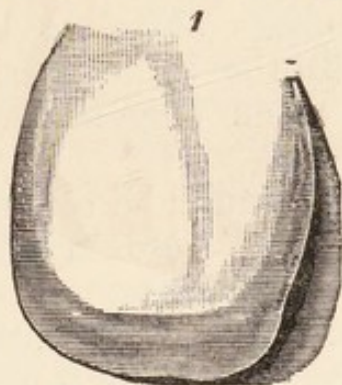


Fig. 2, Nos. 1, 2, 3, 4 & 5, show the fur gradually receding in CONES, along with the departure of the disturbing causes. The wedge or throat tract being the last, and thus indicating the disposition to croup and whooping cough from excess of protoplasmic elements, and which if allowed to remain, become organized, producing *Diphtheria*. Convulsions will also arise from similar protoplasmic excesses in the stomach. From the very first stages of life, a little knowledge of GLOSSOLOGY, carried to the infant's crib, would be found always truthful, and when once learned never to be forgotten or regretted.

The healthy tongue should be always somewhat coated with pile, for that indicates a due amount of protoplasmic secretion upon the mucous membranes, and helps the admixture of the food taken. On looking at the tongue before meals, after a reasonable or long fast, it will appear furred or coated, at the same time that there is a slight foetor of the breath. After a meal both these subside. From this I have gathered that a meal is as much a dose of medicine as a diet, for all diets are more or less of an alkaline character. Fasting shows that the secretions are more or less in a state of disintegration of protoplasmic matter, requiring regenerative power. Thus the new matter mixing with the old, furnishes vital forces; therefore, never starve a congested mucous membrane, indicated by a foul or coated tongue, a great mistake is made by so doing and by giving only slops. Never does the system require more solid food; well masticated, if possible, and if not, let it be well mumbled before it is swallowed; the stomach will arrange all other parts of the business; one of its great physiological duties is to act upon solid matters; in this it resembles the gizzards of birds. The more people live upon slops, the weaker their stomachs become, and slops do not mix well with or carry off disintegrated matters.

It is a fact, that no person can be well to-day and ill the next with any disease of any magnitude. Nature never does violence to her own laws. A departure from health is always insidious, and the gradual fouling of the tongue shows this. It is not until the first steps have passed and there is neglect in correcting them, which every meal should do, that the secretions get into a morbid condition, and heap

up fuel ready for the first spark to set them into a blaze. Here we have the exciting cause acting upon the latent one, the only true definition of PREDISPOSITION. The result is in accordance with the idiosyncrasy of the individual, what form of primary disease he or she will have. No violence is done by nature. Ask the question, and it will be found that the individual "has not felt well for some time," "has been seedy," "has not enjoyed his food, has had no relish for it," "has been out of sorts," "has felt small matters vex him," &c. If children, they are "peevish and fretful," &c., and have a score of little ailments; and nature trying to rid herself of obnoxious secretions, sets up one or other of the host of infantile disorders, it is one of her own curative actions. The tongue will show this without any questions being asked, and if proper medication is adopted, a gradual cleaning of it and departure of disease ensues. Then the use of all drugs should end, for nothing is so bad as excessive and useless medication with infants.

The tongue presents a great variety of appearances, form, character, size and general configuration. There is the broad large flabby tongue always denoting a congestive condition, often attended with rheumatism. There is the thick fibrinous tongue never much coated. Again, all must know the pointed tongues of the various kinds of fever, where the protoplasmic elements are deficient. All exhibiting many wonderful laws and characteristics of disease.

The appearances of the tongue are of the greatest importance, for this reason,—that whatever disease exists in the system, they mark the distinctive condition of the secretions, which regulate health and disease. It is by their integrity we have health and by their departure from this state that we have disease, and it is through them that disease can alone be cured, whatever it may be and whatever form it may take, locally or generally, throughout the system, with all its thousand specific names and characters. The normal or healthy appearance of the tongue should neither be contracted nor flabby; it should feel comfortable in the mouth, and be of a pale rose-colour owing to the little dots or pile on which the fur grows being of a whitish colour situate on a red ground. From this standard the white dots elongate,

and the tongue becomes furred and coated of all colours ; moist as well as dry. On the other hand, it may become perfectly denuded of all fur or coating, and present a red, crimson, or scarlet appearance, glary or glazed, dry or moist.

The first appearance of its coating or furring indicates an additional acid tendency to what the system requires, consequently the first step in disease, and this may go on to the highest extent in which it can exist in such extra-acid condition. This is often beautifully illustrated just before scarlet-fever breaks out ; when the whole mass of thick coating will vanish in a few hours, and leave the tongue like a piece of scarlet cloth. If this then occurs as a whole, it occurs also in parts. Thus it will be seen that the stomach tract may be white and furred, and the lung tract red all down, just as if it had been denuded by art ; but no art can do this. If the white or furred appearance denotes a congestive or acid condition of the system, so the red appearance denotes an inflamed one or want of acid ; and this in all the localities specified as representing the several organs or parts of the body by laws of sympathy one part with another. If any one has a cough, and the lung tract shows a furred state all down it, the disease is a BRONCHIAL CONGESTION. If on the other hand it is red, there is BRONCHITIS, or an inflammatory state ; and so with all other parts.

All these appearances indicate certain stages of disease of the mucous membranes. Disease of the serous membranes is seldom accompanied by tongues denuded of fur ; but the very reverse, the fur being inordinately thick. When it is so, and also moist, these membranes are in a highly congestive stage ; but if the fur becomes brown, dry, and rough, then they are in an inflammatory condition. Sudden inflammations of the mucous membranes will as suddenly clear off all the fur of the tongue as in the first stages of scarlet-fever, leaving a raw beefy appearance, whilst a sudden inflammation of serous membranes supervening will produce as suddenly a thick fur upon it. Great sympathy exists between the mucous and serous membranes. Their conditions pointing out the true character of disease, such as congestive rheumatism, or cholera, or fevers, &c., as distinct from their inflammatory characters. To dis-

criminate these is of the utmost importance, because their treatment is diametrically opposite.

Thus there are broad rules for diagnosis as well as minute ones. Disease comes before the scientific investigator in such questionable shapes, that it induces him to localize it and make it the specific end of his inquiries. Empiricism, points out certain means which appear most appropriate in the treatment, but as no two schools or two men ever agree upon this, no reliance can be placed on the opinions of what are called the highest authorities. It does not follow that he who is best informed on all authorities theoretically is the best practical physician. The bedside destroys many illusions.

The wonderful and beautiful laws I have here set forth, with their marvellous simplicity when once understood, will give a power and a degree of certainty over disease which has never yet been attained. Therefore, whatever disease the body labours under, the appearance of the tongue will be found the best indicator of the class of remedies to be administered, in which there can exist little error and no confusion.

GLOSSOLOGY may be considered difficult, but it is not so. It should be studied broadly in its most salient points. As a help to the student I give this simple advice, study the lung tract first and notice that when the bronchial tubes are loaded with mucus so this tract will be also; for bronchial congestion will be present. Again, when the bronchial tubes are in a state of inflammation, the lung tract will be red all down it and free from fur, confirming the presence of bronchitis. Thus both diseases are discriminated. When these two observations have been once confirmed, all the other tracts may be studied upon the same principle.

But all the various local headaches should be noticed at the same time.

The following description of their variety, character, and situation being well worthy of attention and study.

HEADACHES.

I have to mention another discovery, not so varied as the

tongue in its indications, but of the greatest importance in confirming the location of disease in any district of the body by sympathy with different parts of the head, known as HEADACHES. These, as means of diagnosis, are more important than they have hitherto been considered. They may be distinctly located in the BACK PART, the SIDES, the FRONT, the TEMPLES, and the TOP or VERTEX. Thus if my readers have carefully noticed the progress which disease takes as shown by the laws of fouling and cleaning of the tongue, the following divisions will indicate the distinct portions of the head with their relative sympathies with certain bodily organs : thus, apportioning

THE BACK PART to	{ The digestive stomachs and the sensual and instinctive organs.
THE SIDES to	{ The chemical or second digestive parts together with the small intestines or appropriating portions of the alimentary canal ; also the kidneys.
THE FRONT or reflecting portion of the BRAIN to	{ The large intestines or seats of the greatest manufactory of the vital gases, especially the hydrogens and the phosphates ; also with the kidneys.
THE TEMPLES to	{ The reflective or reasoning brain itself and its membranes.

THE TOP, or VERTEX, has reference only to the uterine functional disturbances in the female.

Thus by the aid of the appearances of the tongue and noting the distinct headaches, the diagnosis may become very perfect, but not, however, to the exclusion of all other forms.

If, therefore, the stomach is out of order, headache at the back part will accompany it. If the appropriating organs, or small intestines are affected, and they are really the least frequently so, the sides of the head will indicate it. If the forehead headache occurs, the large intestines will be the cause. This is oftener produced by the pernicious

habit of taking aperient medicines, than by anything else, and the more this vice is persisted in, the more the headaches continue, though they occur also in costiveness.

To discriminate between these two causes is of the greatest importance. The temporal headaches alone point out the Brain itself to be affected. Thus all headaches but those of the Temples have reference only by sympathy with other organs and not to the Brain itself. The Vertex headache has reference only to the female, from some constitutional irregularities.

CHAPTER VII.

DIET IN HEALTH AND DISEASE.

EVERY animal, from man downwards, having an independent existence, eats and drinks to support life, and this act is regulated by reason in the one and instinct in the other. All people in every country throughout the world differ in their habits and tastes. The Esquimaux for his blubber, the African cannibals for a dead companion, the Indian for his cereals and very little animal food, the more northern nations for fat and grease, the Asiatics for drier food and fruits, the European nations for everything edible or drinkable ; all have their peculiarities incident to usage.

From a very early date cooking has been an art both to please and appease the hunger. An old Patriarch said to his son, "Bring me savory meat such as I love, that I may bless thee before I die." I suppose, no savory meat, no blessing. The promoters of great charities no doubt take this hint, and glorious dinners make the heart rejoice ; but, "no savory meat, no subscriptions." We have ample illustration of the ancients, guided by one Epicurus, in their love of savory meats. Hence the epicures or gourmets, who indulge in quality, in contradistinction to the gourmands for quantity, whatever it might be.

Great variety of food exists both for the animals that cook as well as those which cannot. Take the herbage of the fields. What a variety there is: 800 species of grasses alone. Some succulent, some dry, some sweet, some sour, some milky, some bitter, some aperient, or which more or less act medicinally, others probably of no distinctive character, but all intended for the purposes of appeasing their appetites and sustaining life, by their solid, fluid and gaseous evolutions. Independent of all these, there are the seeds and cereals, tubers and bulbs.

Animals differ greatly in their likes and dislikes of food; what agrees with one class would not agree with another. Nature is, therefore, bountiful in giving them a great variety, knowing that if fed upon one species alone they would perish. So it is with man. In health every individual exercises his own judgment, which resolves itself into his likes and dislikes. Sometimes, when he is out of health, he may fancy what in health he loathed, and *vice versa*. Nobody knows so well as himself the truth of this, so that when he is ordered something he does not like, and which always disagrees with him, or forbidden to take what he yearns after, and which always agrees—he is in a fix. Nature will always be true in her yearnings for the elements she most wants, in whatever form they may exist: this latitude should always be given in sickness as well as in health. Dietetics form a large code in highly civilized and artificial societies; but the largest portion of the community cannot command what may be called indulgencies in whims and fancies.

If we reckon up all the varieties of meats, poultry, fish and game, their numbers are inconsiderable compared with the way in which they are cooked, even including their combinations with all kinds of pastry. So with fruit and vegetables, cooked or uncooked. Every one has some predilection as well as objection to some of them, both as to taste and as to what agrees or disagrees with them. Pork and veal have been much anathematized in artificial society, and, to a certain extent, pastry also; but what are nicer or more wholesome in many of their forms? If they are enjoyed and agree with people who take them, whether in health or out of health, let all do so. Again, it does

not follow that because a thing may disagree to-day that it will to-morrow ; some temporary conditions of the secretions may have been the cause : try it again ! If anything distinctly and constantly disagrees with any individual, he should not take it. Sensible people should eschew all dietetic dogmas, and give latitude to natural laws and their own tastes. Nature will always prove wiser than Galen. Many people eschew things whilst in health which they only imagine may disagree with them, and when ill, yearn for certain things which would do them good, yet decline taking them. An idiosyncrasy rules all classes, and a natural instinct should be followed in every condition of life as relates to diet.

Fish of every description, from the salmon to the whitebait, from the lobster to the shrimp, or from the scollop to the perewinkle, are pre-eminently life supporting ; the whole tribe, in fact, form its foundation, for they are a mass of protoplasmic matter. Where this has been lost, as it often is in many diseases to a great extent, and especially in fevers, fish diet recommends itself as the most appropriate. Again, it is especially useful when brain and nerve powers have been reduced, as it yields elements of phosphates largely ; it is, therefore, of the greatest importance as a diet in large hard working communities. The manner in which fish is cooked, and the various sauces taken with it, depend upon the taste of the individual, or the class of consumers. The majority cannot get these latter, but can only afford salt. Now some excellent epicures prefer only a little salt. I hold that the eating well dressed cucumber with salmon makes so rich a fish more wholesome, the whole mass blends well together and helps the digestion. What makes it somewhat unpleasant afterwards is sherry and other wines. If those who can afford to take these could bring themselves to drink malt liquor instead, or only water, they might eat salmon and cucumber with impunity. Here it is that all below this class have the advantage. Cucumber and its vinegar dressing is very wholesome with many other fish besides salmon.

It is considered by epicures that the head and shoulders of the round fish and the fins and tails of the flat ones are

the choicest parts and which, by the way, are also the richest in protoplasm, and, therefore, the most nourishing. As physiology agrees in this, it should regulate also the eating of it, both in health and in the departure therefrom. Where there is a well-balanced state of the secretions, these may be taken with impunity ; but if any individual has congestive states, having then excess of vital forces, it often disagrees. On the other hand, if there is a deficiency of vital forces, implying deficiency of protoplasm, such as always occurs in and after fevers or inflammatory states of the mucous membranes, then this diet commends itself. We all know the value of fish jelly or isinglass, and its inferior forms, the gelatines. It only requires a little thought to show why some things agree and others disagree, or agree at one time and not at another. It is not the diet so much as the state in which every individual is in at the time of taking food.

Fried or broiled fish is, in some cases, preferable to boiled, and *vice versa*. Wheresoever they live, in whatever climate, whatever may be the character or tribe of man, whatever may be their dietary, the same natural laws exist in all.

Whatever may have been eaten, when digestion is completed, the stomach ceases to secrete its natural acid to any extent. When incompleted, the mucus on its lining membrane becomes filmy and morbidly thickened ; hence a phelgmy condition, which some persons experience more than others. This produces what is called acidity of the stomach, or indigestion. The tongue becomes coated or foul before meals or after long fasts, and the breath a little tainted : a fact noticed by Shakespere in his play of "The Two Gentlemen of Verona :"—

SPEED. Item, she is not to be kissed fasting, in respect of her breath.

LAUNCE. Well, that fault may be mended with a breakfast. Read on.

All other mucous membranes are similarly affected, and help to produce what is called the congestive state, which the tongue shows by its fouling or coating. Now, looking at these several conditions, what, let us ask, is the effect of a meal ? As a direct alkaline mass, it corrects this disposition of the mucous surfaces, proving that every meal is

both diet and medicine. Nothing shows the elastic state of the system so much as the cleaning of the tongue after a meal, if it has been at all foul before. It is this act that frequently takes away a nausea or a headache, and it is this constant action which keeps up a healthy condition. When in health, hunger is caused by the secretions being in a temporary morbid state, requiring new material to mix with them. In fevers, these being absent to a large extent, food has nothing to amalgamate with it, consequently, liquids are preferred.

Owing to the vast variety of elements within the body always under exhaustion, they must be renewed by an equal variety of nourishment. Being omnivorous feeders, we cannot possibly define what it is in the end that does us the most good. We believe that a certain class of food produces animalized constituents, which are the nitrogenized variety; that another class produces heat; and a third, the non-nitrogenous, which have the properties of stuffers, to keep the alimentary tract properly filled, especially the large intestines, which generate the vitalizing gases. Again, the variety of food considered as diet and medicine, may at times, from a peculiar condition of the elements within the system, act in the latter capacity, and produce vomiting or purging, to the great benefit of the system generally. Here then, without artificial assistance, disease becomes arrested, because the first elements that produce it have been removed.

It is a very pleasing study to know the elementary constituents of everything, and trace "all flesh to grass," to show the animals that feed on vegetable substances, and man on them. There are, however, reasonable bounds put to our knowledge for our own good, which dietitians endeavour to transgress by eschewing the things that might do them good, and then flying to medicine which does them harm. Our philosophy should take the broadest range in the matter of diet. Every country furnishes something distinctive, and its denizens take that which is the most fitting for them in the climate in which they live. The old axiom, "When at Rome do as the Romans do," should be followed. If it be seen that in hot countries the use of alcohol or spirit is abjured, and vegetable predominates

over the animal or flesh diet, there is some good reason for it. With respect to ourselves our habits vary; yet with all this there lurks a deep philosophy in all we do, if we only search after it. Why is it that throughout the kingdom a preference exists for roast, broiled, or baked, over boiled meats? That out of the whole three hundred and sixty-five days, probably not thirty days can be reckoned for boiled meat dinners by the most ardent lovers of this fare? No one knows why they do this or why it is best for them, beyond the fact that they prefer it.

In the army and navy, where boiled meats formed the largest staple of the men's meals during the greater part of the year, disease resulted in a larger proportion in them than in other analogous classes, who could vary their cooking. What number of roast or backed meats do the crews of ships in long sailing voyages get? They can do nothing with their salted meats but boil them, and their whole dietary tends in this direction. Some years ago the death rate of the Foot Guards (all picked men) was compared with that of the Police force. The one having every comfort in barracks, and taken as much care of as children, yet far exceeded that of the Police, who worked a greater number of hours, and much harder, in all weathers. These men dieted themselves, and had fewer boiled meats and more broiled and baked; whilst the Guards were proved to have been fed principally on boiled meats. After their digestion, roast, baked, and broiled meats leave behind them the least quantity of acid elements in the system, as well as when first taken, act best, and are best acted on, by the acids which are present. On the other hand, although boiled meats are alkaline to the system when first taken, they do not absorb so much of the acid constituents present in the body after fasting as do the roast, baked, or broiled; consequently, not only by not doing this, but in the last act of digestion, they leave behind them more free acids. Nature of course tries to counteract this in every possible way, though she cannot always succeed. Thus we see that usage has made her own philosophy without knowing it. To condemn boiled meats entirely is perfectly absurd, because this comes under the head of the variety which I am advocating, and which

again usage follows; but even the poorest, as a law of diet, who have to provide for themselves, do not take these habitually. Boiled meats and broths have not been properly considered in their bearing on disease. After scarlet-fever, or in all cases of inflammatory action of mucous membranes and inflammatory fevers, when the tongue is perfectly clean and red, they are of the utmost value, because they produce acid actions, in which the system is deficient; whilst in all congestive or super-acid conditions, when the tongue is coated or foul, the roast or broiled meat should alone be given. So much has diet, thus considered, to do with convalescence or recovery from disease. It is of importance to understand the broad principles of diet, not so much the meats themselves, as the way they are cooked to suit individual cases.

With respect to the flesh of every animal or bird, some may be tender, some hard and tough. There is an old saying, "Where there is plenty of fat, there is tender lean." This implies that there is more succulent or juicy matter in it, than there is in lean meat, which is, consequently, more or less tough. The amount of blood in any animal has nothing whatever to do with either state, for the lean animal has as much blood in it before being killed as the fat one. Moreover, the killing process is designed to deprive the animal of all its blood before any part is cooked. Tenderness or succulency depends upon the quantity of protoplasm or inorganic fluids contained in the fibres of the muscles, or wherever these can be segregated. So that in cutting into a well-cooked joint, especially across the muscles, we find the gravy or protoplasmic fluids exuding freely. This is not seen in the meat of the thin animal, for all the muscular fibres are so closed together, that little or no inorganic fluids are contained in them. The cooking in these cases fixes them closer, and the meat is hard, whereas in the well fattened animals their muscular fibres are distended by the heat in cooking expanding the gases in the fluids, and the joints plump up. Similar actions exist when the animals are alive. Tongues, from their close fibred muscles, whether from fat or lean animals, require four or five hours boiling, but those from the fat ones are always the best and most tender.

Pork, veal, lamb, and all young meats should be extremely well done, either roasted or boiled, for when underdone they are not so wholesome, whilst older meats may be eaten underdone. Even this will be regulated according to the taste of the individual, some not being able to eat underdone meats, and others liking them best. I have noticed a peculiar characteristic in this, which is, that fresh coloured people and ruddy in appearance prefer their meats well done, whilst cadaverous-looking people like their's underdone, almost raw. Again, with regard to all young meats and game, they should not be kept long, having no maturity of growth their flesh soon perishes. No game of any kind keeps well before Christmas. As the animals get older, they can be kept to advantage, and eat more tender, so likewise do older meats. Medicine and diet are often indiscriminately given—a right medicine and a wrong diet, or a right diet and a wrong medicine, or both wrong or both right by a matter of accident; no philosophy being used in one more than in the other. Almost all our ailments, for want of the understanding of very simple laws, are made complex and difficult. The worst form of medicine and diet may be given, and yet the patient may recover; this can be no apology for its being wrong, seeing that it might have acted in an opposite way. Morbid elementary matter might be so disturbed by this proceeding as to do good by accident.

A word for "THE PIG," and what we do with it.

Pork as fresh meat is usually taken roasted or baked, or broiled in the form of chops. The two first have assigned to them a seasoning of sage and onions, and often an accompaniment of apple sauce. Whether these were instituted only as a flavour or to help their digestion, we only follow the usage of our ancestors who did the same with roast geese and ducks. They are not taken with pork chops, though mustard is used with all of them. Pork is also eaten boiled after it has been slightly salted for a few days. A leg, a hand, or a flank, are very delicious; the latter especially cold for breakfast. Pork kept in brine is largely used on board ships, but before cooking should be kept in fresh water for a day or two, the water frequently changed, and then boiled for some hours:

without this precaution there is little nourishment to be obtained from either meats. There are hundreds of thousands of people in these islands who probably never taste fresh meats the year round, or perhaps in their lives, especially the agricultural poorer class: fat pork and bacon are their staple food. It is well known that fresh meat, even at a lower price than bacon, does not go so far in a poor man's family, nor is so satisfying in the long run, as fat bacon and fat pork, and these are most sustaining over long periods. Thus usage again makes its own philosophy. The wealthy never see the huge masses of fat pork not too much boiled or over salted which the rustic consumes, and on which he can face all weathers and do all outdoor work, plainly showing its value.

The enormous quantity of ham and bacon consumed shows a far greater quantity of the "Pig" taken than any other animal, used as it is by itself or as addenda to white meats and poultry, and in all cookery, and more especially "THE LARD."

Every one, therefore, ought to have a good word for "*The Pig*."

This leads to the important question of "Fat," which is both antiputrescent and antiseptic, and, therefore, a great purifier in the system and always wholesome. The oils and fats might be taken largely internally in the treatment of snake bites, and all such analogous poisonings, or even in hydrophobia, certainly with no disadvantage, and not improbably beneficially as antidotes to the poison in the system.

Soups of all characters form a large item of diet, and the richer they are in the protoplasmic elements of albumen and gelatine, so much the more nourishing. In illnesses beef tea, mutton, chicken, and veal broths are often prescribed most unscientifically. There is nothing more pernicious in congestive states of the system, indicated by a furred and coated tongue, than broths and all kinds of messes made with large proportions of milk. In all these cases mastication is called for and wanted in order to elicit the most active secretion of all the salivary glands. If the solid parts cannot be swallowed, still there is the benefit derived from their juices mixing with the

alkaline salts of the saliva, thus keeping important organs at work which are often too dormant. Tedious convalescencies often follow slop diet too long continued. On the other hand, inflammatory conditions of the mucous membranes shown by the red tongue require the greasy broths, and if beef tea is given, it should be accompanied with isinglass or gelatine.

In all such cases even tea and coffee should have a plainly made jelly of these substances stirred in them, but not drank hot. The object being to supply protoplasmic elements when they are deficient, as they always are in such cases. In these states raw eggs beaten up in tea or coffee, or eaten slightly boiled; the membranes not having sufficient mucus upon them cannot moisten or digest solid matters; but as soon as the tongue shows a furred appearance, it indicates that the membranes are resuming their natural condition, and that the system requires to be supported with solids. The best to begin with is a hard boiled egg with a little salt, hard enough to bear mastication; this is very wholesome.

We see sectarianism even in diet; and if it suits vegetarians to live only on vegetables, let them follow their inclinations. Still there are people who cannot take every kind of vegetable, from some unsuitability of habit or disease; for instance, the land onion is an excellent flavouring element in very common use, but we do not use the sea onion or squill, except as medicine. Both these act upon the mucous membranes of distinct parts. Thus, in congestive coughs with much phlegm, we give the squill as a stimulating expectorant. The land onion acts upon the mucous membranes of the large intestines, and when there is an irritation there from diarrhœa or piles, or any inflammatory tendency, it does harm by increasing it, and, with some people, always acts as an aperient.

A sporting patient of mine told me that game, such as pheasants, partridges, grouse, &c., always disagreed with him. As I knew he had very irritable bowels, I merely told him to eat his game *without bread sauce*, which is always highly flavoured with onions. I need scarcely add, that game has agreed with him ever since to his great delight. On the other hand, in dysenteries or relaxed states

from any disintegrated condition of the mucous membranes, the raw vegetables are best, whatever they may be, such as celery, lettuce, endive, radish, cucumber, watercress, &c., and especially if these are combined with a well-made salad dressing, and more so when a lobster can be obtained. True dysentery is not common in this country ; but I have been fortunate in seeing many cases, some where there seemed no hope of life, yet plenty of lobster salads and raw vegetables, with well cooked, almost over cooked roast or broiled meats for diet, and opiates and acids as medicines, did wonders. The taking of vegetables with meats of any kind, and cooked in any way, is a good old institution, and the greater variety of both the better.

With respect to excess of salted meats, they do not alone produce scurvy ; a low dietary of milk and vegetables has been known to do this. The Negroes in the West Indies live exclusively upon vegetables, and become affected with scurvy. We export to them herrings cured at Yarmouth with a double allowance of salt, till they are as red as copper. Exclusive vegetable diet having used up all the salts of their own secretions, they want a fresh supply ; whilst the sailors' salt pork having used up all their natural acids, they want lime juice or some other acid.

No doubt the use of vegetables with meats arose from some idea of the correction of the one by the other, as they have their direct acid, alkaline and neutral properties. In the same way we season our meats, eating mustard with beef, pork or ham, but not with mutton, lamb, poultry, &c. Then again, taking pepper and vinegar with greens and cabbage, and salt with everything. All which have led to the making of piquante sauces and dishes, indulged in by those who can get them. There is, however, a sad want of knowledge of ordinary good plain cooking in ordinary fairly well-off families, accompanied by great waste, and more so amongst the poor.

Out of the bones and off-cuts often thrown away much valuable nutritious matter could be got, with really little trouble and no expense. The common iron pot or saucepan should be always on "*The Hob*" for these ; a little pepper and salt, and water constantly added, the quantity of albumen and gelatine and animal matter would be found

to be enormous. Care, however, should always be taken to empty this every night into a large clean bowl, and "*The Pot*" be well scalded out. In the morning they can be again restored, with anything fresh, and then used in some savoury way. Yet it may be said, how can the several strata of society below the fairly well-off ones go beyond the most primitive cooking (and who take their meals as they can get them). Look at the hundreds of thousands of respectable tradesmen with families; the back parlour is just behind the shop, which must be attended to, and their dinner is in the middle of the day, say one o'clock. Something is cooked somehow, and served up anyhow. Some members of the family not engaged rush in to take a bit, but customers come in and another hand is wanted to serve them, and then you hear "John, shop!" "Jane, shop!" "Bella, shop!" each going and returning as they best can, and so they get their meal by instalments.

Descend lower and lower in the scale, and everything is more erratic still. Yet all classes, pampered as some may be by all sorts of made dishes; others content with plain foods, with some attention to uninterrupted times of eating their meals; others, like the tradesmen, taking it as they can get it; and others, many grades below these, scarcely getting any at all: yet all are subject to the same laws of health, the same departures therefrom, the same diseases. Whatever, therefore, is taken as food by any class of society, all having similarity of elements, all obey the same laws of appropriation. But this is not all, for the body furnishes similar elements to those taken, in four times greater proportion. If we take more than the one-fifth necessary for us, we take too much—and who does not? If we take less, as many are compelled to do, they call upon Nature to supply more than her quota of four-fifths, and though they get thin, they can stand a good deal of this treatment, for it would be very sad for humanity or any animal if Nature did not come to the rescue; but when taxed too far, she succumbs at last.

It is only a small per centage of the community, such as those living in towns and cities, who trouble themselves about dieting, though so much has been said and written on this subject. The "UPPER UNITS" of the faculty make

it their special business to do this for "THE UPPER TEN" of society. Their books are both fascinating and faddy, for there is as much fashion prevailing in dietetics as in new drugs, which have their season, and are succeeded by others. Every one writes according to his own ideas in the same manner as he prescribes his physic, and for the circle in which he moves. These books can only be used by the class for which they were written, and cannot serve "The Million," who only want what is wholesome and enough of it, having the great requisite supplied by Nature herself of *Hunger Sauce*.

Cooking, in all its multitudinous forms of flavouring to entice depraved appetites with every kind of manufactured and patented foods, for every possible end and purpose, can only reach a small per centage of the community, and is no doubt welcome to those who lead artificial lives. All this may be incidental to our own country; but we know little or nothing of similar acts in other nations. If we went to China or Japan, or other Oriental countries, or to savage communities, we should find compounds of all kinds of medicines and diet, probably of a queer character. Though prescribed by their physicians, medicine men or witches, they must be considered equally valuable to the denizens of such nations as to what we should "eat, drink or avoid." All this may be reduced to one simple conclusion, that of ignorance imposing on gullibility; for presumption of knowledge is equal to its reality, if it be only admitted by any community.

The whole range of food—fish, poultry and game, lamb and veal, mutton and beef, and the flesh of the "*Pig*," in every form; then all severally, separately or combined in all the forms of pastry, pies or puddings, all are good. In these forms come also their combinations with all fruits and vegetables. Nor are the interiors of animals to be unnoticed, such as the kidneys, sweetbreads, and tripe—this latter most wholesome and nutritious. Then the common pastries themselves; cakes, biscuits, in all their wonderful characters; varying with the great staff of life—"BREAD." Creams, jellies, custards, trifles, and the great host of confectionery; butter and cheese; with the ever sounding words—"Arise, Peter, kill and eat." All,

all is good in its way ; all that is wanted is a little more of philosophy in their use, and this depends upon the physiology or knowledge of the system.

In health, look not to the right nor to the left, take everything that you like and that likes you. On a departure from health, the simple consideration is—does this depend upon increase or deficiency of the vital forces ? which resolves itself into excess or deficiency of protoplasm. If the former, all the roast, broiled, and baked and dry foods are called for ; if the latter, the boiled, and all things that will supply protoplasm or cause its fabrication in the body itself. When in health, the consumption of food, solid or liquid, as well as its character, how it is cooked, and quantity taken, depends very much upon the idiosyncrasy of every individual. The great end being to repair according to the waste, and not take more out of the meal tub than is put in. This repair of waste differs in every individual. Many take too much ; many not enough ; many, from circumstances, get very little, and many none at all. Many are great and many are small feeders ; the appetite and capacity for taking food varies in every individual. The small feeders often appear not to take enough, yet keep very well ; and the large feeders too much, and one wonders how they stow so much away and yet look equally well. There is a natural law for all this, therefore, we should not judge that what would be enough for one person would be enough for another. All classes are to be considered, as well as their occupations : there are the brain workers ; the physical workers ; and no workers at all, mentally or bodily, who have means to live without work ; whilst others have not these means, who ought to work, but are too lazy or indolent to do so. Brain workers should always live well, for their work takes more of the ethereal essences of the bodily machine than the simple physical workers, though a certain amount of physical exercise should always be attended to. Feeding beyond the capacity of due appropriation is wrong ; and not taking enough, through fear of straining the powers of appropriation, is equally so. Never be a dietitian, I never knew a healthy one, because he never repairs according to his waste, giving himself only the same quantities whether he does a hard day's work

one day and nothing the next. Give Nature her one-fifth raw material, regularly if you can, if not, irregularly, in order to work up and renew her four-fifths, which she always supplies. On the other hand, there comes a departure from health. If this arises from excess of vital forces, reduce the supply of the raw material; on the other hand, there may be a deficiency of the vital forces, with inability to appropriate raw material of a solid character, then its equivalents should be taken in a fluid form, but as consistent as possible.

Again, the body is subject to accidents, and nature is called upon to repair structures such as broken bones. This extra work calls for additional assistance, not reduced supplies. Similar conditions may occur when organs are diseased: nature would often repair them herself if let alone, but physicing and starving frequently prevents her doing so. This is often done in the active stages, but is carried on far beyond any necessity, hence a long convalescence. The patient may congratulate himself that he is "pulled through," but, perhaps, he never ought to have been ill so long. Volumes have been written on diet and cookery. What have the outside millions to do with these? The great broad rule should be to take anything and everything that is good and wholesome when in health, and in sickness what the fancy indicates. Polonius says to his son:—

"Costly thy habit as thy purse can buy."

The manner in which the world feeds seems to be upon the same principle. The fuller the purse, the more costly the viands. Who does not like to be well dressed, even to the waste of the fabrics in the making, or feed well, even to the waste of materials in cooking? Both depend upon means and fashion. There are times when little can be got of either food or raiment, who then does not welcome the poorest attire or the poorest fare? When all is said on eating, drinking, or clothing, as sources of bodily nourishment, none of these equal "SLEEP." During this time the storing of electricity in the myriads of protoplasmic cells throughout the body takes place. The amount of fatigue may be reckoned by its waste or exhaustion, and the amount of sleep necessary for fresh storage to take

place. Too much or too little sleep are both bad for the body. Some persons require more than others, and some can do with very little. Fatigue prostrates the body more when it is insufficiently nourished, and sleep then is fitful. No animals can sleep soundly on empty stomachs. All animals below man go early to sleep, and get up early, because they are awakened by hunger, it is the physiology of waking; no credit to them for being early risers. The stomach should always have some moderate occupation to do while sleeping. This is not sufficiently understood. Many cases of nervous depression and want of sleep are produced by empty stomachs, hence the administration of the opiates and chlorals, and other sleeping potions, which are not to be compared to a chop or a rump steak. I am not writing for that happy class who can always secure a regularity of time of going to bed and getting up. There are millions who are compelled to do this most erratically, either by night or by day, and by instalments. The world must be taken as it is, but a certain amount of sleep in every twenty-four hours is incumbent upon every body, and as nearly as this can be approximated to eight hours the better, so that the proper storing of electricity is secured. Sleep is meat, drink, clothing, and medicine all put together.

Happy are they who know nothing more of their meals after they have been consumed. They are to be envied. Many with nothing the matter with them often have frivolous qualms about indigestion, and bother themselves about their livers. These are to be pitied. In feeding to support life, the stomach, liver, and small intestines have always been considered the greatest powers or organs in the manufacturing and appropriating of the supply, whilst the colon or large intestines have been ignored, because only recipients of excrementitious matters, yet in value these are equal in results. Therefore, I emphatically say eat and drink to fill the colon, and always keep it full; and from this source will come nerve, power, intelligence, and health. Thus, as I have distinctly shown, life is a great chemical battle of opposite elements aided by the vital forces, heat, electricity, &c., which produce a given result by laws which we have learnt to imitate in our laboratories.

The new elements of our nourishment, act as they are required in the system, as fresh troops to continue the fight of life ; though whatever they may be, or consist of, they must be first converted into protoplasmic elements to do so. Every sensible and intelligent person should eat and drink anything and everything he likes and that likes him, so that there is no quarrelling afterwards. But moderation in all things.

With respect to beverages, every country has its own predilections. With ourselves, tea, coffee, cocoa, chocolate, milk, are used at our breakfasts, &c., and no doubt also by other European nations. What we drink with our other meals, such as lunches, dinners, and suppers, partake more of the fermented and alcoholic character. As Anglo-Saxons we have our cyders and malt liquors. The great Peninsular countries of Europe have their various light wines. In Asia wines seem at a discount, but luscious fruits with water take their place. In England, port, sherry, and claret are old friends, but we have introduced a host of lighter red and white wines from Hungary and Australia. These have become excellent substitutes for hocks and sauternes, burgundies and clarets, and many foreign wines of this description ; all these latter are far preferable to the vulgar fiery sherries now sold, which cause not only acidities and a host of small ailments in the system, but a great amount of intemperance where it ought not to exist. Champagnes are always present, and no doubt the good brands are very wholesome, but a spurious class of this wine is drunk sharp enough to cut the throats of their consumers as it disappears down them, and is quite as pernicious as the common fiery sherries. Then we have all the variety of spirits, gin, brandy, and whisky, noyeau, curaçoa, and all this class of strong liqueurs. Nevertheless, all classes drink malt liquors : the middle and lower, especially, as they are more sustaining. We have this national beverage now brewed on most scientific principles by high class establishments, and when received direct from them are eminently wholesome, even so from honest publicans ; but there is much drunk which this latter class know more about than the brewer ; hence much evil arises. The lower classes take very little wine, are never used to

it, and, in fact, do not like it, though, like their betters with respect to wines and spirits, take too much beer in all its forms occasionally. Certain medical abstainers from all wines, alcohol and fermented liquors, tell us that 40,000 lives are sacrificed every year at the altar of intemperance; this is the abuse of a good thing. Did it ever occur to them that four times 40,000 lives are sacrificed each year to the errors of their own medication? If they say that the body does not require any alcohol, not having within it any natural equivalent therewith, by the same train of reasoning, it could not want much of the physic they give, which also has no property in common with any element of the body. It is not so clear to me but that nature in many of her wonderful elaborating processes of our food does make alcohol in the system, which momentarily formed is as difficult to catch for analysis as a flash of lightning, everescence occurring so quickly. It is quite possible that in the variety of our diet, especially in highly saccharine substances, that a species of fermentation may be set up in the system, which will produce an alcoholic ether, and that this may occur more frequently than is at all suspected. Total abstainers, as they are called, eat more largely than those who take alcohol or fermented liquors. What they drink has then more action upon their solid quantities, and, without their being aware of it, produces alcoholic elements. Even the air or water may contain alcohol under certain conditions. Wherever there is decay or decomposition going on in any organic matter, a certain fermentation always takes place. If the gases from these were collected and condensed and chemically analysed, alcohol may be found therein. The earth manured with decomposing matters, and then saturated with rain, may yield alcohol. Vegetable substances, such as the vine, the sugar cane, beet root, all yield sugar through some fermentative process in their growth. Nothing ferments quicker than saccharine matter, obeying the first law of its own production. The wine-bearing palm of Western Africa yields a vinous sap; ferments quickly, and has intoxicating qualities. Nature never does anything unwisely. All grain may yield saccharine matter; the distillers get their alcohol from this source. Nor is it unreasonable to imagine

that even animals who eat large quantities of the grain and the seeds in various grasses, and in dry hay, that these may cause a species of fermentation with their own secretions, which, with a draught of water, may form some alcoholic elements. In fact, their stomachs are a natural mash tub. A horse working very hard shortly after a good feed of corn and beans, and perspiring immensely, becomes exhausted all at once, and cannot draw an ounce. Give him a pail of water upon his half-digested food, and in ten minutes he will trot off with a ton weight. Ergo, alcoholic elements are not at all unlikely to have been formed and are the real stimulants in his system, not the water alone, but by its assistance. Those who have had much to do with horses know that alcohol may be given to them with great advantage at certain times and emergencies. Alcoholic remedies in many states of the system are eminently useful, and total abstainers must disprove that nature herself manufactures them within us. A moderation in all stimulants from the humble cider and malt liquors can well be allowed to all who take them. Light wines to those who like them, and some of these are quite potent enough. Spirits should be used very discretionally, and all sensible people must know that excesses are ruinous both to health and happiness.

There is another class of "DRINKS" introduced of late years, and very largely and often intemperately indulged in by a strata of society who can afford them. This is the great army of "AERATED WATERS." All, no doubt, pleasant and agreeable, but then the "NIPS" of brandy, whisky, sherry, &c., which are put into them often leads to mischief. The injury to the system in the intemperate use of these, even when taken alone, with the various elements now introduced into them, is not sufficiently understood; but they are the cause of many ailments. The fixed carbonic acid gases in this legion of "FIZZIES" rob the system of its oxygen, and therefore, in time rob it of its physical forces. They help to make the middle-aged man much enfeebled in every way, by doing for his physical powers what the constant taking of aperient medicines do for his mental, which rob his system of its phosphates, and then comes loss of brain and nerve power. Each singly is bad enough, but both combined lead to the lunatic asylum.

In all ages where civilization has existed, some form of alcoholic stimulants have been used, and declared by the highest authority to "rejoice the heart of man and make him of a cheerful countenance." Those who take them always exhibit more or less *esprit* and a great deal of fun. On the other hand, there may be a quiet humour in the total abstainers, with a propriety of facial distortion, which may be taxed as a laugh, but they are not a jolly lot. So long as the earth produces barley, grapes, and the sugar cane, or any class of vegetation which can be converted into a fermentative state, so long will drinks be fabricated of a mild or strong alcoholic character, and so long, doubtless, will the human family partake of them. Conceding the point to the Asiatics, who do not take them, we are justified in believing that in their climates, and with their rich fruits and grain of all kinds, with water, they are sufficiently alcoholized with what they manufacture within themselves.

I cannot agree to the prevalent mania in medical dietetics of giving so much milk to everybody, to all ages in fact, and entirely irrespective of whatever their diseases or complaints may be. The adult stomach is rich in gastric acid juice, which quickly converts it into curds and whey; this latter soon flows out of the stomach, leaving behind an indigestible, and often an undestructible curd. This greatly injures the powers of that organ, and if it is not rejected by vomiting, it escapes in a crude state into the small intestines, causing an immense amount of functional disturbance. Even when taken with soda water, it is equally prejudicial. The milk mania, like other medical fictions, will run its course, not, however, until many diseases have been aggravated, and many new ones caused by it. The physician now-a-days seems to rely upon the chemists for new compounds for delicate stomachs and weak digestions, and they supply him with pepsine and pancreatine, &c., yet, with the inconsistency of his art, orders milk at the same time. If the milk was first treated in the dairy with rennet, and converted into curds and whey, and this latter given to his patients, and the curds to the pigs, it would be far wiser than imposing upon the human stomach the digestion of what is little short of leather.

CHAPTER VIII.

MEDICAL AND SELF-TORTURE.

THERE is little doubt that self-torture is practised under certain delusions to a very great extent. If I did not constantly see prejudice overriding all truth, and usage all philosophy, I would not have written this book. So much evil is added to natural affliction by the means used to remedy it, that it often strikes me mankind seem not to be satisfied with moderate suffering, so are led by inconceivably cunning devices to augment it, and this is done with equal certainty and success. A satisfaction also appears to accompany this, because a prejudice is flattered and a usage obeyed. Why, then, should I interfere, if the world is so pleased with itself. It is as likely to condemn me, as to receive my advice kindly. Why should I stand between a man and his own self-torture, who is constantly doing such things to himself which no philosophy can warrant, or common sense justify? As civilized, is he better than the savages who cut their flesh voluntarily in the performance of certain ceremonies pleasing to their great Mumbo-Jumbo? Yet these are called ignorant. Nevertheless, the civilized man does pretty much the same things in another way with equally painful and often fatal results; and worse still, these practices are upheld and taught as principles by the medical profession. I will not offer crude advice, or say anything without giving a reason; I appeal to this, and let all persons judge for themselves. That medicines administered with the best intention and according to all rules of art by the profession itself, as well as by all classes on their own responsibility, aggravate disease and suffering, is too clear to need any illustration. If in this uncertainty the human body has to endure so much, how much more must it suffer in the flesh from actual torture, when the improper use of external applications aggravates every form of pain? As in medicine, so in

external remedies, there must be a philosophy of right and wrong. The use of hot or cold applications most marvellously misapplied have caused, and do now cause, and will continue to cause disease, suffering, and death to a great extent, unless the public eschew their errors and prejudices. Take for instance a fever, a general heat of the whole body; what would be said of a man who advised the getting into an OVEN, AND DRINKING BRANDY to relieve it? Perhaps I may be called what he would be for the bare mention of the folly of such a proposition. But stop! Take natural inflammation of some local part, the heat, the redness, the swelling, the pain, in fact a fever of that part, and then say where is the sense of applying a HOT STIMULATING LINSEED-MEAL POULTICE. This is putting it into an OVEN with a vengeance, extending thereby the area of the inflammation, and increasing disease and suffering also.

Yet this is done indiscriminately by the profession if called in, and by the public generally, as an article of faith and usage; it is, in fact, one of their deepest-rooted prejudices. Now let us philosophize on this. Some natural arrest of the circulation of the inorganic fluids; some congestion in the veins, or engorged condition of the arteries; some obstruction in the capillary vessels, or in the numerous small glands near the surface, produce a heat or fever in a given locality, having a tendency to suppuration.

This fact being of such frequent occurrence, usage and custom apply the 'OVEN and BRANDY,' or *hot linseed-meal poultice*, in order to bring it to a head. Now, in the case of a whitlow, or the threatened loss of a nail, a boil, swelling of any kind, particularly of a gland, a puncture from a blunt instrument, or a thorn, a fester, a cut, or unhealthy wound, or any kind of local swelling and fever, if the hot poultices are applied, the area of inflammation is extended, and a large abscess is the consequence, at least many times the size it would have been. While in the fingers and toes, which are frequently the seat of spontaneous festers, &c., irritation is kept up, the skin is thickened, and rendered less liable to be permeated by matter; the heat is driven down the soft structures to the very bones and joints, and a portion of them may be lost.

Independently of this, the inflammation quickly runs up the arm or leg, a red line marking its course up the absorbent vessels, and if not abscesses, at least intense glandular swellings take place under the arms or in the groins. Usage will yet pursue the same baneful practice to these parts, and hot poultices produce abscesses, as sure as night follows the day. The system becomes upset and the whole body ill, and no one knows the end of it. The amount of suffering thus inflicted on the system, has often led to an early death. Thus a wretched and false practice, based on usage and prejudice, inflicts an infinite amount of SELF-TORTURE. Can common sense at all justify this most unphilosophical proceeding on the "OVEN-AND-BRANDY" principle? I have probably to answer the question; what are we to do then? Why! apply cold, cold, cold, nothing but cold; plain cold water. "But that won't draw." Certainly not; you don't want to draw, but to prevent extension of inflammation above, and below, and around; and if matter will form, it does so in the smallest possible compass, and concentrates more quickly. Instead of a fortnight, a month, six weeks, or even longer suffering, as is often the case, there will only be a few days. If the skin is tough, relieve it by a slight puncture and let the matter out; but keep on with the cold. When the part is seen to have nearly completed suppuration, the skin broken, and matter exuding, THEN, and not till THEN, put on a warm poultice of bread and water; for this reason,—that a little additional warmth thus applied promotes the flow of pus and *stimulates* the growth of new flesh to restore the injured parts, and in twenty-four or forty-eight hours no more poultices will be required. Independently of this, it is a great natural law for all elementary matter to come to the surface whenever an external opening occurs. Whitlows are a little tedious, because not only a new nail, but an entirely new matrix or nucleus for that nail has to be formed; and until this is done the burning heat and redness will continue, which should be kept under control by cold; afterwards the inflammation will cease, unless kept up by the "OVEN-AND-BRANDY" or HOT POULTICES. All spontaneous swellings therefore, of any kind, arising from the body itself, attended with inflammation, heat, swelling, redness, tenderness, &c.,

having a tendency to suppuration, or the formation of matter, should be treated by COLD APPLICATIONS, which should be changed as often as they become warm or dry. Some forms of erysipelas require cold applications; and also the redness and pains of rheumatism and gout, though neither of these diseases have a suppurative tendency.

The opposite form of self-torture consists in the application of cold, when heat should be used. For instance, when any person receives a fall, a blow, a bruise, contusion or sprain from any cause whatever, the usual practice is either to commence rubbing with liniments, or to apply cold; and, by so doing, to stop the circulation of the inorganic fluids, as well as of those in innumerable small vessels, and until these are restored, the parts exhibit all the colours of the rainbow. We must again apply argument and philosophy in this matter. If, as in the previous case of natural pain producing redness, which develops the mass of blood-vessels in a much enlarged condition, and cold is applied to decrease them; surely, on the other hand, if the parts are perfectly healthy up to the very moment they have received a blow which has injured the calibre of the vessels and produced a sudden arrest of their circulation, or paralyzed their action, it is most unwise to apply cold to keep them so; yet this is actually done. Now, as soon as possible after such accidents have happened, apply *warmth*, even as hot as it can be borne, to carry on the circulation and prevent congestion or stagnation. Any sudden sprain of the foot or ankle, wrist, shoulder, or any other joint, as well as bruises produced from heavy falls, the application of heat, and if possible, well kept up, is the best proceeding. But the public, by a perversity difficult to be accounted for, do the very opposite. They apply cold where they should apply heat, and heat where they should apply cold. By doing this to very severe recent sprains, they lay themselves up for months. In rubbing with liniments they often produce abscesses, or tendencies thereto. In all cases where this incomprehensible folly has been perpetrated, they suffer for many months, when they need not have suffered more than weeks, or even days. Thus it is we witness a number

of martyrs to prejudice, from the mal-administration of medicine on the one hand, and the misapplication of external remedies on the other. As if we had not sufficient ailments from natural causes, but that those we have must necessarily be aggravated by every species of remedy, the very opposite of what should be used.

Therefore, whenever any swelling, such as whitlows, boils, tendencies to abscess, or any unnatural redness, fester, sores, or such-like ailments occur spontaneously from any part of the body, COLD APPLICATIONS must be used. But when external blows or bruises from falls or sprains suddenly destroy wholly or partially any healthy part, then the application of HEAT is true physiology. As the creeds of schools advise the reverse, can we wonder at the ignorance of the public. To illustrate this further, they advise hot applications to inflammations of the serous membranes of the abdomen (Peritonitis), and ICE to the head, when similar membranes there are similarly attacked. I extract the following from my larger work: "PRINCIPLES OF ORGANIC LIFE," 1868, pp 111 and 112, on this subject, showing the wonderful discrepancy in medical treatment of ice for inflammation of the coverings of the brain, and the same treatment where there can be no possible inflammation at all, but, in fact, the very reverse, such as in

"SUNSTROKE:" "COUP DE SOLEIL," or, "BLOW OF THE SUN."

"The remedies of ice and cold applications seem to me to be opposed to all physiology. Here the nervous sensorium has been directly attacked by over heat, which has liquefied the blood and all the inorganic fluids to the highest extent, and forced them out of the cavities of the brain. The consequence of this is plainly shown, in the powerless state of the nerve matter itself. The treatment then should be: first to place the patient in a recumbent position in a dark room, and to apply *hot fomentations* to the head and down the spine, as well as to the extremities. It has been proved that the brain in sunstroke is emptied of its blood. Surely ice and cold do not tend to bring it back again! Whatever power the system may exert to do this, by natural laws of restoring an equilibrium and

forcing blood into its accustomed channels, are abrogated ; as well as those laws of the combination of the inorganic elements to give lubricating powers. The very application of ice and cold, upsets all nature's proceedings in a healthy direction. I do therefore say, that if brains are deprived of all their nourishing blood by a SUNSTROKE, depend on it, warmth is the truest plan to restore them to integrity. But in the present treatment by ice, it is better that death should follow than that the sufferer should be for ever after subject to the disordered state we so often see after these severe visitations. For it is totally impossible that after the great disturbance of the material combinations of nerve elements, which we witness after SUNSTROKE and the present practice of preventing this nerve substance being restored by the use of ice, that the brain can ever be of the same healthy character as formerly. I am confident that if the plan I have sketched were adopted, many more lives would be saved, as well as minds, along with them."

MODE OF TREATMENT.

Remove all clothing from the upper part of the body and immediately place flannel clothes wrung out of boiling or hot water and place them over the head, round the neck and down the spine ; the feet and legs to be also fomented, keeping this process up for several hours.

Wherever individuals are attacked, they should be immediately removed indoors or under cover. The room darkened, so as to shut out the sun's rays. A liberal diet, the same in fact as usually taken by the individual. Malt liquors may be taken, but no alcohol of any kind, and the system well kept up. No medicines are necessary, and the bowels should be kept quiet.

There are many other forms of self-torture, which, as I have broached the subject, will strike the thoughtful. Even in the treatment of the common vulgar boils, which evidently come for some inscrutable relief to the system. These obey certain laws of maturation, and last, from the beginning to the end, about nine or ten days. Old folks used to call them nine days' wonders. They generally come in threes : one large and two smaller ones, or two moderately sized ones and one small. Their natural

localities are the pole, near the neck vertebræ, or at the lowest part of the spine, they therefore must obey some law for the natural relief of these parts, as both ends of the spine are the favourite seats of them. There is always more or less inflammation round them. They are very painful, and more so when their centres are pressed upon by the clothes. The simplest plan then is to put pieces of Diachylon plaster over them, with holes cut in the middle to protect them. If they are very hot and painful, cold water compresses may be applied a few times, and changed when dry. This is all that is necessary. Hot poultices are most pernicious, as well as unscientific, as they change the boils into abscesses, by extending the area of inflammation, and cause them to last longer. But this is not the greatest evil, for, seeing as we have, that boils relieve excesses of protoplasmic matter, which of itself, is a very sensitive element. Hot poultices induce the development of others at other parts of the body, and render the system liable to a constant recurrence of them, as many know to their great sorrow, who have followed this barbarous practice. Therefore, the simple plaster and cold compresses is all sufficient:—so treat them with the contempt they deserve.

The baneful practice of applying hot fomentations and poultices to the throat, especially in children, is strictly to be avoided. If there is a golden rule to be observed, it is, NEVER APPLY HEAT OF ANY KIND TO THE THROAT. All the primary disorders of infants and children commence in the upper works, especially the throat. We should always bear in mind the enormous amount and number of glands in this region and the neck, and that no parts are so sensitive, and that there is always, from the earliest stages of life, a tendency to congestion in them and the mucous membranes about the gullet and windpipe. The commonest observer will see the origin here of croup and whooping cough, which are nothing more nor less than the excess of secretion upon the mucous membranes becoming morbid and then organized, not only upon their larger surfaces but in the small tubes traversing the glands, which consequently become blocked up. Whenever this occurs, the tonsils become enlarged long before they are noticed to be so, but this is shown on the outside by the fulness of

the neck glands, as well as the neck itself, and is always attended with great heat of the surfaces, both inside and outside. Under these circumstances, it is a great error to apply hot poultices, which increase the heat, whilst the throat becomes swollen from the enlargement of the glands; until at last matter or pus becomes developed, and an abscess is formed, which a vile prejudice declares must be brought to a head by more hot poulticing. Two or three prominent points are developed, and then the lancet is used, and more hot poultices applied. Thus, a fair and beautiful little female child bears a cicatrix for life in her neck, to her great prejudice ever afterwards, as implying a strumous or scrofulus habit, when there has been nothing of the kind—this I have witnessed hundreds of times. Let us go one step further in the stage of organization of mucus on the mucous membranes, and we see DIPHTHERIA, which has been fatal even in palaces. This disease has lately drawn the attention of the profession to its character, and who now designate it as MEMBRANOUS CROUP. Beyond this, like many other pathological investigations, so dear to science, and so often futile, they do not appear to advance or come to any conclusion as to its proper treatment; it is simply another rock for their individual opinions to split upon. I most firmly believe that this is often a manufactured disease, for if these cases are treated by hot fomentations and poultices, they almost invariably prove fatal. Then the verdict should be: "KILLED BY THE DOCTORS;" but if they perchance recover, then all that can be said is: "THAT THEY LIVED IN SPITE OF THEM." No hot applications of any kind should ever be applied to the throat for any of its affections, at any stage of life whatever, from swelled glands, mumps, croup, whooping cough, and diphtheria of child life, or to the common sore or ulcerated throat, swelled tonsils, quinsies, or any other throat affections of after life. I do not believe that diphtheria is contagious; unphilosophical treatment has made it the bugbear it is.

There is also the pernicious practice of applying counter-irritants to the throat, such as mustard and other plaisters, turpentine stupes, vinegar rags, hartshorn and oil, or rubbing in liniments of every form and description, all which

only irritate the glands and do a vast amount of mischief, by producing enlargement of them, the very reverse of what was intended. All applications of this character simply mean making things worse. Again, the throat is often wrapped up in flannels, which is equally prejudicial, for whenever there is anything the matter with the throat there is always more heat present than in the normal state, any additional amount supplied by any of the above remedies increases this, as well as the disease, whatever it may be. Many people, especially girls, often get throat affections from wearing fur or woollen boas during the day, getting heated, and throwing them off when indoors. All that is required in any weather is a light silk tie. Again, the upper strata of society, after wearing these boas, &c., with cloth, woollen, or sealskin jackets all day, dress at night half naked, and are most inconsiderate in sitting in and courting draughts; yet they are called the weaker sex. If men wrap themselves up in comforters, and overheat their throats, they are sure to pay the penalty; how would they get on if they had to dress in the evening like the ladies; they would soon find out that *they* were the weaker sex.

It does not fall to the lot of the general public to see ulcerated legs, but let any one go on out-patient days to any of the London Hospitals, it will be the most painful sight he ever saw. The treatment is chiefly ointments and salves, and then shutting up with bandages. These cause great heat, pain, excitement and enlargement of the sores, and, what is worse, often prevent the escape of ichorous discharges, adverse to the healthy healing of their bases. The simple, and, I might add, the scientific treatment should be the application of plain cold water dressings frequently changed.

In order to cleanse the wounds and deodorize the stench, nitric acid lotions, composed of ten drops of nitric acid or more to an ounce of water, should be freely used at every change. This is far preferable to carbolic acid, which is stinking stuff of itself, and often very injurious. The wounds soon assume a healthy appearance, getting every day more circumscribed, and all that is required beyond this is a generous diet. No grease of any kind should

ever be used. A proper vent or outlet for all discharges from whatever condition of circumstances of wounds or otherwise is absolutely necessary, so that they be not shut in, for if they are, they may become poisonous elements, and likely to be absorbed. It is a natural law that all fluids of this or any other character gravitate by hydraulic force to any open part; they want no leading or artificial inducement to do so: all that is required is, that there be no obstruction, and that the point of exudation be well kept intact. In simple abrasions of the skin, no grease or ointment should be used, they often produce wounds; the simple application of Goulard water, is all that is necessary for these.

Many deep and extensive ulcerations are prevented from healing by small arteries, capillaries, and veins, being all combined in one current. The object of applying nitric acid or lunar caustic, or any other powerful styptic is to destroy the combination, but this is often tedious. I see no reason why this should not be done by the actual cautery or red hot iron, as in internal operations. We have now the benefit of electricity, and could have handy portable batteries, powerful enough to bring a ball of platinum to a red heat. By this the whole wound could be well singed, destroying thereby morbid matter, and all small vessels, and so shunting the blood back into the arteries, and preventing all capillary circulation to the veins, thus leaving the protoplasm free to work the healing processes. This operation would not be more severe than the nitric acid or caustic; indeed, I am inclined to think quite the reverse, because in these latter applications the pain from them lasts longer than in the actual cautery. Patients no doubt would be terrified by the sight of a red-hot iron, but if the electric battery and platinum ball could be brought into the service, they need not see the application at all. The operator could take the limb between his legs, holding it firmly, with his back to the patient, like a smith shoeing a horse; he could then heat his platinum ball and do his singeing. If there was much pain prior to this, the hot application would lull it, and would be more pleasant than otherwise.

BATHING.

An imperfect knowledge exists as to bathing, and even in the use of hot or cold baths; some persons doing to their own injury what others can do with impunity, or even benefit. For instance, sea-bathing: some delight in it, it benefits and invigorates them; others may get ill from it. The question is often asked me if sea-bathing would be advisable? Who is to know the idiosyncrasy of every individual? I have found the following rules to be of great service. If after a sea-bath the individual feels elastic in spirits and physically active, then it agrees with him. But if it produces a heavy and sleepy sensation, and a desire to lie down soon afterwards, then it does not suit, but may prove actually injurious if persisted in. Hot and cold baths may be regulated by these symptoms.

POSITIONS OF REST.

There is great importance to be attached to the position of the body, in health as well as in disease, which can well come under the head of mechanical medicine; this can be illustrated by the use of high seats or low seats as conditions of rest. Low seats, for instance, after a full meal, with the feet on a footstool and the knees half-way up to the chin, thought so jolly and comfortable, are productive of much indigestion and dyspepsia. Here the thighs thrust up the abdominal muscles, and consequently all the intestines (a variety of them, thirty feet in length from end to end) get bunched up together. These again press against the diaphragm or midriff, and curtail its rising and falling in every inspiration of the lungs, lessening their calibre and power to absorb the oxygen from the air, by very many cubic inches at each inspiration. This prevents proper and effectual decarbonization of the fluids sent to them from the heart for this purpose, and often cause a corresponding disturbance of that organ. On the other hand, if a high seat is used, the very opposite conditions ensue: no one can sit upright in a low seat, or bunched up in a high one. In this the legs draw down the abdominal

muscles, and all the interior organs get full play for digestion and all other purposes. The diaphragm has a freedom of action, and the lungs are capable of inspiring double the quantity of oxygen, say, thirty cubic inches instead of fifteen, at the rate of sixteen to eighteen times a minute, and so expire more of the deleterious elements from them, viz., the alkaline carbonates. If these are not sufficiently exhausted or got rid of in this aerial way, they get into the arterial blood and produce gout, which is an entirely arterial disease.

The height of the seat should be regulated by every individual, in proportion as he is short or tall, fat or thin. I have sat on a seat twenty-two inches high for more than forty years, and personally know nothing of dyspepsia or gout. Tall men inclined to get stout should never sit on one of less height. The fashionable low seats of the present day are the greatest agents for the causes of dyspepsia and rheumatism. Not but low seats are very comfortable under certain conditions; as, for instance, any one coming in very tired and very hungry can have a good rest in one, and get all his internal organs well bunched up when he has nothing in his stomach to digest, and so he is contented, and will not quarrel with his cook if she is half-an-hour or three-quarters late in serving up the dinner.

The sitting position is not one of drill, and if it is made so with growing girls it produces spinal curvatures, which boys never have, because they lounge about in any way, and have no stays or corsets.

PARTURITION AND ITS AFTER TREATMENT.

As a sequel to the foregoing, I will speak on the above subjects, and base my observations on the records of "THE REGISTRAR-GENERAL," and use Dr. Farr's own words of "THE UNWARRANTABLE NUMBER OF DEATHS AFTER CHILD-BIRTH." A very serious record, indeed, in medical statistics.

It is recorded in the Annual Report of the Registrar-General for the year 1876, that 4142 mothers succumbed. It says—"The mortality of mothers in England was higher in the two years, 1874-5, than it has ever been since 1847,

notwithstanding *27 years' presumed professional advancement*. In the 30 years, from 1847 to 1876, 106,565 (one hundred and six thousand, five hundred and sixty-five) mothers died from child-birth, that is, five to every 1000 children, or one in every 200 born alive."

No doubt even more died, though the deaths are not recorded under this head, but, nevertheless, proceed from its results. Dr. Farr remarks—"How long is this sacrifice of life to go on? This is a deep, dark and continuous stream of mortality! How can it be accounted for? Bear in mind we are not dealing with the data of some mysterious disease that baffles our art and bids defiance to our efforts to restrain it, but with the records of what should be the performance of a mere physiological function at the period when the powers of life are presumably in full working order, and where, in the majority of instances, the process is under the supervision of a SKILLED ATTENDANT."

Pregnancy is one of the most natural as well as most important conditions of the female of all animals. In the human female it is often a protection against disease, because of a greater action existing in the system to resist anything likely to affect it.

In the human family certain slight functional disturbances at first accompany it; after this the highest condition of health is usually attained, and few women look nobler, handsomer, or feel better than when near the time of their confinements. In the largest majority of cases these are extremely propitious, requiring scarcely any artificial aid. Here, then, is Nature performing her own simple act in her own simple way, in a perfectly healthy individual. How, then, does it happen that death so often follows these acts within a given time? The records of the Registrar-General would seem to imply that this mortality occurred during the act, or nearly so, of the birth of the child. From great personal experience, and from enquiry into that of others, I believe that this is a very small percentage, and these probably from some existing disease during pregnancy, which that had held in abeyance. What, then, is the cause of death afterwards? What is the simple physiology of this simple, natural function? A woman's

travail comes upon her, and the movement of her offspring towards the outer world presses upon the large intestines in its progress, and probably completely empties them, thus preventing obstruction to the birth of the child.

This sudden exclusion of a mass so great as the infant with all its environments from one distinct organ, so long inordinately distended, and distending also the walls of the abdomen, calls for some artificial assistance to aid muscular contraction afterwards. This is a most important proceeding, known as "BINDING UP," of which I will speak hereafter. Given then the highest state of health of all the organs and functions of the body, as stated by Dr. Farr, the parturient woman has simply had a severe call upon her physical and nerve powers, which, as soon as the excitement is over, should be restored as quickly as possible. This process should begin from four, eight or twelve hours after her confinement, when she should be allowed to take her usual meals, with any mild stimulants she is accustomed to. These always produce contentment and sleep, and set all the machinery of the body in working order, just as they are known to do after all other forms of physical fatigue or exhaustion. But, alas! the prevailing "skilled" treatment has, unfortunately been a low diet—gruel, bread and butter, and slops, for several days; and before anything stronger or of more nourishing character is allowed, a dose of castor oil or some other aperient is given. Let us ask this question. Would such treatment as this be tolerated after a hard day's bodily and mental work of any other kind in any other person, who is in a high state of bodily health? Why, then, should it be practised on the healthy parturient female? Is it not placing child-birth under the category of disease, and treating it as such, in utter disregard of all physiological laws, and of assisting the recuperative powers of all the vital forces so largely and so lately expended. As deaths are so rare in actual child-birth, the causes of them afterwards, within a given time, must be traced to their after treatment, by keeping the physical powers in a state of exhaustion from low diet, and then carrying away the poor little lot of elements from the large intestines by aperients, which Nature has been ac-

cumulating from very slender resources for her nerve forces—the phosphates! These should, therefore, be conserved to the utmost extent, and with fair and generous diet, Nature herself will regulate them if she is not interfered with, as in all other conditions of a healthy body.

If the Registrar-General were to classify the deaths of individuals after child-birth, he would find them mostly amongst that class who can best afford to pay for the “SKILLED” advice and attendance; not amongst the lower order, who fortunately see little of their accoucheur after baby is born, but who, left to themselves and feeling tolerably well, ask for and have what they fancy; as they say, “I am so hungry, oh! give me something to eat, or I shall sink through the bed.” And so they obey the natural laws of restoring power. But these or similar appeals would be made in vain to the “SKILLED” attendant and his inexorable nurse by the richest lady in the land; she and those in like good positions must be starved and pay the penalty with their lives.

The average time in which they succumb is from the third to the tenth day. Let any one look at the births and deaths column of the *Times* alone for one year, and he will verify this. I cut them out, and have a long sad list; what must be the numbers that do not appear in this journal, but probably in others all over the kingdom? What again of those who cannot afford to pay for these records? These deaths practically show the abrogation of the laws of the vital forces, as well as those of health, as detailed in Chapter V. Thus, when the usual treatment has been adopted of starving and physicking, and the patient becomes suddenly very weak, with evident symptoms of something going wrong, some great depression or sudden prostration supervening, then plenty of stimulants and nourishments are ordered when perhaps too late, and the case treated for some supposititious disease to which the patient succumbs. All this is so unexpected and apparently so astounding; when all about her recall—“How well she went on for the first few days!” Of course she did, because there was the highest condition of the balance of the vital forces as well as of those of the healthy secretions, to start with. Both, however, were allowed to become

exhausted from want of assistance of the one-fifth new elementary matter, besides the carrying away by aperients from the system elements of the vital powers that were already there. That so many recover, or that there is not a greater mortality, is entirely due to the kind providence of Nature, and to the high and vigorous condition of the patient herself, not to the science or knowledge of the "skilled" attendants. Surely they should be the mentors to oppose and not the encouragers of such fearful errors as these, and so wean the public from them.

An unscientific idea seems to prevail, that feeding an exhausted patient well after parturition might cause fever. Now nothing does this more, or has a greater tendency thereto, than low dieting, which produces more or less a "relapsing fever," or fever from starvation, ending in a typhoid condition, and if not, then both long and lingering recoveries result, with inability to nurse the child. There is little doubt but that puerperal fever arises from these causes. It is only one of the phases of relapsing fever, running its usual course, from the exhaustion of the natural protoplasmic fluid elements. Hence, inflammatory conditions set up in the mucous membranes, such as in the lungs, or in any other organs, as well as the whole alimentary surfaces. The patients may die from any of these causes, and then it is called blood poisoning, and the blame is laid to contagion from a nurse who had perhaps previously attended in a similar case. If enquiries were instituted, it would be found that close and badly ventilated rooms, together with starving and physicking, were the true causes of the mortality. When death ensues after a certain number of days, and no disease had been previously known to exist, it is from insufficient support and medication combined, and this too at the most interesting and most important event and time of a loveable and healthy woman's life. If all these matters were better understood by the public, and the general treatment reversed, the Registrar-General's reports would soon show where the fault laid for these too numerous deaths.

I have been told, on reliable authority, that the French practice in these cases is worse than the English, both in excess of starving and physicking, and that it is rare for a

parturent woman to get over this natural act for some months. What the mortality is in France from these cases I do not know, but I should think much higher than in England. So far, then, does the treatment of a state of health, under extreme mental and physical exhaustion, unattended by any disease, depend upon a correct knowledge of the laws of the vital forces and of physiology.

Where death occurs at or about the time of child-birth, and there has been sufficient vitality in the mother for the act to have been completed, some time must elapse, however short, before death ensues. It is then that the promptitude and vigorous treatment of the *skilled* attendant should be shown, and not ordinary doses of stimulants administered as if for ordinary occasions, but extraordinary doses for the now extraordinary ones. The table spoonfuls of brandy are of little use, or even the wineglassfuls, unless repeated very frequently, and kept on till vitality becomes distinctly apparent. Quantity should not be heeded now; it is a duel between two powerful adversaries, and victory will come to the strongest. I dare not say here the quantity I have used at such times with success; though I have never been able to account for the fact that what would have killed the strongest man, however he may have been addicted to alcohol, had no more alcoholic effect upon the patients than water. Life was saved, and no ill effects occurred from the tremendous remedy: that is a sufficient answer.

BINDING UP AFTER CONFINEMENTS.

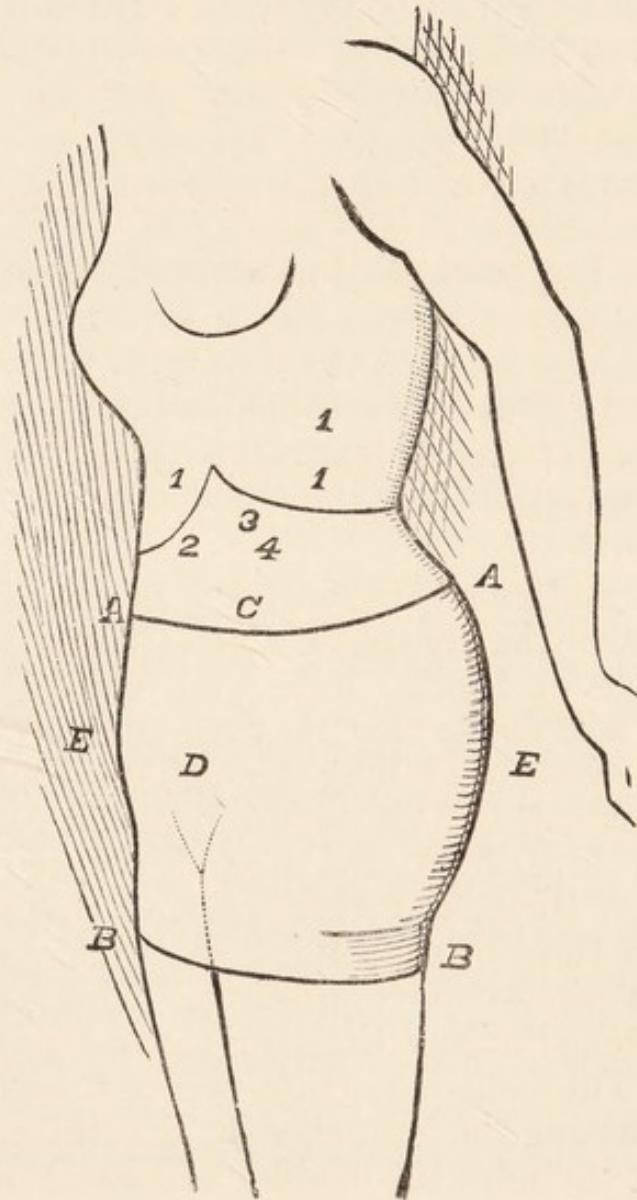
During the process of pregnancy, a gradual bodily extension ensues, causing some pressure upon all the abdominal organs, but never amounting to any displacement of them, all being kept in perfect apposition.

As soon as parturition has taken place, the womb contracts quickly and forcibly, as do also the abdominal muscles now relieved from their inordinate expansion. Nevertheless, all these actions are greatly aided by some judicious assistance.

Binding up is, therefore, one of the most important duties

of the "SKILLED ATTENDANT," if present, because a certain amount of anatomical as well as mechanical knowledge is required, of which midwives and nurses have not the least idea; yet this office is too frequently left to them. It is a peculiar characteristic of the female mind that it has little knowledge of mechanics. From the highest to the lowest this is shown in their daily habits to a marvellous extent. How, then, can they be expected to understand anatomy, which is based on mechanical laws? and upon both of these, efficient binding up entirely depends.

The following anatomical diagram is given to show the positions of all such organs and parts requiring this, and to point out where mechanical pressure should be directed, and where it should be avoided.



EXPLANATION OF THE ABOVE DIAGRAM.

- 1, 1, 1. Represents the chest, containing the heart and lungs, and the curved line is the diaphragm or midriff, separating these from the abdomen.
 2. Is about the situation of the liver on the right side.
 3. The stomach, beneath which is the pancreas or sweetbread, a large salivary gland, and below this again is a great mass of nerves called the solar plexus.
 4. Is about the position where the arch of the large intestines passes transversely across the above-named parts 2 and 3. It is absolutely necessary that all these organs should have full freedom of action; any impediments to this, either individually or collectively, disturbs all those vital forces in which they are all so largely engaged in performing.
- C. Represents the lower part or pit of the stomach.
- A, A. Show the positions of the crests of the hips.
- E, E. The haunches.
- B, B. The upper third of the thighs.
- D. The situation of the bladder and womb, closely contiguous, the former in front.

The simplest and most practical way of binding up is to seat the patient in the centre of a good large jack towel, or a small table or lunch cloth, or a child's crib sheet, either of them will do, so that they are about eighteen to twenty inches wide, and long enough to fold over the abdomen to each side. This binding should commence at the top of the hips, A, A, and be well secured, so that it cannot get below them, and then carried as far down as B, B, the upper third of each thigh, and made sufficiently tight, so that it cannot move upwards. This part can be sufficiently loosened at any time for natural purposes and convenience. The centre portion over and across the abdomen, encompassing the haunches, E, E, is the most important of all, as it includes the bladder and womb at D, where

the greatest pressure is always required. There is no comfort patients appreciate more at these times than the support of the haunches, their expression always being, that it pulls them so well together. As the binding slackens here first from the gradual contraction of the womb itself, as well as of the abdominal muscles, more pressure is required over D. This is best produced by bunching up some cloths, and putting them down from the point C to reach D, and this may be done to any extent, without any removal of the binding. Should there be any disposition to flooding, this at once arrests, nay, more than that, actually prevents it. The binding should remain for two or three days, until sufficient integrity of all these parts is secured; then a fresh one adjusted, on the same principles, and, if necessary, the bunched-up cloths over D. In the largest per centage of cases, the patients can venture out of bed as occasion requires, from the very earliest period, without the least fear of any derangement or relaxation of organs or inconvenience, which could not be done with comfort or safety under less secured conditions.

There is another important observation to be made, namely, that as the bladder lies in front of the womb D, it exerts a pressure upon it in these cases, whilst this organ itself requires also a certain amount of pressure upon it. To my own knowledge, from the continued relaxed state of the abdominal muscles from insufficient binding, the bladder has gradually filled, and become so distended as to hold from four to six pints of urine or more. This arises from the simple fact that the patients not being allowed to relieve themselves in their usual comfortable and mechanical manner, this organ becomes insufficiently emptied.

I have seen many manufactured contrivances and abdominal bandages for the lying-in-room, which can only be obtained at a certain expense, and by those alone who can afford to buy them, many of which are useless, and soon get soiled. Moreover, they must be of such character suitable only for the individual, as women's figures are of many sizes and shapes, and some are more or less deformed, no two individuals are alike. No mode of binding up can equal, or be so suitable and efficient for every one of these

classes, and for all stations in life, as the simple one I have above described, which comes within the reach of all and costs nothing.

I will now speak of the ordinary plan of binding up. Some fabric is placed round the body, anyhow, and without judgment, and which seldom comes below the crests of the hips. This soon rises above them in lumpy folds across the upper part of the stomach, pressing most uncomfortably upon vital organs: 1, 1, 1, 2, 3, 4, and C, and also on the diaphragm, producing a feeling of suffocation. The action of the lungs becomes much impeded, whilst the functions of the stomach, liver, and large intestines are considerably interrupted. This, however, is not the gravest fault, for the patient is constantly pushing these uncomfortable folds downwards upon the upper part of the womb at D, which has not the slightest pressure OVER it, where it is most required, it therefore depends upon its own powers of contraction: failing which, more or less flooding results at the time, or even temporary displacement, to be hereafter followed by actual prolapse or a fallen state. Here, then, is the fruitful cause for these far too numerous conditions of the female, embittering all her future life. But this does not exhaust the category of evils, even if the above unhappy circumstances do not occur. The want of sufficient pressure at such times upon all the abdominal muscles retards or prevents their general contraction, and they never afterwards perfectly recover their normal condition. The consequence is, that even the abdominal organs themselves become over distended in their calibres from having too much latitude for doing so. Fat and flatulence are the result, which are usually treated by laxatives, making everything still worse, or a naturally relaxed state ensues. As a sequence of all these we see what are called *high stomachs*, but better characterized as *tubby ones*, and thus many otherwise good figures are spoiled for ever. The diversion of many of the protoplasmic fluid currents, which have been so lately directed to the formation of the new being, to other important parts, namely, the mammary glands, for the formation of milk, depends much on the perfect and proper binding up at first. These, however, must be subsidized by fresh nourishment as soon as possible,

of which I have previously spoken, both together resulting in a natural vigour in the system, and an early secretion of milk. The reverse treatment causes a backwardness in the secreting power of the glands, as well as a scanty supply, and then some poor mothers are told they are too weak to nurse their own offspring which they are so desirous of doing.

These cases occur oftener in the upper and middle classes, where there are more "skilled attendants" than in the lower, who are left more to themselves:—getting better fed and less physicked.

The advent of the milk varies from the time of confinement to the third or fourth day, according to the idiosyncrasy of the mother and her treatment. The sooner it arrives the better, because the infant can begin its first labours of life on its own account, and whether it finds any milk or not, it should be put to the breast as soon as the mother is comfortably settled. It is a satisfaction to her to cuddle up the darling she has suffered so much to bring forth, and the desire to nurse it hastens the secretion of her milk.

It may be satisfactory, as well as consolatory, to be told that women as a rule do better with their first children than with any they may have afterwards. This is owing to the tonicity of their muscles offering a greater resistance to distension, and so their contracting powers are correspondingly strong. In future pregnancies and labours, these having become more relaxed, often require some mechanical assistance externally. From a very large experience in midwifery, I found this very valuable, as well as serving a double purpose. I adopted the plan of putting the centre of a properly folded crib sheet, or something of the same character, across the abdomen, and passing the two ends round the back and bringing them together above the uterus D, and so tightening them as labour proceeded, thus assisting the contraction of the abdominal muscles, and evidently shortening its duration. This could be used afterwards with slight alteration of bringing the pressure exactly over the parts most needing it at D, and so it acted as a temporary binding up without disturbing the patient, thus preventing from the very first any relaxation of the

organ itself which is the fruitful cause of flooding. Therefore, the binding up before parturition is as useful, though the very reverse, of what it should be afterwards.

If the majority of women were asked of the manner in which they were treated after their confinements, their reply would be upon the system I have herein deprecated, dietetically, medically, and mechanically, with a large percentage of the result of evil I have named. Nature being left so unassisted, the prolonged time in bed in the recumbent position for many days, is a natural sequence, when there is no reasonable necessity for it; whilst a more perfect recovery in half the time would result under the reverse treatment. It is as Dr. Farr justly says, "the performance of a mere physiological function at the period when the powers of life are presumably in full working order."

At present, an unwarrantable number of diseases and disorders, causing life-long suffering, result from the present most unscientific treatment. These taken together, with the loss of life so graphically described by Dr. Farr as a "DEEP, DARK, AND CONTINUOUS STREAM OF MORTALITY," is the greatest opprobrium on the whole medical body.

CHAPTER IX.

CONGESTIVE DISEASES: THE SAME ACCOMPANIED BY INFLAMMATORY ACTIONS.

CONGESTION AND INFLAMMATION EXPLAINED.

THERE is no term so often used in the practice of medicine as "CONGESTION," and scarcely one so ill-defined and often misleading. For instance, all excesses of the secretions in the internal organs and in the mucous and serous membranes, all external swellings from blows, bruises, or

contusions, all increased fulness of the vessels, come under this one generic term. No distinction is made of an inflammatory or non-inflammatory character of them by this one designation. I therefore propose three characteristic divisions. Firstly: when arteries in any given part have excess of blood, the term **ENGORGEMENT** of them would be more applicable and more suggestive of their condition. Secondly: this seldom or ever takes place without their terminal extremities, the capillaries, being highly charged with arterial blood; in this state they might be appropriately termed to be **INFILTRATED**. Whenever these circumstances occur, they distinctly show an inflammatory condition, as illustrated by a blood-shot eye. In contradistinction to this, the veins may swell, and be in what is called a varicose state, but this not having any inflammatory character, shows them to be simply **CONGESTED**.

There is great importance in these distinctions. The term congestion should only be applied where accumulations occur anywhere of a non-inflammatory character, and indicate only *excesses* of protoplasmic fluids. The treatment of which by warmth should be the plan pursued to reduce them. On the other hand, arterial *engorgement* and capillary *infiltration* always indicate an inflammatory condition, or *deficiency* of protoplasmic fluids for the dilution of the fibrin of the blood, attended with corresponding heat. In all such cases, cold application and evaporating lotions are enjoined, as spoken of in Chap. VII. Until the capillaries are emptied of their arterial blood, and resume their perfect integrity, so long does the inflammatory condition continue. These definitions may be usefully borne in mind in the treatment of all fevers. Health depends upon the true balance of all the fluid secretions; those in the mucous membranes of the nose, the eyes, the throat, and its adjacent glands, the lungs and the stomach, are the first to become affected in disease from congestive and non-inflammatory states. These membranes should always be subjected to the action of the air, to hasten decomposition and prevent organization of the albuminous fluids with which they are so largely charged. The serous membranes are shut up entirely from the air, for if air gets to them it dries up the fluid elements,

and produces capillary infiltration, and inflammation is the result.

THE STOMACH indicates a departure from health, by congestion producing acid eructations, nauseas and what is called heartburn, and the very numerous affections shown by the foetid breath, headache at back part, and general uneasiness. These several conditions lead persons to declare themselves as 'not being quite the thing;' 'not first rate;' &c., but most frequently and popularly as being 'bilious,' the most monstrous and fallacious of all doctrines. To stomach congestion, without any specific disease of the system, may be traced a legion of complaints. The tongue is furred, coated, or loaded, both in the stomach and lung tracts, sometimes more in the former—and sometimes in the latter, for in these first stages, all the mucous membranes about these parts sympathize. The throat is phlegmy, and cough is often present, which may be as much from the stomach irritation acting by sympathy on the top of the gullet, as from the lungs by sympathy on the top of the windpipe. The system feels stuffed, blown out, flatulent, oppressed, and loaded; these are the first effects seen in infant life. Nature comes to their assistance by a spontaneous vomit, when they become suddenly quite well. The same occurs in adult or after life, relief being equally apparent by a spontaneous or an artificial vomit. At other times when no medicine is taken the system recovers itself by the mere alkaline properties in fresh diet, or by a spontaneous action on the bowels.

TREATMENT BY MEDICINES (see Chap. XIV).—The alkaline remedies Nos. 30, 31, 32 are called for for infants; Nos. 1 to 7 for adults. Thus correcting the excess of protoplasmic fluids, which always implies an acid condition. These produce a neutral salt in the system, which often acts as a purge. Emetics are often of great service with phlegmy children, Nos. 8 or 9 may be given, but always within an hour after a full meal, thus giving time for the food to mix well with any morbid elements present in the stomach, when all will be ejected together. These remedies judiciously adopted for a longer or shorter time, according to the appearances of the tongue, produce a healthy state of the secretions.

TREATMENT BY HYGIENE, &c.—Children after being weaned should have but little meat in their usual diet. The milk also given to them should be very largely diluted with water, by at least two-thirds. This being also strong enough for the making of all their other foods. According to the rules of diet in congestive disease for adults, roast, baked, or broiled meats, are the best. Exercise, especially in the open air, is the best of physic. By these proceedings the primary causes of diseases are neutralized and have due effect on the second stomach. If the bile is too acrid, it may arise from what the liver has to make it from, and should be left alone, as this almost always corrects itself. But if the stomach is ignored as the first defaulter, and the liver alone deemed the cause of the evil, and mercurials are given, then a complication arises. For the mercurials do not act at all upon the liver, as it is not a gland, and this is now pretty generally admitted, but in conjunction with other medicines act upon the bowels. Therefore, the mercurials in any form only irritate the mucous membranes, and unnecessarily excite the true glands especially the pancreas or sweet-bread, and in fact salivates it. The increased amount of its secretion naturally draws with it more than the usual quantity of bile from the liver, and so it is supposed the liver itself is acted upon by them, which is not the fact. Thus glandular organs are unnecessarily stimulated, and vital elements carried out of the system. Instead of simple correction of disease, it is aggravated. This being repeated frequently, diseases are engendered which would never have occurred naturally. Parents who are constantly administering calomel to their children, not only destroy their health, but lay the seeds of disease and death in their systems. At the commencement of treating congestive disorders, the medicines should be corrective and alterative which do no violence to the system, but act with, rather than against, Nature's own laws.

ENLARGED TONSILS; SORE THROATS; ULCERATED THROATS; QUINSIES; DIPHTHERIA.—These are stages of the development of the same train of causes which always commence in a loaded or congestive state which has its progressive stages, and as it would seem, the throat is the indicating organ in every such condition, by taking on an inflammatory

action. The tongue shows this in a marked and unequivocal manner. It is white and coated in sore-throat ; more so, in ulcerated throats with enlarged tonsils ; and still more so in quinsy, when it is positively loaded to the fullest extent. It is not so coated in diphtheria, because the albuminous deposits upon the mucous membranes become organized, and remain semi-detached about the throat and windpipe, whilst active inflammatory action occurs beneath it, a condition pointing out the necessity for the immediate removal of the organized mass, which will often show the exact shape of the part it came from. These facts illustrate the value of glossology, in pointing out the sudden change from a highly congestive to an inflammatory state, as well as the remedies to be used. In no disorders is the system so completely ill at ease as in these maladies, headache at the back part, with general lassitude, and a complete prostration of the animal and instinctive powers being present.

SORE THROATS are flashes of inflammation on the posterior or movable palate, uvula, and surfaces of the tonsil glands. ULCERATED THROAT is one step further, the inflammation having affected the structure by disintegration of all the small vessels. ENLARGED TONSILS are originally blocked-up glands, from the mucous membranes being congested and then taking an inflammatory or engorged arterial type. QUINSIES are abscesses in the neighbouring structures of and in the soft palate, waiting only to burst the outer membrane and discharge their pus or matter. These obey the laws of all other abscesses. Engorgement and infiltration always end in disintegration and destruction of multitudes of small vessels, resulting in new channels being formed by new structure from fresh protoplasm. DIPHTHERIA is an aggravation of all. Thus step by step we see that highly acid conditions of the stomach are the chief causes of these various diseases. But diphtheria involves all the parts about the throat so extensively, that there is always great danger when it occurs to children under fourteen years of age, because they cannot be made to take medicine, and have no notion of expectorating. Besides this, there is so great a constitutional disturbance present, that the sufferers are knocked down at once, and have not the nervous energy to rally.

TREATMENT BY MEDICINES (see Chap. XIV).—The alkalines, Nos. 3 and 4; with acid gargles (Nos. 21, 22); for sore or ulcerated throats. If gargles cannot be used for these or for enlarged tonsils, a large soft camel-hair brush dipped into No. 21 should be substituted, and the throat mopped very frequently therewith, because it is sharper and more astringent. By thus applying it, the lotion reaches the bottom of the ulcers, and as there is in most of these cases an offensive smell from diseased structure, the nitric acid deodorizes this quickly, and is a great comfort to the patient. If there is a tendency to inflammation down the windpipe, this is made apparent by an irritable hacking cough unattended by expectoration; the lotion relieves the one, and checks the other. As the tongue in enlarged tonsils is frequently not much furred, an acid mixture (No. 20), such as is used in bronchitis may be taken, the throat being first well gargled with it before swallowing. Quinsies should be somewhat differently treated, and the throat gargled with water as hot as it can be borne; as these are diseases of progress, inasmuch as they are suppurative. A quinsy once set in, must have time to suppurate like all other abscesses. The hot watergargle should be supplemented by the constant application of a cold compress round the throat, and the well wrung towels removed as often as they become warm or dry, for directly this takes place, it is no longer a cold compress. Care should always be taken the last thing at bed-time, that no such compress remain round the throat at night, but let it be left free from all covering, and the compress be renewed again as early in the morning as convenient. As a general rule, to all disorders or affections of the throat whatever they may be, cold compresses must be used freely and constantly, and NO HOT FOMENTATIONS OR POULTICES ever allowed, for they increase inflammation, and have often a fatal tendency. In quinsies the alkaline mixture No. 2 should be persisted in as long as swallowing can be tolerated, in order to remove the acid secretions of the stomach. Directly the abscess breaks there is an end to the disease; the tongue gets clean immediately. Should the throat, however, not heal readily, but show an inflammatory condition, the acid gargle No. 21 should be used. In full habits, emetics (No. 8 and 9) are very beneficial in quinsies.

The treatment in all these cases depends on the appearances of the tongue, which indicate the general condition of the bodily secretions. If furred like that in quinsy, emetics and alkalines as prescribed, with the free application of caustic to the tonsils, or nitric acid gargles (No. 21) with the brush. If the tongue be not so furred, the acid mixtures Nos. 18, 19, 20, swallowed slowly, to act as gargles as well as medicine, are beneficial. If the tongue is clean and red, denoting much inflammation of the whole lining membranes of the canal, then the acid mixtures Nos. 24 and 25 should be used. This state will be seen in the diphtheria of adults, when the same acid should be used, with free application of lunar caustic to the sloughing ulcers in the throat. It is the due discrimination of the congestive or inflammatory state of the system that can alone direct the proper treatment, and this the tongue will always indicate.

HYGIENE, &c.—As air is always necessary and important in congested actions, it must be repugnant to all inflammatory ones; it should therefore be avoided in sore and ulcerated and inflamed throats, and enlarged tonsils. After reducing the inflammatory actions, then air is necessary; also moderately good living in the use of all the roast, broiled, or baked meats, for while it is necessary to alter, remove, and to correct morbid actions, it is also incumbent to restore power by good raw material. It is a golden maxim never to starve a congested mucous membrane, for in doing so the candle is lighted at both ends. On the other hand, active inflammatory actions must be starved to a certain extent. In fact, they starve themselves because the mucous membranes having but a small amount of mucus in or on them, are unable to absorb or retain food, there being no moisture to mix with it.

The next parts affected are those which are instinctively connected with them—namely, the lungs; and we shall see how simply Nature acts by consecutive law.

BRONCHIAL CONGESTION.—This is known by a cough, from a loaded state of the mucous membrane in the bronchial tubes, attended with a frothy mucous expectoration, and always accompanied by a similar state of the stomach. The tongue is furred and coated down the lung and stomach tracts: if the stomach is most affected, there

will be headache at the back part ; but if the lungs, then this is absent ; for it is a singular thing that headaches do not generally accompany distinct lung disorders, though violent coughing will shake the whole system, and especially the head. Pure bronchial congestion may extend from the windpipe to the terminal extremities of the bronchial tubes ; it may also be confined to the larger tubes, where the windpipe first divides into two, and may only go a small way into the lungs, or it may penetrate to the centres ; but when it extends to their extremities, it is then much aggravated. In some highly congested states of the lungs, where carbon is in excess, the lung tract will show a dark and often black appearance as if Spanish liquorice had been sucked.

TREATMENT BY MEDICINES.—The alkalies and stimulating expectorants ; for the stomach must be as much thought of as the lungs : thus Nos. 1 to 7 for the former, No. 10 for the latter ; these should be persisted in until the stomach and lung tracts are cleaner. The great object is to remove phlegm from the windpipe and lungs, and get the enemy out of the camp, therefore free expectoration should be encouraged. Blisters and mustard poultices may be used in all these actions as counter-irritants. Nature in all the congestive actions or excesses of vital forces, will often do this herself by skin eruptions, for these are her counter-irritants, and we only imitate her. But she never does this in inflammations, simply because she has no elements to spare and is deficient in vital forces. Counter-irritants in inflammations are not of any benefit but rather the reverse.

HYGIENE, &c.—The same as for congested stomach ; fresh cooked meats, roast, baked, or broiled. Support the system by good and nourishing things, while removing the causes of disease ; never starve under these conditions : free exercise and air are necessary, because the oxygen is as good as physic, and exercise promotes perspiration as well as free secretion of the urine. In all these cases the system should be kept well roused ; and as in direct stomach congestion, I see no reason to leave off the usual drinks of a more or less stimulating character, such as mild beer, &c. Tea and coffee, not too strong, and with little milk or sugar, may be freely taken. Excess of milk always produces or

adds to congestive actions already present and is the cause of half the diseases of children. The purer and richer it is, so much the more hurtful, but the more diluted it is, the more healthful.

WHOOPING-COUGH AND CROUP.—These are diseases of the upper breathing tubes, the throat, and windpipe. The former from organized mucus so fixing itself to the membrane from which it had its origin, that it cannot get away ; or from a morbid condition of the old membrane in course of decomposition and transformation, not detaching itself perfectly from the new, which is always forming as the old structure wears off.

These conditions produce the most distressing coughs, which become spasmodic from nervous irritation. The fore part of the tongue for two-thirds of its length (fig. 1, B. D.), or that part called the gustatory, or tasting portion, is generally clean ; whilst the posterior third (fig. 1, A. D.), or motor portion, forming a wedge shape, is always more or less furred : this characterises the whooping-cough tongue. CROUP seems to be a similar condition confined more to the vocal chords. All children do not have whooping-cough ; it seems to be chiefly confined to the grosser class, or those that have an excess of the vital forces together with less free air than they ought to have, and who, instead of being lightly dieted, are over-fed.

TREATMENT BY MEDICINES.—Emetics are here very useful, even when given on an empty stomach or fasting, as their effects last longer. The emetics, Nos. 8 and 9, may be given when the tongue is much coated at the back part, and the child gross. The mineral emetic, No. 55, when there is want of power, or the child weakly : the alkaline medicines are also necessary (Nos. 32 and 33), followed by a tea-spoonful of magnesia in a table-spoonful of water, and repeated if necessary. The great object of this being to produce watery evacuations of the inorganic fluids of the abdominal mucous membranes, these losses being immediately supplied or made good from other sources by the laws of gravitation of these fluids, thus the mucous membranes of the throat are relieved.

HYGIENE, &c.—The attention to proper ventilation and air is requisite. In gross subjects free oxygen is beneficial,

with exercise, and good perspirations should be encouraged ; in weak subjects, neither of these can be tolerated so freely. Warm and demulsive drinks ; but little milk and that well diluted, and nothing that is likely to produce acid actions.

MUMPS are induced by the congestion of the salivary glands under the tongue and under part of the chin, causing them to enlarge. The swelling of these extends right and left, sometimes very considerably, but does not often reach the neck glands. Like all other affections in and about the throat and neck they should never be treated by hot applications, if they are, the neck glands are likely to become implicated. Cold applications are the best, but as infants and children cannot bear cold compresses for any length of time, an evaporating spirit lotion should be used for half an hour at a time, several times a day at intervals. A little attention to the stomach and secretions by alkalies is all that is necessary for medication.

TRACHEAL, OR THROAT-COUGH ; STOMACH-COUGH ; CLERICAL SORE-THROAT ; AND NASAL CATARRH.—These very frequently occur, and are often confounded with bronchial ailments. The throat-cough is clearly distinguishable by the fur on the tongue occupying the thicker portion of the posterior third, in the space A, D, fig. 1, precisely as it is seen in whooping-cough and croup. The immense amount of expectoration in this cough cannot be a matter of wonder. If any one fond of what is called the root of an ordinary ox-tongue, will cut through the fawn-coloured salivary gland on each side, and notice its size and calculate what must be the amount of ordinary secretion therein ; then take into consideration his own proportionally large glands similarly situated, he will cease to wonder that if these glands are in a morbid condition, they cause not only excessive irritation about all the surrounding parts, but yield an immense amount of thick mucus which should be freely expectorated. The quantity of inorganic fluid elements going to these glands must be something fabulous, because they are themselves imbedded in fat formed by the inspissation of serum, albumen, oleaginous matter and carbon held in their own menstruum of water ; but the glands themselves have only one duty to perform, viz., that of making organic salts. As the arterial vessels are

here so infinitesimally small, the forcing of oxygen through them to the common capillary buffers seem to be the principal duty performed by this arterial blood. The change of temperature from a warm to a cold atmosphere will often cause less inconvenience than coming from the latter into the former ; in doing which loss of voice may ensue, and often happens more frequently on first waking in the morning than after being about in the air all day. I had abundant opportunity of seeing this during the severe frost of 1861, also the effect of the thaw, and of the milder atmosphere, converting these affections, by the consecutive law of disease, into the inflammatory stages of ulcerated throats and quinsies. A tracheal, or throat-cough, and a stomach-cough are frequently mixed and dependent on the same train of causes ; therefore all the rules laid down for the congestive actions should be here followed. The acids of the stomach should be corrected by Nos. 1 to 7, and the congested glands above spoken of stimulated by cough mixture (Nos. 10 and 11) ; fresh air and good living being also necessary. If these are considered bronchial actions, then they are unduly magnified.

NASAL CATARRH is often a very annoying ailment. The nose being very complicated in its anatomical construction from its many soft and spongy bones and the ramifications of its mucous membranes. When that part of the nose is reached at a spot between the eyes, a long and posterior chimney descends to the windpipe. Not only is the sense of smell conveyed through this first passage to the nerves, but the true process of breathing should be accomplished here. Many phenomena of this first passage of air to the lungs are seen in some animals. Those of the seal and sea lion tribe have great power of compression of the nostrils when under water, and animals living in arid plains thus exclude the sandy particles. As the air passes upwards it gets warmed, and more so as it descends over the larger spaces of the chimney towards the windpipe, and afterwards down this to the lungs, thus it is that no cold air can get to them. Some persons have a tendency to a greater secretion of mucus in these primary passages than others, and all know what a cold is of the description called catarrh, when streams of watery mucus will run away. Again, a great

congestive action frequently takes place here, and all the secretions thicken to some extent, and the mucus expectorated will often resemble that of phthisis or consumption, and has to my own knowledge been mistaken for it because of the cough which accompanies it. Again, it frequently causes loss of voice for some days or weeks from the lodgement of the thick nasal mucus on the vocal organs. A certain conformation of the nose in young people and the secretions largely formed therein, have frequently given much anxiety. In cases where there has been no particular desire to blow the nose on account of no downward discharge, the secretion in it has nevertheless been large, and almost organized like that in the throat and windpipe. This ought to be thoroughly got rid of, and more care taken in certain dispositions where this secretion is seen to be in excess. When these cases occur, I have found that giving the patient several good pinches of snuff and then compressing one nostril while the other is blown, and so alternately relieving the organ. When loss of voice occurs from the large amount of mucus coming down from the nose, it should be brought away quickly. The result is, the speedy return of the proper vocal state. Nature often does this herself, rather heroically as I have before mentioned, when inflammatory actions will occur as a sequence. When this happens, it will be necessary to syringe the nose through the nostrils rather forcibly with dilute nitric acid lotion (No. 21), letting it flow down the posterior channel, or placing the syringe as far back in the mouth as possible for the lotion to ascend it, for these parts are as amenable to inflammation as other mucous surfaces, and sometimes give a great deal of trouble before it is found out. In some cases it has no doubt been the cause of polypus. Congestive and inflammatory actions in these parts, even without shewing themselves in the throat, have often annoyed professional singers by their effects on the voice. Therefore, a healthy condition of the primary air passages of the nose is always a desideratum both for perfect sense of smell and for respiration.

I have had occasion to remark in my large work on HEALTH AND DISEASE, that the atmosphere of many churches is the most pernicious that can be breathed;

hence those clergymen who have to do two or three duties in them, only one day in the week, may readily come at the cause of what they suffer, namely, *clerical sore-throat*, congestion being the primary stage, and this increases week after week, then inflammatory actions follow, shown by a dry membrane that cannot absorb or retain any moisture. Hence, want of facility in speaking, which depends as much upon plenty of saliva as on the tongue itself. These cases may go on for years unattended to, because they alternately get better and worse, until they assume a chronic form which often takes some time to remove. All the clergy who have been thus affected know this well enough. These cases should always be early attended to, for on their discrimination depends their cure; the tongue being the best guide to the state and condition of the stomach and tracheal ailments, and pointing out the best remedies for them.

HAY-FEVER, which some people suffer from at certain seasons of the year about hay-making time, is an inflammatory condition extending upwards from the nose, and downwards posteriorly to all the parts about the throat and windpipe. These are often amenable to the treatment of acid medicines and opiates with acid gargles, and by syringing both nose and tonsils with them also.

HEADACHES at the back part or sides, or a general sensation of fullness, DIZZINESS, VERTIGO, ASTHMA, INDIGESTION, HEARTBURN, HICCUGHS, FLATULENCE, CONSTIPATION, SOME HEART COMPLAINTS, PALPITATIONS, GRAVEL, STONE, COLICS. —All these come under the head of congestive actions, the tongue being the best guide to ascertain their causes; for if it be furred, coated, loaded and moist, be assured the alkaline remedies are best suited for them. So many of these complaints have hitherto been classed under the general term of BILIOUS, that the very worst evils have followed from the liver being blamed, and recourse had to the mercurials and aperients. A blue pill at night and a black draught in the morning (a combined medicine strong enough for a Shetland pony) damage the system, while the evils complained of are not removed; no wonder, for all the causes have been passed over, and medicines given to act at the wrong end first. Not that a mild aperient

may not be useful sometimes ; but if the tongue be furred, it is always best to begin by neutralizing the acid state of the upper works, and after that to take some slight aperient if necessary. The phlegmy state in catarrh, colds, indigestion, heartburn, hiccoughs, flatulence, &c., should be first corrected in this way without the necessity of starving or low diet. Effects are often shown in the large intestines when the causes are far above them. The simple act of constipation requires more thought for its causes than the conclusions jumped at in giving of aperients. Never forget that the vital gases are generated in those bowels, which all lovers of aperients most mercilessly purge away. Persons who have been supposed to suffer from what are called heart-diseases, I have often found to have had nothing the matter with the heart at all, this has been afterwards revealed by post-mortem examinations. Great perturbation of the heart aping disease of that organ will often arise by sympathy from want of integrity of other organs, especially the large intestines.

GRAVEL and STONE arise from an excess of acid in the system ; full doses of the alkalies when the tongue is furred or loaded will often dissolve the base of these concretions (Nos. 3 and 4). The bladder is subject to a catarrhal affection from degeneration of the mucous membrane. Very large deposits of this will occur daily, and even last for years, but this seldom affects the general health or shortens life. This state also never conduces to the formation of stone or calculus of any kind. Good diet and warm sitz-baths are beneficial.

COLICS generally arise from flatulence distending the calibre of the small or the large intestine ; in these they are often fatal from the extreme pain, causing a sudden shock to the nervous plexus behind the stomach. In *painters' colic*, the transverse arch of the large gut is almost always deranged, and is in fact the seat of it ; its calibre being distended and contracted alternately ; the contents, hardened sometimes like a stone, have a difficulty to pass the contracted parts, hence the intense pain. Castor oil is one of the most valuable remedies for this state, and there are few painters, who during the day have had much

indoors work, especially in the last process called flattening, when doors and windows must be closed, who do not take a dose at night.

Many women suffer with large pendulous abdomens, from the habitual use of aperients, constantly emptying the tube of much solid matter, yet leaving enough fæcal deposit to generate a vast amount of gas, which distends its calibre. The consequence of this is, that no solid or consistent fæces can aggregate, all the neighbouring parts become enlarged, a fatty disease ensues, the abdominal walls become pendulous, and in such states large livers, dropsies, tumours, and other evils are suggested to be present during life; but after death their livers are discovered to be small, with some inches of fat in the abdominal walls, and quantities of fluid between them and the intestines, and these latter are found to be distended with wind enough to fill a balloon. All abnormally large people owe their condition to fat and flatulence. This latter keeps the large intestines distended, and thus facilitating their greater evolution, and they are almost always in a relaxed condition. Persons of sedentary habits who eat little, such as dressmakers and sempstresses, suffer from costiveness, which is in fact their salvation. Nature here retaining the scanty fæces in the colon, the calibre of which is small, generates fewer gases: but this is quite sufficient to provoke the usual work of purging, though they are thin and spare. These cases should first be treated by good fresh air and diet, and then the bowels will act for themselves.

Persons who suffer from *ASTHMA* often live long; some say asthmatic people live for ever, implying that this disease does not necessarily shorten life. Those who have asthma should never attempt to stop the impending cough. The accumulation of mucus is often enormous in the morning after sleep; time having been allowed for it to collect. Directly the cough comes on, the sufferer should jump out of bed, and get his cough well over, and his phlegm well up. A teaspoonful or more of gin, or some chloric æther, is a good thing to take. Alcohol has a specific action on the state of the bronchial tubes in this complaint, more mechanically than otherwise, as it gives the vis-à-tergo of force to all molecules of matter and hastens them on.

Here, then, are a host of disorders dignified as specific affections, yet occurring from one general train of causes, which the appearances of the tongue and the head symptoms will indicate truthfully, as well as point out the proper remedies to be used. These are not only of the simplest character, but efficacious. Instead of which, the complaints are often so magnified, that violent remedies are resorted to; a process of medication only to be compared to the opening of a Geneva watch with a crow-bar, or, killing rabbits with pole-axes.

It is impossible to enumerate the many ailments which have their origin from an acid or congestive state of the primary parts of the digestive and breathing organs;—their name is legion. As *chymification* is the first process of digestion, and *chyme* the result, if people were once to call themselves CHYMOUS, instead of BILIOUS, they would be nearer the truth.

Whatever ailment affects the body, if the tongue be coated, loaded, or otherwise foul or furred, and moist, it denotes excess of acid in the system over the natural predominance; a dose or two of alkaline medicine (Nos. 1 to 7) after meals or at bed-time is beneficial, and often prevents diseases of a graver character coming on, by simple reduction.

Nervousness in many of its painful forms is the prolific offspring of those most detestable parents,—biliousness and liver complaints, and the vicious systems of the mercurial and aperient forms of medication.

I have written in the preface to this book the opinion of some of the faculty who have lived long enough to see the prejudicial effects of the mercurials. Their action mostly consists in albumenizing the inorganic fluids, and thereby causing congestive conditions in certain localities. When given in inflammations of the serous membranes, they often produce inflammations in the mucous membranes. So that one disease in one part is relieved by making disease in another. I have not given mercurials for more than thirty-five years, though I have had thousands of those cases in which they are considered the only infallible remedies. But they are given in every opposite state of disease, congestive or inflammatory. I thoroughly believe that the intricate and wonderful phases of diseases which we now see in every

form of complication, are produced by drugs, altering as they do the chemico-vital elements of the body. It seems impossible that Nature, left to herself and always trying to right herself by her own wonderful laws, could ever produce what we now see. Yet fresh remedies are for ever starting up, the cry is still they come. Depend upon it, that they who are always taking up every fresh and fashionable remedy know very little of Nature, or her laws.

CHAPTER X.

BRONCHIAL INFLAMMATION, OR BRONCHITIS.—PLEURISY.—

CONGESTIVE AND INFLAMMATORY CONSUMPTION.

BRONCHITIS, or inflammation of the bronchial tubes, is the opposite state to bronchial congestion. Both are attended with cough; that of the latter is rattling, with an abundance of expectoration, whilst that of bronchitis is hard and ringing, from the irritation of the air taken into the lungs; the membranes being deficient of protoplasmic covering, what is forced from them by the act of coughing is so much loss, for until sufficient mucus is secreted, the inflammation does not subside. On the termination of a bronchial congestion, the cough and expectoration frequently resemble those of bronchitis, in fact, it may end in bronchitis itself. The tongue in this latter disease is clean, bare, and red down the lung tract, whilst the stomach and other tracts are more or less slightly furred. In bronchial congestion sympathetic pains are present about the breast-bone and between the shoulders, but they are seldom present in bronchitis, but should there be any, they are caused by coughing and the inordinate action of the muscles at the upper part of the trunk.

TREATMENT BY MEDICINES.—The alkalies Nos. 1 to 7 when the stomach tract is *furred*. An acid cough mixture (Nos. 24 or 25) for the inflammatory state of the bronchial tubes. This should be persisted in as long as the lung tract shows any distinct redness; should the stomach tract not be much furred, then the acid mixture alone should be given.

IN BRONCHITIS: the diet should be beef tea or mutton broth, gelatine, isinglass, tapioca, arrowroot, sago in puddings, &c. Air is injurious, because the mucous membranes being inflamed they have very little moisture on them, and therefore no protecting covering.

Bronchitis is often induced by Nature herself removing too quickly the congestive accumulations on the lungs. The opposite state of the stomach to that of the lungs necessitates the two distinct treatments. The practised eye can detect upon the tongue how far the congestive or inflammatory state extends into the lungs, by noticing the fur in the one case, and the denuded state of the tract in the other, by means of the transverse divisions of the tongue. An acid state of stomach, unless it be attended to, will keep up inflammatory action of the lungs. An early bronchitis thus treated will yield very readily; and in twenty-four to forty-eight hours the tongue will present a regular appearance as to colour, with no red mark down it, showing that the inflammation is gone. It will then assume a pale rose-leaf colour, or that of a healthy mucous membrane. Thus it can be clearly seen that bronchial congestion and bronchitis are totally opposite in their character, and to be treated accordingly, both as regards medicine and diet. The one requiring all the stimulating expectorants and alkalines, with good generous living and fresh air; the other, all the acid, anodynes, and opiates, with low diet and the air excluded as much as possible. When these disorders have not been so discriminated, and bronchial congestion is treated with acid and opiates, and bronchitis by stimulating expectorants, life may be sacrificed, as is too often the case. Counter-irritants, such as mustard plasters and blisters, are often required in congestive actions of lungs, but not in inflammatory ones, where they often do more harm than good if they are *applied*.

PLEURISY.

The bronchial tubes terminate in very minute tortuous folds, in order to retain warm air in the lungs. When these become loaded and the air imprisoned, it will be forced through the outside covering of the lung or pleura, and directly this happens, inflammation of that serous membrane takes place. Sometimes the inner lining of the ribs, which is also a serous membrane, will become affected; but often both at the same time, as they are always in apposition. In these cases the small oval or pleural tract will be very distinct, and of a darker red than the tract in bronchitis. Acute pain, most frequently in the left side, will be present, accompanied by shortness of breath and a difficulty in coughing. The expectoration will be according to the character and condition of the bronchial tubes, whether congested or inflamed. Whenever serous membranes are inflamed, pain is always present, but there is very little pain experienced when the mucous membranes are similarly affected, and this holds good throughout the whole alimentary tract.

TREATMENT BY MEDICINE.—The alkalies or acids, as laid down for bronchial congestion and bronchitis, according to the appearance of the tongue; if white and furred, denoting congestion, Nos. 1 to 7. If the tongue becomes dry, brown, or brownish-red, denoting inflammation, then the acid and anodyne treatment must be used to subdue it. Directly this is done, and the pleural tract indicates no red appearance, and the pains in the side have left, the state of the stomach and lung tracts should be carefully observed. If they are furred, the alkalies are needed in order to relieve the primary causes of disease. No medicine can act in a direct manner on any given part, but only on the general mass of the secretions, which depraved or altered from their normal condition of health, have produced disease; so by their restoration to the healthy standard disease is overcome.

HYGIENE, &c.—To be regulated according to the rules laid down for bronchial congestion and bronchitis, according to circumstances.

No class of persons are more subject to pleurisies than

female servants. Their duties subject them to alternate heats and chills, and as they expose themselves to draughts, many of these girls have habitual chronic pleurisies, and are never free from pain in the side from this cause.

CONGESTIVE CONSUMPTION.

This disease spares no station of life, high or low, rich or poor, sex or age, and occurs in all latitudes: the inhabitants of the colder regions of the globe, however, suffer less than others. A scrofulous disposition in the system, or where the glands are most subject to irritation, induces it to the greatest extent; and as this state is hereditary, so hereditary causes supply the greatest number of cases, and those mostly amongst young persons. As excess of acid produces in the system an excess of irritating agents, and enlarged glands are the result, so everything that induces this adds to the evil. The children of hard drinkers are often the subjects of consumption, whilst their parents live in an apparently sound condition, but they receive the first elements of disease from them, and transmit them to the next generation. The offspring also of those who are, or have been, habitual takers of the mercurials are equally sufferers; and I can hardly define the difference between the debauched who are always corrupting their secretions and inducing too glandular an activity by intoxicants, and those who do the same by mercurials. Insurance offices ask two important questions of all applicants for life insurance; "whether they are temperate or otherwise?" and, "if any of their family have died of consumption?" Where they to put the third question, "have you or your parents ever been salivated, or addicted to the use of mercurials?" they would do themselves and the public a great service; for depend upon it, the congestive consumptions occurring after thirty-five years of age have their origin frequently in these causes. While, therefore, hereditary consumption produces the more numerous young cases, the mercurialists and hard-drinkers produce these later in life. No people take so much mercury and calomel as the English; none yield statistically a greater amount of congestive consumption. Poverty,

which means not only want of the necessities of life, but the presence of everything that induces disease, breeds consumption largely. The poor are not worse off in England than in other countries; they are probably better cared for, therefore they do not supply the greater average of this disease as against the poor of other countries; neither do the effects of various trades on the artisan more than in other countries. In these, as well as in our own, intemperance in the lower classes is a great cause, and a great curse; but if we equalize all these, still England produces the greatest average of consumptive cases. Cases that would rapidly go into consumption from the result of the primary causes of disease are prevented by neutralizing morbid elements, and giving them free air and ventilation, and using the hygienic remedies fitted to such conditions.

There is nothing that causes so great a disposition to consumption as the congestive tendency in glands. Many families have a thick phlegmy tendency; but so well bred are they, and so vulgar and horrid is it thought to expectorate, that it is checked in the younger members as indelicate. How often has this laid the foundation for consumption! Any other excrementitious act may be encouraged; but free expectoration must forsooth be checked. The disposition to this, like all other natural acts, is spontaneous; but the result is gulped and swallowed when it ought to be expelled. So great is this habit of false delicacy, that rather than expectorate, the risk is run of tracheal and bronchial congestions, gradually merging into consumption. At first the appetite is most capricious, and often absent, and long fasts or insufficient nourishment hastens the formation of mucus. I have pointed out the tendency to organization in all the inorganic, or protoplasmic secretions, especially on mucous membranes. The more fasting is enjoined, the higher this state becomes.

Young persons having a phlegmy disposition should be made to masticate meat or crust, for the very object of inducing active actions on the glands about the mouth and throat, and free expectoration. Alas! it is too painfully done when they have consumption fully developed. If the act is admitted in this stage, when it cannot be checked, surely it is wiser to encourage it to prevent disease. There

are many forms of bronchial congestion which often resemble congestive consumption, and cause expectoration of blood, and frighten people out of all propriety, just because Nature has relieved the parts by the rupture of a congeries of small vessels, such as the highly infiltrated capillary vessels. Acids given in these stages often make things worse. If the tongue is furred and coated, alkalies and the stimulating expectorants remove the cause of this. It is rarely that the brain becomes affected in these cases, the mental vigour continues unimpaired to the last. Perspirations are natural to almost all lung disorders. Pungent heat is present when the serous membranes are affected, such as in pleurisy and pneumonia, or disease of the substance of the lungs themselves.

It is an error to suppose consumption to be a primary disease of the lungs for all these are curable, whereas consumption is not. It has its origin in an universal want of power in the system, visible in the general wasting and debilitated condition of the whole body, long before the lungs are attacked at all. This is produced from a want of integrity in the lacteals, absorbents, &c., not taking up elements of nutrition to the system which gradually loses force and power in every organ and part. Whatever may be given in whatever form of alimentary matter, nothing seems to do good. Not an organ or part of the body but feels a want of nourishment and so all gradually fall away alike, not one more than another. This may be called consumption, or a gradual consuming of the body, but it is not phthisis pulmonalis or consumption of the lungs, for this state may go on for several years before the lungs are affected at all or any disease found in them by the most careful diagnosis. This state may be cured and lung consumption prevented; if not, each day adds to the consuming actions of non-nutrition, and then the lungs become affected, so that these are the last, and not the first parts implicated, in fact this is the last act of the drama of marasmus, or general wasting. When the lungs become affected, there is no hope of recovery, the mischief is too extensive, and too permanent throughout the whole body, and there are actually no powers to fall back upon to assist us in our endeavours to restore those which are for ever

lost. Thus what is called the galloping consumption, will only last from seven to thirteen weeks from its first development in the lungs; whilst a slower form only lasts a few months, and this is always of an inflammatory character.

It is said consumption has no marked symptoms to herald its invasion: it has a thousand if they were only heeded. There are persons who ascribe an illness to the last thing they ate having disagreed with them; so that the last ounce that broke the camel's back is deemed the cause, not the previous load. A cold caught at a party is often the last ounce of this load; but depend on it there is no fire without fuel. Let the heaping up of fuel be a little more considered and removed in time, and there will be less consumption, as well as of all other diseases. The expectoration from the lungs is often very deceiving, leading to the conclusion that it is from consumption, when it is no such thing. I have seen many errors of opinion in this, after families have been frightened out of their wits, and patients caged and imprisoned in their bedrooms when they ought to have been getting fresh air, which is better than half the physic. Sweating is not a true sign of the presence of consumption, for it often relieves, by removing the fuel to the surfaces, though it is one of the conditions of debility. Many cases which have been called consumption and said to have been cured could only have been aggravated bronchial congestions, mistaken for consumption. Veritable consumption arising from a long slow marasmus or wasting is incurable. The tongue does not exhibit any marked appearances down the lung tract in congestive consumption, it is generally furred, slightly more or less all over, and when not so, is pale and flabby, and denotes a great want of power throughout the whole system. Consumption is not contagious though mental influence and certain conditions of the body will have their effects on certain individuals, precisely as in other diseases which people frighten themselves into.

TREATMENT BY MEDICINE.—The incipient stage may be much relieved, but when once true *phthisis* has set in, relief to suffering and smoothing the path to the grave is all that can be done. There is no form of medicine so valuable as opium, it quiets the whole system. In the diarrhœa which

accompanies this disease, it is most valuable ; and it is equally important to know that the constipation should never be interfered with. If once medicine is given for this, a great error is committed ; for alternate diarrhœa and costiveness are its peculiar tendencies ; the former is alone to be checked. Cod-liver oil may add carbon to the system, may prolong life a few weeks or months, but will never cure. The great end and aim of medicine is first to check disease ; and here it may check consumption in its incipient stages, combined with hygienic remedies, and in this light alone is the progress to this most fatal disorder arrested. Cod-liver oil is only a species of fat taken as a medicine, but as all fatty substances are antiseptic and nourishing, they should be largely used in conditions where a certain waste is apparent. Some people cannot take fat with their viands, but like it in the form of butter, or excess of suet in puddings and pastry. A plentiful use of these are quite as good as cod-liver oil, and pleasanter to take. A deficiency of protoplasm is therefore supplied. On the other hand, congestive states always show excess of protoplasm, and Nature accordingly repels the use of them as well as cod-liver oil.

HYGIENE, &c.—A routine has been followed of sending patients to the south of France, to Italy, to Malta, to Madeira, to Torquay, and other mild parts of this island. These places should abound in comfortable well-to-do undertakers, for they are the final resting-places of all that remains of the living masses sent to them. In all congestive diseases free, fresh, sharp, bracing, and even cold dry air are true hygienic means of procedure, along with good, sound, nourishing diet. This is borne out by the fact that in the north there is less congestive consumption than in the milder regions. In all cases of tendency to congestive consumption, where families can afford to send their younger scions away to any of the above-named old places, they can equally afford to send them to Sweden, Norway, or to Canada, or to some high and dry localities amongst the hills and elevated spots of England. Not, however, when there to lead idle and indolent lives, under diet, regimen, and physic ; the girls to be dressed in fine silks, and allowed only to go out on seasonable occasions, and to lie

in bed as long as their indolence chooses ; but to be so clothed that they may go out in all weathers, breasting upland and lowland, riding or walking vigorously, and coming in only to take plain, wholesome, roast, baked, or broiled meats, and fresh cooked vegetables with plenty of salt, and then to go out again. The delicate susceptibility of fine acquaintances prevents them emptying their salivary glands of excess of mucus, when they should encourage this action to clear their throats, glands, and stomachs, and their bronchial tubes from viscid substances. These are the hygienic rules that reason and philosophy dictate ; not the indulgence in soft air and pleasing association with all the culprits of fashion—Lydia-Languishing about in walks and parades to show their pale faces and marble-like skins. How many a beautiful girl, well made, and of good stock, might be saved by the healthy and invigorating process here suggested, playing Diana Vernon, and scouring the country with careful, buoyant, intelligent companions. Hundreds, nay thousands, might be thus saved to take the future matron's place, and become mothers of healthy children, instead of laying their bones in untimely graves. No greater revolution is required in all the sickly diseases of our youthful Anglo-Saxon girls, in this their tendency to congestive consumption, than in the early treatment of them. Better would it be to see health in kilts and gaiters, stout half-boots, wide-awake hats and cloth, than disease in silks and satins, lace and embroidery. Horse-riding, now so indulged in by ladies, is the first natural step towards this. Even this, however, would be better during the London season if twenty or thirty miles out and home were done in the country three days a week, and two days allowed for the parks. Why should the youth of the country alone take to the rifle and the drill ? If we owe nothing else to our neighbours across the channel, we are indebted to them for rousing us from a latent to an active military nation, and for developing the physical power of our youth ; if it answered no other purpose, it is one of the finest physical exercises ever adopted. Why should not the ladies handle the sporting gun, for many of them do the fishing rod ? It gives an object to the long winters' days in the country ; it induces a physical recrea-

tion, and amuses the mind, if only small game is followed. The carrying a light gun, and going over the uneven ground of fields and commons, would give muscular vigour, and cheat disease (never mind the doctor) of half its victims. Lawn tennis is an admirable institution when accompanied by due discretion. Do I say aught against the Graces and the Muses? Far from it; they can be more successfully courted by the energetic and healthy than by the poor pain-in-the-side, gasping, listless, coughing, fragile pieces of porcelain-like human flesh and blood we see, and which we call the tender plants, who are not allowed to do too much, and so never accomplish anything. Depend on it, consumption is only to be cheated of its victims by attention and careful removal of all those early elements in the system which produce it.

INFLAMMATORY CONSUMPTION.

This disease is very opposite to the preceding one. As there are many symptoms in common with bronchial congestion and bronchitis, so there are many in common with the two distinct classes of consumption. Nature acts by gradation and consecutive laws in disease; and it may not be an unwise suggestion to say that congestive consumption is the next step in advance on bronchial congestion. This is shown by the generally furred condition of the tongue in all congestive states, and that every organ of the body is more or less similarly affected. The opposite condition as in inflammatory consumption, which may be called prolonged bronchitis, fixing itself deeper and deeper into the substances of the lungs. Here the lung tract is distinctly red throughout its whole length, and not like a sudden bronchitis, accompanied by a more or less congestive state of the stomach, but the stomach also becomes inflammatory, and its tract on the tongue is also red; so also will be the brain and large intestine tracts, in fact the tongue will be red all over. Even when this is the case, the lung tract is of a deeper colour, assuming often a purplish appearance. Cough is present, and so is perspiration; often in excess. The only pains are in the side, and these arise more from a pleurisy that mostly accompanies these cases. There is

often a greater expression of anxiety in the countenance in this than in the other form of consumption. Tenacity of life is peculiar to organic disease, therefore in all these cases hope whispers life! life! which is so soon to end; while in high functional diseases that are curable, the more people declare they must die, the more they do not.

TREATMENT BY MEDICINE.—All the acids, anodynes, and opiates (see prescriptions, Chap. XIV).

HYGIENE, &c.—All the opposites to the congestive actions. Here a temperature of 60° should be the lowest breathed; here the warm climates of the south of France, Malta, Madeira, Torquay, and other mild and sheltered spots in our own island are necessary; here the comforts of home, too, in well-ventilated pure atmospheres are absolutely enjoined. The membranes, having no protecting coverings, cannot bear the least cold. How different is this to when they are clogged and loaded, when pure, fresh, cold, bracing air is needed! The diet should be boiled meat, mutton broth, all kinds of gelatinous and albuminous things, and everything that will make acid in the last act of digestion, to assist the acid medicines, in order to yield to the system that in which it is deficient. If these two diseases are so opposite, it requires no great degree of acumen to see how distinctly opposite must be their treatment in medicine and hygiene. These facts cannot be too distinctly understood, nor can they be so without the perfect knowledge of the indices the tongue affords. That the two diseases and their treatment have not been hitherto defined is from this very cause; hence the confusion that has hitherto been made in all that relates to them; and the reason unexplained why the milder climates have sometimes done good, and at others have had no avail, but rather the reverse. Simplicity and truth must be the guide in all things, and never was it more required than in readily distinguishing the difference between the congestive and inflammatory actions.

This and the previous chapter explain great but very simple principles partly based upon the use of a defined nomenclature. For instance, all accumulations of matter occurring anywhere from whatever cause, without any inflammation being present, should be called CONGESTIVE

STATES only, and as having little or nothing to do with the blood vessels or the circulation of fluids therein. On the other hand, where accumulations occur in the arterial and capillary circulation (and one cannot take place without involving the other), then the terms expressing this state should be ENGORGEMENT AND INFILTRATION, thus distinguishing two important actions. For inflammation however great or small occurring anywhere, is wholly and solely engorgement and infiltration of the arteries and capillaries. This is confirmed when the treatment is correct in all such cases. Inflammation being always attended by a certain amount of heat in excess, the internal organs affected are benefitted by acids, anodynes, and cool drinks, and the external parts by cold applications. On the other hand, all congestive states denoting excesses of protoplasmic matter and consequently of the vital forces, are benefitted in their internal condition by the alkalies, and in their external development by warmth. When this treatment is reversed in either case, the patients suffer.

CHAPTER XI.

CONGESTIVE AND INFLAMMATORY RHEUMATISM.—CRAMP.—
GOUT.—NEURALGIA AND TIC-DOLOUREX.—APOPLEXY.—
PARALYSIS.—DIARRHŒA.—CHOLERA AND DYSENTRY.

CONGESTIVE RHEUMATISM

Is one of the most common diseases incidental, more or less, to all persons, and not confined to age or sex. It attacks all parts of the body, especially the external members, though it has its choice of internal organs. It is indicated by a large white, flabby, and often furred tongue,

every part and tract being implicated ; showing clearly that it is not confined to one part alone. It arises from a general congestive condition of all the secretions and organs of the body from excess of protoplasm.

Some persons have rheumatism mostly in the upper extremities, others in the lower, whilst a third class suffer from its effects in the more central parts of the body—the loins and hips, in the form of lumbago and sciatica. Wherever there is muscle there will rheumatism locate itself, or in its coverings. The worst and most painful is that which occurs in the coverings of bones, called periostial rheumatism ; the favourite spots of which are in the shins and under the scalp. The diaphragm, or midriff, does not escape, nor does the heart. Nature's effort to locate vitiated elements away from her organic structures all the victims of this disease should appreciate, but when once attacked they are always vulnerable parts. Indigestion, cold, or any other simple causes, produce congestive states which should be checked in their bud. The laws laid down for the advance and progress of disease will render great assistance in the treatment of this painful malady. When it occurs in the upper extremities, it should be somewhat differently treated than when it occurs in the lower. Rheumatism has a great disposition to angular jumping freaks, called by the learned metastasis. These cause great relief, for in their very skittishness a pain which had fixed itself in a locality almost long enough to be past endurance, will suddenly leave, giving a little interregnum to the sufferer, but with the certainty of his finding it come at another part. Thus it will go from the right shoulder to the left elbow ; from thence to the right wrist, and from thence under the left shoulder-blade, or some opposite place never to be correctly calculated on. I knew an old stockbroker, a martyr to rheumatism, who would bet the odds on the next place his tormentor would go to ; but he confessed he made very bad books, and would have lost in the long run ; so erratic and uncertain are all these pains.

Congestive rheumatism is caused by the aggregation of the molecules of the inorganic fluid elements unable to circulate through the interstitial spaces, and the consequent pressure upon nerve batteries, hence the pain. Inflamma-

tion seldom results, as it is not in any way connected with the blood-vessels, and it is a well received fact that rheumatism never ends in abscesses. The popular treatment of rheumatism by warmth, friction, hot baths, &c., is perfectly correct, because all these have a tendency to reduce the congested molecules to a fluid condition, and therefore aid their free circulation again. Exercise is of the greatest importance for the same end, and should be taken whatever additional pain may be produced thereby, for if any of the joints are affected and are kept quiet over a given time, because the moving of them gives pain, a penalty is often paid by a fixture of them called ankylosis. All fresh meals relieve rheumatism, the new elements acting as diluents, forcing the obstructive ones out of their places. Therefore, never starve in congestive rheumatism.

TREATMENT BY MEDICINE.—Take all those medicines recommended in the early acid states of the stomach (Nos. 1 to 7). These medicines, especially No. 7, act chiefly on all rheumatisms of the upper extremities. Those which occur in the lower extremities should be treated with the addition of some aperient medicines. Thus, on the one hand, by simply neutralizing acidities in the stomach, the upper extremities are relieved; but the lower are not relieved so much by these as by the alkaline aperients. If this treatment is reversed, simple as it is, the benefit will not be so great as by adopting the mode prescribed.

If the rheumatism should be of that character which has arisen from cold taken after mercurials, No. 56 will be found beneficial. No medicines condense the albumen of the secretions so much as the mercurials, and, therefore, they have been the greatest curse to the human family. The result from their administration in one disease is their producing some other disease elsewhere.

If liniments are used, the best I know is castor oil well rubbed in, especially to the joints. This should always be done in one direction, from top to bottom, following the course of the muscular fibres which causes a quicker electric current, not up and down and round about as usually practised, which impedes it. If the rheumatism amounts to the state called *tic-doloureux*, which is usually along the

serous coverings of nerves, it always denotes debility in the system; then chloroform may be applied or rubbed in, especially about the face and head. Facial and tooth rheumatism often come without the teeth being decayed; but should it arise from decayed teeth, lose no time in having them extracted.

HYGIENE, DIET, &c.—Take all the roast, baked, and broiled meats, and all that class of diet which makes least acid in the course of digestion. Malt liquors may be taken, though they are generally believed to be injurious. I have never found them so pernicious as wine or spirits, especially sherry and brandy, nips of these taken with the aërated drinks should be avoided, as they add acids to the system. Where there is a tendency from long habit to rheumatism, the most careful dieting will not prevent it, and I am inclined to think that a rich rheumatism is better than a poor one. If the system is lowered by a too rigid and spare diet, the pains are not only equally as bad, but from a low nervous power the system is less able to bear them. Better, then, to live well by sound nourishing diet, and reduce the excess of acids by mild alkalies. Shampooing and the Turkish baths have been recommended, but there is nothing like the natural baths; not mere simple perspiration, but a profuse sweating from exercise, or in bed surrounded in blankets. This, however, must be done with discretion. It will not do to use the starving and sweating system at the same time; but feed and nourish well, so that while old morbid materials are being ejected from the body, healthy ones are put into it. Always bear in mind, that this is wholly and entirely a protoplasmic disease. Hot natural springs will always retain their beneficial character. Those which approach the hot blanket baths nearest, are the hot mud baths of Acqui between Turin and Geneva. The patient is put into one of these of eighteen inches or two feet deep, in which he perspires copiously. No part of the body escapes, and being quite sufficient to boil up and liquefy all condensed molecular matter a free circulation is the result:—hence the cure. As there are acute and chronic stages of congestive rheumatism, it will be found that warmth relieves the pains of the chronic, but aggravates those of the acute, especially

when no perspiration ensues ; therefore, it is necessary to induce this to get any benefit. All persons suffering from or disposed to rheumatism should wear body waistcoats, whether flannel or merino, either all wool, or cotton and wool combined. Much depends on the character and nature of the skin of every individual. I have found that flannel or entirely wool waistcoats cannot be borne by all indiscriminately, and therefore recommend a cotton plush fabric, called swans-down, as equally warm, and not so irritating or hot as woollens. If persons are very susceptible of cold, a chamois or wash leather waistcoat is a very nice thing. For sciatica and lumbago, hot salt, sand, or bran bags are admirable applications, as they, like all other hot applications, liquefy the grosser elements of the general fluids. Where patients have been perfectly immovable from acute congestive rheumatism, I have chased their erratic pains away by very hot linseed-meal poultices, till no part of the body had escaped ; and where these pains have been so chased away, they have not returned to the parts where the poultices had been applied. Two poultices must never be applied at the same time to separate places, one destroys the effect of the other, therefore, only put on one at a time, wherever the locality chosen. A movable rheumatism is one that will move off entirely ; but a fixed rheumatism will often defy all remedies. Therefore, I advise that the most polite and delicate attention be paid to them on their first appearance, and to bow them out as quickly as possible. While saying what to do and what to take in congestive rheumatism, it may not be out of place to say what not to do. Persons of congestive or acid habits having a tendency to rheumatism, should not take cheese or walnuts, chestnuts or milky kernels of this class. Cream in tea is worse than liquid lard or butter, and moreover, they should never take veal, chicken, or mutton broths. All boiled meats, milk especially, and all milk puddings, eggs, raw vegetables, salmon, brown outside of roast meats, and such things should be avoided.

INFLAMMATORY RHEUMATISM.

This is quite a different affair to the last, and no form of

disease has been more mistaken. It is not so much a pure rheumatism as a class of pain so nearly resembling it that it has been ranked along with it, but which arises from other causes. It will come between the shoulders *after bronchitis*, and then the poor liver gets blamed; it will remain amongst the muscles of the chest *after pleurisies*; it will get into the joints *after* mucous membranous inflammations of the alimentary canal, either in the upper or lower ones, according to which part is or has been affected. Since my first discovery of Glossology, I have noticed it as an invariable accompaniment of *heart diseases*. It exhibits its sympathies by a tender scalp *after* inflammation of the coverings of the brain. It is an ignis-fatuus that often leads men astray who have not learned their physiology by the bedside; because it is so purely an effect of inflammatory actions of various organs by sympathy. It shows that after inflammation of organs and their usually attendant feverish actions, that the inorganic fluid elements have been considerably reduced in quantity, and the interstitial spaces robbed of them to a great extent. No better guide can be had than the tongue; for this affection is never present without that organ exhibiting along some of its tracts a red appearance, denoting inflammatory action in such parts of the body as these indicate; therefore, especial attention should be paid to this, as the two rheumatisms, the congestive and inflammatory, cannot be discriminated except by the tongue. The congestive, as I have shown, is from condensed albuminous molecules lodging in certain parts and blocking them up. The inflammatory is just the reverse, as this is the adhesion of parts together, such as the fibres of muscles or muscles to their coverings which prevents fluid circulation through them, and not until these are separated by the passage of fluids does the pain cease.

TREATMENT BY MEDICINES.—The acids and anodynes when these pains are in the upper extremities. When they are in the lower, Nos. 14 and 15. Thus aperients may be given in rheumatisms of both kinds in the lower extremities, but should be used with great caution in the inflammatory ones.

HYGIENE, DIET, &c.—Warmth to the body, and an even temperature of the rooms: no exposure by denudation; no

baths or rubbings ; and no encouragement of perspiration, though it will come on naturally occasionally. Boiled meats, broth and milk are here better than roast meats : no alcoholic liquors of any kind should be taken, though malt liquors may.

GENERAL REMARKS.—As much confusion in practice has occurred in the treatment of rheumatisms, a few simple rules will not be misplaced. Their character should be first considered, whether they are congestive or inflammatory ; whether they attack the upper or lower extremities or the centre of the body ; whether superficial, as on the skin ; muscular, or deeper seated, or if they occur in the joints. Congestive rheumatisms of the upper extremities arise from the stomach, and require alkaline correctives and anodynes. If in the centres, it arises from the small intestines, when the alkalies may be given with slight aperients ; if in the lower extremities, it arises from the large intestines, then alkaline aperients with anodynes are needed. The diet in such cases being that for all congestive or acid actions. If inflammatory rheumatism occurs in the upper extremities, the acids and anodynes should be given ; but when it occurs in the lower extremities, thus originating in the large intestines, acids, anodynes, and opiates are necessary. The pregnant cause of the non-success in the treatment of rheumatism has been hitherto owing to the undefined conditions and causes of it generally.

The schools have never given any true physiology of rheumatism, nor philosophy for its treatment. They have certain set remedies and give a trial to all new ones. All agree in the topical treatment of baths, fomentations, liniments, and friction in all their forms ; all are means to one end, all are more or less beneficial, but the greatest error they make is in treating it with low diet.

GOUT, CONGESTIVE AND INFLAMMATORY.

All that has been said of the congestive rheumatisms may be applied to gout in its insipient stages. If the description of rheumatism be ‘a wolf now gnaws me ; now a serpent stings,’ that for gout is ‘to squeeze the part in a vice till you can bear it no longer, then give it one screw

more.' By correcting the acid secretions and attending to the rules for rheumatism, and also to the positions after meals, and the use of high seats to aid and assist digestion, and greater inflation of the lungs, many attacks and much suffering may be avoided. Men have often pure gout; women seldom. They get the swelled joints in their fingers and toes, but rarely the chalk stones. There is a most important remark I have to make with respect to the use and abuse of colchicum. When combined in the form I have prescribed it, whether with alkalies, acids, or aperients, it never accumulates or does injury, but quite the reverse; *when taken alone* it is most injurious, and I have never known a case where persons have been addicted to this, that they have not died suddenly. Gout should be treated according to the state of the system, as indicated by the tongue: if furred, by the alkalies, if clean and red, then by the acids and opiates according to the treatment of inflammatory states. Gout is considered to be always caused by acidities in the system, and therefore the alkalies are given invariably; no discrimination being made of its two distinct characters. Low diet is also ordered, adding to the evil of the disease and the suffering of the patients. Gout differs from rheumatism by having its locality in vessels, and arises from the segregation of the alkaline salts of the blood in the arteries. These, on reaching the capillaries, endeavour to force themselves through these minute channels, and by enlarging their calibre produce intense pain. Some of these give way to relieve the part, and I have seen the thick creamy alkaline mass ooze out like the paint contained in the metallic tubes which the artist squeezes on to his palette, but as soon as it reaches the air it immediately dries into almost a pure chalk. So that rheumatism and gout, though so often coupled together, are really two distinct diseases.

With respect to diet in gout:—never starve it! If a man denies himself the greatest pleasures of life to keep his enemy away, he errs! He would not have it oftener by living well, but as I have often seen, less. Good living in all due moderation supplies new materials for molecular atoms, and hastens on the sluggish ones stopping the way, whilst the chemico-vital properties of fresh food may contain

more curative elements than all the medicines taken. If this is read by any of my old gouty patients they will certify to its truth. It does not follow that chalk stones are always present in gout, the passage through the capillaries of carbonates of soda and magnesia, and the phosphates of lime, may give as much pain as if they had stopped there and formed chalk stones, and as their favourite localities are the joints, these enlarge with some degree of redness. Suppressed gout, if it means anything, must be from the excess of the alkaline carbonates in the arterial blood not taking segregating conditions; a form rather to be escaped than wished for.

I believe it to be a great mistake in forbidding good malt liquors to gouty patients. I have found, as a rule, that they often yearn for them, more than for any other drink, and moreover they contain but little alcohol. I have never known them to produce gout, nor cause any exacerbation of it when present, while they are very supporting to the system. In fact, they are far better than the aërated waters and the alcoholic "nips" taken with them, which more often produce it, certainly more so than malt liquors.

CRAMPS.

The protoplasmic fluids contain a considerable amount of gases, and we see certain phenomena take place in consequence, such as CRAMPS which occur most frequently in the lower extremities amongst the tendons or their commencements, though they may come in the middle of the thigh or any muscles. Hard balls or lumps will rise up, or the tendons be so contracted as to produce pains quite equal to those of gout or rheumatism. Fortunately they do not last very long. They are often caused by cold, from the limb being uncovered in bed, and from other causes, producing instant incapability of movement of the limbs. Hence its danger whilst bathing. Nothing more clearly shows the hydraulic action of the inorganic fluids than the sudden accumulation of gases in them, which prevent their circulation, whilst the gases themselves cannot escape. The circulation in the blood-vessels always remaining perfect and intact. The treatment further bears this out; for

instant compression of the parts with warmth, and better still, exercise of the muscles and friction, disperse the gases. When the lumps or the constrictions subside, the parts are relieved, and they are not very tender afterwards. Cramps and rheumatisms are closely allied, and there may be a rheumatic-cramp, but not a rheumatic-gout, because these diseases are, as I have shown, perfectly distinct in everything but in their pains.

NEURALGIA AND TIC-DOLOUREUX.

I have little doubt that these painful disorders originate from the same causes as the rheumatisms, and that their seat is in the coverings of the nerves, which are highly vascular; indeed, they are minute networks of blood-vessels protecting nerve matter within them, as small elastic cords of gutta-percha are protected by silk. These natural outside coverings being serous membranes become congested and press on the nerve matter within. Better then that this disposition should affect larger tracts, than fix on the nerve coverings; for as in other parts, so it is in these, when they are once affected they become predisposed centres. The subjects of these complaints are amongst the slow circulators of all the fluid elements, and consequently very inanimate, who neglect physical exercises, thereby losing the benefit of good wholesome perspirations to purge their secretions of morbid elements. If mild warm atmospheres, shampooing, and other remedies have benefited them, then it is evident that a free circulation and a free radiation from the centres to the surfaces are good remedies: ergo—they come under congestive actions, and require energetic exercises, to assist the hydraulic ones, as well as good generous diet to keep up the system. The tongue being the great guide in all these cases to the medicine and diet to be used.

CONGESTIVE APOPLEXY.

As we advance in the scale of the acid or congestive diseases, we find by the law of progression, the parts wherein the higher vital powers are situate, come at last to their

turn of attack. That part where the reason holds its court over the acts and deeds of human nature is bountifully provided against trivial affections ; yet often fails by reason of its own erring judgment to take cognizance of the causes that produce disease, or to stop the tide of its advance. Neither has it seen, or if seen, has it used proper precautions to stem the inevitable evil, but still continues gratifying the appetite, and the desire for gustatory gratification. The brain, which I have distinctly shown as the last organ to be affected in disease, is now attacked ; not suddenly, but from accumulation of morbid elements which become compressed, and free circulation being arrested, apoplexy ensues. It may be said that many persons have a predisposition to apoplexy, and it may range itself under the head of anatomical defects, stout body, short neck, general plethora, and what I have had reason to notice, a smaller calibre of veins in comparison to the size of the arteries. Hence the body becomes over-nourished by vital properties, and these being insufficiently appropriated and in excess, remain and press on the nerve centres. In this complaint it reaches the pinnacle of natural endurance as a congestive action. The fit comes on suddenly ; the brain, the stomach, and all the powers of the body become paralyzed. There is pressure everywhere, and hydraulic forces cease to give elastic muscular power. Nature, true to her laws, centralizes all her caloric or heat to disintegrate and chemically destroy morbid deposits ; robbing the extremities and surfaces for these purposes. In this state the patient drops down a human mass of inert matter, and all the laws regulating the vital forces, which I have endeavoured to define, are contravened and cease to act. Whether this disease arises in its lowest or its highest state, in the infant or the man, its progress is just the same. The convulsions of infancy do but portray the helpless system gorged, stuffed, and loaded by others, and that of adults by themselves. In the one, the instinctive disposition is to take whatever is put to the mouth, till, with the most anxious care and solicitude, convulsions, or infant apoplexy is produced ; in the other, there is the indiscriminating and thoughtless gratification of sensuality. Oh ! hard-hearted doctors, who forbid the thick cupfuls of

farinaceous pudding-like masses to be given to the little deities of a mother's love, feeding her infant gluttons to repletion! Oh! starving sons of Æsculapius, who advise more prudence in the gastronomic pleasures of certain systems; you may talk and warn, but the public will make patients for you against all your advice, and then fly to you for assistance.

TREATMENT BY MEDICINE.—Give immediately on the attack in adults sufficient tartarized antimony, either in powder or in liquid (Nos. 8, 9) to produce an ordinary vomit. Whenever there is pressure of a congestive character on the brain, there is always vomiting, therefore, assist Nature. See in these aggravated cases of perfect helplessness, how the frothy mucus pours out of the mouth and nose! In lesser attacks, see the vomiting of the stomach when that organ is not wholly paralyzed! When consciousness is sufficiently induced, and the tongue can be protruded, see how it is loaded, coated, and furred. Here, then, is a condition for the use of the boldest application of alkalies (No. 7): the quantity of soda in this prescription may be doubled and be persisted in. On reaction taking place, blood-letting may be resorted to. To say this at a time when blood-letting has gone out of fashion may seem strange, but in such cases as these the albumen, serum, and all the inorganic fluids are in excess and some can well be spared. Blood-letting went out of fashion from sheer empiricism, though the real truth was that it was always resorted to in fevers and inflammations when the vital forces were lessened and there was a deficiency of the inorganic elements, water, albumen, and serum. This was never found out as the true cause of its disuse. The convulsions of infants and children should be treated with emetics, and vomiting well kept up; then the alkaline treatment adopted. There is no disease of a spontaneous character more requiring a *well-regulated delay* to insure success than this; for never was more 'haste and less speed' so fruitful of evil. The patient, if an adult, should be immediately conveyed to bed and properly undressed, and placed on an incline, the head well up; he is then in a position for all the strategetic rules of medical warfare. Free air and ventilation even to plenty of fanning should be used, and powerful smel-

ling salts applied to the nose. An emetic should be given to him at the earliest period, before the instinctive actions are too paralyzed; for as long as he breathes he can swallow, and fluid placed at the back of the mouth by pouring it between the teeth and the cheek must be swallowed for the instinctive act of breathing to be carried on; all this is time saved. He should be got into a perspirable condition as soon as possible by hot applications all over him. As soon as this takes place, the relief through the skin is enormous, whilst similar actions take place on all the mucous membranes. This facilitates the first act of vomiting, caused by the emetic already given, and shows that the paralyzed state is relieved. This must be encouraged in every possible way, and more of the emetic mixture given. The whole body first bathed in sweat, now eliminates heat to an enormous extent, and the whole mass of inorganic fluid circulation is brought into a more liquid state. The face and forehead reddens, and the veins enlarge. This state is called *reaction*, and *then, and not till then*, is the time for bleeding, and according to the subject, do it boldly. In the first conscious interval, begin the alkaline medicines; these will neutralize immense quantities of acid, and disengage the gases from the upper works—stomach, lungs, &c. The disease is now in hand: it is made simple, for it is only necessary now to follow the laws for the treatment of congestive actions. All mercurials are poisons!!!

REMARKS.—I cannot but remark on the practice usually adopted on occasions of sudden apoplexies. The affrighted public pick up the heavy-breathing human mass and place it in a chair, and quick-footed messengers run for a doctor. They may have had the sense to remove the neckerchief, and unbutton the shirt-collar; but perhaps not. The doctor comes, ties up an arm, whips out his lancet and plunges it into a vein. He gets nothing, or next to nothing, for his pains. He next opens a jugular vein with a like ill-success, that part is paralyzed also; he tries the temporal artery; that is in the same state: he places five, ten, or even more grains of his favourite calomel on the tongue, and after losing precious time, the patient is at last carried to bed if he lives long enough, after his best chances of life have been thrown away. More calomel is put on his tongue if

he still lives, and probably after a time the doctor tries the lancet again with better success, and on the first appearance of recovery, saline or other brisk aperients are given. Perhaps these do not act, so more are given and more calomel; at last purging comes on; but what a miserable condition for a man unable to move! One of two things most assuredly happens, he either dies from exhaustion, or becomes a confirmed paralytic; and be his time here long or short, according to his age, he presents to the world a half-helpless specimen of humanity, owing his condition to false principles of treatment.

PARALYSIS.

This may be whole or partial. No paralysis happens without apoplexy, however low its character may be, first taking place. Partial paralysis is apoplexy occurring in a mild form, and fixing itself in certain localities. One side of the face may only become affected, or one hand, one arm, one leg. There is, however, gradation in this; one half the body, such as the lower limbs, may become affected (paraplegia); one entire side, face, arm, and leg (hemiplegia). Palsy is a species of paralysis; all are stages of apoplexy; and all are consequently sudden in their attacks. All are caused by ill-conditioned states of protoplasmic matter illustrating defects in its hydraulic actions, and in palsies its fitful ones.

TREATMENT, &c.—The same treatment may be adopted for these as for apoplexy, only in its first mild forms, and the rules for the congestive actions may be followed. A constant and well-regulated warmth is imperative, and bed offers the best means of attaining this, increased by hot applications. By this plan the chemical and electrical conditions of the body are kept up, and these are the funds to call upon when the disease first comes on; when these have been lost, and the chronic stages exist, then the external application of electricity and galvanism are most useful, with good and proper sustentation of the powers by dieting.

REMARKS ON CONGESTIVE ACTIONS GENERALLY.—It must have struck all who have followed my observations on

these diseases, how little aperient medicines have entered into their treatment, nor has this been done without just cause. The largest percentage of all congestive actions are produced or have their origin in the upper works. The laws of health, which I have arbitrarily defined, the laws of the first departure therefrom, the gradation assumed by the primary diseases, and the truth of these as illustrated by Glossological indices, are proofs that I do not act without sufficient reason. On the other hand, I do not fail to point out such modes of proceedings as will bear a thorough sifting into their truth or falsity. The uses of the large intestines as the prime generators of many valuable gases, and from whence the vital energies are regained when lost, are so important, that I am compelled to condemn the purging of these in many complaints. Disease is often aggravated by such modes of proceeding. If proof be further necessary I will draw attention to the next form of disease which deeply interests everybody, where there is purging enough, namely—

CONGESTIVE AND INFLAMMATORY DIARRHŒA, CHOLERA, AND DYSENTERY.

If I were asked to define cholera, I should say it was the very opposite of a disease now extinct, called the SWEATING SICKNESS. This disease of former times would attack an individual, and so profuse was the sweating, that in a few days he would die a perfect skeleton. Neither urinary action nor action on the bowels took place. It was as if by some consent of the general system that every solid resolved itself into a fluid, which oozed through the porous structure of the body to the surfaces; the patient dying in his own self-made bath. Cholera seems the very reverse of this; for by a similar law, urinary action is arrested, and all fluids gravitate from the surfaces to the centres, on to the mucous membranes, from whence they are evacuated in a liquid form. Electrical action is considerably diminished throughout the body on account of the large amount of the protoplasmic fluid circulation gravitating to the alimen-

tary canal. The nervous system becomes powerless, the muscular actions cease. In addition to this, there is the loss of power in the large intestines to form the vital gases, especially the phosphates, because all the elements for their formation have been carried away, and the patient gradually sinks.

Let us see what is the process of decomposition in the sudden death of a healthy person. The life-loving nitrogen is the first to quit the body. Every gas seeks its most combining elements; solids are dissolved into fluids, and these again into gaseous vapours and fly off; and so the once vitalized mass gradually decomposes. In the choleraic diseases while vitality exists (yet in so low a condition), the fluids have no time to form gaseous elements, but fly off bodily.

Congestive diarrhœas in their mildest forms are Nature's efforts to rid herself of obnoxious elements, and are often beneficial. These are not solely the result of morbid affections of the large intestines, far from it. Noxious substances come from the upper works, into the large intestines and irritate them; these, together with what they contain already, are rapidly carried away. Then it is incumbent on art to allay the irritation, especially if pain be present. If this is allowed to go on, the law of gradation produces English cholera, or diarrhœa in excess. This may become aggravated by further pain; more, perhaps, from flatus than any inflammatory cause. Again, one step further and all the symptoms are increased, protoplasmic elements are abundantly lost and the necessary electrical action in the system ceases, and if they are not restored on the one hand, or the flux stopped, collapse ensues. This is first felt in the mass of nerves, or solar plexus, at the back of the stomach, by diminished power of communicating the telegrams to the brain from loss of electrical actions in the lower extremities, and, by inability to pass these downwards from the brain to the parts below. In fact, the wires are cut and the communication is stopped between them.

The brain has also lost the ever-restoring phosphates generated from the fæces which have all been carried away. The hydrogens formed also largely in the colon have been neutralized by the excess of oxygen coming down from the

small intestines, and are both discharged in the form of liquids. Thus the whole body gradually withers and sinks, being robbed of all its vital forces. Looking at cholera in this simple light, and tracing its results, we have first to ascertain if these are effects of congestive actions or inflammatory ones, for herein lies the whole treatment. If the tongue is furred and white, then it is congestive, and the disease may be traced to morbid conditions of the upper works, causing mechanical irritation in the large intestines.

INFLAMMATORY CHOLERA.

This arises solely in the large intestines, but the effects are in the end much the same. Morbid conditions of the mucous membrane of this part will often produce in it a pulpy state, and large quantities of a jelly-like mucus mixed with actual membrane and blood come away. This is called DYSENTERY, but is very different to inflammatory cholera, for dysentery does not involve the whole structure of the large intestines, but only the lower parts. The consequence is, there is enough fæcal matter left at the upper parts for Nature to gather a store of her vital gases. This state may be much prolonged; while inflammatory cholera forcibly ejects all fæcal contents, and if not stopped, the vital gases having ceased to be formed, electrical action stops, and collapse of the solar plexus is the result. Thus the same effect is produced as in congestive cholera. In this disease the tongue may be free from fur, but white and flabby, showing a debilitated condition of the system; or it may be clean and red, more particularly at the large intestine tract, showing the inflammatory condition of this gut. As these diseases exhibit such opposite causes, the remedies for them must be equally opposite if beneficial or curative actions are to ensue. In all these cases, vomitings, and distressing nausea, are concomitant symptoms. Sickness has hitherto been considered as arising from some ill-conditioned state of the stomach, but I have had abundant reason for believing, that it is most frequently a colon symptom, and this is confirmed by the sympathy there is between this organ and the reflective portion of the brain, hence forehead headaches are frequent and often persistent

in these cases. I do not believe that cholera in any of its forms and varieties, has anything to do with, or is brought on by, what is called blood-poisoning in the usual acceptation of the term. It is the entire protoplasmic circulation which is in fact first poisoned, and, lastly, the sewage circulation in the veins, which on reaching the lungs, cannot be purified or oxydized by the surrounding atmosphere. Hence the true state is seen by the whole body turning blue, or blackish-blue, by the arteries carrying venous sewage instead of blood.

All morbid conditions of the large gut, either from constipation as from excess of action, affect more or less the reasoning powers. This is shown by symptoms of fear, alarm, and the greatest anxiety of countenance, and is almost always accompanied by forehead headaches. This is not seen in the derangement of the upper works when headaches occur at the back parts. This accounts for the fact, that a few brisk choleraic purges from the large intestines will strike the giant down in a few hours to the frailest condition. Diarrhœa may be produced from fear, for this is arrest of the reasoning powers, which acts immediately by relaxing the sphincters of the lower part of the rectum. This is a singular proof of the direct influence of the one part on the other by reflex action. It may be caused also by irritating substances which the digestive powers have been unable mechanically to neutralize, also by excess of bile poured out by the liver, finding no substances to act upon. This is bilious diarrhœa, which has no great depressing effects. Diarrhœa may also be caused by the absence of bile, when the stools are clayey or white: this is a very opposite condition, always attended with certain depressive feelings and griping pains, because the fæces are deficient of those elements which make vital gases. As certain localities produce costiveness in some habits, so others will predispose to diarrhœa, which, being favoured by climate and other circumstances, advances into the Asiatic stage. Certain conditions of the system must always be favourable to these attacks: it is the duty of science to find these out. Diarrhœa and cholera, therefore, claim their distinctions into CONGESTIVE and INFLAMMATORY, and unless these are clearly defined, it is impossible to treat them with certainty.

There are no such definitions now made, certainly not as regards the medical treatment ; for if inflammatory action is so glaringly present as to be admitted, the treatment is as likely to be of an alkaline as of an acid character.

The government inquiry into the cholera of 1854, recorded in the great blue-book reports, exhibits a monument of labour in everything but in the desired conclusion. Any specific treatment of cholera, as far as that report is concerned, remains just where it was previously. It reiterates all we knew before, viz., that improved hygienic observances prevent diseases of all kinds, and the reverse produce them ; but it presents nothing useful in actual or certain application of medicine when disease is present, and for which I am now contending. One plan did not seem more beneficial than another. The French have offered a large monetary prize to any one who will propound a cure similar to vaccination, as against smallpox, to destroy the cholera-poison which, like smallpox, is supposed to be a blood disease. To this idea I must dissent, as all the protoplasmic fluid secretions in both diseases must be largely and primarily infected by noxious germs before the blood itself can be. When their important uses in the animal economy are considered, it will be found that many of the symptoms and appearances in these diseases are due to them. Furthermore, if poison does enter the arterial blood, which is the only true blood in the body, the sufferers must depend upon the integrity of the protoplasmic secretions first for their recovery, and the poison, if any, in the blood must be corrected through them. Cholera epidemics ranging over large districts, or endemics occurring in certain localities, can always be traced to their causes and will always carry away a certain percentage of the population. That whole communities are not carried off, show that many either take better care of themselves in every hygienic way, or are not predisposed to the influence of the malarious surroundings.

Whilst this chapter is going through the press, I copy the following extract from *THE TIMES*, July 2nd, 1883, respecting the cholera now raging at DAMIETTA in Egypt.

“ALEXANDRIA : *July 1st, 1883.*”

“The position of Damietta is an unhealthy one. The town is

traversed by a ditch, receiving sewage, from which the natives drink, and in the vicinity of which the first cases occurred, rapidly spreading further. There is a large accumulation of the carcasses of dead animals, and of meat from diseased cattle, which is sold as food at a low price. The chief nourishment of the people consists of dried and salted fish. The temperature for two days previous to the outbreak was exceptionally high. The symptoms are vomiting, watery diarrhœa, muscular cramps, coldness of the extremities, suppression of urine, alteration of voice, sunken eyes, contraction of the fingers, and collapse. The *post-mortem* showed cadaveric rigidity, wrinkled skin of members, sunken eyes, the large intestine empty and contracted in its whole length like a cord, the small intestine congested and filled with a whitish liquid, but no alteration in the glands and follicles. The stomach was largely distended and filled with a perfectly clear liquid; the bladder was empty and contracted. The lungs, liver, and spleen were slightly congested, the kidneys normal. The heart was in a state of *venous congestion*, and *filled with dark fluid blood*. A very serious element of the situation this year consists in the fact that the fasting month, Ramadan, commences on Tuesday. Fasting predisposes to and assists the disease."

All these facts bear out my views of the "*dark fluid blood*," here spoken of, as being nothing but the sewage fluid from ulterior protoplasmic sources. We can draw our own conclusions as to what poisoned conditions these were in, and how they were produced in a community living in the filthiest state as above described. The spreading and continuance of this disease the daily records have fully shown. The winds will carry the poison germs to other places hundreds of miles away, in either a mild or a virulent form. The one great plague spot thus affecting the largest area.

Certain conditions of the body in ordinary life, even with ordinary care, will produce diarrhœas, which may hasten into choleraic symptoms. For instance, acid matter may be undigested in the two stomachs, and be unappropriated in the small intestines, and pass in a crude state into the large intestines, carrying with it a considerable amount of oxygen, which combines with the hydrogens always present there, and produce a watery flux. Aërial miasmata and bad food will also do the same. If these actions are over frequent and violent, the whole contents of the large intestines become exhausted, and with them, not only their vital gases, but the elements which make them. All know the effect of aperient medicines, how weakening they are ;

the secret of their action lies in their carrying oxygen from the small intestines into the large ones, and producing watery actions. I have seen chronic diarrhœas arise from an evident weakness of the valve (the ileo-cœcal), which is interposed between the small and large intestines, allowing oxygen to pass into them too freely. This I have called mechanical diarrhœa.

TREATMENT BY MEDICINE.—All the rules of treatment of congestive and inflammatory actions are to be here obeyed. The tongue rigidly studied, and headache at any given part noted. The simple acid or congestive diarrhœa may be cured by a little soda, or prepared chalk with sal-volatile (Nos. 1 to 6). If pain in the large intestines be present, from the too rapid and frequent passage of irritating matter, an opiate is called for, because the first stage of an inflammatory action may be induced, which this instantly checks. If congestive diarrhœa or cholera occurs in the large intestines, known by the white and furred tongue, the largest doses of prepared chalk may be given in cold water, and the opiate pill (No. 17). One of the most important points to be considered when vomiting and purging come on together, is the sensitive state of the stomach. If any one supposes that filthy nauseating medicine is to be taken with impunity, he will be grossly deceived. The combination of laudanum, chalk, catechu, peppermint, and such-like compounds are enough to make any one sick, much more a stomach already nauseated enough. In all such cases the more tasteless the remedies, the better. The chalk is almost tasteless; it is alkaline, and combines with the fluids in the system, and solidifies them; an opium pill dropped into one or two table-spoonfuls of raw arrowroot made with cold water, is tasteless, and if the patient is not told the pill is there, so much the better. Whatever medicines are given let them be in the simplest form. These are the means I have found practically available in these cases, but let it be always borne in mind, that sickness is not a stomach but a colon symptom in which the stomach sympathizes.

Next come those for the inflammatory stages. These are almost always confined to the large intestines, when the acids and opiates are called into use. In these cases the

nausea is not so great, and acids should always be combined with an anodyne, this may be accompanied by the opiate pill (No. 17). The form of acid preferable in violent cases is the nitrous (No. 18). The more simple and tasteless the remedy, the better the system will bear it; but that remedy must be the right one. If chalk and alkalies are given in inflammatory actions, denoted by the red tongue, and if acids are given in the congestive stages, as denoted by the white furred tongue, the disease will most assuredly be increased. It is owing to these mistakes that both doctors and physic have been blamed, and not without just reason. How was it possible under such circumstances for any correct conclusion to be drawn from the immense amount of evidence collected by the government commissioners, of what was the best remedy for cholera? The statistical tables of the number of persons treated by the various remedies show average results, and that one treatment was no better than another. Such was the conclusion of the government inquiry, which cost the country sixty thousand pounds.

The simple fact of the appearance of the tongue indicating when one of the opposite remedies should be applied, never having entered into the calculation, not only the treatment of cholera, but all benefit to be derived from the inquiry, entirely failed. The next time such an inquiry is made, these simple rules should accompany the paper to be filled up:—

(a) In all cases of white furred tongues, the cholera is congestive, and requires alkaline and anodyne remedies.

(b) In all cases of red or clean tongues, it is inflammatory, and requires acids and opiates.

(c) State the result when these rules have been applied and carried out, and, also, when they have been reversed.

When natural laws have been obeyed, and the two distinct classes treated as I have propounded, they will be found to be favourable, but when they have been contravened, they will be found unfavourable, to recovery.

HYGIENE, &c., FOR CHOLERA, &c.—A fixed principle should direct all these various stages. There is loss of vital heat through loss of electric power; heat, therefore,

everywhere applied is of the utmost importance, both as a direct as well as an indirect agent. Galvanism produces this latter action, and assists the functions of organs which are in abeyance, especially the skin and kidneys. Therefore it is most important to restore these lost powers, for when both act in unison the case may get into a safe groove. In common cholera "SLOPS" are ordered; but it should not be forgotten that the system is nothing but SLOPS already. There is no condition that requires the uses made of the natural chemistry of the body or self-dependent powers more than these diseases. The best and most nourishing meats that can be got, nicely roasted, baked, or broiled, should be given to the patient. A piece put into the mouth with directions to take a long time in masticating it, so as to incite first and then to use the salivary secretions as natural medical agents, for both these acts produce a certain amount of heat which are not to be got by giving slops. Nature's own pharmacopœia, by which her own vital chemistry is set to work, should be taken into account, as well as the chemical actions of the acids and alkalies. Her own galvanic batteries produce electricity, and consequently heat. A well-masticated pulpy mass going into the stomach, gives that organ some of its natural duties to perform, and some power will accrue. "Oh! but it may be rejected by the stomach;" well, so are slops; with this difference, however, that in the former case some power is gained, while in the latter it is lost. Fluids and slops must be cautiously administered. In all cases of cholera these few hints will serve to point out the course to be pursued to nourish the system by actual aliment, and to make use of the natural powers within it. In common diarrhœa the same caution is not so necessary, except to avoid slops. A good mutton chop two or three times a day, with plenty of salt, and some porter or bitter ale is the best diet. While the bowels are irritable, few vegetables should be given. Everything that reason dictates, however opposed to routine, should be adopted. This above all, that in the congestive actions denoted by the white or furred tongues, roast, broiled, and baked meats, good beef tea, and such-like diet are best. In the inflammatory stages, denoted by the red tongue, boiled meats, mutton,

veal or chicken, and fish, because all these produce acid elements in the system, and help the acid medicine. If beef tea or mutton and other broths are given in all the inflammatory states, they should be only moderately warm, and mixed with a large amount of isinglass, gelatine or maccaroni, and made tolerably thick, so as not to come entirely under the name of "*slops*." But if these acts are reversed or infringed, all Nature's laws are equally set at nought. In all cases of chronic inflammatory diarrhœa or cholera, and more especially in dysenteries, all the raw vegetables may be taken, combined with shell-fish if obtainable, and made into a salad with the usual good dressings. These are most valuable articles of diet. All cooked vegetables should be avoided, as well as all spirits and fiery wines. Good malt liquors—stout and porter are beneficial.

REMARKS.—There are two points I have to remark upon in all these cases. The first is the injudicious use of calomel and the mercurials. Nothing but routine and the bigotry of schools now sanction their use. Authority is often but a stagnant respectability; once excite intelligent observations hereon, and this homicidal practice will be abandoned. The second is to keep the bowels quiet over some days, even for a fortnight or more, which can be done with perfect safety. During this time, the appetite will return with a general healthy appearance of body and cheerfulness of mind. Many cases are unfortunately lost by opening the bowels too soon, because their physiology is not understood, and prejudice stands in the way of a wiser system. There are plenty of reasons for this, as I have already shown how the phosphates are generated from the fæces in their natural laboratory, the large intestines, for the support of nerve and brain matter. If these elements have been thoroughly purged away, how long does this great laboratory take to be sufficiently filled again for the same purpose. These natural laws and facts were unthought of until I broached the subject. The natural manure of the body is equivalent to that which Agriculturists, Horticulturists, Floriculturists, &c., use for their specific purposes, and it is to what is called high farming, *i. e.*, high manuring, that we see such wonderful

productions in grain and seeds, flowers and bulbs, their size, colour, taste, and benefits of all kinds.

Up to this point it will be seen that I have spoken only of those disorders which are of a congestive character, merging frequently into inflammatory conditions, yet still unattended with what is generally termed fever, to any extent, and that a natural law in their gradation, points out a distinctive treatment, even when they are co-existent.

I will now show the gradual progress of these into direct inflammations, with characteristic feverish actions

CHAPTER XII.

CONGESTIVE AND INFLAMMATORY CONDITIONS OF THE BODY PRODUCING FEVERISH ACTIONS, BUT WHICH OBEY NO LAWS OF THE TRUE FEVERS.

MEASLES AND INFLUENZA illustrate some ill-conditioned states of the system affecting the mucous membranes, which produce feverish actions. In both these there are watering of the eyes, running at the nose, shortness of breath, coughs, sneezing from stomach irritation, and general uneasiness for several days. This is called the sickening stage. If these symptoms determine towards measles, then an eruption will appear on the skin. Minute spots, of a bright colour, form themselves into patches, appear at first on the face and chest, and then go off into a brownish tinge. These will gradually exhibit themselves on the lower parts of the body without much regularity. All the primary organs or parts are the more especial seats of this complaint at the onset, more especially the lungs. If the

eruption continues over the chest and trunk, instead of showing itself on the lower extremities, the case always assumes more dangerous features, because the lungs are most oppressed by congestion. But if the eruption comes quickly on the lower extremities, the safer the patient becomes. The great majority of cases are of this mild type, but the law of gradation will often show itself in this disease, and venous congestion will affect the circulation of the blood in the arterial vessels when low feverish actions are set up. Although it is a fair conclusion that measles only happens once in the lifetime of an individual, there is no law to prevent its appearing a second time, or that it should ever come at all. I have known scores of people who never had measles. The tongue in measles is generally white and furred, as in other congestive actions. If the lungs are not quickly relieved from this oppression, inflammatory action succeeds, and this generally causes bronchitis, then the lung tract becomes denuded of its fur, and presents a red appearance. Measles in adults seldom merges into bronchitis.

INFLUENZA in many points much resembles measles, but is unaccompanied by eruptions, has less fever and more general depression. The fact that measles is more an infantile disorder than influenza, and influenza an adult disease more than one of infancy, considerably alters the character of it. To the close observations of measles, I am indebted to the first glimmering of the peculiar alterations on the surface of the tongue; but to the epidemic influenza of 1836-7, I owe the discovery of Glossology. The four great tracts, viz., those in sympathy with the stomach, lungs, large intestines, and brain, were then fully confirmed. The vast number of cases I saw, and the distinct treatment I was compelled to adopt, for the congestive as opposed to the inflammatory stages, at once aroused me to divide the drugs I used into distinct classes. Nor did I see exactly at that time why one set of cases was evidently benefitted by the distinct acid treatment, and the other by the alkaline. It was a work of time to found any sound principles or philosophy on these facts.

TREATMENT OF MEASLES.—For infants: if the tongue is white, furred, or coated, small and frequent doses of

ipecacuanha wine with the alkalies, to act as stimulating expectorants, and to correct acidities, are only required, but these must be persisted in should the lungs exhibit an oppressed condition. If the tongue is clean without being very red, give small doses of Ipecacuanha wine, combined with dilute sulphuric acid, paregoric and syrup diluted with water. In cases that run into bronchitis with the lung tract on the tongue red, increase these doses. In adults where there is seldom any inflammatory actions, but a sense of tightness on the chest with cough, Nos. 12 and 13; attending to the stomach by other alkaline medicines (Nos. 1 to 6). Early vomitings in this disease, either naturally or by emetics (Nos. 8 and 9), often cut short the violence of the attack, and so remove congestive morbid elements from the mucous membranes of all the upper organs. In mild cases, very little aperient medicine is required during the presence of the disease; but when the more active stages have passed, it is always necessary to act well upon the bowels, to remove similar morbid elements from their mucous surfaces. If this is not done, they remain in the system, and cause swelling of the upper lip, and skin eruptions, especially of that class called running sores, when the matter dries on the surface and forms scabs, all for the want of purging after an attack. This is pre-eminently a disease that is the parent of many; of itself often of small account, but leaving behind a parting curse; and this clearly shows that the disease is congestive, and that the after eruptions, or skin diseases, are Nature's efforts to throw out morbid matter through the skin, and are, in fact, her own counter-irritants. For infants the aperients may vary according as they are of gross and full habit, or weakly.

IN INFLUENZA the appearance of the tongue must regulate the treatment, whether it is of a congestive or inflammatory character; or the state of the patient weak and debilitated. As a rule, the system in these cases requires to be well sustained.

TREATMENT BY HYGIENE, &c.—The measles eruption should be encouraged, and never checked; if it is, the lungs become much oppressed. Therefore, keep the patient warm, do not even change the dress, nor attempt

any ablution ; there will be plenty of time for this afterwards. A few days or a week in bed unwashed and unchanged, is a safer process than to risk life by driving the disease to so vital a part as the lungs by any exposure to cold, and then to have recourse to leeching with a doubtful issue. In the sickening for this disorder, the warm bath has been resorted to, to develop it ; but this is dangerous ; better apply warm or hot flannels and induce a perspiration in bed, when, on the appearance of the eruption, the patient can be kept there. Solids should be very sparingly taken, but every warm and demulsive drink in quantity if necessary, and the very weakest of milk and water, one-fourth milk and three-fourths water, for infants if they are weaned. All that is required is to assuage thirst ; the disease itself resulting from excess of unappropriated protoplasmic elements. When the eruption turns brown, with interspaces of the original appearance of the skin, and all the lung symptoms are gone, then plenty of warm soap and water is necessary. Still I do not recommend the bath or total denudation for some time. When the washing begins, the aperient process may accompany it, which should be moderately persisted in, once or twice a week for several weeks—presuming that the usual diet has been resumed. This should consist according to all the rules for the congestive states. The roast, baked, or broiled meats, according to the circumstances and ages of the parties affected, and all that class of diet which makes but little acid in the last act of digestion. The system should be well supported, so that while old morbid materials are carried away, new and nourishing ones should be given.

In INFLUENZA the diet and hygiene should accompany the medical treatment, of which, by the way, little is required beyond warm carminatives. As debility is the greatest characteristic of this attack, feed well, and support the system, and in opposition to the after treatment of measles, have as little to do with opening medicines as possible. Leave the large intestines alone, for if they are costive, Nature is building up the system, and if loose, rather check them than otherwise. Measles being the type of congestive fevers in the venous system, there is no re-

medial action in such states so beneficial as perspiration, for all the organs continue secreting largely, showing that the arterial circulation is not affected, or this would not occur. Where fevers affect the arterial circulation, a totally distinct train of symptoms and phenomena present themselves, as in

SCARLET FEVER.

This disease sets in with shiverings, pains in back and loins, head-ache, and general uneasiness, and a scarlet rash over the chest and stomach, spreading down the body and limbs. It may be called the sudden effort of Nature to rid herself by burning up all morbid fuel in the system, and this she does in a most rapid manner. The whole surface of the tongue at the outset often presenting the appearance of a perfect blanket of creamy fur. This shows the highly congestive condition of every organ, and of the whole muco-membranous lining of the alimentary canal. In a few hours this fur will break away in patches, leaving the tongue one glary beefy-looking mass, and instead of the congestive, we have now an inflammatory state everywhere. The inflammation shows itself first in the throat and tonsils and salivary glands. Sudden and rapid respirations occur like those of measles and bronchial congestions. Not only are the mucous membranes of the alimentary canal thus suddenly inflamed, but those also which line all the glands and their ducts. The capillary circulation is suddenly arrested in its duties, every capillary becomes infiltrated, and carries arterial blood, and all the terminal extremities of the arteries are highly engorged. No disease so completely illustrates every fact I have mentioned in the law of gradation as this. The inorganic fluid secretions of the body are nearly absorbed; perspiration ceases, as a matter of course, as there are no elements left to make it, and urine cannot be formed in quantity. How can it be otherwise when the fever has consumed them? The myriads of red points on the skin are so many fire-points, which have quickly consumed the fluid between the two skins. These points appearing like a rash, spread rapidly down the arms and legs, destroying the upper skin,

which ultimately peels off; whilst the whole surfaces of the internal mucous membranes are similarly affected.

If, then, the whole outer skin has to be removed, so has the whole internal mucous membranous lining. It is to this fact that the parting curse of this disease is due. If the lining membranes of the glands, and all secreting organs, as well of the alimentary canal itself, become renewed with facility, by the destroyed membranes coming away, and the new taking their places in a healthy manner, then no difficulties arise. If this cannot be done readily and within a given time, then scarlet fever is the prolific source of many diseases; but these are of a very different character to those of measles. The glands and secreting organs become blocked up with the old or destroyed membranes, and their actions being impeded, DROPSIES are the result, from the absorbent vessels and capillaries being rendered useless. On the other hand, the glands about the neck become engorged, and when these remain too long in this condition, abscesses form in them, and often assume the character called strumous, or scrofulous, and ever afterwards persons may be subjected to what are termed external glandular enlargements.

Scarlet fever is totally opposite to measles, as will be seen in its treatment, both by medicine and hygiene, although they have been more or less associated. Yet one would have supposed that the empirical treatment of them would at once have pointed out their diametrically opposite characters.

Although the treatment of scarlet fever is not free from blame as a matter of routine, still it is correct in many of its phases, even though uncoupled with any philosophy. This disease may be very mild, or very severe, according to the condition of the system. If it confines itself to mucous membranous inflammation alone, it is of a very simple character, and is generally unattended with pain; but if the serous membranes become involved, then the malignant type sets in, and this is accompanied with much pain and suffering. The tongue fouds and becomes dry, giving that unmistakable typhoid appearance of blackened fur down the lung tract, whilst the common ulcerated throat becomes

gangrenous and sloughs, and the skin takes on a purple hue in patches. The disease is in fact removed from its usual seat, or from one set of membranes to another, namely, from the MUCOUS to the SEROUS. The danger of the case varies according to the attack and seat of disease. Mild cases may be aggravated by injudicious treatment; yet at another time the system may present such conditions that even the most philosophical treatment may not be successful. Again, the most dangerous symptoms may be resisted and overcome by proper remedies.

TREATMENT BY MEDICINE.—The very opposite for that of measles. The acids and anodynes (Nos. 26, 27). It has been recommended to give an emetic in the onset of this fever, as well as to purge: *both are most pernicious!* See how quickly the fever has burnt up all the inorganic fluids, then ask the question if there are any to be carried away by either of these processes. Nature has already done it to excess. The medicines found to be beneficial prove that the system requires elementary support, and should be of an acid character. Acids are tonic, and add to the system that of which it is deficient; whilst anodynes or opiates arrest the activity of the fire, and consequently the further escape of the inorganic fluid secretions. These medicines should be given very frequently, and swallowed slowly, because the acid acts as a gargle to the ulcerated throat. Adults may understand how to gargle, and this may be done with acid gargles in addition to the medicine; but with infants and children who cannot do this, the medicine frequently given in small quantities serves the two purposes. According to the violence or virulence of the disease, so the acid medicine should be increased. Belladonna, on account of its peculiar action in all arterial diseases, and its sedative effect in highly-excited nervous actions, is very useful; but this should be given under the experienced eye of the physician. Some of the neutral salts have been lately recommended, such as *chlorate of potash, ammonia, &c.*, but any alkaline agent or reagent I hold to be totally opposed to the philosophy of the cause of the disease, as well as its treatment, and therefore unscientific. We are told by the chemists that ammonia is converted into nitric acid soon after it is taken into the

stomach ; hence its apparent use in this disease. If benefit, then, is produced in this way, why not give the acids at once ?

TREATMENT BY HYGIENE, &c.—A moderately cool room, with very little light, but well ventilated ; frequent spongings over every part of the body with warm vinegar and water, not too strong—one part of vinegar to two of water—is most grateful. This refrigerates the body and helps at a future stage the peeling of the skin. Wherever the body is the hottest this should be done the most frequently ; but care must be used that even in this fever the distribution of heat should be regular. If the feet become cool, which they frequently do, they should be covered up and not sponged ; but if they become too hot they should be refrigerated. Nothing is more grateful than the burning of vinegar in the room, by pouring a little on some hot coals in a shovel. Here may be mentioned the fact of the distinct acid and alkaline treatment even in what is breathed or smelt to. In all congestive or acid actions, ammoniacal smelling salts are as proper to the system as the alkaline treatment by medicine ; whilst in those cases where the acid treatment is called for, the aromatic vinegar and vinegar fumes are most grateful. In sick headaches from acidity of stomach, aromatic vinegar does harm and increases them ; whilst the fumes of vinegar in scarlet fever are curative to the air tubes of the lungs. In this disease the drinks should be lemonade, acidulated barley water or linseed tea, &c., and all should be taken cool. Milk and water with sugar, first made hot, then stood to cool, is a nice drink ; blanc mange, arrowroot, tapioca and sago puddings made with a small proportion of milk, are also good. If the temperature of the body sinks ; mutton, veal, or chicken broths are good, and wine may be added to the arrowroot, or a little port wine and water given. All these in accordance with the case and its requirements, recollecting that the medicine and diet are designed to one end, namely, to restore those acids to the body of which it is deficient. The one acts directly, the other indirectly, through Nature's own laboratories. Thus it will be seen how totally opposite is scarlet fever to measles. In mild cases, the judicious use of all these things have to be persisted

in *on principle*. In severe cases, where typhoid symptoms set in, which indicate deficiency of the vital forces, and is a species of starving or relapsing fever, supporting elements must then be supplied to the system. So that in addition to the medicines prescribed, stimulants are urgently demanded. Port wine and claret, the malt liquors of whatever kind most fancied; but spirits, such as sherry and brandy, are most hurtful to all inflammatory states of the mucous and serous membranes. Still give everything that will assist the powers of the body and supply to it that which it fails to do of itself. The great SCIENCE of medicine must be always understood to be that which assists and goes hand in hand with Nature herself.

REMARKS.—Thus eruptive fevers are seen to be of distinct characters. MEASLES is the type of the congestive or venous, and SCARLET FEVER of the arterial or inflammatory. Both diseases affecting the mucous membranes in a different manner, and often running into a malignant form by sympathetic laws through the nervous system, and attacking the serous membranes. Another fact may be observed in these diseases as bearing forcible evidence of what I have said, viz., that the eruption of measles arises at the great venous sources. The face, neck, and chest showing the greater development, in patches in the course of the upward current of the veins. Whilst in scarlet fever, the eruption will display itself first in the chest and trunk, and following the course of the arterial circulation, will run rapidly down the body. Therefore, in measles the eruption at last will be most conspicuous in the face and upper parts of the body, whilst the vitality of the skin is not impaired. On the other hand, the reverse is the case of scarlet fever, where the whole surface of the skin is burnt up, and thorough desquamation of it occurs, especially at the extremities, the hands and fingers, feet and toes.

After measles the skin will often show a muddy appearance, whilst the internal skin or mucous membrane will be more or less equally congested. After scarlet fever the outer skin will be entirely renewed, and so will the internal one or mucous membrane. Showing, that after measles, aperients may be used, but that after scarlet fever they

ought not, because Nature must have time to regenerate her internal surfaces. These two diseases do not obey any of the laws of True Fevers.

So much has been said and written of contagion and infection in these diseases, that it seems great presumption to write or say anything contrary to prejudice or received opinion; but I have seen so many spontaneous isolated cases in the midst of communities where both ought to have spread, but did not, that I cannot help doubting their contagiousness to a great extent. It has also been asserted by what is called the highest authorities, that the contagion of scarlet fever is carried mostly by the desquamated skin in powder in the linen and clothes of the patients. Now this skin, on being analysed, is found, like all other burnt substances, to be carbonized, and all vital principles are destroyed. Carbon, in all its forms, is a disinfectant, therefore, the reverse is more likely to be the case, for instead of its producing the disease in others, the patient, in this state, carries about him a disinfecting element.

Measles and scarlet fever are often so mild as to escape notice, especially among the poorer classes, when no medication or attention are paid to them. Yet they can afterwards be detected as having occurred by their sequencies. Thus measles, by skin diseases first breaking out about the face and mouth, and swelling of the lips. This never occurs after scarlet fever. Inflammatory actions in various organs, and often rickets, epilepsies and other fits, and dropsical effusions, are the sequencies of scarlet fever.

Bronchial congestion will run into bronchitis. If from the blocking up of the extremities of the bronchial tubes, air is forced through the lining membrane of the lungs, inflammation will occur, or pleurisy. A certain congestive action will also force air into the substance of the lungs themselves, which is their serous structure. This produces a distinct and dangerous disease,—PNEUMONIA. In many cases of congestive action of the bowels and great distention of their calibre, air may be forced through them precisely in the same way, and the disease be thus removed from the internal to the external lining, inflammation being produced therein known as PERITONITIS. In all these cases disease is transferred from one part to another by

natural laws of gradation and sympathy, and are more or less of a violent character, attended with certain febrile actions, and with more or less danger to life.

PNEUMONIA.

The actual substances of the lungs consist of the air tubes which form their largest parts; the arteries and veins and all other vessels engaged in the circulation, such as the absorbents, &c. All these tubes and vessels are lined with mucous membranes, and all their outside coverings are serous membranes, and all more or less in apposition. When the lungs are collapsed by a deep expiration they are small, but when filled with air they are large. When all the outer coverings of the internal vessels, &c., are inflamed the disease is called pneumonia: the most active and dangerous by which the lungs can be attacked, besides being very complicated. As pleurises frequently occur at the same time with pneumonia, both being inflammations of the serous membranes, they come under the joint name of PLEURO-PNEUMONIA.

The treatment of these diseases shows their different phases. The symptoms are fever with hot, dry, pungent skin, to the touch like a metallic heat; great anxiety of countenance and difficulty of breathing, which is done by rapid and short inspirations, because the lungs cannot fully and freely expand. The attempt to cough or to take a deep inspiration, gives considerable pain. The pulse is quick and sharp, with a hectic flush on the face, often of a bluish tinge; the secretions are arrested and consequently excretions also, for the skin cannot perspire, the kidneys act feebly, and the urine becomes scanty and high coloured. The bowels are also confined; the mouth is parched with thirst. The tongue is red, or brownish-red, and contracted, and from the fur becoming dry often presents a cracked appearance. The expectoration is thick and gluey, and tinged either with blood, or is of an apricot colour. All this clearly shows the loss of the inorganic fluids, the prime elements of all the vital forces, the protoplasmic.

PERITONITIS.

This is arterial engorgement or inflammation of the inter-

nal lining of the walls of the abdomen and external coverings of the intestines, or their serous membranes, attended with intense pain over the abdomen; so that the lightest clothing can scarcely be tolerated, the pain being most intense round the navel. Anxious countenance, fever, quick and sharp pulse, dry skin; secretions and excretions not arrested so completely as in pneumonia. The tip of the tongue dry and brown, or brownish-red, which appearance runs up the whole of the centre or lung tract, while the stomach and kidney tracts will present alternate dry and moist appearances, indicating the want of power of the secreting organs; while the edges or brain tract will show alternate rose-leaf appearances, or become bright scarlet, according to the sympathy of the brain membranes. All serous membranes when diseased, wherever they may be situated, largely sympathize with one another.

PLEURISY.

This is inflammation either of the outer serous membranes of the lungs, or, of the inner ones lining the chest. The left side seems to be the most frequently attacked. When of a new and active character, it is attended with pain in the side, quick and sharp pulse, flushed and anxious countenance. The secretions and excretions are not so much arrested as in peritonitis, and this is clearly distinguishable in the appearance of the tongue, for the lung and other tracts may be furred and moist, whilst at the termination of the lung tract an oval red spot may be distinctly seen. Chronic stages of this disease are very common amongst female servants, to which I have before alluded.

Here, then, are inflammations of serous membranes or arterial engorgements with fever. Pneumonia, though a distinct disease of the substance of the lungs, is nevertheless sympathized with by other internal serous membranes. The early discrimination of peritonitis is of the greatest importance to the physician and surgeon. Here the appearances of the tongue will afford not only evidence of its latent existence, but the presence of inflammation, especially after operations of the lower extremities. It needs no great skill to detect it when it is actually present, its symptoms

are so patent, but to know its incipient stages forty-eight hours at least before it actually develops itself, is to save so much time, especially when the disease can be immediately stopped, which is not so easily done when fully disclosed. Take for instance a surgical operation of the lower extremities ending fatally—what is the law and gradation of disease? It is this; as unerring and as certain as Nature's wisdom can show it:—Inflammation of the serous membranes covering the muscles first sets up; nervous sympathy carries it along like lightning into the abdomen, not directly to the corresponding membrane, but to the mucous membrane of the large intestines, where it can be readily detected by the deep scarlet red of the tip of the tongue or colon tract; from whence by defined laws it attacks the serous membranes outside, and peritonitis sets up. This can only be discovered by ordinary means, when it has already lasted two days at least. Then the sympathetic action carries it to the lungs, not again to the corresponding membranes, but to the mucous membranes, and bronchitis is temporarily present, from whence by the same laws the serous membranes become inflamed, producing pneumonia, from which the patient dies. The cause of death may be laid to peritonitis, as there is peritonitis, but it is to pneumonia that death is due. Similar actions take place when injuries occur to the upper extremities, especially to the hands and fingers. Inflammation runs up the serous membranes of either arm, and will first attack the mucous membranes of the lungs causing a slight bronchitis. It will then fly to their serous membranes and produce pneumonia, which often terminates fatally, and is what is called tetanus or lock-jaw. If these do not exactly follow, a fatal dyspnœa sets in, which is equivalent to them.

If the discovery of Glossological indices were confined to this one thing only, they would be a boon to the true science of medicine as well as the saving of life. Let me warn every surgeon who operates on the lower extremities above everything to watch the tongue. If he cannot do so himself, let it be done every hour or two by watchful eyes. The insidious approach of peritonitis will be indicated by the tip of the tongue or large intestine tract becoming red, then dry and brown, then a distinct dark colour is presented

up the centre or lung tract. It is unmistakable ; but it is at present an unknown, unrecognised, unadmitted fact, and if seen no importance is attached to it ; but it is life to the patient, and a triumph of science to the surgeon. He knows by this what otherwise he would not be informed of but fatally too late ; namely, that there is incipient peritonitis and pneumonia. Disease can now be stopped by a few doses of dilute sulphuric acid with an anodyne or opiate. In forty-eight hours later, no amount of leeching, bleeding or calomel will stop the grasping hand of Death ; that fatal cry—"too late," must be sounded. Patients who die under these rapid conditions are reported to sink under the *shock* occasioned to the system by the operation. But the term *shock*, like that of *predisposition*, is not satisfactory to science. Science must sound the very depths of the causes. None of these sero-membranous diseases can possibly come on without gradation. The tongue not only offers a ready exposition of the actual seats of disease and the sympathies which produce them, but the state of the system itself, and the character of medicine to be given ; yet Glossology is pooh-poohed, many fellow creatures' lives are lost, and medicine continues a mere art and mystery depending upon supposition and conjecture.

TREATMENT BY MEDICINE.—First as to PNEUMONIA : here we have not only the substance of the lungs engorged with blood, but the lining membranes of the air tubes congested with mucus. Tartarized antimony offers itself as the fittest remedy, and large doses can be tolerated by the system. This shows the complexity of the disease, and that it is cured through the mucous membranes. It shows also the actual distinctiveness of this disease from others of the serous membranes. If the tongue becomes dry and brown, the acid and anodyne treatment is the fittest (Nos. 26, 27, &c.), with the further addition of an opiate pill (No. 17). If the tongue becomes moist and furred, then the alkaline treatment (Nos. 1 to 6) ; if it becomes dry again, then the return to the acid ; thus keeping the system balanced. The bowels should not be interfered with ; if they act naturally it cannot be helped, but no aperient should be given, and if there is constipation, even for some days, the case is always more hopeful.

PERITONITIS should at once be treated with the acids, anodynes, and opiates (Nos. 26 and 27), and no aperient given ; while the tartarized antimony is inadmissible.

PLEURISY should be treated, according to the indications of the tongue, with either acids or alkaline medicines ; thus acting through the mucous membranes.

High authorities have eulogized the use of the mercurials in all sero-membranous diseases, but this treatment is open to doubt, seeing that equal benefit can be obtained by other means.

I most heartily condemn the use of the mercurials, and more than this—believe them to be most injurious and pernicious to the system, when the acids and opiates offer equal efficacy in the relief and cure of many diseases where mercurials are now used. What may be said of the calomel and opium treatment is that authors differ in opinion as to their beneficial actions. Some affirm that the calomel does the good, and others the opium ; and a third party, both combined ; while a fourth declares for calomel alone, and a fifth for opium alone. If a successful result happens with this treatment (and on the contrary it as often fails), is it to be cried up on the one hand, and not condemned on the other ? Calomel, and in fact all the mercurials are cumulative, and one powerful reason against their use is, that lying latent in the system they act as irritants when least expected. So that when the bowels ought to be kept quiet these chemicals play havoc with the curative actions of Nature.

HYGIENE, &c.—PNEUMONIA.—When tartarized antimony is administered, fluids should not be taken in quantity. A tea-spoonful of water frequently given relieves without interfering with the medicine, and serves to moisten the mucous membranes. This of course is a case for slops and all bland substances ; recollect the arterial structures are affected, and digestion can be but ill performed ; solids are therefore inadmissible. All acidulated drinks, such as home-made lemonade, barley water, and linseed tea acidulated are all grateful. If low or typhoid symptoms set up, stimulants must be given. The air breathed should not be too cold, therefore, the temperature of the apartments should be looked to.

PERITONITIS.—The stomach and lungs not being much implicated, a more advanced diet should be afforded; but all this depends on the tongue's indications, and the rules for diet should follow those for drugs.

PLEURISIES.—The diet after the severe stages should not be too low.

Thus it will be clearly seen that inflammations of the two great protecting membranes, the mucous and serous, show the great sympathies there are between them, the one being the stepping-stone to the other, and not only this, but that the muco-membranous inflammations are more under the control of remedial agents than the serous, consequently the vital organs come sooner into healthy functional conditions. On the other hand the serous membranes have to rely on the mucous membranes for their integrity, and as we cannot ignore the steps that were taken which brought them into disease, we must retrace them in order to get health. Having watched these, I firmly believe that the assumed good done by the mercurials in the sero-membranous diseases arises from the sub-acute inflammation produced on mucous membranes by their use; consequently, disease is only transposed from one class of membranes to another. This proceeding is a fruitful source of prolonged convalescence, and in many constitutions lays the foundation of great misery and suffering from a host of other diseases. These I have long recognised and classed under the head of "drug diseases," which have ever given me more trouble than natural ones. All these latter are simple, all the former complex—for the system in them presents so many features similar to diseases from actual poisons. So that these have first to be overcome or reduced to natural conditions before the others in their turn can be corrected. It will be seen, too, that the congested mucous membranes will produce inflammatory actions very different in character to the serous, and that they are more especially the fruitful causes of eruptions. Many of these which come under the head of skin diseases are evidently efforts of Nature to rid the system of its morbid poisons; so that it becomes simply Nature's choice of fevers or skin diseases. This offers again a great field for the really practical observer in the treatment by counter

irritants. Eruptions are Nature's counter irritants ;—blisters, mustard poultices, tartar-emetic ointment, &c., are man's counter irritants. Congestive actions produce skin diseases, while scarcely any ever arise from inflammatory ones. What is the inference?—why, that counter irritants are called for to relieve the congestive states, and do no good in inflammatory ones. Thus a blister or mustard poultice relieves bronchial congestion, but not bronchitis ; and so in all similar cases. One fact is of the greatest importance as distinguishing fevers of a general character which may be called specific from those temporally produced from inflammatory actions, which is, that the latter are not governed by the laws of the former, but are simply dependent on the presence of sympathetic irritation, which ceases as soon as the organs which are the seat of inflammation recover. The character of the fever in all inflammations depends upon the effect produced on the particular organ or part affected. This can only be mentioned here, but the subject is capable of being truthfully demonstrated. Everything, therefore, which I have hitherto said of disease leads well up to the consideration of fevers themselves, generated either in the system from some peculiar congestive state, or imbibed into it by contagious elements around. These also offer the true explanation of the occult term of Predisposition ; the fuel which is stored up in the system in the most inscrutable way, requiring only the spark, or exciting cause, from ærial and other actions to set it in a blaze. In all the above cases of inflammation cold compresses to the chest and abdomen, changed when warm or dry, are the most comfortable and beneficial. Hot poultices are the ORTHODOX remedies in peritonitis, but the HERESY of cold applications is the most philosophical and scientific. I have alluded to this on a previous occasion.

ERYSIPELAS, OR ST. ANTHONY'S FIRE.

Some persons are predisposed to diffuse inflammation of the skin, attended by more or less feverish actions. This is so very distinctive, that it is designated erysipelas. It will often come on spontaneously, and apparently from no

cause whatever. It will also arise from the least irritation of the skin, or from the sting of an insect, or puncture of a thorn, or from a small pimple too hastily scratched. Any of which will produce a deep circular blush. It is often attendant on ill-conditioned wounds, either of large or small dimensions. It is well known to surgeons as occurring after operations. It varies much in character, and will be very evanescent, or be prolonged with some degree of virulence. It will develop itself suddenly, for instance, over the face, and spread rapidly to the scalp and down the neck, evidently from a sudden chill, and not from any of the causes above mentioned, but from some constitutional disturbance affecting the secretions generally. It seems to be a very mongrel disease, and a combination of several, but always classed under skin diseases. It is evidently one of Nature's efforts to rid herself of obnoxious elements, without affecting or disturbing the general organs of the body.

It is somewhat allied to scarlet fever, which does this by burning up the fluids between the two skins by thousands of fiery points, and so temporarily destroying the upper skin wholly or partially, as well as the electric batteries. Erysipelas does this locally in patches, causing blebs similar to those from external burns or scalds. These blebs often simulate the pustules of chicken-pock, glass-pock, and even small-pox: for, when well condensed, the upper skin becomes squamous, and falls off in scabs. It has, however, this exception, that whereas the true pock pustules are more or less purulent, the fluid blebs of erysipelas never are. At another time the skin will be raised up in large or small patches by the dried up protoplasmic molecules beneath. Nevertheless, the great proliferation of fresh ones coming through the true skin soon take the place of the burnt-up ones without any destruction of the true skin itself. A new upper skin is soon formed, even before the old one comes away, and shows no marks upon it, as is often seen in the pock tribe. (See diagram of nerve battery, Chap. IV). Such then, is the character of erysipelas or St. Anthony's Fire.

I cannot better describe a virulent attack of this disease than by making an abstract of my own case, written when

in full recollection of all the facts after my recovery. This I published in my work on

“PRINCIPLES OF ORGANIC LIFE, 1868.”

“Respecting the physiological problem that any person may be suddenly attacked by any great disease whilst in perfect health, I have always insisted that such is opposed to all physiological laws. Some previous departure from a true balance of health must exist, although a person *might* apparently feel in his usual good healthy condition.

At the latter part of the year 1865 and beginning of 1866, I observed neuralgia to be more prevalent than I had seen it for some years, indeed, almost amounting to an epidemic. At the commencement of this latter year, I had it myself for nearly two months, and then it subsided, but it never interrupted my professional pursuits. Again, in the March following, I had many cases of a singular tracheal congestive cough, mostly prevalent amongst adults and middle-aged persons. This seemed also epidemic. I had it myself for two months, and so like a chronic whooping cough was it, that I designated my own to be nothing more nor less than that disease. The expectoration was enormous. Indeed, several of my medical friends who had cases of the kind called upon me to ask my opinion upon it, as it appeared so general. Our conclusions were that it was entirely tracheal. Stimulating expectorants and counter irritation, plenty of fresh air and generous diets was the treatment adopted, but, as in my own case, few recovered under two months.

These two diseases, no doubt, upset my chemico-vital balance of health, and evidently predisposed me to the attack of which I am about to speak. In May and June, 1866, the weather was very hot, accompanied by an east wind, and I had a distinct recollection of the effects of both alternately.

On 5th June, in the midst of what I may call my usual health, I felt towards the middle of the day great lassitude, attended with curious aching pains throughout the whole body, and by the time I usually leave my town residence for the country, I felt unusually ill, and hastened home as quickly as possible. By this time, I was thoroughly sub-

duced, and went to bed, suffering alternate rigors and intense painfully cold sweatings, and then bursting into fiery heats. The peculiar sensations of patients I think for the sake of physiology should be recorded, as they often illustrate how much morbid bodily secretions affect the mind. For myself, I seemed to lose all identity, and appeared to be a mere nebulous mass, and that a few imps of darkness, regardless of my fourteen stone weight, had quietly tied me up in a common silk pocket-handkerchief, and by the four corners tossed me into a furnace—a veritable pandemonium. My thirst was unquenchable, my body a burning surface. In this furnace I seemed, for thirty-six hours, to sink lower and lower, feeling a want of support, and craving for plenty of cold drinks. So I had from a delightfully cold cellar tumbler after tumbler of porter and strong ale alternately, with draughts from an unparalleled well of water. Cold applications to the body evaporated as soon as they were put on. Early on the third day, my friend, Mr. ALFRED BROWN, Surgeon, at Wandsworth, was summoned to me. “Well, Doctor, I am sorry to see you so ill, but I have always a difficulty when I approach your bedside, knowing your peculiar views as to medicine.” “Well, then, BROWN, leave it alone; I am taking no end of cold drinks, porter, strong ale, and water alternately, and they seem to do me good.” Well, if they suit, and you think it right, go on with them; but what is this red patch on your cheek? Why, you have erysipelas setting up.” And true enough it was, and, like its name, it ran like wild fire over all the right side, ear, neck, and back of the head. Next day, a corresponding patch came on my left cheek, with even greater virulence, taking a similar course on the left side. Here it seized on old and wonderfully deep cicatrices from my friend BROWN’s scalpel of eleven years previously (1855), when I had a carbuncle of great magnitude, which sent me *hors de combat* for three months. All the pains of that carbuncle came over again, but without the deep and ghastly incisions. The erysipelas extended to my back and shoulders, and altogether I suffered the torments of the condemned. There was nothing round or about me that I took cognizance of. All I seemed to know or think about was the physio-

logy of my disease. After I got well I was told of many things I said and did, but of which I was then perfectly unconscious. Yet, as I lay writhing in bed, I wanted to find a cause for these agonizing pains, I tried to reason upon them physiologically, and at last came to the conclusion they were caused by the sudden drying up of all my secretions, and with them, the disturbance of all the chemico-vital actions; as well as the sources from which our natural electrical powers of life arise, with the apparent constriction of all the circulating vessels.

I do not think my conclusions were wrong, as I will show by and by. Goulard lotion, combined with camphor julep, was freely squeezed from linen rags over my head and face, and their cooling streams through the roots of my hair were most delicious.

Curiously enough, my pulse was good, and my appetite good, so that I could take meat and all other nourishing things, though I could not feed myself.

On the sixth day my head and face felt to me like the side of a house, and were so disfigured, that I should not have been recognisable by my oldest friend. On this day my friend BROWN said, "How are your bowels?" "Oh," I replied, "they are good friends, they are conserved, they have not acted since my attack!" "Well, I know you have peculiar views on that subject; but should they not be opened?" "No, BROWN, not till Nature dictates; I want reconstruction." In the evening, however, I had a large black solid motion. "Oh!" said I, "here is plenty of carbon, all burnt up and charred materials," which were perfectly inodorous. Next day, the seventh, I had a similar one, and during this day I burst into terrific perspirations, sopping everything I wore; when, at the same time, a new train of symptoms set in. The horrible racking pains I had previously suffered now gave place to others of a different character, owing, no doubt, to the sudden return of all the self-formed lakes and springs, rivers and seas and ponds of the body. I found I could bear these pains without moving, whilst the others, from entirely different physiological causes, made me writhe. As I lay in bed I often tried to calculate how many different positions and angles of the body and limbs I made, and how many times

I rolled an old four poster, six feet square, in the hour ; they amounted to hundreds. But with the new symptoms came other curious sensations ; I could not take anything cold to drink, while previously I had had nothing but liquids of the coldest character, now I craved for everything hot. The quantity of boiling hot, but not strong, sherry and water I drank I must forbear to mention ; I felt as if I could never get enough of it.

A curious sensation set up in the upper part of my windpipe, as if I had a great black hole there, about an inch wide and three inches long, which the hot sherry and water seemed to fill up. Now, curious enough, this had been the seat of my chronic whooping cough for two months. The distinctive effect of the sherry and water was a stimulating warmth through my chest and back, and the sensation of a specific action on the upper parts of the heart. I did not feel any like effects in the stomach. On the eighth day I had a healthy natural action, and every day afterwards to the end of my illness.

On the ninth day, desquamation of the skin came on rapidly, and I could no longer bear the cold applications, so I applied starch powder and flour to all the parts. My pains gradually subsided, excepting that I lay with difficulty on the back of my head, while the great bunches of red and purple spots on my shoulders and back pained me much. Desquamation of my face, ears, &c., was most rapid. All the burnt-up skin came off in masses, and left my face as clear and rosy as it had been before, and no one would have believed that I had had such an attack.

On the eleventh day I got up for a few hours. On the twelfth I did the same, and shaved for the first time, a terrible operation, though the new skin beneath seemed well formed. On the thirteenth day I was up all day, and on Tuesday, the day fortnight of my attack, I came to town as usual, though feeling dreadfully weak.

Now come the important points to be considered. I took no medicine of any kind from the beginning to the end of the disease, therefore, this "ART AND MYSTERY" can claim no credit in the case. Well, then, there is nothing left but the *vis medicatrix naturæ* and common sense to fall back upon for explanation, assisted by a little know-

ledge of physiology. In the first place, there was a rapid waste of material and a house in a blaze. Water quenched the fire to some extent; but the porter and ale, with the generous diet taken, supplied the fabric which was being rapidly consumed. For I have observed this great physiological law, that Nature never has an exhausting disease, but that she immediately, by the *vis a tergo* of her chemico-vital powers, begins to repair from her bases of operations from the outset, and that both actions will go on at the same time. That I have for many years been of opinion that we do not understand fevers and great inflammatory actions, inasmuch as we keep them too low by not giving elements for reconstruction soon enough. Stimulants and good diet were all the medicines I wanted; the fire burning up all stray material was subdued, to some extent, by cold applications, both within and without the body. Structures were not allowed to be over consumed, though the mere act of absorption of fluids through them increases temperature. It would not have been at all consistent for a certain temperature to be suddenly reduced. If that once takes place, the powers of reconstruction of elements are taken away. As fast, therefore, as structure was burnt up, in one sense of the word, reconstruction was taking place, assisted no doubt by generous diet and by the porter and ale. Then, again, the uses of the fæces were most important factors for the supply of the vital gases of the body. If aperient medicines had been taken, these would have been swept away. In thus retaining the fæces to generate their hydrogens, my system was free to use them, as no doubt oxygen was largely supplied in my drinks. Feeding in every way so bountifully, the large intestines would become well manured by the sixth day. The result was that all their burnt carbonaceous matters came away voluntarily from the lower third, leaving the upper two-thirds of fresh made elements to evolve volumes of hydrogen. This escaping by osmose into the body, united with oxygen accumulated there, and the aqueous elements being duly formed, accounted for the terrific perspirations on the seventh day, and the entire alteration of all my symptoms.

If I had not known and been convinced of the great laws of the self or spontaneous generation of all our proto-

plasmic fluids from our own bodily resources, and medicines had been given to purge me, no hydrogens could have been formed, the oxygens would have consumed all my structures, and I should have succumbed.

Those who have read my letters on physiology and may now read this case, will see that I followed, in one of the severest illnesses that can attack the body, all the principles I there laid down. It was a marvel to all who saw me; my friend, Mr. ALFRED BROWN; my brother, the late Dr. JOHN JAMES RIDGE; my brother-in-law, Dr. CROOK, of Northfleet, Kent; and others; that in one fortnight, I rushed into a life-destroying FEVER AND ERYSIPELAS, and came out of it without a functional disturbance. Great, nay excessive weakness and debility were all the traces left behind. Judicious exercise and hygiene soon conquered these.

"He that planteth a vineyard, shall he not eat of the fruit thereof." I owe it to my physiological discoveries that I have, on many occasions, derived personal benefit, but never more than in my two great visitations, namely, a terrific Carbuncle in 1855, and the above case of Erysipelas.

Thus, it is seen that the highest condition of FEVER produced by great inflammation, does not obey the laws of true FEVER.

Erysipelas was once treated by all those measures which lowered the system, both in medicine and diet, even to blood-letting. The consequences were, that if the patients did not succumb, it took them many months to get into any fair condition of health. The treatment, therefore, should be upon the principles herein recorded.

CHAPTER XIII.

FEVERS.

CONGESTIVE AND INFLAMMATORY.

FEVERS have ever been considered the opprobrium of the medical art. Many theories have been broached as to their cause and origin, whether self-generated, or from infection and contagion from individuals by contiguity; from malaria or from what is called, most unscientifically blood-poisoning, hence has arisen the "germ theory." Their great variety has given rise to more than a greater variety of treatment, even to letting them alone altogether. They come and go, and whether recovery or death ensues, everything is involved in obscurity respecting them. Nevertheless, philosophy always requires a basis to reason upon. If the standard of health rests upon a chemico-vital law of a predominance of protoplasmic elements in the system as representing the upholding of the vital forces, what is the first departure from this? I have already shown that all the primary diseases arise from excess of these by simple gradation, and whatever they are, and whatever character they assume, the acid diathesis predominates, and all are more or less amenable to their reduction by the alkaline treatment. Nevertheless, during this time the body is more or less in a malarious condition. Nature herself is always correcting this state, for while it prevails, all the various diseases incident thereto are Nature's efforts to cure by throwing off the excesses which cause them. But there is one great matter to be considered, that if neither Nature nor art does this, the body contains a very ignitable fuel ready to absorb similar atmospheric elements, the effect being either a slow or rapid combustion of them. The result soon becomes apparent, for not only are all the excesses of the vital forces carried away, but that simple predominance of the

protoplasmic elements, which resulted in health, is carried away also. In this state the body is robbed of its cooling streams, and the standard of health is lost; for all the electric currents are in abeyance, heat predominates and we have what is called Fever, whatever character it may assume. Then the treatment should be the possible arrest of further declination of the vital forces by the opiates and the employment of the acids to endeavour to restore the balance of power and bring it again to the hypothetical standard from which we started. Now there is not the least empiricism in this, for a dozen or a hundred men being guided by these laws would pursue a similar treatment. Whereas now it is a matter of accident whether what is done be right or wrong, as medicines of an acid or alkaline character are given indiscriminately, without any fixed principles for their administration.

Fevers exhibit in their primary stages many similarities to other diseases until they become fully developed, when they follow their own peculiar laws which I will endeavour to illustrate according to their distinctive characters.

CONGESTIVE OR ACID FEVERS.

Certain super-acid or congestive conditions of the secretions will generate an excess of heat which will lessen the aqueous properties of the inorganic fluids and consequently their free circulation, by causing molecular aggregation generally. This is a spontaneous action in the system itself, uninfluenced by any atmospheric cause and may continue for a few days and then pass away. It may do this at the end of the sixth day, and on the seventh be no more seen. If it lasts to the eighth day, it goes on to the fourteenth and there ends; but if it goes into the fifteenth, it will continue to the twenty-first. This is the simple seven, fourteen, or twenty-one day fever, generated in the individual himself from the morbid condition of his own secretions which Nature is trying to burn up and get rid of, and is neither contagious nor infectious. At another time it remits or intermits, lasts a certain time, has its governing laws, and ultimately exhausts itself, and the system becomes entirely rid of it. Another person may

have similar morbid elementary conditions, but certain restraining actions may prevent the calorific process, yet having them as proximate or latent causes, a fall, a fright, a too sudden change of temperature, an overheating or sudden chill, a mephitic atmosphere, in fact many circumstances may prove the *exciting* cause to rouse the feverish actions. Circumstances now arise which give character to the disease, viz., the effect on the nervous system, and consequently the electric integrity of the whole or various parts of the body. Those parts which are most affected by the sudden change of the condition of the secretions act on the nerves in their neighbourhood, and thus these two actions, which are in themselves *cause* and *effect*, regulate the peculiar features which ensue by direct and reflex actions. We have, therefore, cold shivering fits to be quickly succeeded by hot stages, from the sudden and temporary loss of electric action. These appear to be caused by the attempts of the corpuscles of the arterial blood to pass the capillary boundaries, which they cannot do, from having lost much of their inorganic fluid elements. These actions are very erratic and come under the denomination of simple ague, and as they have been noticed to recur at given intervals, are called quotidian, tertian, quartan, &c., according as they came on daily, or every second, third, or fourth day. In none of these cases are the inflammatory attempts of long continuance. Many of the congestive disorders are attended with these feverish actions, but go off if the elements which produce them are removed. They furnish, however, the germs of these fevers, and are, in fact, the predisposing causes of them. This fact is frequently seen in infants and children, who become hot and feverish, and show symptoms of some heavy disorders, when a vomit occurs, and all the heat and fever subside. The tongue in all this class of fevers is more or less furred, being regulated by the condition of the system, and gets dry and moist alternately, the latter state mostly predominating.

There is no direct muco- or sero-membranous inflammation; irregular functional disturbances of the organs seem all that are present. These fevers are of the simplest form and type that occur in the system and are seldom or ever

dangerous when confined to proper limits and not aggravated by improper treatment or deleterious drugging. We see an ignisfatuus-like action prevailing all over the body, every part in turn becoming the seat of some irritating cause. The fluid condition of the blood is more or less much interrupted. Sometimes, from the peculiar habits of the individual, some parts may be affected more than others. If, for instance, he has ever been subject to disease of any given organ, that organ, as in all other attacks of disease which he may have, will always be a peccant part.

INFLAMMATORY FEVERS.

These are a totally different class of fevers to the last mentioned, for here a rapid inflammatory action occurs throughout the system generating heat in excess, under which the body loses the cooling influences of its fluid secretions which are almost suddenly dried up; the functions of every organ are more or less interrupted; the glandular actions cease to a great extent, the mucous membranes, as natural sponges, retain but little moisture because their supply is stopped: in fact, the very springs and rivers of the body have ceased to flow. The fluid condition of the blood is altered; the serum is lessened, and the solid constituents are consequently larger in proportion, and thus for want of moisture there is general drought. Heat predominates, and instead of the electrical action of the body being carried on by the natural process of moist disseminating elements, it is confined to structural elimination alone, which is every moment exhausting the system and destroying the apparatus by a species of attrition. For want of moisture the membranes become inflamed: first the mucous membranes, as we see in scarlet-fever; then the serous, as we see in the typhoid actions. Here we notice the erratic or ignisfatuus-like character of a fever. Sometimes the alimentary canal may become the more immediate seat of inflammation, which may occur at any given part; its usual choice is where the last appropriative parts of the digestive actions end, namely, the termination of the small intestines or ileum. This produces one train of symptoms. Again, it may occur in the large intestines, which is the most dangerous, when a very different train of symptoms

arises, for the fever never attacks these without the most serious derangements of the brain; delirium being one of its symptoms. No one can tell where the greatest mucomembranous irritations will fix themselves—whether in the lungs, and cause a bronchitis; in the stomach, and cause gastric inflammation; in the lower parts of the alimentary canal, and cause enteritis or inflammation there, or whether the glandular system throughout will be the seat or seats of its insidious attacks. If, however, it gets firm hold of the mucous membranes of the colon or large intestines it continues there the longest time. Individuals who have had several attacks of fever of this character, are for ever afterwards liable to ulceration in the large intestines. As long, however, as the fever confines itself to mucous membranes, there are discomforts enough. Simply imagine the mucous membranes not being supplied with a sufficient amount of inorganic fluids, the skin very quickly sympathizes with this state and great irritation is produced on both these surfaces. This is as quickly followed by thirst, parched dry mouth, pricking and general heat of the skin, pains down the back and loins, fire-balls always before the eyes, which become blood-red and glazy; taste gone; a restlessness only to be seen to be pitied, and a morbid malaise predominating over the whole body, with every mental action distorted. The tongue clean, dry, and red throughout all its tracts, shows the universal disturbance, yet occasionally indicating one part as being more affected than another. Bowels confined, urine scanty and high coloured, and all this occasioned from want of moisture; in fact, the cooling waters of the system are all dried up. Can imagination paint anything greater than these realities? To pretend to isolate the seat of these affections, or to say that a blood-poison alone is the cause, appears to me a great delusion. What is this blood-poison the schools talk so much about? They have never seen it! and perhaps it is only one of their suppositions to account for something they know nothing of.

Let us take the next step, for we must follow the great law of gradation, and what do we find? A drying up of the secretions of the serous membranes! Now then we step into the domain of typhus, for whatever we saw before

becomes aggravated. The electric actions of the system, are getting exhausted; the inorganic fluids have been stolen, even from the blood itself, as well as from the glands, and from the mucous membranes, by the consuming heat or fever and which is now robbing those of the serous membranes, wherever situated; from the fasciæ or coverings of muscles, from the periosteum or coverings of bones, from the marrow itself, from the external coverings of all organs within the body—both of the trunk, chest, and brain—and if I say we have TYPHUS FEVER in its highest state known to us moderns, we have a combination of every form of sero-membranous disease, whether pneumonia, peritonitis, or diseases of the membranes of the brain itself. Happily the patient scarcely knows his sufferings; for delirium, indicating a perfect oblivion of mental appreciation, shuts him as much out from these as from the world itself. Are we then to say the brain is the seat of the disease in preference to any other organ? Certainly not; for in the gradation of this attack on the serous membranes it may stop there, as it often mercifully does. We find given parts more affected than others; and as in the muco-membranous actions, so in the serous, we have those nervous structures more immediately affected which govern them. The nerves cannot act of themselves, but are kept in a state of integrity by the natural electric actions of the ten thousand laboratories of the body, and return their beneficial actions in an equal ratio, but, being at last uninfluenced from the loss of their governing fluids, vitality is seen just ranging on the verge of mortality; a low muttering delirium comes on, and death drops its black curtain before the late actor on the world's great stage. These phenomena taking place so regularly with the gradual subsidence of the protoplasmic fluids, clearly show the loss of hydraulic power, the greatest of all the vital forces, and which sets all others in motion and sustains life.

TREATMENT BY MEDICINE.—THE CONGESTIVE, EPHEMERAL FEVERS.—As these are often cut short by natural vomits and diarrhœas, we have only to follow Nature in giving emetics (Nos. 8 and 9), alkaline remedies (Nos. 1 to 6). An emetic is one of the most useful of remedies,

but gone out of fashion because improperly administered. It should be given on or after a full meal, and never more so than in the congestive stages of disease. As a natural vomit often cuts short a congestive fever, an artificial one administered, as advised above, often does more good; for this reason,— a natural vomit seldom comes till digestion is nearly completed, and much deleterious matter has passed the stomach, whereas this is prevented by the plan I have advised. As soon as all vomiting has ceased, the alkaline medicines should be given, to complete the unloading of the stomach from super-acids; these will often act upon the bowels without aperients, by forming neutral salts. As long as the tongue is furred and moist, and has a white appearance, whatever feverish action sets up, the alkaline treatment is the proper plan to be adopted. It will be seen, however, that the tongue will occasionally show a dry state, especially in the morning, but subside again into a moist one, and consequently the functions of organs have more or less an integrity of action, still fever must be allayed on the one hand, and the often-depressed actions supported on the other. These classes of fevers are kept too low; whereas between their paroxysms, their hot and cold stages, due support and nourishment should be given; nor will the subsequent paroxysm, or hot stage, be more severe, or show a higher range of fever by so doing; whereas over-zealous starving makes everything worse. These are not the cases for active stimulants generally; they are more benefited by such nourishing matter as will bring into action all the bodily powers themselves; a fact in the treatment of disease we should never lose sight of. Medicine may be valuable, and so it is when rightly and judiciously applied; but recollect we retain within ourselves so many remedial secretions, that we only have to make use of them to do philosophically more than we have ever done. The chemistry of the body itself, with all its wonderful laboratories, should never be lost sight of in the art of medication. In these cases there is the tendency to inflammatory actions. Quinine has been found to be beneficial. This is an active alkaloid and therefore of great use in the congestive stages, but it is most frequently given in conjunction with its proper solvent, the dilute sulphuric acid; the dose varies

from one to ten grains two or three times a day. The alkaloid has a specific effect upon the acid secretions, whilst the acid checks any tendency to inflammatory action. With respect to the combination of distinct salts with their opposites which are given in medicine, such as quinine with sulphuric acid, or acetate of ammonia, the system has a powerful elective action of its own and will take the salt in preference and leave the acid, and *vice versa*, according to its own requirements. Thus it is that empiricism often does good by accident.

Care must be taken in these fevers not to act on the bowels; if natural secretions go on effectively, natural excretions will follow as a matter of course. If the urine is very thick and turbid, there are morbid elements present in the inorganic secretions; if it is high coloured and scanty, there is inflammatory action somewhere, however low that condition may be; if the urine is clear and natural, there is no inflammatory action present. These form unexceptionable rules.

INFLAMMATORY FEVERS.

Equally opposite as these are to the congestive fevers, so must be their treatment. All the acids and opiates are here imperatively called for, and according to the effect of the fever on the system, so must be their use. The sulphuric, muriatic, nitric, and nitrous acids, according to circumstances, must be given, but never without narcotics and opiates combined with syrups, for this reason, that they are then pleasantly sour, rather than acid; and the sugar assists in forming an acetous ferment, even with the little gastric acid we find in these diseases. Blood-letting, both general and local, must be avoided. Recollect fluid elements are scarce, why then take them away? Nature herself exhibits but few eruptions in inflammatory fevers: ergo, why use counter irritants? If SHE refuses to do so, they are unnecessary. Nature, however, requires support, because she is losing electric power from the want of fluid secretions; stimulants now offer their aid, and who that has seen these fevers, has not seen the rapid decline of the pulse from the effect of a glass or two of port wine, or

even good porter? What is this but supplying elements to the galvanic batteries of the system, the want of which is wasting them? If this is required sometimes in muco-membranous inflammation, when the system is very low, how much more so is it when the serous membranes are attacked, and there are typhoid actions! If we see that secreting powers are lessened in the system, by reason of the fever burning up the fluids, it is a work of supererogation to give any form of solid diet, because it cannot either be digested or assimilated; the result is, that Nature locks up the bowels, because she depends on them for her hydrogens and phosphates; her very means of life, in fact her existence. Follow her if it is possible to fly in the face of all usage and authority, which so much defy her. Life is often lost from opening the bowels in fevers. Many have seen even the difficulty in doing this; how the common purges, the drastic purges, the enemata have all failed; but when they have succeeded, delirium has followed, and death that delirium, and yet their is a persistence in trying to open the bowels which Nature has locked up for specific ends and purposes.

In inflammation and fevers, whether of brain or viscera, *the sheet-anchor is to let the bowels rest*. I have kept them confined ten and twenty days and more, with the most perfect success. When a crisis occurs and the fever subsides, Nature herself expels a soft solid motion, as healthy in character as if it had been the daily evacuation of the healthiest individual. Acting thus judiciously, all may see the same good result. Let the frontal headache alone be the guide when to act on the bowels with safety.

Any of the acid prescriptions in the following Chapter, combined with the bitter infusions, may be given in all inflammatory fevers.

TREATMENT BY HYGIENE.—This requires but few remarks. The CONGESTIVE FEVERS should be supported as all other congestive disorders, by that class of diet which makes the least acid after being digested, such as the roast meats, &c.; while all the boiled meats, mutton and veal broths, milk, port wine, &c., are to be strictly avoided. On the other hand, in all INFLAMMATORY FEVERS, these are the very agents which are to be used in conjunction with

the acid medicines, because they make acidities in their last act of digestion, and so furnish elements for vital forces of which the system had hitherto been deficient. With respect to temperature, apartments, ventilation, &c., these are pretty well understood, with this reservation,—that in the congestive actions, cold air can be borne, because the air-tubes of the lungs have protecting coverings to resist it, and fresh oxygen in quantities is required for disintegrating purposes; whilst in mucous membranes, in either an active or chronic inflammatory state, cold air causes great irritation and aggravation of suffering, the temperature should therefore be regulated accordingly. We see, then, that in fevers, the oxygens and hydrogens, which are the bases of all fluids, become defaulters in their mutual combinations, simply from a temporary deficiency of the hydrogens. Hence arises the desire for drink, more particularly water, but no corresponding benefit takes place in proportion to the quantity drank. It simply keeps the heat in subjection which is consuming the body. The only means Nature has to sustain life is by locking up the bowels in order to get hydrogens, and until this occurs, the fever continues. A certain amount of inflammatory action always sets up from engorged and infiltrated vessels for want of sufficient diluting elements within them, and wherever this chiefly occurs so the character of the general fever is developed. Fevers, then, appear to be the war between the gaseous and fluid elements of the body, owing to a lost balance of their combining properties. Heat or fire, is consuming the great aqueous menstruum of the body. Ergo: TO BLEED is to abstract from it what little remains; TO PURGE is to carry away hydrogens from the large intestines, and to allow the oxygens full play to do their fatal mischief. Ergo, keep the bowels confined, for Nature's first act in fever is to do so. If from some natural cause they are unfortunately relaxed, lock them up as soon as possible. If this occurs at the beginning of a fever of whatever character it may be, there is time to do this. If aperient medicines have been given and have not acted at the time but remained latent in the system, then just as the fever is retiring they produce a diarrhœa, which nothing can stop: delirium, coma

and death follow as certain as night the day, and a life is sacrificed!

Fevers are typefied from certain exciting causes supposed to produce them: thus.

THE EPHEMERAL, from exposure to heat or solar rays. (Is not this the drying-up of the inorganic streams?)

THE MALARIOUS, from miasmata from the soil. (Is not this simply the poisoning of the *same* streams?)

THE TYPHOID, supposed to be from impurities in water or other liquids. (These doing the same as the miasmata, but more often arising from keeping simple fevers too low).

THE TYPHUS, from badly ventilated apartments, or in squalid houses, often in gaols and hospitals and quarantine lazarettos. (Thus the deleterious air breathed through the lungs produces true gaseous diseases affecting secondarily the fluids).

THE RELAPSING, from insufficient support or starvation, this latter being the greatest factor. PUERPURAL FEVERS come under this head.

THE GASTRIC, OR THE ENTERIC.—This, no doubt, arises from the imperfect burning-up of the fluids along the mucous membranes, causing patches of inflammation on some portions of their surfaces, which heal and break out in other places, keeping the whole alimentary canal in a state of irritation as well as the whole system, and altering all the general laws of fevers.

There are yet other types of fever, the great cause of all of them being attributed to some "BLOOD-POISON!" as if a fever, of whatever character it may be, is produced by a specific poison in the blood, which nobody has ever yet discovered by any chemical analysis, or perhaps ever will. Then why should the blood be selected as the special harbourer of this mythical poison? The blood, that is, the arterial blood, is the only true blood in the body, and is the subtle carrier of oxygen or life everywhere. The protoplasmic fluids may become self-vitiated or poisoned, and in this state are in a condition to become more so by mephytic air and other causes. Hence has arisen the great physiological error in calling this sewage matter blood. Small-pox, chicken-pock, and most skin diseases are called blood poisons, when they are morbid

conditions of the inorganic fluids which escape through the skin. If the blood were subjected to the poisons attributed to it, half the human race would soon cease to exist, or not to live in any condition of health at all: a fever in the body may be compared to a drought of any part of the earth which for want of moisture dries up. When this happens in the human body, Nature falls back upon her own resources, such as all her floating streams, her fatty oil and water cans, which she gradually drains, and when little more is to be got from them, heat and friction waste the body. She can only get fresh moisture from her own self-manufactured hydrogens; and, therefore, there is no organ of the body that demands so much consideration and care as the large intestines from which fresh rivers and streams are to spring. The blood, the true arterial blood appears to be the only fluid element of the body capable of keeping up any degree of integrity. This, though robbed of much of its fluid diluents, the future safety of a fever patient depends, because it is the carrier of oxygen to support life; whereas, if that were poisoned, as it is believed to be, no person could ever recover from a fever, for it is to the integrity of the arterial blood that vitality has to rely upon when the fever is gone. As soon as the inorganic fluids are again manufactured in and by the body itself, it gets its due quantity of diluting elements to set the machinery again in healthy motion. Let us reflect what a drought or fever in the body does. Take an ordinary individual of ten stone weight who has passed through two or three weeks of fever, what has he lost and what has he left? He has lost many gaseous elements especially his hydrogens, hence all his plumpness of external appearance, also as much of his inorganic fluids as could be burned up from all their interstitial spaces; hence his shrivelled condition. His fat is consumed wherever it could be got at, especially that in which all his glands are embedded, hence they lose their power of secretion and excretion. Salivary, perspiratory and urinary actions are all at a discount, and only such moisture is left as Nature herself has tried to save and retain. Thus he may have lost at least three stone weight but only in inorganic fluids and gases and other matter,

but he has not lost bone, muscle, cartilage, or any of his more solid organs, parts or substances, nor the fibrin of his arterial blood, though it is considerably robbed of its natural diluents. Can it then be a fact that Nature admits poisons into the blood or into any of her solid constituents?

Again, in fevers we find a wandering of the senses or delirium, evidently from the reflecting portion of the brain being greatly disturbed. The fiery red EDGES and TIP of the tongue denote the condition of the brain and the colon, and the great sympathy between these organs, for both are in a state of inflammation. From lack of moisture in the mucous membrane of the colon, the nerve capillaries cease to a great extent to convey inorganic fluids and phosphates to the brain, and so it becomes impoverished and delirium is the sequence, whilst oxygen is carried to it by the arteries in excess. Hence in fevers the spinal column largely sympathizes, for pains there are always premonitory warnings of fever, and continue there more or less while it lasts. If recovery takes place after fevers where there has been any relaxed condition of the bowels from whatever cause, a depressed nerve power occurs for a long time with the intellect much affected, or if fevers have been treated too low, or have drifted away from their natural laws of continuance or decline, the same things will happen. It has been my singular chance to see many illustrations of the effect of fevers on the large intestines, and I have no hesitation in saying that there is not an individual who has had any Asiatic, African, West Indian or Mediterranean fevers more than once, that has not had a permanent inflammation in parts and patches, with ulcerations at various parts of the colon. These individuals may live for years in this state as I have seen them do, but die at last, their colons riddled like a colander, as post-mortem examinations have revealed, yet strange to say, this state cannot be detected by external pressure for it gives no pain, neither is there any pain to indicate the mischief going on. Hence they have baffled all skill, for it is seldom found out during life, but when several of these ulcerations break through into the peritoneal cavity, some short sharp pains ensue, and all is over.

In all these cases the heart invariably sympathizes to a large extent, so much so as to deceive the ablest auscultators, who have attributed the disease to that organ alone, whilst in those cases whose post-mortem examinations I have witnessed the heart was found to be perfectly healthy.

Fevers evidently appear to be physiologically allied to inflammations. Inflammation in any given part is a local fever, and may have a large or a small area, and be more or less acute. So with fevers, they may be small though universal and general, and last only a short time. Nevertheless they have similar characteristics, namely, absence of protoplasmic elements, either locally or generally, whereby lubricating actions are suspended. These facts have been imperfectly understood. The late Sir Thomas Watson suggested it would be best to "give them fair play, watch recovery, and not attempt to cure." But what would be the use of this unless some physiology was brought to bear upon the "*watching*?" the patients alone would be the gainers, not science! Fevers are not only fires in the body, but the body is in a state of drought and famine. Ordinary fires can be put out with water, but no quantity of water given in fevers can put them out. Cold has a great effect upon fevers, therefore, cold sponging is good. It is also a powerful astringent, and has a great effect upon the capillaries when applied externally. Acids are astringents, and will act in the same way internally. In former days bleeding was resorted to and the patients died, simply from the abstraction of the little fluid protoplasmic matter the body had left in it. So this practice was discontinued, not from any physiological principle, but from the fact that it was found to do harm. The present practice is to purge, or endeavour to do so; if this is successful death ensues, simply from the removal of inorganic elements. This is quite as unwarrantable as bleeding. The conservancy of the bowels is discountenanced, and certainly not believed to be beneficial, but if "*watched*" it would be found that Nature always conserves the bowels, and if they are not interfered with when the fever has gone, a fine healthy action will ensue, after many days' constipation, equivalent to that of the most healthy person's daily evacuation. This no doubt would be very perplexing, but there is plenty of sound

physiology to explain it. The remedies, medical and otherwise, in fevers are simple, sternly lock up the bowels; Nature does so if she is able, but if they are accidentally loose, use the opiates freely. The bodily system is deficient of vital forces for lack of acids—give them! It wants refrigerants—cool it and sponge with cold water. It has no power to resist external electric actions, for it is deficient of moisture both within and without, therefore, shut out the light for it is a powerful electric agent! See how the body, by instinctive law, lies in a perfectly straight position on the back; it wants rest of the spine and the spinal cord to assist the nerves in carrying on their own supplies in the form of phosphates through this and on to the brain! It wants extreme quiet, for it has not resisting powers to the forces of noise. It wants free air and good ventilation to get all the oxygen possible, to use the hydrogen which is being generated from the colon and its contents, if these are allowed to remain there. The first act of recovery is spinal, the patient draws up his legs and bends his knees, then turns upon his side with his knees drawn up, the same position as if sitting in a chair. The capillaries begin to recover their integrity, and no longer carry arterial blood, but take up the inorganic fluids first generated at the furthest extremities. Then we find the palms of the hands and soles of the feet becoming moist, and pellicles of perspiration appear about the face. The pulse loses its sharp fiddle-string character and becomes of a soft silk-skein-like-touch. The tongue, before contracted and dry, with its tip and edges red or crimson, showing the state of the brain and large intestines, during which time the mind has been confused and often delirious, now becomes moist and lighter in colour, first of a dark and then a pale rose-tint, and more relaxed, showing the first return to a healthy standard, then becoming moist all over and larger, and if “WATCHED,” will disclose what organs have been most involved by the appearance of their several tracts, and so it will point out the proper remedies both medical and dietetic to be used to assist recovery. All and everything, in fact, is under wise and natural laws, simple as true, easily learned, and if due attention is paid to them, never forgotten. Progression and retrogression is shown, not

by difficult or occult diagnosis, but seen by the eye, marvellously beautiful and exact. Therefore, I do not admit what Sir William Jenner says in the preface to this work, "that we do not know the progress and retrogression of disease, &c., &c.," because Glossology distinctly and truthfully points them out.

AGUE.—This disease often results from previous malarial fevers, the effects remaining in the system. Many old Indians suffer periodically from this and resort to quinine and often without good effect. I have found that the formulæ of acid prescriptions, Nos. 26, 27, and others, and always with the anodynes and bitter elements, have had more beneficial and curative effects than are obtained from the quinine alone.

YELLOW FEVER.—In alluding to this fever, which does not occur in these latitudes, I can only speak of it from the testimony of others, that it is not infectious or contagious. It is produced no doubt by similar laws as other fevers. It gets its name by being allied with jaundice, which is also a non-infectious and non-contagious disease. Now, we know that fear produces jaundice, and it is recorded that fear produces yellow fever. Might we not infer, that in certain districts where fever is rife, fear adds to this, the jaundice. I have shown that in all fevers constipation is an invariable accompaniment, and it is a curious coincidence that this as invariably occurs in jaundice in this country. Taking these diseases separately, and in obedience to a natural law, this state should be encouraged, and similar remedies should be administered for the one as well as the other, namely, THE ACIDS. It has been said that the bile circulating in the arterial blood, poisons it, but to this theory I object. It has this certain result, that of making it more alkalescent than it should be, and that the inorganic elements are equally affected, and perhaps more so than the organic in the arterial blood, but whether fevers are separate or combined with jaundice, the vital forces are lessened; promoting constipation as long as it can be borne, and giving acids as far as they can be endured, is the true physiological treatment to be adopted in both.

There was much fever at the beginning of March, 1839,

of a very varied character, and lasted to the end of the year. I gave quinine a fair trial, but it did not succeed so well as the acids, anodynes and opiates in strong bitter infusions. These were subsidized with meat and malt liquors in every intermittent state, and I found the exacerbations were never greater when the fever returned ; in fact, I noticed that they were milder. I had been warned by the terrible influenza epidemic of 1836-7, and its many feverish conditions, that fevers were kept too low in this country. Here, then, was an opportunity to put these views in force. I noticed that bitter infusions seemed to have a direct influence in assuaging thirst, I therefore ordered little packets of numerous bitter barks, each packet to make a quart or more of tea, to be taken in quantities according to directions, either by themselves or along with the acid medicines. These combined treatments induced the secretions of the inorganic fluids on the one hand, and seemed to arrest their natural evolution on the other, together with keeping the bowels always steady sometimes for many days. I had between 300 and 400 cases chiefly amongst the poor and I did not lose one. The practical experience of the great epidemic influenza of 1836-7, and the long fever of 1839, fixed on my mind some great and important truths in the treatment of disease of a direct as well as of a mixed character, upon which I have acted with marked success ever since.

Inflammations always illustrate certain conditions of the arteries and capillaries, which, instead of keeping to their distinctive characters, become one set of vessels. If this lasts over a given time in any local part, disintegration of their structures takes place, together with that of some of their surrounding tissues. A process of decomposition ensues, forming purulent matter, and not until this is fully discharged does any healing action take place. Nature is then compelled to set up new arterial arrangements, and with these, new capillaries are formed, and everything goes on as it did before. If these first local inflammatory conditions have been reduced by cold applications, shunting the blood out of the capillaries and back into the arteries, then the above actions do not take place ; if, on the other hand, they are allowed to go on, or heat be applied, the worse are the

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results, and the larger the area for an abscess in consequence. Certain fevers appear not unlike these states of fusion of the arteries and capillaries, but without their disintegration. If they are universal, *i.e.*, both outside as well as inside the body, in every part and every organ, a vast antagonism takes place, for no collection of protoplasmic fluids in any given part is possible, and, therefore, no disintegration and no abscesses can occur. Some organ or organs may probably become more affected than others, and this is evinced by a great variety of symptoms. Much depends on the attack on the mucous and serous membranes. If greater in the latter than the former, then the more serious affections will occur. When fevers retire benignly, it is from the newly-formed protoplasmic fluid elements being equally eliminated and distributed everywhere, and then no organ becomes specially affected. Any irregularity in this will show itself by some organ being more or less affected afterwards. Thus we see how Nature gradually disconnects the arteries and capillaries, by reducing them to their separate duties and functions. During their union oxygen would be in excess and destroy everything. When the oxygen has become reduced to a normal standard, the capillaries collect and carry their cooling protoplasmic fluids throughout the system, and the fire dies out, but which fluids can only be generated within the body itself.

My views are further exemplified by the following narrative of suffering taken from

"LAND AND WATER, AUGUST 17th, 1878."

"THE LLANO ESTACADO in Mexico is an arid waste, nearly three hundred miles in length and one hundred and fifty in breadth, averaging 4000 feet above the level of the sea. Two white officers and forty-eight negro cavalry, with eight pack mules, part of the American army, pursued a band of marauding Indians into this plain. They lost their way, and were for eighty hours with only some dry rations, but without water. The heat was intense, and bore down upon them as if a heavy load had been placed upon their shoulders. Their mouths and throats became parched and inflamed and their tongues swollen, with no power to swallow; even moist sugar remained in the mouth undissolved and irritated it like so much sand: the muscles

lost their flexibility for want of the inorganic fluids, and hence a fœtid odour arose from the skin; cramps in stomach and bowels, and constant cracking of the joints: vertigo and dimness of vision, difficulty of breathing and speaking, with deafness, so that they could not understand what one another said; weak, feeble, restless and sleepless. The horses all seemed to suffer in the same way, and when they gave out all were killed and their blood drank, that is, only in such small quantities just enough to moisten the mouth. The animals themselves had lost all their inorganic fluids, and what remained of their blood was thick and dark, and coagulated instantly on exposure to the air, and was obliged to be kept in the mouth until dissolved. Every part of the viscera of the animal was sucked dry, but which to them were delicious morsels. The coagulated blood passed through the body unchanged soon after being swallowed. Their own and their horses' urine was drank sweetened with sugar, but this was very scanty in both, and high coloured. Respiration difficult and painful, as if the walls of the chest were glued together. Every man began to be suspicious of each other, for the first thoughts of cannibalism came before them, and they shunned each other in fear, and perfect sleeplessness came upon them."

Relief came at the last extremity, and with it the exposition of those laws which I have so frequently spoken of as occur in fevers, that until we make our own inorganic fluids, no amount of external ones benefit us. So it was in this case, for the record says, that after eighty-six hours—"The so much wished for water did not benefit any of them, though they drank incessantly, and it was more productive of harm than good; their stomachs weak and irritable from long fast, rejected the fluid again and again as soon as swallowed, and the same took place with whatever food was taken. Very small quantities of very weak spirits and water at certain intervals began to restore them, but the insatiable thirst that pervaded the system was not apparently the least assuaged, thus demonstrating that thirst like hunger is not merely a local sense, but one that pervades the general economy, and consequently could not be relieved until moisture had pervaded and supplied the most remote tissues. Moreover, the activity of the

REGENERATIVE PROCESS was prevented by the deficiency of fluid in the absorbent vessels themselves. This cause likewise explains the overpowering difficulty of respiration that threatened the very existence of these men, for it is only moist membranes that allow of the free passage of gases as takes place during the act of breathing. There is another point that attracts special notice, viz., the loss these men must have sustained by integumentary and pulmonary exhalations. The main daily exhalation of aqueous vapour in expired air is estimated at about one and one-sixth pounds avoirdupois, and the mean loss by transmission through the skin at from one to one and a half to two pounds average. This amount must, however, have been greatly exceeded in this case, being influenced by meteorological conditions of the atmosphere, intense solar heat and continuous exercise. The peculiar feature noticeable in the breath and exhalations of these men was naturally due to the production of caloric, the amount of their own substances consumed exceeding the supply, or, in other words, decomposition and disintegration of tissue was continually taking place without reparation. The horses suffered precisely as the men in all as is above recorded, whilst, on the other hand, the mules did not, and would crop the grass and graze at every halt. It would seem from this that the hybrid of the ass and the horse possesses more endurance than either separate species, and that it is the animal *par excellence* for sterile regions almost devoid of water, and is in every way superior in endurance and intelligence. * * * No wonder the change in appearance of these men, their aged and care-worn features portrayed sufferings utterly beyond the power of tongue or pen to describe; their grey locks, glassy and protruding eyeballs, gaunt frames, their tottering shrivelled limbs, &c. * * * Although persons at sea have undergone more extended privations without water and food with less suffering than was experienced by these troopers, the cases are not exactly parallel, they would be constantly surrounded by a humid atmosphere, and the moisture dissipated from the body be replaced from the atmosphere by endosmosis or absorption, and also by bathing and dipping in the sea; whereas, with these troopers, the desert waste reflected back with tenfold heat

the burning rays of the sun. * * * With all these sufferings, four men alone died or were lost."

This narrative is well worth perusal as a whole, and it is singular that the writer of it uses similar language to myself, and takes the same view of the wonderful fact, not yet admitted by physiologists, of the formation of inorganic fluids in the body by the body itself, entirely distinct from what is known by the term of "circulation of the blood," which is carried on in distinct channels, whereas the others have none at all, but permeate everywhere as aqueous matter does through the earth. Such, then, is the great value of the protoplasmic fluid elements.

The importance of the large intestines in all conditions of life is as yet far from being understood or appreciated. It is to their physiological condition that a long and healthy hibernation is due. A fat bear hibernates for three months, and lives with slight friction to its system on its own inorganic protoplasmic elements, keeping up a degree of health with the slow and gradual waste of its natural stores. The evolution of the gases and fluids from its fæces renders them dry and hard, and completely blocks up the sphincter ani. Those directly pressing upon this part the hunters call "THE TAPPEN." During hibernation a she bear will give birth to two or three cubs no bigger than small rats, which she will nurse from the milk secreted by her mammary glands from her own protoplasmic elements. On emerging from this state in the spring she can scarcely stand, but gradually moving about laps the moisture on the earth or melted snow. Then she picks up something to eat and drinks more, so that digestion begins to take place. With the stimulus of hydraulic actions in all the molecules of protoplasmic and inorganic elements great proliferation of these ensue. The *débris* of fresh food gradually finds its way into the large intestines, and hydrogens are soon generated therefrom, but escape as a matter of course by osmose, and soon find union with oxygen, for this at present is their most important functions, namely, the formation of natural aqueous elements. This must go on for a given time, and the bowels must still remain confined, for the hunters know that if "*the tappen*" comes away too soon she would die. The animal, however, after a time begins to feel incon-

venience and goes to a tree, placing her talons into the bark and bearing down. In a few days she succeeds in passing her "*tappen*," and all goes on well. If, then, fevers suddenly rob the system of inorganic fluids, and produce a natural constipation as a law, is it not the wisest plan to let the "*tappen*" alone, as in hibernation, not only without injury to the animal, but for positive good. In both cases, what has the blood to do with all these phenomena? Hibernation may just as well be called a slow instance of blood poisoning, as fever a rapid one.

According to the physiology of our schools, the blood ought to have kept up a continuous supply of the inorganic fluids, when, in fact, it has lost much of its own; whilst Nature, from beginning to end, whether in hibernation or fevers, has been careful to retain all its true organic matter. The loss of the inorganic fluids always results in the loss of the vital force. The regaining of vital force is in proportion to the reproduction of the inorganic fluids in the system, when all organic matter is again revived by them, which, if this had been poisoned, it could not do. The earth passes under similar laws, when a drought or fever comes upon it. What is this but a loss of its inorganic fluids? Rain ceases for four years in some parts of China, and famine is the result, carrying off its millions from perhaps every type of fever known or recorded. The same occurs in India and other places with the same result. But organic matter is not destroyed, for a twelve or forty-eight hours' continuous rain alters everything; herbage springs up as if by magic, and man and animals are saved. Thus it is clear that all vital force depends on the inorganic fluids, of which WATER is the greatest factor; ergo, water is the life of the world and every thing upon it, and if we take a man as our epitome of the world, he is like the great world itself, ninety-eight or more per cent. of water. His blood only performs part of his existence as an oxygen carrier, and Nature takes care not to poison that by any disease the body may suffer from, precisely as she preserves the hidden organic elements of the earth, waiting only for water to germinate them and beget new life.

These phenomena are so vital, that I will pursue them further. We have accidents to the human species, resembling a forced hibernation. One happened at "The

Lock Lane Coalpit, Brierley Hill, Staffordshire," where thirteen miners were imprisoned for six days and nights, yet all were brought up alive. The medical report recorded that "only one of them had an action on the bowels the whole time, and he became DELIRIOUS," showing a clear loss of his phosphates and hydrogens. During all this time they had nothing to eat or drink. Here are the same phenomena without a fever. Again, in "Tynewydd Colliery in April, 1877, five individuals were imprisoned for nearly ten days (214 hours). One suffered from diarrhœa the last two or three days, and became *restless and delirious*; the others did not, and were quite well on being released." Dr. Davis, the medical attendant, says in his report on the accident, "for men incarcerated without food for ten days their mental condition was truly extraordinary, and what was remarkable, the pulse and temperature of all were not short of the normal condition." To me it is not extraordinary at all; but if there had been a doctor down in the pit and had had physic by him, he would have purged them all, and, as a matter of course, killed them, as they do in fevers. To show that I am not altogether severe in my observations, the first thing the faculty did with these men after their rescue was to give them all *aperient medicine*, instead of feeding them first and allowing Nature to take her own wise course, as she does with the bears, who are more fortunate than men in having no doctors.

Here, then, are cases brought together under somewhat similar physiological conditions. First, those from the sudden burning up of inorganic fluids, as in fevers; secondly, their gradual consumption from enforced or temporary seclusion and imprisonment of individuals in mines, where there is a limited quantity of air, but no food or water; thirdly, the more slow but longer continued exhaustion of them, as in the natural condition of animals in hibernation, where there is little air to breathe, but no food or water; fourthly, comes the crowning exigencies of the troopers, living in the atmosphere under a scorching sun, where also no food or water could be obtained, yet suffering all the combined phenomena of all the fevers, whilst the return to health and life in all these cases was due to the same physiological laws of protoplasm and the formation of their own fluid streams, and which alone could save them.

CHAPTER XIV.

THE SCIENCE OF PRESCRIBING MEDICINE.

THE direct curative medicines are few in comparison to the number used. The former are simple in all their actions, whilst what may be called the speculative class of remedies, constitutes as much a fashion as any other usage of society. Popular remedies, supposed to suit everybody and everything, have their day, and then give place to others. Whatever antics we play with the outer parts of our bodies, we have no right to do the same with the inner, to the aggravation of disease or shortening of life. The elements of the living body are incessantly at work in ten thousand laboratories, producing acid, alkaline, and neutral actions, by every imaginable chemical and electrical force, contained as these are in solid, fluid, or gaseous compounds, some destroying and others reconstructing the fabric; therefore, whatever form of medicine is given, must be of an acid, alkaline, or neutral character.

All the vital phenomena are performed by antagonism of the direct and indirect chemical actions which produce heat or lessen it, create bulk or decrease it, assist power or weaken it, excite nervous action or depress it. As the nervous or electric telegraph of the body is that whereby everything is appreciated and understood, it is necessary that it should always be in a state of integrity. Equable heat of the system, is a working power always to be held in view.

The direct actions of medicine and diet deserve attention. The gastric acids being dormant during fasting, secrete largely when a meal is taken, which, being always an alkaline mass, is acted on most vigorously, and causes an evolution of heat by union of opposite elements, stimulating every laboratory of the body. If the acid of the stomach be in excess over the food taken, the first effect is shown

in many forms of dyspepsia, heartburn, eructations, flatulence, &c., &c. Let this be neutralized to its proper standard by a simple dose of carbonate of soda, or any other alkalescent. Here we have a beneficial effect by a very simple process, whilst the heat produced therefrom serves the purpose of aiding vital forces.

This, then, is the first step in the art of prescribing medicine. It is the great effort of Nature to be always doing this herself, a fact that makes health the rule, and disease the exception. The heat of the body in inflammation and fevers, is owing to the loss of the cooling influence of the inorganic fluid secretions. Here, then, vital elements are deficient. We have now to depend upon the acids, because they are deficient in the system. The application of the direct acids in these cases is grateful to the patient, by its relieving the machinery of the body from the attrition which is wearing it out.

Port wine in such cases as a dietetic remedy is converted into acid, and, therefore, furnishes vital elements. The one is a direct, the other an indirect remedy.

The neutral or non-chemical medicines are those which stimulate the mechanical powers of the system, accelerate the actions of the intestines and produce purging, or irritate the stomach and cause vomiting. If the acids are given when alkalies alone should be administered, or alkalies when acids should be only used; or purging be induced when the system should be made to husband all its vital powers, then evils must arise and disease be aggravated.

That which is required is some fundamental law for the correct administration of medicine, in opposition to the speculation and uncertainty which now surround it. What the public want is to be rescued from the clutches of charlatanism and quackery, and a feeling of greater security in the arms of science.

The following classification of drugs, and the combinations in prescriptions, will serve many useful ends, both in simple or what may be called complicated cases; their uses being defined according to the general condition of the secretions in the system, which, in their want of

integrity, produce temporary derangements. Let it be understood, that there should be no *mystery* in medicine, but that disease can be better cured by few than by many drugs; by little, rather than by much medication, and always without that class which is of a filthy and nauseous character.

ALKALIES AND ALKALOIDS.

Carbonate of ammonia.
 _____ magnesia.
 _____ potass.
 _____ soda.
 Common prepared chalk.
 Sal volatile.
 Dover's powder.

The infusions of bark:—
 Cinchona.
 Gentian.
 Calumba, &c.
 N.B.—All fresh infusions, whether of tea, coffee, or herbs of any kind, either fresh or dried, are alkaloids.

ACIDS.

Acetic.
 Citric, or lime juice.
 Muriatic.
 Nitric.
 Nitrous.

Phosphoric.
 Prussic.
 Sulphuric.
 Tartaric

THE SALTS, OR MIXED ALKALINE AND ACID ELEMENTS.

<p>All the Acetates Citrates Muriates Nitrates Phosphates Sulphates Tartrates, &c.</p>	<p>} of {</p>	<p>Ammonia. Antimony. Iron. Magnesia. Mercury. Opium. Potass. Quinine. Soda, &c.</p>
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Epsom salts, or sulphate of magnesia; common salt, or muriate of soda; chloric, nitric, and sulphuric ether, chlorate of potass, and the syrups come under this head.

NEUTRAL MEDICINES, HAVING NO CHEMICAL ACTIONS ;
BUT ARE STIMULATING, SEDATIVE, OR MECHANICAL,
ACCORDING TO THEIR CHARACTERS.

THE TINCTURES.

Balsam of Tolu.
Calumba.
Digitalis.
Gentian.
Ginger.
Henbane.
Laudanum.
Paregoric.

WINES.

Colchicum.
Ipecacuanha.
Spirits of wine.
Antimonial wine.

OILS.

Castor oil.
Cod-liver oil.
Sweet oil, &c.

POWDERS.

Compound tragacanth.
Ipecacuanha.
Jalap.
Opium.
Rhubarb.
Scammony.

EXTRACTS.

Compound Colocynth.
Rhubarb.
Gentian.
Henbane, &c.

GUMS.

Tragacanth.
Arabic.
Galbanum.
Camphor, &c.

The actions of medicines may be thus generalized. The pure alkalies and acids act directly on the system, the one by correction of acids, the other by adding to it elements of which it is deficient. The mixed chemicals or salts having these two elements in combination are used by the system according to its chemical discretion or election, by its taking therefrom any alkaline property it may require and rejecting the acid ; or taking the acid and rejecting the alkaline. The greatest care should therefore be used in their administration ; for when an alkaline may be alone necessary, the acid may aggravate disease ; and where an acid is alone called for, the alkali may do the same. I have included the syrups in this catalogue, for this reason, that all saccharine matter produces acetous fermentation by heat ; therefore, in the congestive or acid disorders, syrups

should be omitted from the alkaline prescriptions ; while in fevers and inflammations they may be given largely to assist the acids.

The neutral preparations, having no direct chemical action of themselves, must nevertheless be broadly considered, as influencing by their known mechanical or stimulating actions the chemical laboratories of the body, and so do an actual benefit or injury as the case may be. If we look at all these matters in a simple light, and that whatever the disease may be which comes under treatment, the condition of the secretions of the body generally must be first ascertained, for all these are protoplasmic. It frequently happens that when they are in excess and become obstructive, Nature relieves herself by spontaneous vomiting, sweatings, purges, acid diarrhœas, profuse expectorations, mucous fluxes, or spontaneous disruption of small congeries of engorged vessels ; as bleedings at the nose, or vomitings of blood from the stomach or lungs, also by counter irritants, or skin eruptions. Even disease of specific organs may be considered her effort to cure, by causing any particular one to take the onus, or gravitated mass of morbid elementary matter, from all the rest. What, then, should science do ? In the first instance relieve by vomits, correct surplus acidities, produce perspirations, excite expectoration, or relieve by counter irritants. In all these actions the upper works, or those engaged in the primary processes of digestion, are most frequently out of order. Where, then, is the wisdom of flying to aperient medicine on all occasions to act upon the large intestines, when the stomach is alone at fault ? Again, most of these derangements are attributed to the liver, consequently medicines known to have great influence on glands, such as mercurials (forgetting that the liver is not a gland) are given, which act upon and excite the true glands, and thus increase the disorder produced in the stomach alone. The elements known under the name of *chyle*, a product in the second stomach, should be the least interfered with of any in the body, as they are so highly and delicately chemicalized that in passing through the small intestines they are easily separated. The absorbent vessels take up their nourishing matter, and leave

their non-nourishing elements to fall into the common sink. But if these are carried away by aperient medicines too soon, the body is robbed of the new elements of the food and the large intestines of their natural manure, before elementary gases can be formed, and so the bodily powers are all weakened.

If the actions which Nature pursues in her wisdom be attended to, we must so combine the elements of drugs as to give the best chance of neutralizing those of disease.

All the first stages of disease will often yield to the following simple combinations of medicines:—

Bicarbonate of soda.....15 to 30 grains.

or

Bicarbonate of potass ...15 to 20 grains.

Water1½ ounce.

Should the system require a little stimulus, then add—

Sal volatile.....15 to 20 drops.

If the skin and kidneys need a slight action as well, add—

Sweet spirits of nitre ...15 to 20 drops.

In the presence of uneasy pain in the bowels, then add—

Tincture of henbane.....20 to 30 drops.

Should the nerves be at all excited, then add—

Spirits of camphor 5 to 10 drops.

If rheumatic pains are flying about, add—

Colchicum wine15 to 20 drops.

In the absence of regular appetite, and if a slight thirst be present, add—

Tincture of gentian or calumba ...20 to 30 drops.

Lastly, in case of the tongue being much furred, add—

Antimonial wine20 drops

These are for single doses, to be repeated if necessary.

Thus it will be seen how readily a few agents properly combined, having different actions, can be made to act together in arresting and neutralizing the effects of any

indigestible matter taken into the stomach, causing dyspepsia, nausea, sleepiness, headache at the back part, stitches in the side, flatulence, spasms and colicky pains, acid eructations, giddiness, hiccoughs, and fulness of the bowels, accompanied by a furred or coated tongue. All the above remedies may be combined in one mixture, though some may be withheld according to circumstances, and all may be taken separately (except the colchicum, which I never advise) in the doses specified against them; always diluting them with water, to the extent of an ounce and a half, or, three table-spoonfuls.

A few prescriptions based on these views, and given by way of illustration, will be found useful.

1. Take—

Bicarbonate of soda 2 drachms.

or

Bicarbonate of potass 1 drachm.

Sal volatile 1 „

Water, to make up 6 ounces.

Mix. Take a fourth part twice or thrice a day after meals, or one dose occasionally at bed-time.

2. Take—

Bicarbonate of soda 2 drachms.

or

Bicarbonate of potass 1 drachm.

Sal volatile 1 „

Sweet spirits of nitre 1 „

Water, to make up 6 ounces.

Mix. Take two table-spoonfuls every three hours.

3. Take—

Bicarbonate of soda 2 or 3 drachms.

Antimonial wine 2 drachms.

Sweet spirits of nitre 1 drachm.

Sal volatile 1 „

Water, to make up 6 ounces.

Mix. Take a fourth part an hour after a good meal twice a day if the tongue is much coated or furred.

4. Take—

Bicarbonate of soda	3 drachms.
Antimonial wine	1 drachm.
Sweet spirits of nitre	1 „
Sal volatile	1 „
Tincture of henbane	2 drachms.
Water, to make up	6 ounces.

Mix. Take two table-spoonfuls once or twice a day.

5. Take—

Bicarbonate of soda	2 drachms.
Sal volatile	1 drachm.
Sweet spirits of nitre	1 „
Tincture of henbane	2 drachms.
Water, to make up	6 ounces.

Mix. Take two table-spoonfuls every four hours.

6. Take—

Bicarbonate of soda	1 drachm.
Sal volatile	1 „
Sweet spirits of nitre	1 „
Tincture of henbane	2 drachms.
Spirits of camphor	$\frac{1}{2}$ drachm.
Water, to make up	6 ounces.

Mix. Take three table-spoonfuls three times a day.

7. Take—

Bicarbonate of soda	2 drachms.
Sal volatile	1 drachm.
Sweet spirits of nitre	1 „
Tincture of henbane	3 drachms.
Spirits of camphor	$\frac{1}{2}$ drachm.
Colchicum wine	3 drachms.
Water, to make up	6 ounces.

Mix. Take a fourth part two or three times a day. For rheumatism in the upper parts of the body.

The tinctures of calumba, gentian, or ginger, 2 drachms each singly, may be added to any of the above prescriptions. All alkaline medicines should be taken an hour or two after meals.

Whenever the sweet spirits of nitre is prescribed, half the quantity of CHLORIC ETHER may be substituted if more agreeable. The bicarbonate of potash may be substituted for the soda, or *vice versâ*, or both of them may be used in the same prescription, if the tongue is very loaded and moist. These prescriptions should be used discretionally, a few doses will often be sufficient, as will be indicated by their cleaning the tongue. Ordinary generous diet should accompany their use.

The sal volatile, sweet spirits of nitre or chloric ether, the tincture of henbane, spirits of camphor, and any of the other tinctures can be combined according to their quantities as herein prescribed, without the soda or potash, or antimonial wine or colchicum, and two table-spoonfuls taken two or three times a day for nervous affections or headaches.

Where the powers are strong and a full habit of body prevails, and when the fur of the tongue is dark, indicating a very foul state of the stomach, Nature will often relieve herself by spontaneous vomiting. Now this almost always happens when the stomach is empty; because each meal, as an alkaline mass, takes some of the offending secretions away, and consequently when sickness supervenes, it is at a time when they have accumulated again and are of a more tenacious character. The action of vomiting is then attended with great distress, with often fruitless efforts. Nevertheless, these states are always to be guarded against and corrected as soon as possible, as they show that the mucous membranes are almost universally in a loaded state, ready to produce functional disturbance of organs, and whichever becomes affected is simply according to the idiosyncrasy of the individual. It is from these conditions that Nature often relieves the system through the skin by expulsion in the form of eruptions, or if unable to accomplish this, by carrying them off by a sudden consuming process, and so producing a fever—time, circumstances, and exciting causes only being wanted.

Now, if Nature always tries to eject as speedily as possible all actually foreign poisons taken into the stomach, she equally endeavours to do the same with those that are self-generated; and if she is unable to accomplish it herself, we must aid her with an emetic, which should always be given after a full meal. Emetics, the most beneficial of medical agents (especially for children), have gone out of fashion, because they have been improperly given on empty stomachs, to the great distress of the patients, and failure of purpose. When they are necessary for adults or grown up persons, the above advice should be attended to as closely as possible, the following prescriptions will be found valuable.

8. Take—

Ipecacuanha powder	15 to 20 grains.
Antimonial wine	2 drachms.
Water	1 to 1½ ounces.

Mix. To make an emetic.

9. Or—

Antimonial wine, 3 to 6 drachms, with 1 to 1½ ounces of water.

After the first vomit the patient should drink warm water. Vomiting will seldom occur more than three times,—the first expels the solid contents of the stomach,—the second gets rid of the more acrid matters,—and the third produces great action on the liver by mere mechanical pressure of the floating ribs upon it, and so relieves it of biliary excess.

Now, these are precisely the actions which do the great good in the first stages of fever; and, therefore, it is correct physiology to say that emetics tend to cut fevers short; and it will be seen how closely these artificial actions resemble those which Nature herself endeavours to do. If, however, the time be passed for their administration, they will prove hurtful if given, and never should be given at the advent of scarlet fever, for reasons previously explained.

We have thus far considered the forms of alkaline medi-

cines for direct acid or congestive actions of the system, including that stage of them where thirst indicates a slight feverish tendency requiring the addition of the bitters, such as gentian, &c., to correct and arrest it; as well also as to give the system a certain tonicity. Then, again, we have medicines of a simple alkaline character—such as Nos. 5 and 6—for nervous depression, &c.; and lastly emetics. Few and simple as these prescriptions are, they relieve and prevent many forms of dyspepsia or indigestion, neutralize elements of disease, act upon the exhaling and absorbent systems, and produce perspiration, remove the pains of flatulence, by causing absorption of the free gases in the bowels, assist the chemical laboratories of the body to render inert the deeper-seated morbid elements collecting within glands, which would ultimately lead to functional disturbances of those organs. Thus is disease checked in its bud. No restrictive dieting is called for, the patients being allowed to live according to their usual habits, Nature soon sets all things to rights.

It next becomes necessary to take another view of those actions and conditions of the body which produce congestive states of the lungs attended by coughs. These should be encouraged by giving stimulating expectorants, and such medicines as will loosen and dissolve the phlegm so collected, causing it to be all the more easily dislodged and got rid of. For this the following prescriptions will be found beneficial.

10. Take—

Compound tragacanth powder	2 drachms.
Nitrate of potass (nitre)	30 grains.
Sweet spirits of nitre	1 drachm.
Antimonial wine	1 „
Tincture of balsam of tolu	15 drops.
Simple syrup	4 drachms.
Water, to make up	6 ounces.

Mix. Take a dessert-spoonful frequently, or when the cough is troublesome.

11. Take—

Compound tragacanth powder	1½ drachms.
Sweet spirits of nitre	1 drachm.
Antimonial wine	1 „
Tincture of balsam of tolu	20 drops.
Simple syrup	3 drachms.
Water, to make up	6 ounces.

Mix. Take one table-spoonful every one or two hours for adults, one tea-spoonful frequently for children.

12. Take—

Compound tragacanth powder	1 drachm.
Nitrate of potass	20 grains.
Sweet spirits of nitre	1 drachm.
Tincture of balsam of tolu	20 drops.
Simple syrup	2 drachms.
Water, to make up	6 ounces.

Mix. Take one table-spoonful every two or three hours.

13. Take—

Nitrate of potass	1 drachm.
Sweet spirits of nitre	1 „
Antimonial wine	1 „
Tincture of balsam of tolu	20 drops.
Simple syrup	2 drachms.
Water, to make up	6 ounces.

Mix. Take one table-spoonful every two or three hours.

Congestive actions of the lungs are seldom unaccompanied by some similar disturbance of the stomach ; for these, one or other of the mixtures, from No. 1 to 3, may be taken once or twice a day, at the same time that the mixtures are taken for the cough ; because bicarbonate of soda will disengage much carbonic acid gas from the lungs as well as the stomach. For the asthmatic coughs of old people, who have always more or less of irregularity of action in the kidneys, with certain dropsical tendencies incidental to general functional debility, the tragacanth should be left out, whilst the nitrate of potass in the mixture may be increased in quantity, as the case requires.

In all cases of congestion of the lungs, counter irritants, such as mustard poultices, mild blisters, &c., &c., applied externally, are very beneficial.

The coloured illustrations will show the various appearances of the lung tract in the congestive states of that organ, and as this increases the tract becomes more furred and of a dark creamy colour, or browner, and, under certain conditions, will show the effect of the excess of carbon in the lungs by producing the black appearance.

In the congestive actions of either the stomach or lungs, it is a pernicious practice to begin dosing the system first with aperient medicines. If an aperient is required, it is much the best plan to give it after a few doses of the alkaline medicines, because morbid elements have been carried into the alimentary canal by them. Then either of the following form of pills may be taken.

11. Take—

Extract of colocynth	40 grains.
Extract of rhubarb	10 „
Powdered scammony	10 „

To be made into a mass and divided into twelve pills, of which two or three may be taken at bedtime.

12. Take—

Extract of colocynth	20 grains.
Extract of rhubarb	20 „
Powdered scammony	10 „

To be made into twelve pills and taken as above.

These pills act without distressing or griping the bowels, or interfering with the usual routine of persons constitutionally accustomed to regular action. Those who suffer from hæmorrhoids or piles should not take the above form of aperients, nor even castor oil, honey or figs, for these often produce piles. The following mixture will be found useful to this class of sufferers:—

13. Take—

Epsom salts.....	2 ounces.
Boiling water	8 „

Mix ; and when the solution is cold, add—

Dilute sulphuric acid	1 drachm.
Ipecacuanha wine	1 „
Paregoric elixir	3 drachms.
Syrup of red poppies	4 „

Mix. Take a wine-glassful night and morning till a gentle action ensues, and then discontinue.

14. Take—

Epsom salts	2 ounces.
Boiling water	5 „

Dissolve ; and when cold, add—

Dilute sulphuric acid	1 drachm.
Ipecacuanha wine	1 „
Paregoric elixir	2 drachms.
Tincture of gentian	2 „
Syrup of red poppies	3 „

Mix. Take two table-spoonfuls three times a day.

For rheumatism of the lower extremities, add colchicum wine, 2 drachms, to either of the above mixtures, and take them as directed until relief is obtained.

15. Take—

Epsom salts	$\frac{1}{2}$ ounce.
Carbonate of magnesia	2 drachms.
Sal volatile	1 drachm.
Antimonial wine	2 drachms.
Water (first boiled to dissolve the salts)	6 ounces.

Mix. Take a fourth part every night at bedtime.

Sweet spirits of nitre	1 drachm.
Tinctures of calumba or gentian ...	2 drachms.

may be severally added to the above prescriptions.

In all cases where Epsom salts, or any salts that crystallize are used, they should be previously dissolved in boiling water. The doses prescribed in the above mixtures will have even a more beneficial effect if taken in the same quantity of warm water.

There is no class more addicted to the taking of aperients than women of a certain bulky character, being what they call "TUBBY," and think that these will reduce this unpleasant condition; vain hope and worse practice, for they carry away solid elements which should be retained and which absorb the wind, and so the more physic the more wind is generated, with greater distension of "THE TUB."

Persons who exhaust their systems by constantly taking aperient medicines, lose power and become nervous and emaciated. The want of regular action in the large intestines is frequently the result of incomplete digestion. It also often occurs from not taking sufficient aliment, or from much anxiety or mental labour, which is to be remedied by rest of mind and generous diet.

It will be most prudent always to attend to the stomach, first, by neutralizing any acidity therein, and then to follow it up by some mild form of aperient as above ordered. Active, and even drastic purgatives are often given without effect, except a prejudicial one, in costiveness, and shows that Nature is kinder than art by resisting their action.

In all forms of inflammatory actions of the mucous membranes of the bowels, indicated by the tip of the tongue being red and glary, aperient medicines should never be given.

Looseness of bowels from an irritative diarrhœa or cholera, may arise either from a congestive or an inflammatory condition of the mucous membranes. If the former—then the chalk is necessary; if the latter—the acid and opiate plan is most useful. These are distinguished by the state of the tongue. In the former case it is white and flabby, and in the latter red, especially the tip.

It has always been considered that there must be some irritating elements in the alimentary canal causing diarrhœa which should be removed, and so, without any regard to the conditions of the membranes, aperients are given for

this purpose. Alas! the evil results of this practice have often told fearfully upon the future health, and even lives of the unfortunate patients. The wisest course is to stop all diarrhœas, of whatever kind, as soon as possible. A simple diarrhœa may end in cholera, and if that is even recovered from, dysentery may result. When the first irritation is arrested, restore power by generous diet, and Nature will soon repay the act by assuming a normal condition.

For congestive diarrhœa, the following may be given to arrest it, by consolidating the contents of the alimentary canal. It also acts as an antacid; an anodyne or opiate may be given at the same time.

16. Take—

Prepared chalk.....	4 ounces.
Water	6 „

Mix. Take one table-spoonful every hour or two until the action has stopped.

In all cases where there is any disturbance whatever in the bowels the opiates are useful. Flatulence often gives more pain than anything else, on account of its distending the calibre of the intestines. Opium is given in many forms; in its crude state or in powder, laudanum, opium wine (Battley's), or the various kinds of morphia. These latter, though acting quickly, seem not to benefit so permanently as in its cruder state, which may take more time for its assimilation, owing to the presence of its gummy constituents, which are some of its most valuable properties. The following formula is most useful, and can be taken by almost every one for any pain whatever, and in either congestive or inflammatory conditions, and moreover, pain in the abdomen should always be relieved as quickly as possible.

17. Take—

Powdered opium	15 to 20 grains.
Rectified spirits of wine, enough to make a paste, and formed into twenty pills.	

One to be taken when in pain, or oftener if required.

In the more violent and rapid inflammatory actions of

mucous membranes in tropical climates—such as the inflammatory cholera, where the vital elements of life are disengaged with inconceivable rapidity—instead of calomel and the other mercurials, so madly used and vaunted as the sheet-anchors for these critical diseases, the acids with opiates combined therewith, or taken in pills, will be found far better and safer remedies. The great object being to arrest all discharges from the bowels, and to cause astringent actions upon arterial terminations, because inflammation is nothing more nor less than temporary obliteration of the capillaries, when arteries, capillaries, and veins all blend together and become, for the time, entirely arterial vessels, a state which is the true cause of ulceration, and which was remarkably illustrated in the Government Blue Book on the enquiry into “THE RINDERPEST.” So allied are these conditions with fevers, that the absorbents are rendered powerless to take up aqueous elements, and until their integrity is fully re-established, the fever continues. Just as in the cases of common inflammation; therefore, the same treatment is called for, and according to the nature of the case, whatever it may be, the acid and opium plan must be adopted, and may be carried to any extent. One great fact must be borne in mind, and that is to keep the bowels confined. Sufficient has been said in former pages for doing so.

The following combination of medicines may be given in inflammatory diarrhœas, cholera, &c., &c., varied according to the circumstances of the case, and the idiosyncrasy of the patient, care being taken not to give anything that to him may be *nauseous*. A patient should always feel that his medicines are grateful as well as beneficial.

18. Take—

Nitrous acid	$\frac{1}{2}$ drachm.
Dilute phosphoric acid	3 drachms.
Ipecacuanha wine	$\frac{1}{2}$ drachm.
Paregoric elixir	3 drachms.
Tincture of gentian	2 ”
Syrup of red poppies	3 ”
Water, to make up	6 ounces.

Mix. Take one or two table-spoonfuls three or four times a day with the same quantity of water.

Tincture of the muriate of iron, 2 drachms, may be substituted for the tincture of gentian, as being more astringent.

19. Take—

Dilute nitric acid.....	1 drachm.
Dilute phosphoric acid	3 drachms.
Ipecacuanha wine	$\frac{1}{2}$ drachm.
Laudanum	1 „
Tincture of oranges	2 drachms.
Syrup of oranges.....	2 „
Water, to make up	6 ounces.

Mix. To be taken the same as the above.

20. Take—

Dilute nitro-muriatic acid	1 drachm.
Dilute phosphoric acid	3 drachms.
Ipecacuanha wine	$\frac{1}{2}$ drachm.
Battley's solution of opium	3 drachms.
Tincture of calumba	2 „
Syrup of red poppies	3 „
Water, to make up	6 ounces.

Mix. To be taken as above.

One of the opium pills, No. 17, may also be taken once or twice a day if necessary. All acid drinks, such as lemonade, or barley water acidulated, may be given, but not in an effervescent state.

Persons subject to a relaxed condition of the bowels should never take aperient or alkaline medicine. Either of the above mixtures are very beneficial. One of the opium pills may be taken occasionally in the middle of breakfast, which is the best time. I never recommend opium to be taken at or near bedtime.

Anodynes and opiates of all characters are given to promote sleep, and often without effect and without discrimination on what this depends. No animal can sleep with an empty stomach, it cries “cupboard” all night long, this is one cause. A good meal two or three hours before

bedtime is the best thing for this. If the bodily powers are well supported, sleeplessness does not often occur; if it does, it is best to take one of the opium pills (No. 17) at breakfast time for several or even many mornings in succession. Opiates should not be taken after mid-day if it can be avoided.

A great error is often made by not allowing the bowels to have perfect rest *after* a diarrhœa is stopped; but after a day or two some irritating aperient is given before the inflammation has subsided, and this is done with the false notion that they must not be confined after a certain time. The result is, that all the old train of evils return in what is called a relapse. The bowels, under these conditions, can often bear a week or more's confinement, because they had been so dreadfully emptied, and the patient, often unable to take any solid aliment, natural fæces are not formed.

Thirst is generally present in all inflammatory conditions, because a low feverish action accompanies them, then the bitter tinctures are very grateful, and somewhat stimulating.

The foregoing acid prescriptions are also very useful in hæmorrhoids or piles.

All the bitter infusions are useful in fevers, and feverish actions from any cause, and combine well with the acid prescriptions, as in Nos. 26, 27, 28, & 29, and used instead of water, and more may be added, such as one or two wine-glassfuls with each dose. Calumba root cut small, gentian root sliced, cascarilla, cinchona or peruvian barks—one ounce of either of these, infused for an hour or two in a pint or two of water, and strained for use, are very grateful. Dried bitter orange or lemon peel can be used in the same way. The old-fashioned home-made lemonade: pour a pint of hot water on to a whole lemon sliced, with a little sugar, and drank cold.

In all inflammatory actions of the mucous membranes, the acids and anodynes, either for lotions, gargles, or medicines, are the most effective remedies.

21. Take—

Dilute sulphuric acid 1 drachm.

or

Dilute nitric acid..... 1 „

Syrup of red poppies, or any other

syrup..... 2 or 4 drachms.

Water to 6 ounces.

Mix. To be used as a gargle frequently, in common sore or ulcerated throats.

All acid gargles can be most judiciously applied by a large camel-hair brush, especially where there are ulcers about the tonsils; it mops them clean, and prevents the acid touching the teeth.

In cases of inflamed or blood-shot eyes, the following lotion will be found very useful:—

22. Take—

Nitric acid 20 drops.

Distilled water 6 ounces.

Mix. Bathe them twice a day with this lotion, by means of a linen rag. The acid may be increased, as a little smarting does good.

Laudanum, $\frac{1}{2}$ drachm, may be added to the above.

Bathe the eyes also frequently with plain cold water, and if the light cannot be borne, a darkened room is essential. A cold compress, frequently changed as it becomes warm or dry, may be placed across the forehead from temple to temple over the eyes, with frequent remissions, for air should not be shut out entirely. Heavy shades are injurious, as they exclude the air, press upon and arrest the circulation of the temporal arteries and veins, and make the forehead and eyes hot, when they ought to be kept cool. I recommend the following applications:—

23. Take—

Vaseline 1 drachm.

Red oxide of mercury ointment 1 „

Mix. For an ointment, for the edges of the eyelids when inflamed.

Take—

Fresh made ointment of the red oxide of mercury, 1 drachm.

For inflamed mucous membrane of the eyes. Insert a small piece into the outer corner of the eye once or twice a day, by means of a bodkin, when it will work round the globe of the eye. This is an excellent application for red eyelids, and causes the eyelashes to grow again, should they have been lost by the long-continued disease.

This ointment has an acid, stimulating action.

Bronchitis is rare as compared with bronchial congestions. This is indicated by the tongue presenting a distinct red appearance down its centre. In some persons a simply cleaner state in this part may be noticed, gradually increasing to a perfectly crimson colour, as compared with the rest of the organ. When there is inflammation of the mucous membranes of the stomach combined with bronchitis, portions of the tongue on each side of the central division appear red as well. Thus it is of the greatest importance to be able to discover by such ready and easy means the lurking danger—the remedy for which is as simple as it is efficacious, both for the cure of the disease or to allay the attendant hard dry cough accompanying it. This is caused by the irritation of the air upon the mucous membranes, divested as they are of much natural moisture or mucus, and, therefore, should be stopped as quickly as possible, by the anodynes, and all soothing things.

For bronchitis and tracheal inflammations producing irritable coughs,

24. Take—

Dilute sulphuric acid	1 drachm.
Ipecacuanha wine	2 drachms.
Oxymel.....	1½ ounce.
Paregoric elixir	3 drachms.
Syrup of red poppies	2 „
Water, to make up	6 ounces.

Mix. Take a dessert-spoonful frequently when the cough is troublesome.

25. Take—

Dilute sulphuric acid	1 drachm.
Ipecacuanha wine	1 „
Oxymel	1 ounce.
Paregoric elixir	3 drachms.
Gum arabic mucilage	4 „
Syrup of white poppies	3 „
Water, to make up	6 ounces.

Mix. To be taken the same as the above.

In tracheal inflammations, the wedge at the back of the tongue will exhibit a red patch, while the remaining portions of the tongue will be more or less furred. Both these states should be promptly treated; the latter by a few doses of any of the alkalies (Nos. 1 to 4), to correct the stomach secretions, and the use of the acid gargles for the throat.

All inflammatory actions should be carefully watched, as the appearance of a hectic flush with fever and thirst, a dry red tongue, and frontal headache, any one may know at a glance the stealthy mischief at hand, and, what is of far greater consequence, fix unmistakably on the use of acid medicines, combined with anodynes. In addition to the mixtures prescribed above for the coughs, the following may also be taken:—

26. Take—

Dilute sulphuric acid	1 drachm.
Ipecacuanha wine	$\frac{1}{2}$ „
Paregoric elixir	3 drachms.
Tincture of gentian.....	2 „
Syrup of red poppies	3 „
Water, to make up	6 ounces.

Mix. Take one table-spoonful every two or three hours with one of water.

27. Take—

Dilute sulphuric acid	$\frac{1}{2}$ drachm.
Dilute phosphoric acid	2 drachms.
Ipecacuanha wine	$\frac{1}{2}$ drachm.
Paregoric elixir	2 drachms.
Syrup of red poppies	3 „
Tincture of calumba	2 „
Water	to 6 ounces.

Mix. Take one table-spoonful every three hours with one of water.

The infusions of calumba, gentian, or orange peel may be used instead of water. No hot liquids should be taken. All mucilaginous drinks well sweetened are grateful, so are blanc manges and jellies, but made without wines or spirits. The blanc manges should be made with half milk and half water.

The use of quinine in tropical climates—whether in the absence of fever as a preventative, or in the actual presence of fever itself—is one of the best admitted practices, unsupported by a philosophy, with which I am acquainted. Nevertheless, if the highly concentrated bitter properties together with its alkaloid base, and the acid with which it is combined, supply simultaneously two elements in which the system is deficient during fevers, then a very good philosophy may doubtless be laid down for its beneficial actions.

As regards quinine, when intended for a mixture, the quantity to be used should first be put into a bottle with a little water, and shaken up, then to put the acid into this, drop by drop, till it is clear. Any larger quantity of acid can be added if necessary.

28. Take—

Quinine	36 grains.
Dilute sulphuric acid	(as above).
Water.....	6 ounces.

Mix. Take one table-spoonful every three hours. Each dose contains three grains of quinine.

29. Take—

Quinine.....	1 drachm.
Dilute sulphuric acid	1 „
Paregoric elixir	3 drachms.
Syrup of oranges	3 „
or	
Syrup of red poppies	3 „
Water, to make up	6 ounces.

Mix. Take one table-spoonful twice a day. This may be taken for neuralgia. Each dose contains five grains of quinine.

Any anodyne can be usefully added to the above in case the acids should gripe the bowels, which they do sometimes, and are, therefore, never out of place when acids are taken, especially in tropical climates. There, larger doses of quinine are given than in this country.

Quinine is largely prescribed as a tonic in whatever condition, which seemingly necessitates its use, quite independently of fevers, to which it should be confined as much as possible. I believe it to be a great waste of a very expensive drug, as it agrees with so few. This is found to be the case by those who prescribe, as well as by those who take it. It is given largely, combined with iron, in various forms. Now, where iron is necessary, it can be more beneficially used with some of the acid prescriptions. Thus, two drachms of the citrate of iron forms, with Nos. 26 and 27, a very excellent pick-me-up, when the tongue is not furred, but too clean and flabby, and is very useful for growing girls.

Having thus shown how a simple system of medication may be adopted for adults in the various forms of congestive as well as of inflammatory actions, it behoves me to speak separately of the diseases of infants at the breast and children after being weaned, up to a certain age. Their diseases are easily managed, if care be taken not to complicate them with drugs. No forms of which should be used which have any cumulative properties, nor any administered but that class which neutralize morbid elementary matter quickly or carry it away. The early use of the mercurials is to the last degree pernicious. If a

child has excess of power, and gets plethoric, leading up to fits, convulsions, and infant apoplexies, how easy is their reduction! If another child, on the other hand, has its natural powers in abeyance, how simple are the means of exciting them! Again, supposing the natural powers to be well balanced, but still, from fault of diet, or the appropriation of it, an unsatisfactory condition ensues, how simple is the mode of correction! In short, a general adherence to keeping the whole system free and clear of morbid elements, forms the whole philosophy of infant medication.

The following formulæ will be found useful for the slighter maladies of infants and children:—

30. Take—

Ipecacuanha wine	...	30 drops.
Water	.....	1 ounce.

Mix. Give a tea-spoonful every three hours.

31. Take—

Ipecacuanha wine	.....	30 drops.
Simple syrup or sugar	.....	1 drachm.
Water	.....	1 ounce.

Mix. Give two tea-spoonfuls three times a day.

32. Take—

Ipecacuanha wine	.....	$\frac{1}{2}$ drachm.
Carbonate of magnesia	.....	1 „
Water	.....	2 ounces.

Mix. Give a dessert-spoonful frequently.

33. Take—

Ipecacuanha wine	.....	$\frac{1}{2}$ drachm.
Sal volatile	.....	$\frac{1}{2}$ „
Carbonate of magnesia	.....	1 „
Chloric ether	.....	5 drops.
Simple syrup	.....	2 drachms.
Water, to make up	.....	3 ounces.

Mix. Give a dessert-spoonful when griping pains arise attended with slimy green motions, crying, and general distress.

34. Take—

Ipecacuanha wine	20 drops.
Sweet spirits of nitre	20 „
Prepared chalk	$\frac{1}{2}$ ounce.
Water, to make up	3 ounces.

Mix. Give a dessert-spoonful after every loose or griping motion, or in diarrhœa. Should the pain be great, or the diarrhœa frequent, then add :—

Paregoric elixir	1 drachm.
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35. Take—

Chloric ether	$\frac{1}{2}$ drachm.
Sal volatile	$\frac{1}{2}$ „
Prepared chalk	2 drachms.
Water	3 ounces.

Mix. Give a dessert-spoonful very frequently.

These act both as tonics and antacids, and are beneficial when infants loose flesh or become emaciated. Their object is to prevent too great an action of the bowels; thus giving time for Nature to derive from the fæcal deposits in the large intestines important nitrogenized and vital elements.

36. Take—

Aromatic chalk powder	$\frac{1}{2}$ ounce.
Sal volatile	20 drops.
Syrup of oranges	1 drachm.
Water	$3\frac{1}{2}$ ounces.

Mix. Give a dessert-spoonful frequently, or after every liquid motion.

Always bear in mind never to give infants or children nauseous medicines, and also that infants cannot very well bear the stronger alkalies of soda and potass. Again, never give any medicines COLD to infants at the breast, but always at the same temperature, or a little over, that of the mother's milk. Dineford's solution of magnesia is always beneficial for them, and may be combined in the

usual doses with a few drops of ipecacuanha wine. When children are gross and plethoric, pale-looking, waxy, or doughy—a state that too frequently precedes convulsions from an overloaded stomach,

37. Take—

Ipecacuanha wine	2 drachms.
Simple syrup	2 „
Water	$\frac{1}{2}$ ounce.

Mix. Give a tea-spoonful every five minutes, until the child vomits.

38. Take—

Antimonial wine.....	2 drachms.
Water	6 „

Mix. Give a tea-spoonful every ten minutes, till vomiting is excited.

These emetic-mixtures are always to be given after a meal. The day after taking the emetic, it is necessary to act a little upon the bowels.

39. Take—

Powdered scammony	3 grains.
Compound chalk powder	3 „

Mix them in the bowl of a spoon with a little syrup, and two hours after give a tea-spoonful of castor oil beaten up with syrup, to carry the powder off quickly. Castor oil given alone often produces subsequent costiveness.

For children after two or three years of age:—

40. Take—

Ipecacuanha wine	1 drachm.
Carbonate of soda	$\frac{1}{2}$ „
Sweet spirits of nitre.....	$\frac{1}{2}$ „
Syrup of saffron	2 drachms.
Water, to make up.....	4 ounces.

Mix. Give a dessert-spoonful every two or three hours.

41. Take—

Antimonial wine.....	1 drachm.
Carbonate of soda	$\frac{1}{2}$ ”
Sweet spirits of nitre	$\frac{1}{2}$ ”
Syrup of saffron	2 drachms.
Water, to make up.....	4 ounces.

Mix. Give a dessert-spoonful frequently, if the breathing is oppressed.

Both of these last-mentioned will be found useful in measles as antacids, for the purpose of keeping the patient a little nauseated. He should likewise be kept very warm, so that the eruption may not be checked. Should the latter occur, and the breath be drawn with difficulty or through distended nostrils, it will be requisite to increase the dose of the medicine and apply a mustard-poultice to the chest.

42. Take—

Compound tragacanth powder	$\frac{1}{2}$ drachm.
Ipecacuanha wine	$\frac{1}{2}$ ”
Tincture of the balsam of tolu	5 drops.
Simple syrup	1 drachm.
Water, to make up.....	3 ounces.

Mix. Give a tea-spoonful very frequently to infants.

43. Take—

Compound tragacanth powder	$\frac{1}{2}$ drachm.
Antimonial wine.....	$\frac{1}{2}$ ”
Sweet spirits of nitre.....	$\frac{1}{2}$ ”
Tincture of the balsam of tolu.....	5 drops.
Simple syrup	1 drachm.
Water, to make up.....	3 ounces.

Mix. Give a tea-spoonful very frequently.

These are valuable in the congestive coughs of infants and children, the latter especially, when the skin is dry, and perspiration required.

In order that these medicines may not be too cold, the bottle may be stood in some hot water before the medicine is given.

FOR OUTWARD APPLICATIONS.

44. Take—

Spirits of wine	1 ounce.
Liquid acetate of ammonia	$\frac{1}{2}$ „
Water, to make up.....	1 pint.

Mix. For an evaporating lotion. Saturate a piece of linen rag with this lotion, and apply it to the parts for all inflammatory actions, renewing it when dry.

This is an excellent application for swollen glands and mumps. Never apply hot things.

The tongue will present a variety of white, coloured, and more or less furred appearances. Recollect that as disease *progresses*, so the fur gradually occupies the whole surface of the tongue *from edge to edge, from the back part to the tip*—but when disease is on the *decline*, the fur will occupy the centre alone, going gradually backwards, *leaving the edges and the tip*. Thus, by a simple rule, unerringly detected by the eye, that form of medication can be adopted which shall arrest disease or hasten its departure. In the same way, also, is pointed out when a more nourishing diet should be commenced.

Again, the more aggravated cases of congestive action will—according to the seasons and many other circumstances, occurring in the mansion as well as the cottage—frequently change to or terminate in fever. The tongue, furred and coated, will, when this happens, become suddenly clean and red. The following forms of medicine, quite opposite to the preceding, will now be as imperative as the others were before:—

45. Take—

Dilute muriatic acid	1 drachm.
Syrup of red poppies	3 drachms.
Water, to make up.....	6 ounces.

Mix. Give a tea-spoonful or dessert-spoonful every hour, according to the child's age.

46. Take—

Dilute muriatic acid	1 drachm.
Ipecacuanha wine	$\frac{1}{2}$ „
Paregoric elixir	2 drachms.
Syrup of red poppies	3 „
Water, to make up.....	6 ounces.

Mix. Give a dessert-spoonful every two hours.

47. Take—

Dilute sulphuric acid.....	1 drachm.
Ipecacuanha wine	$\frac{1}{2}$ „
Paregoric elixir	2 drachms.
Syrup of red poppies	2 „
Water, to make up.....	6 ounces.

Mix. Give a dessert-spoonful every hour or two.

A corresponding quantity of water may be added to each dose in the above prescriptions.

In scarlet fever, and in all cases of fever, a general heat results, and cool drinks are called for, therefore *the acid medicines, unlike those of an alkaline character, may be given cold.* Should the throat be sore, which is always more or less the case, let the mixture be taken into the mouth, and if it be not too hastily swallowed, the throat will get well gargled therewith. In these cases it is imperative that the bowels should be kept as free from any action as possible, because success is always most certain when no action occurs from the commencement to the height of the fever, which generally takes three or four days. If the bowels act naturally, add a larger portion of paregoric. Should any inordinate action come on, or more even than one or two actions take place every twenty-four hours, the brain will become disturbed, as indicated by wanderings of the mind and pain across the forehead. Arrest these purging actions by opiates. It is seldom, however, that the brain is affected if the bowels are quiet. Some cases of scarlet fever are very mild; others are attended with a slight engorgement of the lungs, accom-

panied by more or less distress in the action of the heart. These do not occur unless there is a low typhoid state, when the stimulus of wine, &c., may be necessary.

48. Take—

Dilute sulphuric acid.....	$\frac{1}{2}$ to	1 drachm.
Ipecacuanha wine	1	„
Syrup of red poppies.....	4	drachms.
Water, to make up.....	6	ounces.

Mix. Give one table-spoonful every hour or two.

This will exert a slight stimulating action on the bronchial tubes.

49. Take—

Dilute sulphuric acid	$\frac{1}{2}$ to	1 drachm.
Ipecacuanha wine	$\frac{1}{2}$	„
Tincture of digitalis	$1\frac{1}{2}$	drachms.
Syrup of red poppies	4	„
Water, to make up.....	6	ounces.

Mix. Give one table-spoonful every hour or two.

As soon as this relieves the heart's action and lessens the fever, withdraw the tincture of digitalis, and substitute paregoric, as in the former prescriptions.

Scarlet fever is the only arterial or inflammatory fever incident to infants and children, when the acids and anodynes should be given. Almost all their other fevers are venous or congestive, and require the alkaline treatment; for when the obstructions are removed which caused them, they speedily vanish, and convalescence ensues. After the subsidence of scarlet fever it is injurious to give any form of aperient medicine; whereas, after measles it is absolutely necessary to purge the patient thoroughly.

CHILDREN, and young persons generally, may be beneficially treated with aperients in powders, which are preferable for them to any other form of medicines. The following prescription will be found useful:—

50. Take—

Compound chalk powder 4 to 6 grains.
 Scammony powder 4 to 6 „

Mix. To be taken at bedtime, in a little jam.

This may be followed, the next day, by a tea-spoonful of castor oil, as before directed, or by plain doses of carbonate of magnesia in warm water. If worms are present, this treatment will dislodge them.

Where aperient medicine can be carried to a somewhat severe extent beneficially, is in the disease known as CHOREA or ST. VITUS' DANCE. This occurs more frequently in children from five to twelve years of age, about the time they are going through their second teething. Many characteristic phases of mental and bodily ailments occur to these young people at this time, and are quite a study. In these cases, the mucous membranes are more or less greatly congested. Those in the large intestines get into a very degenerated condition, and do not exfoliate under the natural state of wear, and so become organized, not unlike in character to the throat membranes in croup, whooping cough, diphtheria, &c. The consequence is, they not only become partially separated in patches, but they retain many foreign elements, which get imbedded in them. If my reader will refer to the diagram of the nerve battery, Chap. IV, he will see the arrangement of the upper and lower skins, and the nerve bulbs below or within the latter. A precisely similar state exists in the mucous membranes and parts beneath, so that molecular protoplasmic circulation is always taking place. Anything, therefore, of a foreign character lodging in these disintegrated membranous secretions would keep up a pricking irritation on the nerve bulbs, and so produce the curious twitchings we see occurring throughout the whole body, and which are never under the control of the will.

This is manifested by the misdirections of the patient's limbs; for instance, he will raise a cup or a spoon to the mouth, but on their approach thereto, they will fly away from it, which is very dangerous if forks are used. So, again, with many singular contortions of the body and

limbs, sometimes moderately, at other times very severe. In fact, it is an uncontrollable series of erratic electric nerve currents produced mechanically by constant irritating actions on their batteries.

As the tongue in these cases is generally furred, any of the alkaline medicines should be given two or three times a day an hour after meals.

This prepares the system for the following treatment:

Take—

Powdered scammony	6 to 8 grains.
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Aromatic chalk powder 10 "

or

Powdered jalap	6	”
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or

Powdered rhubarb	6	..
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Either of which may be combined with the scammony. The powders are to be well incorporated, and one given every other day in some honey or jam, and followed in two hours by half an ounce of castor oil. The one must not be given without the other, and after the oil nothing of any kind taken until an action of the bowels takes place.

The powder may be given an hour before a meal, and the oil an hour afterwards. The day these are given the alkaline medicines may be discontinued, but resumed the next day.

It would fully repay the trouble to wash every stool (properly secured in a chamber vessel) several times with plenty of water, gradually pouring off the liquid so as to see the residuum. The quantity of gelatinous matter, slime and disintegrated mucous membrane often containing foreign substances, would cause no little astonishment, and would fully account for the character of the disease. As the stools gradually exhibit less and less of these, so the disease gradually declines. The treatment should not be relaxed until this is assured, and as it takes some little time, a respite for a week or so may be given, as the little people get tired of it, when it should be resumed to ascertain the state of the mucous membrane. There is good reason for this, because many adults in after life exhibit

peculiarities of movements resulting from an improper cure of this disease in their childhood, so sensitive have their nerve batteries been made. In almost all cases there is no loss of appetite, but often a ravenous one, and there should be no stint in feeding generously, avoiding milk and milk messes in puddings of any kind.

Many persons suffer from a series of small ailments of no distinctive character, which often lead them to the use of alcohol in some form, which is always to be guarded against. It is much better to take some of the neutral and non-chemical medicines as tonics in the form of pills. Thus, for loss of appetite,

51. Take—

Extract of gentian (or any other bitter extract)	24 grains.
Powdered ginger.....	12 „

Made up into twelve pills, two to be taken two or three times a day between meals ; or

52. Take—

Extract of henbane	} each 24 grains.
Powdered rhubarb	

Made up into twelve pills, one or two to be taken twice a day for any abdominal discomforts.

Any of the three elements above named may be combined, or any two of them, as the case may be. Combinations of this kind come under the designation of DINNER PILLS, and are also very useful for those who suffer from flatulence or wind.

The following very valuable pills for young women suffering from pain or spasms at certain periods.

53. Take—

Extract of henbane	} each 24 grains.
Camphor	
Spirits of wine just enough to dissolve the camphor.	

Make up into twelve pills.

Three should be taken at first at such times, with a little hot, but weak spirit and water,—as the spirit dissolves the camphor in the pills. After four, eight, or twelve hours, two more may be taken, if in pain,—which will come on at those periodical hours. Their action is to relieve nervous excitement and tranquillize the system.

Medicines which act on the absorbent system are often most valuably employed, and save much suffering,—as for instance during the early periods of nursing after confinements. Should there be a tendency to very full breasts, it may be expedient to reduce the action of the milk-glands, and so to prevent those most painful occurrences incident to maternity, namely, abscesses of the breast. The following pills, will, under such circumstances, be found of great service.

54. Take—

Tartarized antimony	3 grains.
Powdered opium	6 „
Spirits of wine enough to make a mass.	

Divide into twelve pills, one to be taken two or three times a day ; or

Dover's powder	12 grains.
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May be substituted for the powdered opium.

Simple reduction of general fulness and discomfort being all that is required, one or two pills may only be necessary.

For infants or children mineral emetics are useful in cases where vomitings are called for, when the system is unable to bear the depression consequent on antimony or ipecacuanha.

55. Take—

Sulphate of copper	10 grains.
Water	3 ounces.

Mix. Give a dessert-spoonful every quarter of an hour till vomiting is produced. The effect thus regulating the quantity taken for a child

Sulphate of zinc..... 10 to 20 grains.

May be substituted for the sulphate of copper.

For adults the whole may be given at one dose of either prescription, with half the quantity of water. All emetics should be given, if possible, on a full stomach.

Many disorders are produced from the mercurials; amongst which are forms of rheumatism, the pains of which are deeper seated than those which have no mercurial taint in the system. They penetrate into the deepest strata, especially the fine close structure of the coverings of the bones (the periosteum), from which they are never eradicated, and the rheumatism of these parts is the most painful that is endured. At the early part of my medical career the mercurials were given largely, in fact, for everything and to everybody. A curious incident shook my confidence in the JUSTICE of their administration, for I had then no other idea to express myself. I was Clinical Clerk to Dr. Cholmondely at Guy's Hospital (1835), and we had reached the last bed in the Ward, when he said, "How many beds are there in this Ward?" "32, sir." "Well, all the other patients are under salivation except this man; give him four grains of blue pill night and morning, and then he won't laugh at the rest." I fully remember shutting up my note book rather forcibly, which brought us face to face. Neither of us spoke. I gave up my office to my successor, and never saw Dr. C. again. He had touched a chord in my mind that long haunted me.

I believe I left the mild and quiet Dr. Black more in sorrow than in anger, whose whole practice consisted in giving salts and magnesia for everything to everybody. This practice caused me much reflection, seeing, as I did, that many patients became worse after the purging. For years mercury in all its forms and effects were never out of my head. I have not given it for many years, believing that it albumenizes and thickens the great inorganic secretions, and thus prevents their free circulation. If it has any virtues when given in inflammation of serous membranes, it is only by producing a greater disturbance and mischief

in the mucous membranes, or one disease made to cure another. It will, therefore, be found to hold no place in this book, except as an ointment.

Where mercury in the system is the cause of suffering, the following prescriptions are useful, as the iodide of potassium neutralizes the mercurial poisons:—

56. Take—

Iodide of potassium	1 drachm.
Syrup of saffron	2 drachms.
Water	to 6 ounces.

Mix. Take two table-spoonfuls three times a day.

Paregoric, 2 drachms, may be added to the above, or 1 oz. to 1½ oz. of liquid extract of sarsaparilla.

There are many cases of glandular swellings and tendencies to cancer and in indolent ulcers, where this prescription may be most advantageously used.

Some form of sedative or anodyne should always be combined when the acids are given, in order to prevent their griping. I have found none so useful and effectual as "PAREGORIC." This is a preparation of opium, benzoic acid, camphor, proof spirit, and *oil of aniseed*. This latter forms its only objectionable element, and is of no value whatever, and might be left out entirely. The majority of the public repudiate its taste, especially when it is necessary to continue an acid tonic for some time, when it becomes very nauseating. I therefore recommend its entire disuse, and chemists would soon conform to the general desire of supplying paregoric without it.

There can be no doubt that whatever medicines are administered, their effects must be either beneficial or hurtful. Poisons would not poison, nor nourishing things nourish, if this were not the case. If elements exist in the system which are the cause of disease, and those of a similar kind be added, disease must increase. If, on the other hand, such elements are given which decrease or neutralize the power of those which cause disease, then disease, as a matter of course, is diminished, evidently by a species of antagonism. Hunger is allayed by its anta-

gonist—food ; thirst, by its antagonist—fluid ; acids, by their antagonists—alkalies ; and a state of system deficient of acid elements by their antagonists—the acids. Every part of the body exhibits this fact. The union of opposite elements which produce its various solids, fluids, and gases, are formed by the laws of the atomic theory of their combinations ; but their first principles of action are antagonistic ones. Debility is opposite to power ; obesity to wasting ; and depression to excitement. Cold is relieved by its antagonist—heat, and *vice versâ*. Deficiency is made up by addition and superfluity, by withdrawing that which produces it. Excess of electricity is relieved by non-electric elements ; precisely the same as non-nitrogenized or non-vitalized matters are the antagonists of the nitrogenized and vital agents. If medicine does good, it must be upon the principle of neutralizing or opposing elementary matter, in some morbid condition, which is the cause of disease, consequently by an antagonism ; if it does harm, it is by adding to that which produces disease. Therefore, whatever plausible reasons may be set forth under the head of "*Similia similibus curantur*" are fictions. As well may fire put out fire, and water decrease a deluge. Whatever good arises from medication, it is by some natural antagonism ; even if good is done in the end by wrong medicines, it is by some inscrutable means. Good cannot be corrected by evil ; nor can evil be made good by any addition to it : it is impossible. Battles are won by the strong or by strategy, which is equal to strength ; but they are not won by their opposites. Nothing can make wrong, right ; or right, wrong ; each must increase in power by an addition to its own elements. Natural laws can act but in one way, and the nearer we approximate to them, the more good we do : they may appear complicated in such a wonderful piece of machinery as the human body, and frustrate our best intentions ; but we are perhaps more indebted to their opposition to our acts than we are aware of. If allopathy, if homœopathy, if charlatanism do good at any time, it is not by their present theories.

Any mode of practice which requires abstruse reasoning or metaphysical arguments to support it, may be set down as doubtful ; because truth requires so few words to ex-

press it, whilst that which is desired to be believed if untrue requires many. High-flown assertions often entrap, as well as perplex the mind ; and those who have a leaning towards anything occult, yet cannot discriminate, believe by a species of faith, because they cannot understand. From the fact of the homœopathists using the active elements of very powerful drugs, which are mostly alkaloids, taken in conjunction with those principles which I have laid down, that 75 to 80 per cent. of the disorders we have to treat are of the congestive or acid character—they would seem to do right in their treatment, but are decidedly wrong in their philosophy. Their doctrine should be, "*Contraria contrariis curantur*,"—or diseases cured by antagonistic powers to those which produced them.

Throughout the whole scheme of medication I have propounded in this work, it will be seen how little I have urged the necessity of aperient medicines, besides totally excluding blue-pill and calomel from all treatment, either by themselves, or in combination with other drugs.

I will cite a few diseases and incidencies in which aperients and cathartics are most injurious :—

- 1st.—In all fevers, whatever may be their character, and in general inflammatory conditions, causing high temporary fevers, such as erysipelas.
- 2nd.—In jaundice, from whatever cause produced.
- 3rd.—In all inflammations of the mucous or serous membranes.
- 4th.—In all brain diseases, of whatsoever character they may be, either from natural inflammations of its membranes, or from delirium tremens ; in all cases of chronic paralysis ; in all sudden mental shocks ; in all mental diseases, such as hallucinations, monomania, lunacy, and, in fact, in all forms of madness or deranged conditions of the mind.
- 5th.—After surgical operations of any kind, especially the major ones

6th.—After severe falls, or bodily injuries therefrom, whether accompanied by lacerations or otherwise, with or without loss of blood.

7th.—All cases where there has been want of nourishment over a given time, or from prolonged inability to obtain it, such as after imprisonment in mines, &c.

8th.—During or after hæmorrhages of any kind.

9th.—After gun-shot wounds, or incisions from cutting weapons, whether there be loss or no loss of blood.

10th.—AND MORE ESPECIALLY AFTER PARTURITION OR CONFINEMENTS.

I have not given the mercurials where they have even been pronounced to be absolutely necessary; yet I have successfully treated those cases without them. If any say, what substitute have you for these medicines? I reply, none! I simply take a different view of the causes of disease, and how I have acted I have endeavoured to illustrate in this work by the general principles I have laid down.

It will be seen that while on the one hand I have set forth a number of prescriptions to meet certain conditions of the system, they are, on the other, to be considered rather as illustrative of the principles laid down to meet the causes of disease. The range of the pharmacopœia is wide, but its truly curative agents are few in comparison.

My object has been to show that, as disease is indicated by the prevailing character of the general secretions of the body, whatever specific form it may take, it must be relieved by an antagonism of the morbid elements which produces it on the one hand, or by giving elements of which the system is deficient; their absence being the cause of the disease. It being a fact, that the same train of causes will produce very many specific diseases which require the self-same class of remedies, it is not, therefore, the disease which has to be so much considered as its causes. This is the very end pursued by Nature herself when no artificial remedy is taken, or, in fact, to be obtained. This constitutes the *VIS MEDICATRIX NATURÆ*, or power which

Nature has to cure, without the aid of art. It is what she is always doing every minute of our lives; it is this power which makes disease the exception and not the rule, and by which the body is kept in health. Were it not so, disease would be a rule, and not an exception: but if art has never yet had broad rules for its guidance, it has necessarily always made disease a difficult, instead of an easy, problem. It has, in fact, looked to specialities and specificities, consequently laid down its rules for these alone. Hence we find so many varied works on distinct diseases with their constant differing treatment by every generation of men, who illustrate their own views only to be refuted by their successors. Thus the books and writings of a previous age are set aside by the novelties of the present; so that each writer gains a temporary fame sufficient for his day—has his term of notoriety,—becomes duly forgotten, making way for other candidates for popular favour. Still the same facts and the same laws present themselves, and thus the great car of the “practice of medicine” runs in the same groove. Unless there comes some great revolution of thought, the same thing would run on to the end of time.

The profession has constantly to hear the note of reprehension sounded in its ears by the public journals on all occasions when their shortcomings are evident. Thus:—The *Daily Telegraph* (Leader), November 3, 1860, says: “But is it true or false that, as a general rule, disease remains no less formidable and mysterious than ever, and practitioners, as a body, have not advanced in science and sagacity in a ratio with the intellectual development of the day? Their knowledge in a hundred essential respects is defective; and in nine cases out of ten, baffled by the mysteries of Nature, they have recourse to the hazards of the grossest empiricisms.”

A great revolution has taken place in pharmaceutical chemistry since the foregoing was written, more than twenty years ago. New and extraordinary preparations and combinations are constantly cropping up, and their virtues fairly extolled in the medical journals. As chemical preparations, they must act on some of the chemico-vital secretions of the body, and form some new and

probably extraordinary combinations. Whether they are for good or for evil, to do harm or good, who is to know? At all events, it must appear to the critical observer that diseases and remedies assume the character of two great armies. The diseases being shut up in Forts, the remedies become the attacking or storming Forces. These are, according to new pharmaceutical arrangements, divided into regiments, know by their terminals, such as the "-ates," the "-ides," the "-ites," the "-ines." We have the arseni "-ates," hydr "-ates," hydrochlor "-ates," benzo "-ates," &c., &c., and all those that end in "-ates." Then we have the "-ites," such as sulph "-ite," hypophosph "-ite," and all those that end in "-ite." Then the "-ides," as the brom "-ide" of ammonium and potassium, the iod "-ide" of sulphur, arsenic, mercury, &c., the phosph "-ide" and cyan "-ide" of zinc, silver, &c. The "-ines," as head-quarter staff, appear the most numerous: aconit "-ine," atrop "-ine," bruc "-ine," colchic "-ine," hyoscyam "-ine," cubeb "-ine," digital "-ine," emet "-ine," jalap "-ine," morph "-ine," piper "-ine," peps "-ine," pancreat "-ine," strychn "-ine," quin "-ine," &c., &c., with all their combinations. But these regiments are not always ordered up singly, they are combined with others in their attacks, such as an "-ate" with an "-ine:" arseni "-ate" of strychn "-ine" and caffe "-ine;" sulph "-ate" of atrop "-ine," eser "-ine," and strychn "-ine;" bromohydr "-ate" of morph "-ine;" citr "-ate" of caffe "-ine," &c., &c. How can diseases stand against such combined forces? From what I can gather from them it appears that nearly all the "-ines" are alkaloids, and the "-ites" and "-ides" acids, or acrid preparations, or have acid actions or re-actions, and that the "-ates" are compounds of both acid and alkaloid, thus leaving the system free to select which property it pleases, and throw off the other, as the case may be. I can find no principle or motive given for the uses of any of these forces, either singly or combined.

CHAPTER XV.

GENERAL CONCLUSIONS, AND COLOURED DRAWINGS OF
THE TONGUE.

It will be seen in the previous Chapters of this book, that I have mentioned a number of simple drugs, which are certain and effective in their remedial actions, but which are often spoiled by their combination with others. This makes them more chemically complex, and more difficult to prescribe. Yet this is done by every one accredited to do so, according to his own ideas, of what he hopes to accomplish by them. This practice we all know to be founded upon supposition and conjecture of what their effects may be upon the particular disease prescribed for, and not upon the chemico-vital derangement of the secretions which causes that disease. No doubt some of the simple drugs would suffice, but this does not coincide with the practice taught and pursued in the present day. We no doubt owe much of the alteration in both the forms and doses of medicines to the Homœopathists, who are mostly educated and intelligent men, quite as much so as the Allopaths, and, indeed, many of these latter leave what is called the legitimate ranks in order to join the Homœopaths. I do not see why the Allopaths should claim a mental superiority over them, and decline to meet them by the bedside, seeing that there is no reason why the one may not learn from the other, as many of both sects now use each other's remedies.

The older the Allopaths become, and the longer they have been in practice, the fewer and simpler are their medicines, and hence they coquette with the Homœopaths; whilst the latter sect, the older they get, seem compelled to increase the volume of their doses. Both labour under the uncertainty of the action of their medicines, as well as of

the character of the diseases for which they are given ; so they neither have reason to quarrel the one with the other, for both are as often wrong as right. If we look at the manufacturing druggist's lists for the Allopaths, the aperient drugs appear to be the back bone of their medication.

Calomel and all the mercurials, aloes, colocynth, and podophyllin, with their combinations, make a most formidable array, some of which are given on the first appearance of the Allopath, to clear the decks, as he facetiously terms it, and then to find out what is the matter. This, the Homœopath never does, he is very chary in disturbing the large intestines, and I believe he is quite right, for though he does not know the true physiology of them, he acts, at all events, as if he did.

I do not believe that the medical world is benefitted by the large number of reports of the medical treatment of cases recorded in its literature. The character of the varying aspects of the tongue is entirely ignored, and its appearances at distinct parts unrecorded or unnoticed. The history of the case is given, and some organ is fixed upon as being probably affected. Something of the compound pill kind is ordered, with milk diet, and, after a certain number of days, Nature, disease, and the doctor flounder about in the most unexplained manner. The state of the secretions is certainly altered in some way, and the patient gets better or worse, but how or why nobody seems to know. The apparent condition of the secretions, as indicated by the tongue, is not given at the commencement of the case, whether showing a congestive, neutral or inflammatory state of them, so that the treatment could be seen to follow each condition. The doctor alone hopes he does good, but neither he nor any one reading his case can tell the object of his mode of medication. Nature may try to conserve the bowels which the doctor will not allow, though he gives no reason for opening them, but acts according to the old system of not allowing them to rest under any condition whatever. In fact, we can never see what Nature herself is doing, and cannot understand her proceedings, though it is a fact, that she alone performs all the curative actions, in which we have only to assist her, while, alas ! we often do the reverse.

If my reader will turn to Chapter III, on the chemical constituents of everything in the body, he will see how Nature keeps them all in a uniform proportion. Then let him look at the chemical medicines and their combinations which we put into it. We must all be assured that we cannot correct the natural state of the secretions by them, when they are out of gear, but rather make things worse, and give Nature additional trouble to set them right.

The following coloured drawings of the tongue are given in order to impress the several tracts upon the eye, and so lead the mind to those parts affected in the body with which they sympathize.

The fairly healthy tongue should be of a pale rose-leaf tint all over, with no very distinctive marks upon it. It gets somewhat furred and coated after fasting for a time, but when a meal is taken, which is an alkaline mass, and, therefore, equally a dose of medicine as a diet, this furring goes off, showing that Nature is always supporting and medicating the body at the same time. When this is not sufficiently done then the furring remains on some of the tracts, and more alkalines are required than are contained in the meals. If this is not done Nature goes on insufficiently corrected and gradually accumulates excess of the vital forces, though she will try all she possibly can to keep the fixed standard of her chemico-vital laws.

The state of the tongue, whether furred and coated, or clean and red, will illustrate to a certain extent the condition of the secretions upon which the disease depends. It matters not what the disease may be nor where it is, these states call for attention, and, in their first stages, for the simple alkalies, and, in the second, for the acids. No part of the body, when the system has excess of acid, is free from congestion in some form. On the other hand, when this is deficient, some part or organ of the body suffers from a lack of vital forces, and is in a state of inflammation or fever, which then requires the acids.

When the upper works are relieved to some extent, as seen by the fur and coating of the tongue becoming less, then a mild aperient may be given, because much of the mucous membranous debris has been carried downwards, and this removes it; but it is wrong to begin with aperients.

Generous living and a good chewing of food is necessary. As long as this condition lasts so long must the alkaline treatment be adopted. Much medicine will not be required, but only sufficient to remove excesses of fur. Should this become absorbed by the use of the mercurials, rheumatism supervenes of a congestive character, and the tongue becomes larger and more flabby and slimy. If it takes on any colour it will be of the varieties of the brown, merging into a black appearance on the lung tract, which shows carbon in excess in the lungs, as seen in No. 3. This happens more frequently in advanced age, than in middle life or youth, and when it occurs, there is no inflammation. The first indication is by its being brown in the morning and quite dry in appearance, with a tendency to soreness of the throat. Then I have found that one or two doses a day of the acid medicine reduces this, but it is necessary still to follow the alkaline remedies, with generous diet. Nature herself is always trying to correct the chemico-vital excesses, which are the greatest causes of dyspepsia and the malaise from which the body occasionally suffers. The simple pile on the tongue grows from a mere speck to inordinate lengths, and which can only be removed by natural laws. If this were otherwise, the patient might scrape his tongue to deceive his doctor, but the true Glossologist is not to be deceived in this way. The pile of the tongue increases with disease; it will resemble fine velvet, then coarse-piled velvet, or be like a spaniel's back just out of the water smooth and wet and parted down the centre, and of all colours, brown, black, drab, buff, &c. One description, the short piled, grey or slate coloured, velvety tongue is connected with a state of the system most difficult to manage; a state in which your patient will lead you to complaints affecting the whole body, and every organ. Almost inextricable difficulties are around you, and none give so much trouble. You in vain try to fix disease, but everything is unsatisfactory. It is, in fact, diagnostic of a close morbid deposit upon all the mucous membranes throughout the body, and requires time and a mild alkaline treatment.

Nos. 1, 2, and 3 of the coloured tongues show the character of its purely congestive states.

1



Stomach and Lung tracts loaded and coated.

2



Lung tract alone coated—Bronchial congestion present

3

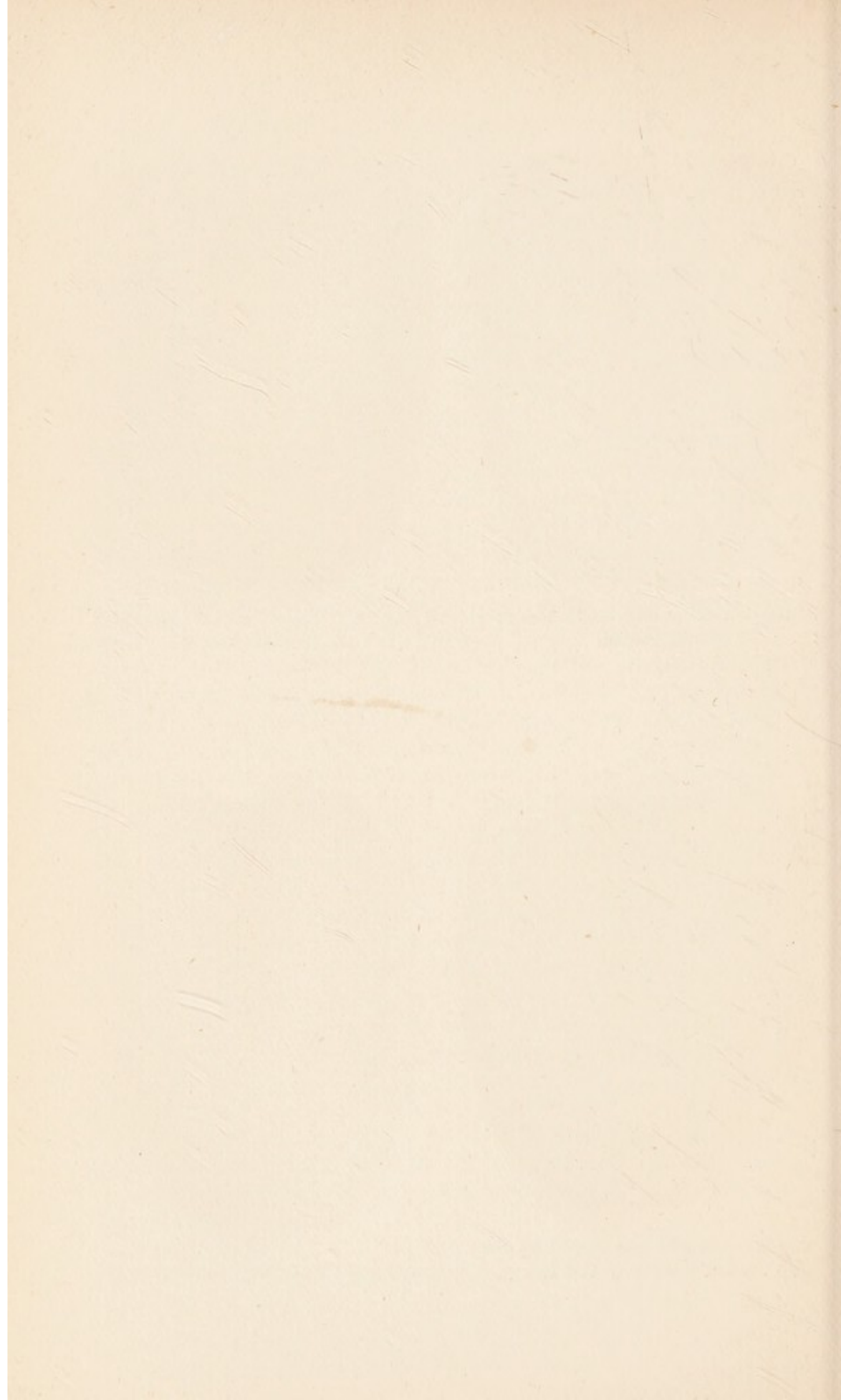


Lung tract coated and tinged by the imprisoned Carbon in the Lungs.

4



Lung tract Red—Bronchitis present.







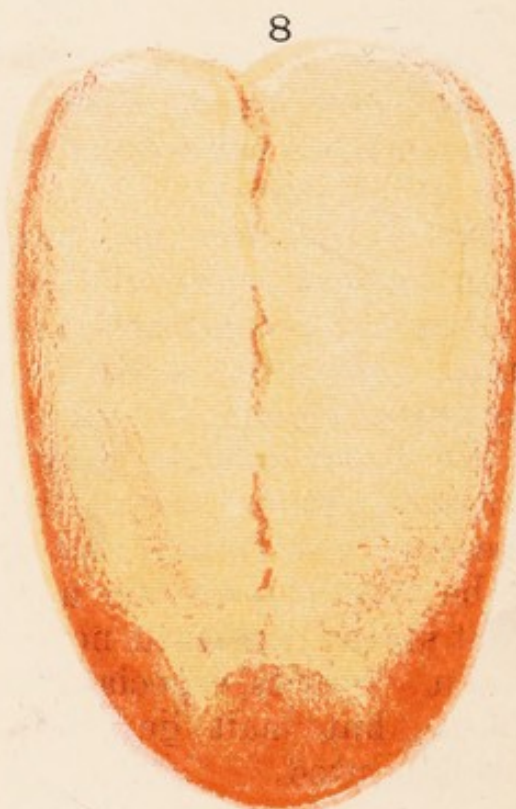
H. Stanley ; 24th April, 1840.



Pleural tract Red—showing Pleurisy



Lung tract slightly congested ; all the other tracts in an inflammatory state.



Brain, Kidney, and Colon tracts much inflamed

No. 4 shows the characteristic red line down the lung tract which illustrates "bronchitis," in contradistinction, to No. 2 of "bronchial congestion." Other organs may exhibit the congestive states at the same time; these may be treated with the alkalines, and the bronchitis by an acid cough mixture until the redness is lost.

No. 5, H. Stanley, 24th April, 1840.—An early drawing showing congestion of the stomach, bronchitis, pleurisy, and inflammation of the colon, with hypertrophy of the heart. After a few days' treatment with the mineral tonics or acids, this patient got rapidly well. A very important fact is here to be borne in mind, which is, always to treat the most prominent condition first. This case was kept completely under the acids, and when all inflammatory states had subsided, a few alkalies sufficed to complete the cure.

No. 6 shows the pleural tract with a certain amount of inflammatory action in the colon and kidney tracts, whilst all the other organs are in a congested state. This is not generally so marked, as we see the pleural tract more or less affected in Nos. 5 and 10, and where several organs will show an inflammatory state, and it is curious to see how they will offer a check to one another, and not be well pronounced separately. The acids should be given sufficiently to relieve the redness, and then the alkalies for the other parts.

No. 7 indicates the lung tract rather more congested than natural, while all the other organs, stomach, brain, kidney and colon tracts, are seen to be in an inflammatory state. Here the acids should be given, and, if there is a congestive cough, the alkaline cough mixture.

No. 8 exhibits the brain, kidney, and colon tracts much inflamed; pains across the loins; hæmorrhoids or piles present; also frontal and temporal headaches. These are to be treated with the acids and opiates, and the bowels kept steady, at least, no aperients of any kind should be taken. Spirits, especially brandy and sherry, should not be taken; but malt liquors, claret and port wines, may, the latter diluted.

No. 9, P. Arnold, July, 1860.—Shows inflammation on the top of the windpipe and gullet, with a tendency to

bronchitis, while the rest of the organs are in a congestive state, the excesses in which produced the sore throat. The fur upon these parts was much tinged with yellow from bile in the stomach. The treatment by the alkalies and acids soon reduced both conditions.

No. 10, Mrs. Cook, *Æt.* 42 years, 10th July, 1872.—This tongue shows great congestion of the lungs and stomach tracts, with hypertrophy of the heart. Here again the fur was tinged with yellow from bile entering into the stomach largely. In the healthy state this should not occur, and when it does it often produces vomiting.

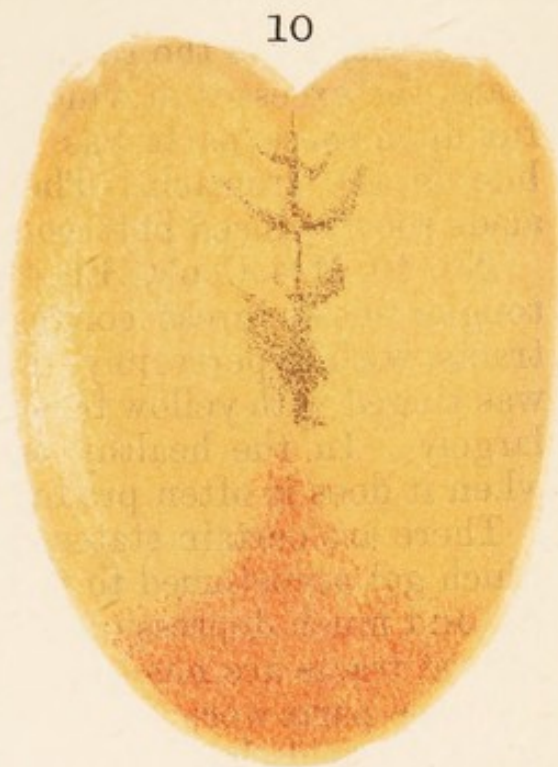
There are certain states of the stomach and the system which get accustomed to this, but it always causes dyspepsia, and much depression in the system. The colon and pleural tracts are much inflamed, and she had hæmorrhoids. As these parts were the most prominent for attack, she was given the acids largely, and this treatment did good in both states of the tongue. The stomach, on account of the bile therein, was extremely alkaline, which the acids relieved by an effervescing action.

In another case I had, when there was no inflammatory action at all, but a perfectly yellow furred tongue on every tract, the acids were given, which soon cleansed the tongue entirely. In this case (No. 10) the pains in colon and pleurisy left most rapidly, and the fur of the tongue cleansed away as well.

No. 11.—This illustrates the rapid oncoming of scarlet fever. All the premonitory symptoms of this disease having run their course, the tongue will at last present the appearance of a perfect blanket of dirty white, or creamy coloured fur. This lies as loosely on the whole alimentary canal as it does upon the tongue. Within a short time patches of red will be seen where the tongue is throwing off this fur. Sometimes a portion near the tip on either side will go back regularly: sometimes obeying the perfect cleansing in cones from tip and sides, and then become perfectly scarlet. Papillæ may or may not appear at the tip like small tassels. I have not seen this lately, but forty years ago they were always present. The case then resolves itself into that of a pure muco-enteritis, or complete inflammation of every mucous membrane of the whole



P. Arnold; July, 1860.



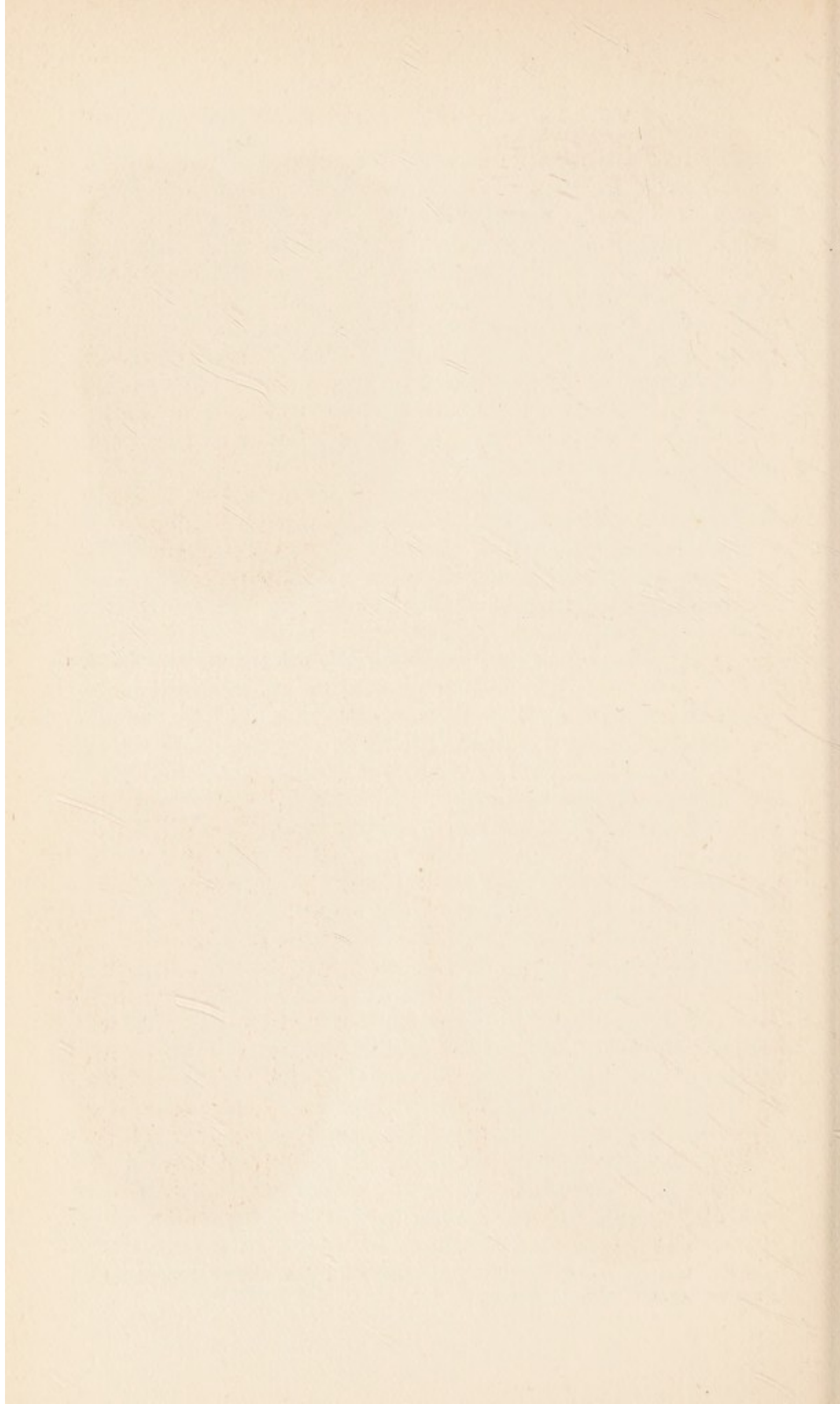
Mrs. Cook, *Æt.* 42 years, 10 July, 1872.



Commencement of Scarlet Fever.



General inflammation throughout all the tracts after.



alimentary canal, and also those of many of the vessels. In fact, the fire of the disease burns up much elementary matter. The acid treatment, with the anodynes, are here called for. This new inflammatory state is very different from what is called the raw-beefy-tongue, which some persons exhibit as an idiosyncrasy or natural state. I may, therefore, mention that whatever illnesses these persons may have, their tongues seldom fur, and their treatment should never be by the alkalies or purgatives. They should not take alcohol or strong wines at any time, nor hot soups, tea or coffee, &c. They soon get into this way of treating themselves, and live as long as other people.

No. 13, M. D., *Æt.* 24 years, October, 1878.—A Frenchman, who, during the Franco-German war, though only sixteen years old, was compelled to join the army. He suffered great privation then, and afterwards from a chronic diarrhœa, causing great loss of power and nerve force. He had constant temporal and frontal headaches, and thus the great sympathies between the colon and brain were fully developed. He had frequently great irascibility and uncertainty of temper, without real cause, and for which he was constantly apologizing. When the headaches were absent, he was a most amiable and docile man. Being an artist, and in the employ of a friend of mine who spoke to me about him, I requested to see him, and I agreed to cure him if he would furnish me with copies of his tongue, as occasion required. The one depicted was his first production, and beautifully indicated the state of the colon and brain. The glossological rules were simple and efficacious; the acids, and anodynes, and opiates freely used, and, as far as possible, perfect constipation of the bowels. His pupils were much dilated at the time he first came to me, and his eyes very weak, he often thought he would lose his sight, and, being an engraver, he was greatly alarmed, but I assured him he would get all right. There was no fur upon the tongue, but simply white on stomach and lung tracts. The bowels were kept confined, and he did not have more than two or three actions for the first month. He kept strictly to the medicines, and on 22nd November, one month after his first visit, he came to me again quite an altered man. He then brought me a second drawing of his

tongue: the crimson brain and colon tracts had given place to the normal colouring of the pale rose-leaf tint. As I taught him to study his tongue, he found that when he had pains in the head, which occurred more frequently in the left temple, then the left brain tract was redder than the right, and he then doubled his doses of the acid mixtures. Again, when he had frontal headache, it arose after a greater action on the bowels than usual. On taking leave of him, I told him he would never lose the germ of his disease, but that he could always keep it in hand by taking the acids, anodynes, and opiates, and keeping the bowels confined. That his diet should be simple, and that he should not drink hot liquids, nor spirits of any kind. He might take claret, port wine, and malt liquor, and never to take alkalines nor aërated drinks, nor ever use aperients, however long his bowels were confined.

No. 14.—Shows the tongue in fever. This varies so much that I have only to refer to the Chapter on fevers. Its character shows that the acids, anodynes, and opiates, are the proper treatment, with great conservatism of the bowels. That alkalies or potash fever drinks are prejudicial, and will only augment the symptoms, which are made worse by any form of aperient medicines.

This tongue also shows the various organs implicated, sometimes the colon, kidney, and brain tracts most, then the lung tracts will show a bronchitis, and often pleurisy. Then the stomach tract will become entirely red like No. 7. In fact, wherever the fever comes and goes, in one part more than another, so the character of the tracts will vary; but it can always be seen where it most impinges. This will again be confirmed by the various headaches, and particularly by the mental states—for delirium will always follow either a natural active state of the bowels, or from the incautious use of aperients.

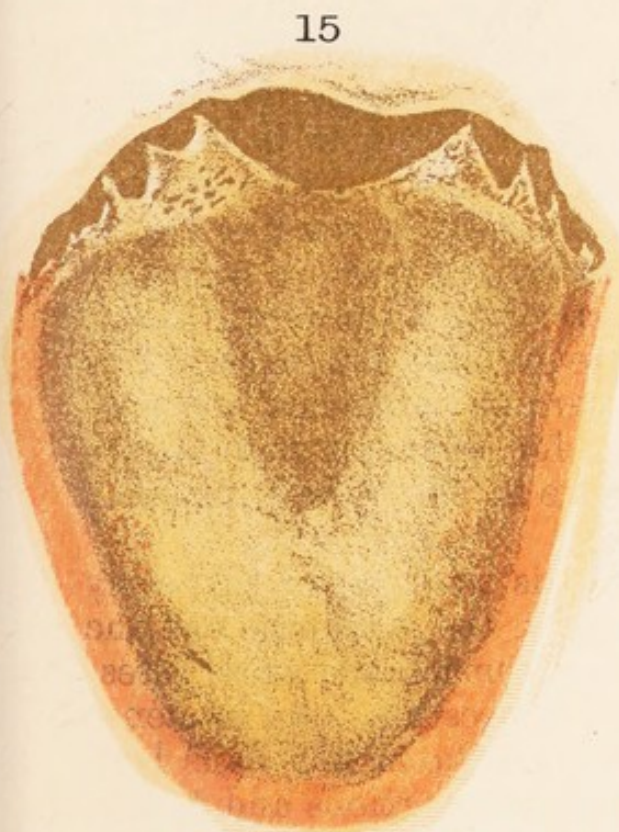
No. 15, H. H., April, 1842.—This was one of my early drawings of the tongue, in which the windpipe and the bronchial tubes, together with the stomach and small intestines, were in the highest state of congestion. An immense secretion of thick viscid mucus filled the mouth, as is here represented, and sticking to the upper portions and to the teeth when the tongue was protruded. The yellow fur



D—— 23rd October, 1878.



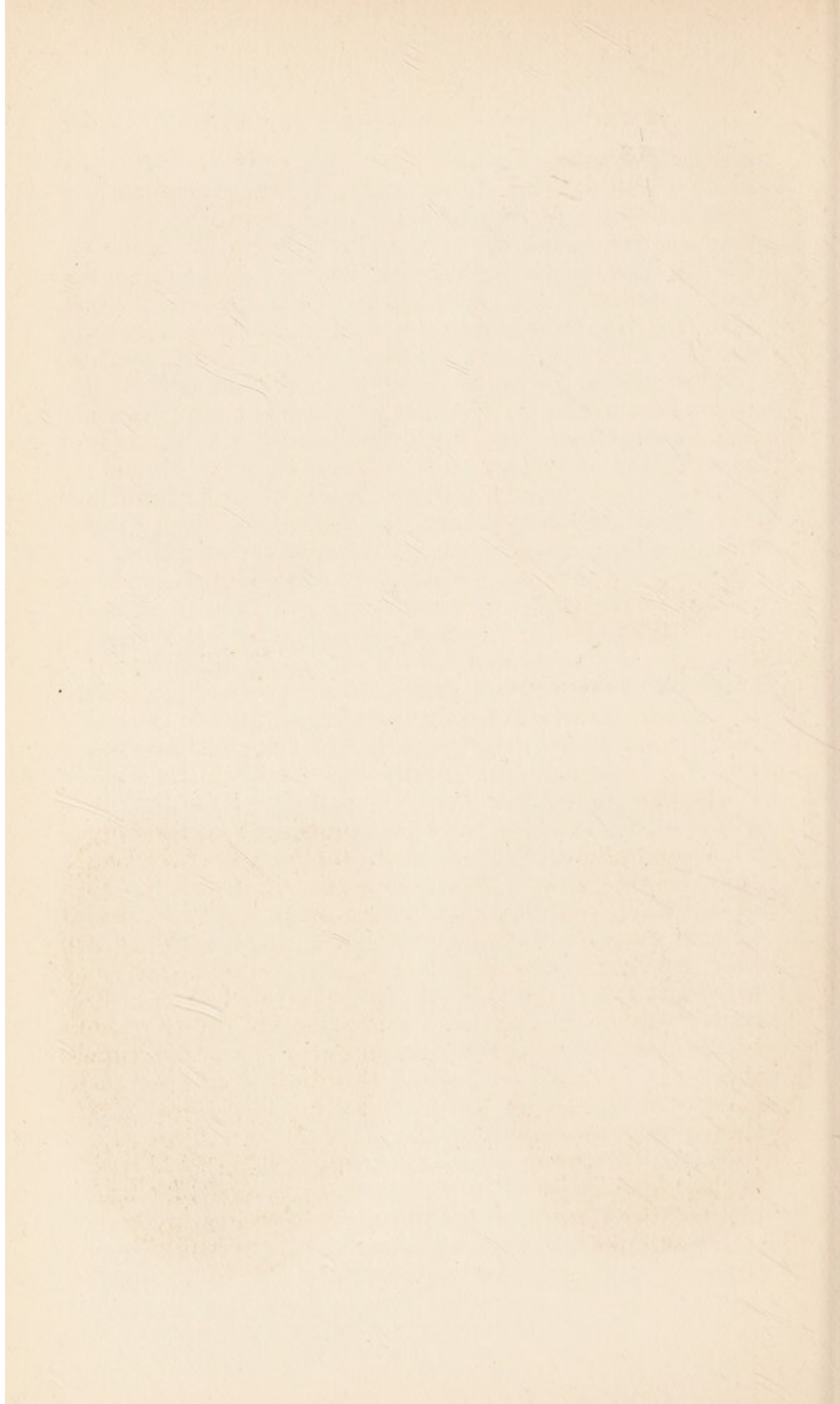
Fever; John Pearce, *Æt.* 19 years,
6th May, 1836.



H. H. : April, 1842.



Frequent last appearance of the
Tongue of old people.



indicated bile in the stomach. The brain, kidneys, and colon tracts denoted inflammation in their corresponding parts. He could not endure the least noise or light. The emetics were used, and what they brought away in the form of stomach *fæces* was enormous, and as the congestive states were the superior ones they were first attended to, and so he took the alkaline medicines freely, and the alkaline cough mixture as well. On the third day three of the aperient pills, as no doubt the alkaline medicines carried elements of a very morbid character into the colon, and it was best to help them away entirely. As the tongue cleansed on its upper tracts, there was thirst, and he could still not bear much noise or light, and the brain and colon tracts became redder and he more irritable: he was then put upon the acid medicines; and so alternately the appearances and coatings of the tongue being my guide, he soon recovered. Taking this tongue as a fair specimen of highly congestive and highly inflammatory actions going on at the same time, it seemed to me impossible to be able to treat any single organ as more distinctively diseased than another. Half of them were congested and the other half inflamed, and each commanded their separate treatment of alkali and acid, and the case got perfectly well.

The public must not jump to conclusions, that the tracts of the tongue are only to be considered, or that the tongue alone can tell everything about the thousand diseases people suffer from. I have never gone so far as this, but have merely said that the appearances of the tongue formed **ADDITIONAL** means of diagnosis, and these allied to the head symptoms are very valuable. If disease is not to be found out by all the rules of the schools, then it is best to adopt a broad treatment according to the furred or non-furred condition of the tongue, and treat it with the simple **alkalies** or the acids, and thus follow in medicine the plain dietary rules, and let Nature herself, undisturbed by too many chemicals, right herself.

No. 16.—This represents the tongue of very old people in their last stages of worldly existence. All the protoplasmic fluids in their mucous membranes dry or become carbonized, and present the black appearance seen in typhoid fevers. All their organs are thus loaded, excepting the

colon, kidney, and brain tracts, which will exhibit either a perfectly white or a fiery crimson condition. These differences simply indicate the character of the individuals. Those who have the white edges and tip are quiet and amiable, and those who have the fiery red edges and tip are somewhat bad tempered or irascible—still they both are more or less conscious to the last, unless a great error is made in medicating the bowels. In these stages of the decay of life, when very little alimentary matter besides slops have been taken, the bowels may be said to hibernate, and nothing passes naturally for many days. This is the kindly act of Nature, which I have never interfered with and recommended all others to do the same for the happiness and comfort, not only of the patient who cannot afford to lose power, but for those who have the care and nursing of them, for if once the bowels become irritated by aperients they never cease acting in an involuntary manner, and for days together the whole character of the chamber and patient is a disgusting scene; instead of a quiet and satisfactory one from a rigid constipation. The dry condition of the tongue requires only acidulated drinks—such as home-made lemonade or thin barley water acidulated.

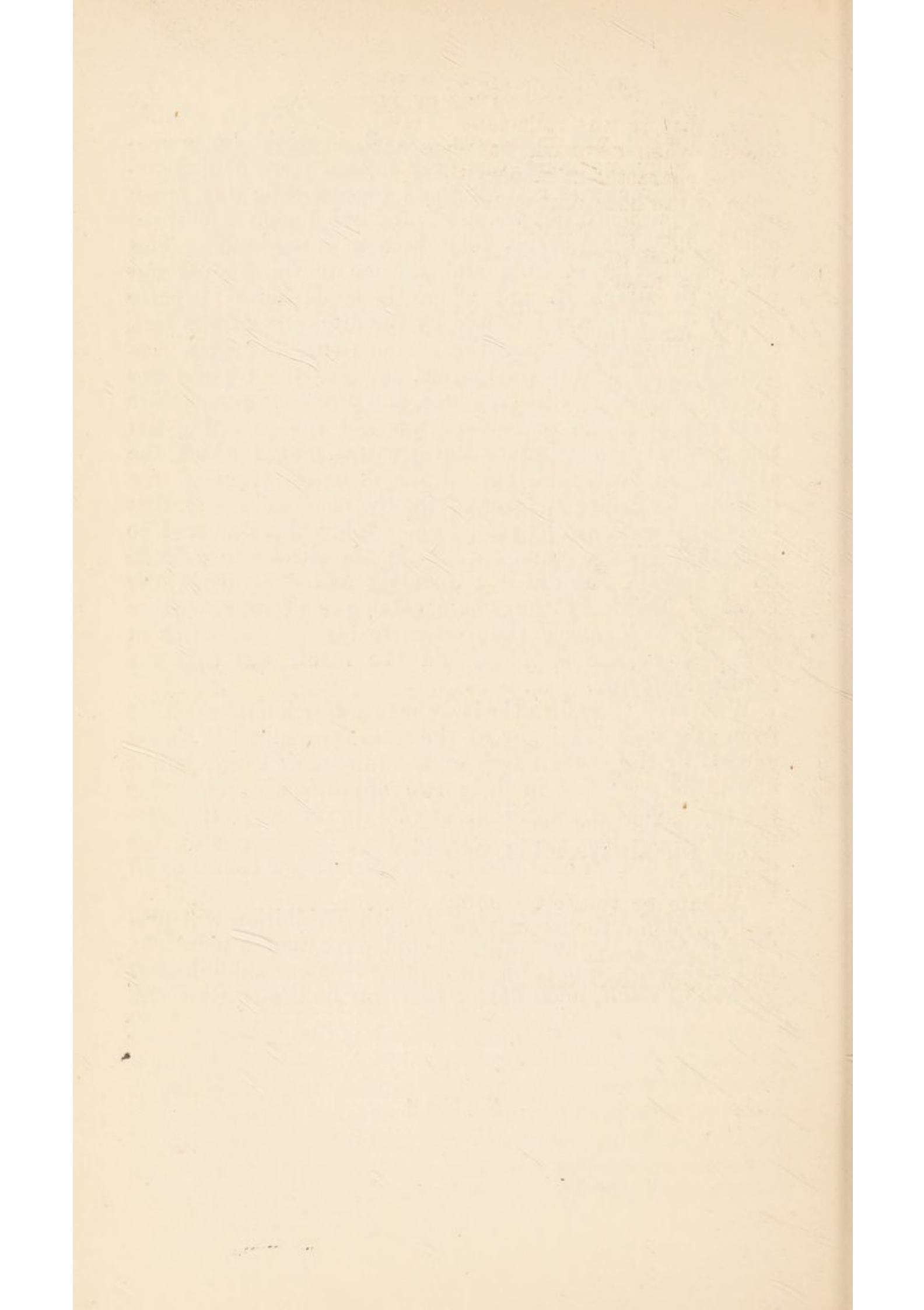
When nothing can be done to prolong life, everything should be done to ease it to the last. And thus I bring this small book to an end, having seen my patients from the cradle to the grave, in every form of natural disease and those incidental to accidents and reproduction of the species, and all by the most simple measures and using medicines as Nature uses the many articles of diet. We have seen and do constantly see, and are as frequently told that the practice of medicine is a great disappointment to every one, and more especially to those who know most about it and have most laboriously studied it, as I have shown in the preface to this book. Every one is trying to find a fixed point in order that the first link of a mighty chain may be attached thereto. All this has hitherto resisted every endeavour to do so. Very shortly after I had entered into the real practical life of a working practitioner, in 1836-37, I observed peculiar appearances of the tongue in opposition to everything said against

it, viz., that it was fallacious. Well, it might be so considered when no mark was ever noticed upon it of a distinctive character in respect to or representing any given organ of the body, but when I found one I soon discovered others, and the pursuit then became interesting. This was the first great link, and led me to the finding out where to attach it, and where it could never become detached. This was followed by the discovery of the fact, that health depends upon the chemico-vital law of a predominance of acid in the system, and that the tongue was the true indicator of its presence, and also that a departure from this standard or balance was not the lessening but the gradual increasing to the greatest excess which the system can bear, and that all the diseases, short of the inflammatory ones or fevers, were the congestive, and that their treatment was by reduction. When this occurred so long that Nature could not bear it, and she set to work to do it herself, she did it too boldly and overturned the coach of health by the whole catalogue of inflammatory actions, which caused the system to become bankrupt in her protoplasmic supplies, and the result was that she required support.

Whatever, therefore, the body may suffer, it suffers either from excess or deficiency of the vital forces, and if this is gauged by the appearances of the tongue as I have laid it down, the remedies in their two opposite characters, for the two opposite conditions, are by simply correcting elements on the one hand, or supplying deficiencies on the other, will always hold good for re-instating a condition of health.

Whatever the forthcoming Health Exhibition will produce or show, the committee should start upon a principle, and that a sound one, for everything that has any inherent growth of itself, must have a basis for its health standard.

FINIS.



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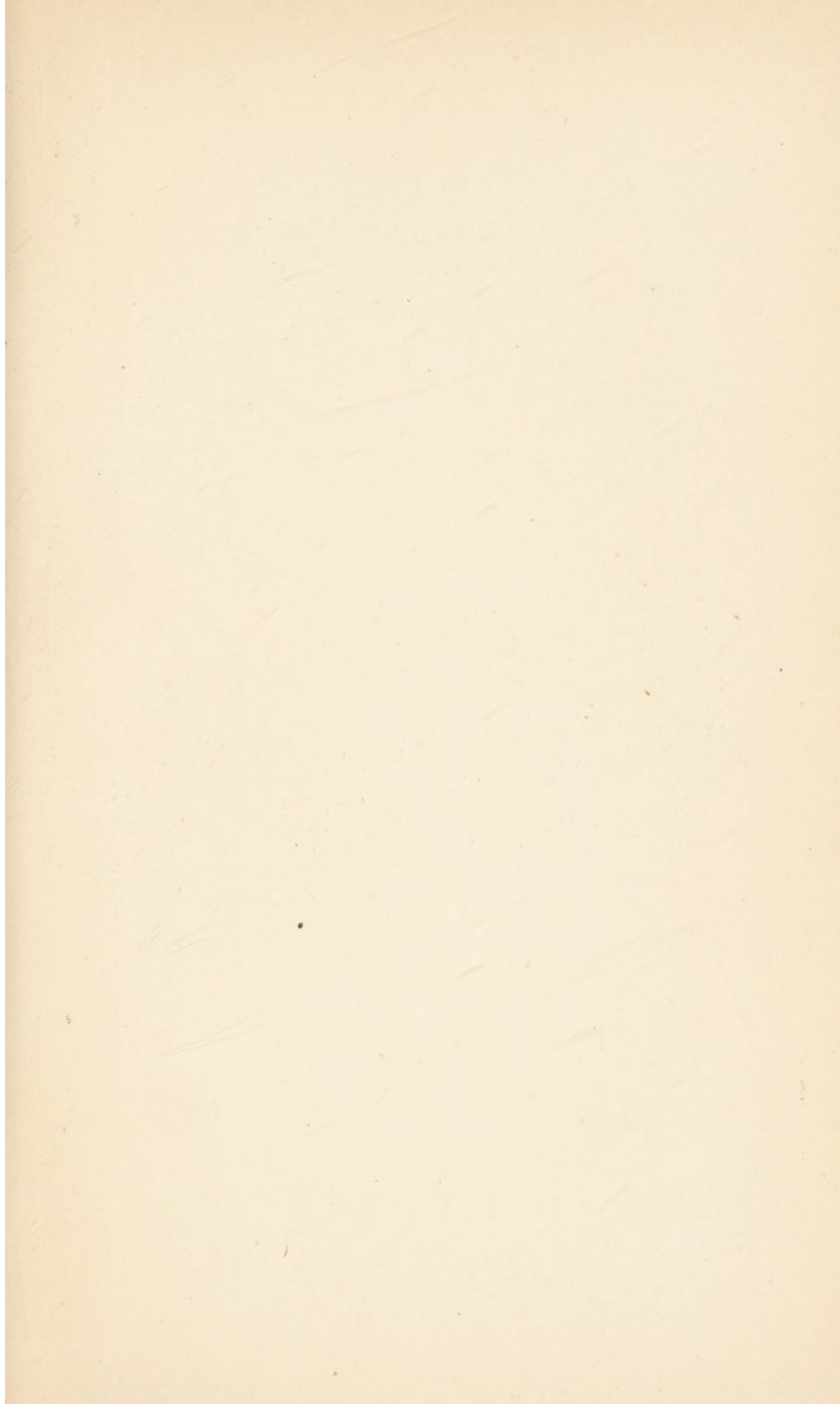
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