

**On duty under a tropical sun : being some practical suggestions for the maintenance of health and bodily comfort and the treatment of simple diseases : with remarks on clothing and equipment for the guidance of travellers in tropical countries / by S. Leigh Hunt and Alexander S. Kenny.**

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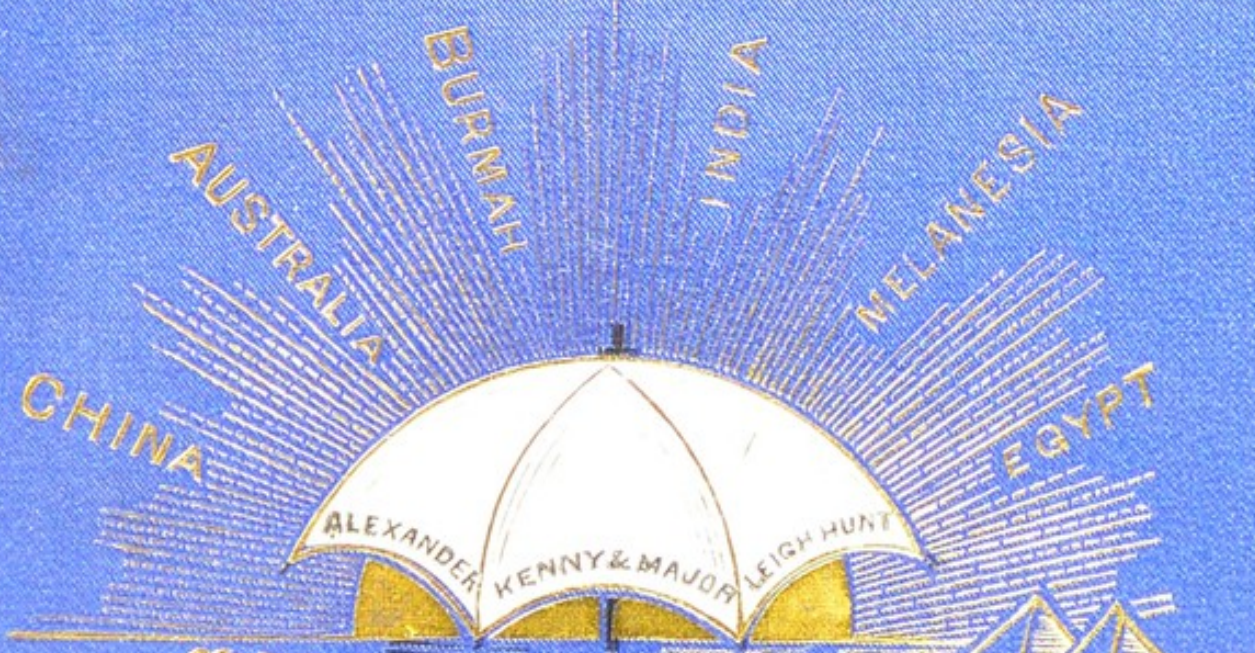
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BY

**ALEXANDER S. KENNY, M.R.C.S.E.,**

SENIOR DEMONSTRATOR OF ANATOMY AT KING'S COLLEGE, LONDON.

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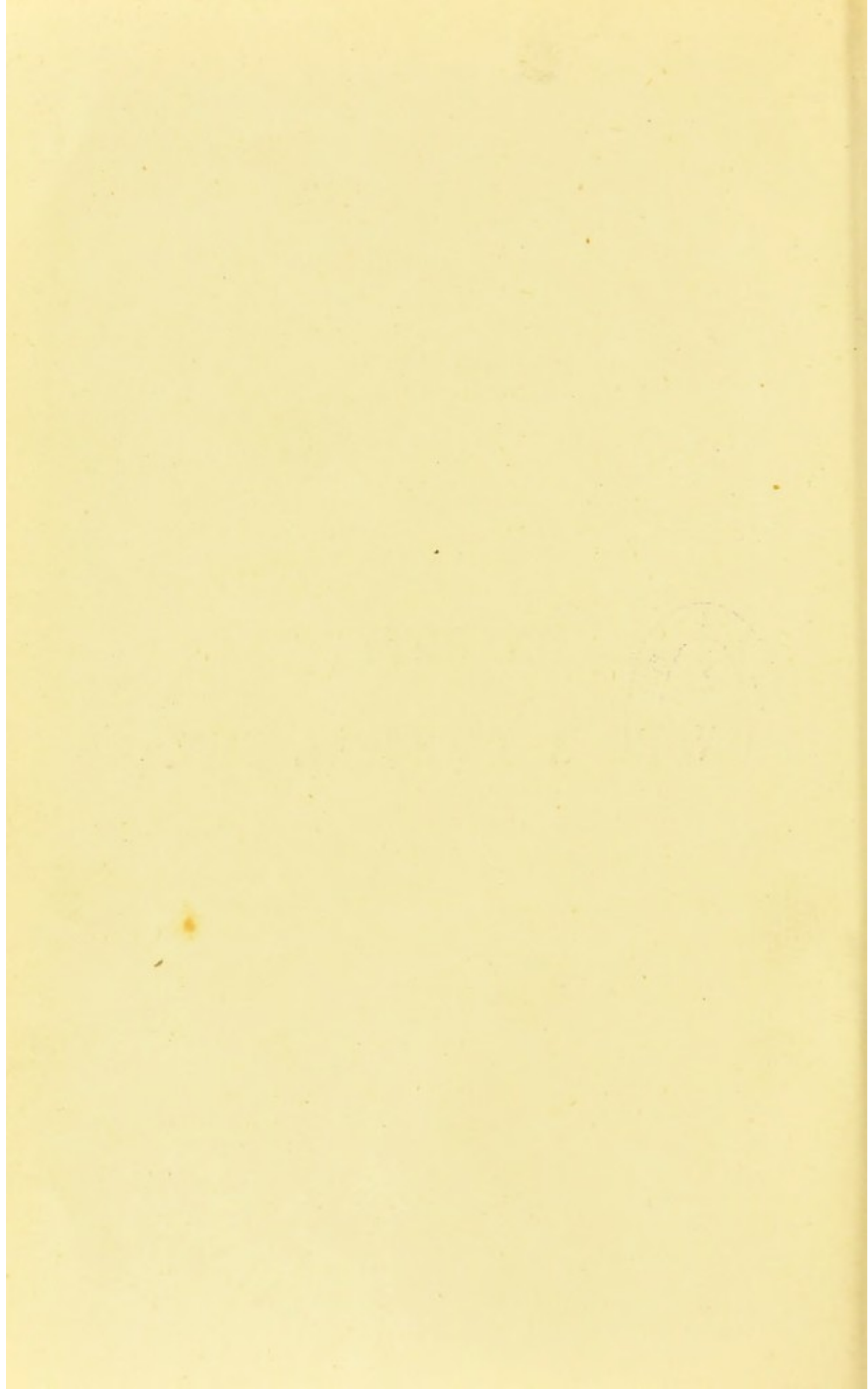
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ON DUTY  
UNDER A TROPICAL SUN.



# ON DUTY UNDER A TROPICAL SUN.

BEING

SOME PRACTICAL SUGGESTIONS

FOR

*THE MAINTENANCE OF HEALTH AND BODILY COMFORT  
AND THE TREATMENT OF SIMPLE DISEASES;  
WITH REMARKS ON CLOTHING AND EQUIPMENT FOR THE  
GUIDANCE OF TRAVELLERS IN TROPICAL COUNTRIES.*



BY

MAJOR S. LEIGH HUNT,

MADRAS ARMY,

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## P R E F A C E .

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THE suggestions in the following pages are offered with a view to assisting those whose duties may necessitate a temporary residence in the East, but who, from lack of previous experience, may not be aware of the simple means of counteracting and palliating many of the petty annoyances and personal discomforts which are attendant upon residence in tropical climates. The compilers have limited themselves to suggestions which have arisen solely in their personal experience in Egypt, India, Burmah, Australia, and elsewhere, and they have every reason to believe that they will be found practically useful.

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# ON DUTY UNDER A TROPICAL SUN.

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## CHAPTER I.

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### GENERAL REMARKS ON TROPICAL CLIMATES.

ON any expedition leaving this country, the general arrangements by "heads of departments" are so admirable, that the following suggestions might, at first sight, appear to be uncalled for and unnecessary, especially by those whose position and opportunities enable them to profit by the precautions taken for the general welfare of the troops and others in Government employ. Nevertheless, although such arrangements for the general good are so

comprehensive, there are yet many petty difficulties inseparable from daily life in the tropics, affecting personal comfort and health, which must be left to the individual to provide against. It is hoped, therefore, that these "wrinkles" will be accepted as purely supplementary to the many excellent rules and provisions existing for the guidance of those who may be called upon to take part in any such expedition in tropical regions.

It is difficult for one who dwells in a temperate climate to obtain any very clear conception of what work and residence in the tropics really means. To him the passage from a temperate into a torrid zone is associated with the idea of a sudden accession of heat; but heat and cold are merely relative terms, and it is quite possible to suffer from cold in a hot climate. As a rule, however, it is not so much the actual temperature which affects the individual as the local physical peculiarities of the particular country, or portion of country, in which he may be compelled to reside for a time. A temperature, for instance, of 100° Fahrenheit,

when the air is dry, is very much less trying to the human organism than is a very much lower temperature when the air is loaded with moisture. The explanation of this is to be found in the fact that while hot dry air favours the process of evaporation, which when the temperature is high should ever be taking place from the surface of the healthy skin, and so tends to lower the temperature of the body, air which contains much moisture is antagonistic to this process, and thus greatly interferes with this important function by which the temperature of the organism is regulated. The amount of moisture present in the atmosphere varies, not only in different tropical countries, but, also, in different parts of the same country. In India, for instance, the basin of the Ganges in Hindustan is exceedingly humid, while that of the Indus is usually parched and dry. On the other hand, in Southern India, the humidity of the Malabar coast is remarkable as compared with that of the Coromandel coast. The climate of Scinde, in the northern part of the presidency of



Bombay, is dry and sultry, and the rain-fall is slight. In the Punjaub the amount of rain that falls is also slight, and the climate is hot and dry. The Punjaub is also interesting as illustrating the remarkable extremes of temperature sometimes met with in tropical climates. In winter the cold is great, the temperature varying from  $34^{\circ}$  to  $75^{\circ}$ ; whereas, in the summer, the heat is sultry even to oppressiveness. In Egypt the climate is exceedingly hot, but the temperature is regular and the atmosphere dry and clear; at night-time there are heavy dews, and a cold wind sweeps over the sandy plains, often producing sudden chills. For nine months of the year there is a cool wind from the north, which tends to diminish the intense heat, but, at the same time, keeps the air impregnated with small particles of sand, which add greatly to the discomfort of those who may not have adopted any special means to protect the skin, as far as possible, from its irritating effects. The Australian climate is generally dry, and, for the most part, healthy, and, although the heat is often great, there are

many periods of the year when no special form of protection for the head is required, and there does not seem to be that general dread of sunstroke and heat-apoplexy which always exists in India. In Polynesia, the temperature of the islands is in most cases moderate, owing to the prevailing sea-breezes, but the amount of humidity varies greatly, and this is especially the case in the Melanesian group of Islands. In these, in addition to the heavy rains, which not unfrequently occur, there are often heavy night-dews, and after sun-down a cool wind sets in, and the change in temperature is sometimes so great as to render a camp-fire very acceptable. The greater part of China lies within a temperate zone, but at Hong Kong the temperature is liable to great variations at different periods of the year. During the months of June and July the thermometer frequently stands at  $90^{\circ}$ , while from December to March it descends almost to freezing point. At Shanghai the changes are still greater, reaching a maximum of  $100^{\circ}$  and falling to  $20^{\circ}$  below freezing point. Those who contemplate

a prolonged residence in these parts must bear in mind such temperature changes, and provide themselves with appropriate clothing. In Burmah the annual rainfall is very great, and anyone whose duty may call him there must be provided with the means of protecting himself, as far as possible, from the effects of the extreme humidity of the climate.

This brief glance at the chief climatic features of some of the more important countries which lie within the tropics, will suffice to show that all hot climates are not alike, and that it is necessary, in every case, to take into consideration the special local characteristics of the country which is to be visited. We have been induced to lay special stress on this point, as many residents in particular parts of the tropics, judging only from their personal experiences, are apt to lay down rules and regulations suited to meet the requirements suggested solely by such individual experience, without taking into account the varying changes of tropical climate noted above.

At first sight it might seem an almost hope-

less task for anyone to preserve his health under conditions so various and trying as those we have depicted. Happily, however, the frame of man is so constructed and arranged as to be able to withstand even great extremes of heat and cold. If a man will only take care to adapt his clothing, diet, and mode of life to the special circumstances under which he may be placed, he will be able not only to tolerate but to enjoy life in the tropical climates of the world.

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## CHAPTER II.

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### ON THE DISEASES OF TROPICAL COUNTRIES.

THE diseases which affect dwellers in tropical countries are as varied as the changes of climate we have been discussing. Some of them are of great virulence and severity, many of them are peculiar to certain localised districts, while others again are but exaggerated forms of simple maladies which affect those who dwell in temperate zones. These last, indeed, are ailments which are simple enough in themselves, but which tend to interfere with the health and disturb the comfort of those who suffer from them, and which, if left to themselves, often lay the foundation of really

serious diseases, or develop into permanent local affections of a most trying and tiresome nature. It is impossible for us, in a work of this kind, to do more than allude very briefly to those more serious general diseases which are special to tropical climates. Our object is simply to supply the traveller in hot countries with a little domestic medicine for his own use, and to indicate the means he should adopt to keep his body in a healthy state. It is by no means our intention to foster a false sense of security, by leading anyone to think that it is possible for him to dispense with proper medical assistance when these ills befall him; on the contrary, we would especially impress on everyone the imperative duty of availing themselves, when possible, of the skill and experience of medical men, who, being acquainted with the special local peculiarities of the climate, are better able to appreciate the severity, and understand the symptoms, of each particular case. These hints are intended, rather, for the guidance of those who occupy a more isolated position, and who are temporarily

removed from the possibility of obtaining medical aid.

#### SUNSTROKE.

In considering the effects of heat on the human system, it is possible to speak only very generally on the subject; for, just as in our own climate we have frequent illustrations of the varied degrees of discomfort, or even suffering, which extremes of cold may inflict on different individuals, so, also, in the tropics it has frequently been noted that one man can perform work of even the most laborious nature, and generally endure an amount of exposure which would prove rapidly fatal to another. Some men on entering the tropics at once become the subjects of disease, while others experience nothing more than the ordinary discomforts consequent upon such a thorough change of climate. Now-a-days there is but little opportunity for a man to become accustomed by degrees to these changes; the facilities for getting from one country to another are so numerous, and the rapidity of travelling

is so great, that in very few cases does anyone enter the tropics gradually; and the transition, by slow stages, from one climate to another, which was the characteristic of travelling in former days, no longer exists; and though this delay was tiresome in itself, there is but little doubt that it was beneficial to the health of the individual. Although, from these remarks, it will be foreseen that it is impossible to lay down any hard and fast rules calculated to meet each individual case, it would be advisable for everyone to adopt the suggestions, and provide himself with the outfit set forth in the following pages, until he has had means of testing for himself his powers of withstanding the effects of tropical climates.

One of the most common, and yet, at the same time, most serious affections which afflict those who are exposed to the sun's rays, or the high temperature of the tropics, is the condition commonly known as "sunstroke." This name, together with the term "heat apoplexy," and many others, has been used in a general sense, and, undoubtedly, includes very many



conditions which differ pathologically in themselves, but which, as they in many instances possess a somewhat similar train of symptoms, and result in a series of affections which are, to the general observer, the same, have thus come to be classed under the one general head. In some instances, though the symptoms may appear to be very serious, the case is one of simple syncope, or exhaustion, brought on, as a rule, by fatigue and over-exertion in an individual whose health and bodily powers are, at the time, in a depressed state, by exposure to the direct rays of the sun, or to a high temperature within doors in over-crowded or ill-ventilated houses or tents. In cases of this kind the skin is generally pallid, and, at the same time, moist and clammy. The pulse is sometimes so feeble as to be scarcely perceptible, and there is great nervous prostration combined with an almost total temporary loss of muscular power. Under appropriate treatment recovery usually takes place, except in very severe cases, when death occurs from the failure of the heart's action.

*Treatment.*—Remove the patient into the shade, or, when practicable, in cases where it has occurred indoors, to a cooler place. Take off all tight or superfluous and oppressive clothing. A cold-water douche should be applied to the head and along the chest and spine, but it must not be too long persisted in. The patient should, if possible, be roused, and the surface of the body gently stimulated. The bowels should be made to act, but not too violently, by castor oil given internally, or by purgative enemata or injections. Injections of warm soap and water, or gruel, can be used, and to these turpentine or castor oil may be added. To produce the desired effect a sufficient amount of fluid must be used, often as much as two, three, or four pints is required, the enema in many instances failing in its object on account of its not being copious enough. The patient should be placed on his *left* side, and the enema slowly pumped into the rectum. An enema syringe is an article which everyone, who is likely to be out of the reach of medical assistance, should take with him.

Besides these cases of simple syncope there are others which partake, to a certain extent, of the nature of shock, and are due to the direct rays of a powerful sun on the brain and spinal cord. This is a much more serious type of case. The great nerve centres of respiration and circulation are affected, and death may take place in a very short space of time; and, though in many cases the patient survives, the recovery is seldom complete. The symptoms in this type are distinguished from those of the former one by the suddenness of their onset. The patient loses consciousness, the skin is cold and moist, and the pulse feeble. The patient, sinking rapidly, may die from shock, or a febrile reaction may set in.

*Treatment.*—The patient should be at once removed into the shade, the clothing removed from his body, and a cold-water douche be applied to his head and body from a distance of three or four feet. After the douche, mustard-plasters should be applied to the chest, abdomen, and calves of the legs. Mustard-leaves will be found most useful for this purpose, and should

always be included among a man's medical necessaries. Enemata may be used in the manner described above.

Another very serious form of sunstroke is that due to a general over-heating of all the tissues of the body, including the blood, which results not so much from the direct sun's rays, as from exposure to a constantly high temperature. This leads us to draw attention to the fact that the precautions against sunstroke must be always persisted in, as it is not only on bright, sunny days, but on cloudy ones also, and even at night-time, that this form, which is more especially known as *heat apoplexy*, may occur. The symptoms of this severe form differ from those already described, in many important particulars. The temperature of the body rises rapidly, even as high as  $108^{\circ}$ - $110^{\circ}$ , the skin is hot, sometimes moist, but more frequently dry; the pulse is sometimes full, at others quick and jerky; the vessels of the head and neck are dilated, and their pulsation can be readily observed; the countenance is livid and congested; there

is intense restlessness, and the patient experiences great difficulty in breathing; convulsions of an epileptiform nature often occur. In some cases death takes place by asphyxia and apnœa, and in others by hæmorrhage on the brain. If the patient lives there is permanent impairment of health.

*Treatment.*—As in these cases there is often some *photophobia*, or dread of light, the patient should be kept in a darkened room, rendered as cool as possible, and cold applied by means of the cold-water douche, or ice when it can be procured. The application of cold by the irrigation method will be found very useful. This consists in suspending a small pot, or *chattie*, over the patient's head, and filling it with ice and water (or, when ice is not to be obtained, a small quantity of vinegar added to the water will render it more refreshing); strips of lint or linen are placed in the vessel, and allowed to hang over the side, so that they conduct a constant stream of water to the patient's head. Quinine in doses of five to ten grains, or more, may be given internally, with

the view of reducing the temperature. In every case where cold is applied, care must be taken not to persist in it too long, or continued depression of the temperature of the body may be produced. The object sought by the application of cold is the reduction of the abnormally high temperature, and when this has been accomplished there is no further need to persist in its continuous use. Everyone should possess a small pocket thermometer, and by placing this in the arm-pit it is possible to tell the state of the patient's temperature. The normal temperature of the body averages about  $98.5^{\circ}$  Fah.

*Diet.*—The diet throughout should be very light and nutritious, consisting chiefly of milk, sago, arrowroot, &c. It often happens, however, that the patient is so circumstanced that he cannot obtain these things, and it then becomes a question what he is to take. It is at such a time as this that the Swiss milk in tins will be found of almost priceless value. Eggs can generally be obtained, and an egg beaten up in tea will often be found acceptable.

In most places chickens can be procured, and some chicken broth will assist the patient in regaining his strength. "Brand's essence of beef" or "Liebeg's extract" will be most useful, and should always be included in a man's store of provisions. By slicing a few onions and frying them till they are well browned, and then pouring some Liebeg's extract, previously dissolved in boiling water, over them, straining, and adding a pinch of salt, a dish of most palatable soup may be obtained.

Before concluding these remarks on the management of those who suffer from sun-stroke, a word of warning must be given on the subject of stimulants. The cases in which they will be of use are very few, and it is best that their administration should not be resorted to unless by those who have had great experience of these cases, or under the direction of a medical man. The patient's return to consciousness may be quickened by holding some ammonia a little distance from his nostrils. When ice is procurable the patient may drink iced water, or be allowed to suck ice.

Cold tea with a dash of lime-juice, or "toast-and-water," are very refreshing, and can always be procured.

*General Remarks.*—After suffering from the milder forms of sunstroke, the patient should take care not to expose himself to fatigue, or to the influence of the sun, until he has thoroughly regained his strength; and after all the more severe forms he should be removed, as soon as possible, to a cooler climate.

*The Avoidance of Sunstroke.*—Much may be done to prevent the occurrence of this serious and, as we have pointed out, often fatal disease. Never go out without sufficient protection to the head, neck, and spine, the means of providing which will be discussed in our chapter on clothing. Take care that all clothing and equipments fit as easily and lightly as practicable, so as to interfere as little as possible with the movements of the muscles of respiration. Never go out on an empty stomach; always take a cup of tea and a biscuit in the morning before starting; never undertake any heavy work in the sun



immediately after a full meal, but rather defer the meal till afterwards. When exposed to the direct rays of a powerful sun, a few green leaves placed in the hat, or even wetting the hair with a little water, may do much to protect you from the intense heat. Never allow yourself to become constipated, and endeavour in every way to promote a healthy and free action of the skin. Dry-skinned people are much more liable to suffer from sunstroke than those who perspire freely, and they should, therefore, take special precautions.

There can be but little doubt that the entrance of hot air by the ear is very injurious. Anyone who has noticed the natives of the East when they are travelling, will have observed that it is a common custom for them to swathe the mouth and ears in many folds of cloth, as a protection against the hot wind, in the same way that the Russian attempts to exclude the cold. Acting on this principle many old residents in hot countries, when they are exposed to the scorching influence of the hot winds, that blow periodically, are in the habit

of protecting the ears with a handkerchief tied round the head, to prevent the entrance of hot air and particles of sand and dust into the interior of the ear. With a view of doing away with the inconvenience of thus bandaging the head, we have suggested the use of a form of ear protector, which may be attached to the goggles. This can be procured from Weiss and Son, who also have the sale of the "Ochiomba," a special form of goggle, in which the metal is reduced to a minimum.

#### AFFECTIONS OF THE HEAD.

SCALP.—Thorough cleanliness is very essential, as parasites abound in tropical climates. Everyone should possess a pair of good brushes, and use them frequently, as scurf is apt to accumulate very rapidly.

EAR.—In some countries, especially in those which are dry and sandy, a troublesome soreness or ulceration of the interior of the external ear is of common occurrence. Carefully washing every part of the organ, and protecting it from the wind loaded with particles of

sand and dust, will be found the chief safeguard against this affection. When sore places have already formed, a small piece of lint dipped in water to which a little Condy's fluid or a small quantity of carbolic acid (one in forty) has been added, with a piece of oil-silk outside it, should be applied. Ear-ache is a common affection, and has often been noticed as a prelude to a fit of *epistaxis*, or bleeding from the nose. A little sweet oil, or glycerine, warmed and dropped into the ear, or a plug of cotton wool soaked in spirit with a few drops of laudanum sprinkled on it, will often afford relief.

THE EYES.—The delicate mucous membrane which covers the under surface of the eye-lids, and is reflected in a much more delicate layer on to the front part of the eye-ball, is extremely sensitive, and often a very slight irritation will cause it to become red and inflamed. Associated with this state there is a burning, smarting sensation, and sometimes a certain amount of discharge. This condition is known as ophthalmia, and is brought about, in many instances, by the irritating influence of hot or

keen winds which often bring with them fine particles of dust or sand ; this, while occurring frequently in many parts of India, is more especially the case in Egypt, where the air is almost always impregnated with such fine particles. The glare produced by the sun often brings on an attack of this complaint, or it may be induced by the entrance of some foreign body into the eye.

*Treatment.*—(1) The *preventive* treatment consists in the use of goggles provided with glass of a bluish tint, and well closed in at the sides to exclude the dust or sand. Goggles, as ordinarily made with metal framework and gauze, frequently become too hot to be worn with comfort, so that they are often discarded, the glare or dust being considered a less evil than the heat thus concentrated about the eye. To meet this defect we have recommended the adoption of some material which shall be a *non-conductor* of heat, such as hardened corallite or celluloid, and the substitution of cotton gauze or crape for wire gauze. Besides this mechanical way of guarding against ophthalmia,

another means is that of frequently bathing the eyes, and it is well to get into the habit of opening the eyes widely in the water when washing, as this washes out foreign particles, and relieves the smarting of the eyes which may exist even when ophthalmia is not present.

(2.) The curative treatment consists mainly in the use of soothing or mild astringent lotions. Among these may be mentioned alum, eight grains to the ounce of water, or a solution of two grains of sulphate of zinc with twenty drops of laudanum to the ounce. In some cases a dilute solution (half to two grains) of the chloride of zinc will be found more useful. Dilute solutions of nitrate of silver (two grains to the ounce), sulphate of copper, or Goulard water (the latter very cooling) will all be found serviceable. When unable to obtain these we have found a lotion of spirits of wine or brandy, one part in thirty or forty, very useful. It is a very excellent plan for those who have weak eyes, or who are placed in countries where ophthalmia is prevalent, to wash out the eyes once every day with a weak spirit lotion.

It will often happen that at night-time the eye-lids will become stuck together by the discharge, giving rise to great discomfort during sleep, and sometimes great pain in opening them on waking. This may be prevented by smearing the free margins of the eye-lids, before going to sleep, with any simple ointment of a non-irritating character. After an attack of ophthalmia the membrane lining the inner surface of the eye-lids frequently remains thickened, and little irregular elevations are seen on its surface, and these, by pressing on the eye-ball, are a constant source of irritation, and may produce a most serious form of inflammation of the transparent parts of the eye. Everyone should possess a stick of a material known as "Lapis Divinis," a mixture of equal parts of nitre, alum, and sulphate of copper, which is readily procurable, and when this condition arises he should draw it across the inner surface of the eye-lid once or twice every day, till the mucous membrane has returned to its normal state. This treatment refers to the simpler forms of ophthalmia. There are other forms

which are very rapid in their course, and violent in their action, the treatment for which is very urgent, and ought not to be adopted without medical assistance. In all cases, however, the simpler remedies we have mentioned should be resorted to till such assistance is obtained, and if the case is one of the purulent kind, where the pain is great, the inflammation violent, and the discharge profuse, associated with swelling of the eye-lids, care should be taken, supposing only one eye is affected, to at once protect the sound eye, and this may be easily done by anyone who happens to possess a glass covering to his watch; the glass, which is in most cases, easily removed from the watch, is inserted into a piece of oil-silk, or waterproof material, outside which adhesive plaister is applied, this is placed over the sound eye, and the purulent material from the affected eye is prevented from entering it. When a watch-glass cannot be obtained, the sound eye must be protected by a pad and bandage, but this causes much discomfort.

*Mode of using Eye-Lotions.*—A small soft

brush or bit of sponge may be dipped into the fluid, and a little taken up and dropped into the inner corner of the eye; the eye-lids will close spasmodically, but the patient should try to open them slightly, so as to allow the lotion to pass between them and moisten every part of the eye. Or the lotion may be applied by means of an eye-glass; this is made so as to fit the margin of the orbit, and at the same time keep the eye-lids open. The glass is held firmly against the eye-lids, and the head is then thrown back, or from side to side, until every part of the eye has been washed by the solution.

THE NOSE.—Small ulcerations often occur just within the nostrils, due to the accumulation of dust or sand, which, becoming caked, when removed, leaves a sore place behind. We have found that the habit of throwing or drawing the water well up into the nostrils, during washing, is a great preventitive. When such soreness occurs, it may be treated by any one of the mild lotions mentioned above. *Epistaxis*, or bleeding from the nose often takes place, especially in people of full habit.



It generally ceases after a time, having done only good, and it should not, therefore, be too hastily checked. Head-ache and ear-ache, in many cases, precede such an attack, and when it is over it is generally found that they have passed off.

*Treatment.*—When it is desired to check the bleeding, this may be done by a solution of alum injected into the nose, or by alum stuffed up in powder. Cold should be applied to the back of the head and spine by means of water, or ice if procurable. Ipecacuhana given internally, sometimes in doses sufficient to produce vomiting, has been found serviceable.

**THE LIPS.**—A parched, dry state of the lips, and sometimes even chaps or fissures, are not uncommon. A little simple ointment, or glycerine, or a touch with nitrate of silver, or the alum and sulphate of copper stick, will be found the most appropriate treatment.

**TOOTH-ACHE.**—An attack is often brought on by some disturbance of the stomach or derangement of the digestion; a dose of some purgative medicine frequently sends it away. When it

is due to a decayed tooth, and a cavity exists, the air should be excluded from the tooth by stuffing it with a piece of lint teased out, or some absorbent cotton soaked in laudanum, spirits of camphor, or brandy. When swelling occurs it may be relieved by warm fomentations. A little quinine should be taken for a time after an attack. The teeth should be carefully inspected and attended to before starting on a journey to the tropics.

PEELING OF SKIN FROM SUNBURN.—The skin of the face and nose often becomes very painful from exposure to the scorching sun, and is apt to peel. The white of an egg, beaten up in about two ounces of milk, with the addition of three or four ounces of water, will be found of use. A lotion composed of two drachms of biborate of soda (*i.e.* borax), an ounce of rectified spirit, half a drachm of camphor, and eight ounces of water, will be a most useful application to the skin of the face and neck generally, and a cooling and pleasant wash for the scalp, especially in cases where there is much scurf.

## AFFECTIONS OF THE SKIN GENERALLY.

The skin is one of the most important organs of the human body. It acts as a physical protection to the deeper and more delicate structures, and, as its most superficial part is composed of cells, which are impervious and non-absorbent, it protects the organism from the entrance of many poisonous and noxious materials which we should, otherwise, be in constant danger of absorbing. In it are spread out delicate nerve terminals, and it is the seat of the special sense of touch. It is an organ of excretion as well as secretion, being beset with vast numbers of little glands which open in thousands on its surface. The blood supply of the skin is exceedingly plentiful, and it is one of the most important organs concerned in the regulation of the temperature of the body. Under the influence of warmth the little vessels of the skin dilate, and the blood flows freely through it, and its temperature is reduced; at the same time a greater or less amount of moisture is given off from the surface. When cold strikes

## DISEASES OF TROPICAL COUNTRIES.

the body the vessels contract, and less blood flows through the skin, so that the temperature of the body is not lowered. The special advantage of the skin, as a regulator, is that it is a self-regulator, less blood flowing through it when we require to be kept warm, and more when it is necessary that the temperature of the blood should be reduced. All this goes on, in many cases, without even our knowledge, and at all times without the exercise of our will. Under normal conditions, a certain amount of moisture is always being poured forth on the surface of the skin ; this is known by the term *insensible perspiration*, because it goes on unobserved, and its existence is little dreamt of by the ordinary individual ; its cessation, however, though it be but temporary, is a source of great discomfort, and results in the unpleasant condition known as a *dry skin*, which exists to a greater or less degree, in all febrile states. From this brief outline of its functions, the immense importance of keeping the skin in a healthy state will be apparent to even the most casual observer. Thorough

cleanliness, and carefully washing or sponging the surface of the skin are the chief means by which it may be kept in working order.

PRICKLY HEAT.—This is one of the most common skin affections met with in the tropics. It is a red, pimply rash, affecting the skin generally, but more especially those parts where the clothes come more closely in contact with the body, namely, the waist, neck, shoulder-blades, arm-pit, and in the fork between the thighs. It produces intense itching and smarting, and the patient often scratches himself violently until the soreness becomes so great that the least touch produces pain.

*Treatment.*—During the attack the diet should be light and stimulants avoided; the bowels should be relaxed and the kidneys made to act freely. A mixture of three drachms of acetate of potash, about half a drachm of sweet spirits of nitre, and eight ounces of water, or of decoction of broom, will answer this purpose. Alkaline baths, of from three to eight or ten grains of bicarbonate of soda, or a less amount of borax, to about

twenty or thirty gallons of water of a temperature of about 95°, a little fuller's earth dusted over the part, or a thin paste of whiting smeared over the surface of the skin, afford relief. The natives of India make use of the whey of curdled milk to allay the irritation. It is a practice with some people to use violet powder in these cases, but, as a rule, its use should be avoided.

**BURMESE RINGWORM.**—This is a form of *tenia circinata*; it begins as a small, scaly patch, which is, at the first, extremely itchy, but afterwards becomes very painful and smarts greatly. The patch gradually undergoes enlargement, the circumference being beset with small vesicles. It frequently occurs in contiguous parts, as in the fork between the thighs, and often spreads to a considerable distance.

*Treatment.*—In Burmah, “Goa powder” is used with good results; at first its application produces a good deal of smarting and local inflammation, but it in most cases eradicates the disease. Two drachms of carbolic acid, about half an ounce of glycerine, and four

ounces of water, or some tincture of iodine painted over the part, will be serviceable. We have seen the use of sulphur and vinegar followed by excellent results.

ECZEMA is an inflammation of the skin. The part affected at first itches a good deal, and after a little while a papular eruption makes its appearance; these papules, after lasting for a week or two, may gradually disappear, and the skin over them peel off or desquamate. In some cases the papules are vesicular (contain fluid) from the outset; after a time they burst and the inspissated discharge forms a scab. In other cases there is a free formation of pus.

*Treatment.*—When painful and inflamed, rest, water-dressing, or Goulard water. In the more chronic cases, zinc ointment or a lotion of two grains of sulphate of zinc to an ounce of water, may be used. Sponging the part with milk and white of egg beaten up will be of service. The diet must be light, and alcoholic drinks avoided. The condition of the bowels and kidneys must be attended to. The

*nails* are apt to become very brittle and break off ; they should be kept closely pared.

HERPES is an eruption of small vesicles clustered together. At first, a localised patch of redness is observed, and there is a stinging tingling sensation in the part ; a number of papules make their appearance over the red area ; after a short time these become vesicular, reaching their full size in about twenty-four hours. In two or three days they begin to dry up gradually, leaving a thin scab which drops off after a little while.

*Treatment.*—Simple ointment or cooling lotions together with saline medicines and tonics.

### THE FEET.

CORNS AND BUNIONS.—These sources of discomfort are as common to the tropics as to other climates, and a brief notice of them will be found useful in a work of this kind intended for the use of those whose duties render the condition of the feet a matter of the greatest importance.

*Treatment.*—Care must be taken to have boots that fit thoroughly well, as corns are



as often produced by a boot that is over loose as by one that is too tight. Soaking the feet in warm soap-and-water; water-dressing; rasping the surface of the corn, when a hard one, with any rough material, such as the *shark's-skin corn files*, which can now be so generally obtained; a piece of belladonna plaister, or some of Mather's corn plaisters; or touching the surface of the corn with acetic acid or iodine,—will all be found to afford relief.

SOFT CORNS, which are so much more painful, may be relieved by any of the above methods, with the exception of rasping; and, in addition, some of Lawton's absorbent cotton, with a little oxide of zinc or some fuller's earth dusted on it, placed between the toes, by absorbing the moisture and preventing the toes rubbing against each other, will afford comfort. Instead of this some absorbent cotton or lint soaked in sweet oil may be placed over the corn.

BUNION is caused by the undue pressure of the boot upon the prominent parts of the feet. To remove the cause the boots should be temporarily discarded for another pair.

*Treatment.*—Frequent warm fomentations until all inflammation has subsided. Apply iodine. In some cases both corns and bunions suppurate, and leave an ulcerated surface discharging more or less freely; in such a case the parts must be dressed with carbolic lotion, one in forty, or with a weak solution of Condy's fluid, or the ordinary water-dressing.

FISSURES or cracks of the skin between the toes often cause great pain or uneasiness. They should be treated by careful washing, carbolic-acid lotion, Condy, or water-dressing; and the fissured surface should be touched with the sulphate of copper and alum stick, or with nitrate of silver.

BLISTERS.—Well-fitting socks and boots are the best preventive. When they have formed, if small, puncture them and let out the fluid; if large, don't puncture, but protect them with a layer of absorbent cotton till the skin beneath has time to form. When they have been opened, or have burst of themselves, dress them with carbolic lotion or some simple ointment.

MOIST FEET.—In some cases the perspiration from the skin of the feet is excessive, and often causes intense discomfort by the very unpleasant odour it produces.

*Treatment.*—Sponge the feet with water acidulated with acetic acid or lime-juice. Belladonna liniment, applied two or three times a day, often reduces the perspiration to a minimum. Dr. Ringer suggests the use of lead in the form of emplastrum plumbi, with an equal part of linseed oil, to be spread on linen and wrapped round the feet; the application to be renewed every third day for nine days.

#### CRAMP.

This affection of the muscles of the lower extremities is often a source of great annoyance. It frequently comes on after great muscular exertion, and at other times is associated with a rheumatic or gouty state. When due to exertion, the application of cold or weak spirit lotion, followed by vigorous shampooing with a rough towel, affords relief. In the chronic rheumatic state, where the cramp comes on

especially at night, Dr. Ringer has found the administration of the tincture of actea in five-drop doses every hour, or in doses of fifteen to thirty drops three times a day, of great service in relieving the pain and procuring a quiet natural sleep. This tincture is made by macerating about four ounces of the bruised root of the *actæa racemosa* in a pint of proof spirit for about fourteen days and then straining.

#### BOILS.

On first entering the tropics few escape an attack of this troublesome complaint. Many people suffer from crops of boils which come out on almost any part of the body. They are especially liable to appear on the neck, or any part where the clothes may produce local irritation. General debility, an over-heated state of the blood, change of climate, and errors of diet, are among the chief predisposing causes. When a boil is in its early stage, the administration of a brisk purgative and the local application of cold, in the form of lead lotion, ice, or an evaporating lotion composed of one

or two drachms of hydrochlorate of ammonia, an ounce of rectified spirit, and six ounces of water, will often cause it to undergo "resolution" and disappear. If debility exists a simple tonic of two grains of sulphate of quinine and five drops of dilute sulphuric acid with a little syrup of orange to the ounce of water, of which two table-spoonfuls are to be taken twice or three times a day, will do much to restore tone to the system. Or, instead of taking it in this way, an excellent tonic may be made by dissolving twenty grains of quinine in as many drops of dilute sulphuric acid, and adding it to a bottle of port, sherry, or ginger wine. A wine-glass of this may be taken twice or three times a day. When the boil has become painful, it should be frequently bathed with water as hot as can be borne. Poultices are sometimes used, but they tend to the production of other boils. The application of a drachm or two of the extract of belladonna to an ounce of glycerine, at this time will relieve the pain and tension. If matter forms, and the skin over the boil becomes thin, and it

points in a definite direction, much pain and trouble will be spared by opening it freely, always at the most dependent or lowest part so as to allow of free drainage. The application of a little resin ointment, or carbolic-acid lotion, will soon cause it to heal. Small doses of sulphide of calcium given very frequently often prevent the formation of other boils, and hasten the subsidence of those already present.

*Blind* boils are of very common occurrence in hot countries, and we have found the blind boil of Egypt a most painful and troublesome affection; indeed, we had ourselves a most painful crop of them when on special staff duty in the commissariat department in that country in 1868 during the Abyssinian expedition. If these blind boils be painted over with nitrate of silver, collodion, or strong carbolic acid, their further progress will, in most cases, be checked. The practice of pricking and squeezing these boils, which so many adopt, only does harm and ought to be avoided.

WHITLOW arises in many cases from a punctured or poisoned wound, in others it is the result of general weakness and debility. This affection is very common in Burmah. It appears as a deep-seated swelling about the middle of the finger.

There are three varieties which, mentioned in the order of least importance, are as follows:—

1. That placed immediately beneath the superficial layer of the skin. This is a simple form, and a poultice with slight incision into the skin, and the application of a little simple dressing, will produce a speedy cure.

2. In the second form the whitlow is beneath the skin; this produces much more pain, and requires poulticing and an early free incision down the middle of the finger on its palmar aspect.

3. The pus permeates the sheath of the tendons which move the finger, and may produce death of a part of the bone. This is the most serious form, and is attended with intense throbbing pain, and the patient

cannot obtain sleep. Poulticing and early free incision down to the bone must be resorted to. The pain of this or any other minor operation on the skin, or structures beneath it, may be much relieved by the application to the part to be incised of an 85 per cent. solution of carbolic acid.

The internal treatment in all these cases consists in the use of tonics, care also being taken that the bowels act regularly. The hand should be kept in a sling, or bandaged across the chest to the opposite shoulder.

#### AFFECTIONS OF MOUTH AND THROAT.

**SORE THROAT.**—This condition when of a temporary nature may be relieved by the adoption of very simple measures. Mild gargles of salt-and-water, alum, spirits of wine in the proportion of one part of the spirit to four or five of water, or port wine, very frequently used, or a cold compress to the neck, will in most cases prove effectual. Many people, however, suffer from a relaxed state of the throat; in such cases, the most trivial changes



of temperature, or even the slightest amount of exposure, may bring on an attack of acute sore throat associated with increased congestion of the parts, and much discomfort in swallowing; after a time the attack passes, leaving the throat in the same relaxed and more or less painful state it was before. These cases require something more than the simple applications we have mentioned above. A gargle of chlorate of potash in the proportion of two drachms with an ounce of honey to about eight ounces of water, combined with the internal use of a mixture composed of half a drachm of dilute sulphuric acid, one drachm of chlorate of potash, a drachm of spirits of chloroform, and six ounces of decoction of cinchona, of which two table-spoonfuls must be taken twice a day, will do good in this form of sore throat. Or, instead of this, you may use a gargle of one drachm of the tincture of capsicum to about half a pint of water; or tannin of the strength of one drachm, or two drachms of the tincture of the perchloride of iron, to an ounce of glycerine may be painted on with a camel's

hair brush. Acute inflammation of the tonsils is generally known by the sudden manifestation of great pain, the rapid rise of temperature, enlargement of the tonsils, and the sudden loss of voice. Constant gargling with warm milk, the application of warm fomentations externally round the neck (a piece of *spongiopiline* dipped in hot water may be used for this purpose), the administration of a saline purge, or the use of small doses of calomel or grey powder, and a Dover's powder, given at night-time, are the measures which will afford the most speedy relief. When the acute attack has subsided, any of the applications noted above may be used. After an attack of this kind a tonic should be given. In relaxed throat, one of Cooper's chlorate of potash or eucalyptus effervescing lozenges, placed in the mouth from time to time and allowed to dissolve slowly, will be found most beneficial.

#### DIARRHŒA.

This complaint, so common to the tropics, is brought on by the introduction into the ali-

mentary canal of irritating materials, such as unripe or over-ripe fruit, insufficiently cooked vegetables, or impure water. Or an attack may be induced by intemperate habits, or sudden changes of temperature. It is undoubtedly due to malaria in many instances, while in others it is the precursor of more serious diseases, as dysentery, cholera, or typhoid fever.

*Treatment.*—Simple diarrhœa may, in many instances, be cured by a change of diet, and, in cases where it is due to the consumption of injurious substances, a mild purge of one or two table-spoonfuls of castor-oil, with fifteen or twenty drops of laudanum, should be given. The patient ought to rest as much as possible, and his body, especially the stomach, should be kept warm, and the feet dry. The adoption of a milk diet, the milk being diluted with one-third of lime-water, will be found most beneficial. Farinaceous foods are useful in some cases, but there are many they do not suit. Beef-tea, Liebig's extract, or chicken-broth, will help to keep up the patient's strength. We have noticed several instances in which the use of

beef-tea, and such-like things, distinctly increased the amount of diarrhœa; in these cases the patient always derived more benefit from a milk diet, or, when that could not be adopted, from the use of more solid food, given frequently, but in very small quantities. When there is much griping, five-grain doses of Dover's powder will relieve it. In cases which are of malarial origin quinine and acid should be given internally. We have found the use of a solution, obtained by boiling the husk of the green cocoa-nut for about half-an-hour in water, and then straining, act most beneficially in checking obstinate diarrhœa; a wineglassful must be taken two or three times a day. The boiled milk of the cocoa-nut also has the same effect. Dr. Horton recommends the use of the following mixture. Three drachms of the tincture of catechu, six drachms of spirits of chloroform, twelve ounces of the liquid extract of bael-fruit, and six ounces of infusion of matico. Two table-spoonfuls to be taken three or four times a day. Chlorodyne is an invaluable remedy in these cases. In all cases where

cholera is about, diarrhœa must be checked at once. Many men who first enter the tropics do not recognise the importance of this affection, and, relying on the strength of their constitutions, neglect it, and in the end they are, in most cases, permanently incapacitated, and have to return home.

#### DYSENTERY.

In some instances an attack of dysentery begins with shivering and slight rise of temperature; but, in most cases, it begins with diarrhœa, from which it may be known by the difficulty with which the bowels act, and the passage of mucus and blood.

*Treatment.*—Rest in the recumbent posture, hot fomentations over the abdomen, twenty to thirty grains of ipecacuhana given at once. After four hours the dose may be repeated, especially if the first dose was rapidly vomited; ten or fifteen grains of Dover's powder may be given at night-time. The diet should consist of milk and broth, but not too much of either at first. When possible, medical aid should at once be obtained.

## CHOLERA.

It is impossible to say with any certainty how long the incubation stage of cholera lasts, but it varies, probably, from a few hours to three or four days. As variable as the incubation period are the symptoms which usher in the attack. In very many instances a general feeling of *malaise*, associated with lowness of spirits, noises in the ears, and a relaxed state of the bowels resembling ordinary diarrhœa precedes the onset of the disease. The first distinctive feature in the attack is the sudden passage of an abundant loose stool, followed speedily by an almost continuous flow of fluid which is, at first, stained with the bile, but afterwards becomes clear and colourless, and is without fœcal appearance or smell; after a short period vomiting sets in; the patient now becomes attacked with severe cramps, which affect the muscles of the abdominal wall, as also those of the upper and lower extremities, causing the most intense pain, and he soon falls into a state of extreme collapse. There is a

rapid fall of temperature, the body becomes cold and clammy, the pulse rapid and scarcely perceptible, the respirations rapid and shallow, and there is a total suppression of the urinary and biliary secretions. Death occurs usually in this stage, but a reactive stage sometimes sets in, which results either in the recovery of the patient, or in death from engorgement of the lungs, consolidation, or many other causes.

*Treatment.*—Precautionary measures are of the first importance. Be careful to boil and filter all water, and, if possible, do not obtain it from any place where it is liable to be contaminated with fœcal matter. Thorough cleanliness of person and surroundings is an essential. In times when cholera is present, immediately disinfect all evacuations and contaminated articles with Condy's fluid, or carbolic acid. Check, at once, any attack of diarrhœa that may arise, avoid the frequent use of purgative medicines, especially salines; frequent as little as possible the crowded parts of native towns, take a cup of hot coffee before going out in the morning, well air the bed-clothing every

day, and take care that changes of such clothing are thoroughly dry before use. Be very careful in your diet, and do not allow yourself to take large quantities of alcohol, as so many do, thinking thus to ward it off. Always use a cholera belt and a light blanket at night. We were once acquainted with an old Indian colonel who used to say to those going to India "keep your head cool and your belly warm," and this advice, the outcome of his experience, was most excellent. Above all, in times of cholera, do not give way to panic. Adopt in your own person and surroundings the suggestions put forth for your guidance by the medical authorities, which are generally admirable, and you may fairly calculate upon witnessing an epidemic of cholera with absolute confidence as to its result as regards yourself.

When the diarrhœa appears to be coming on, give from fifteen to thirty drops of chlorodyne, and this may be repeated in three or four hours. Keep the patient in the horizontal posture, apply hot flannels or mustard poultices to the abdomen; let the patient suck ice or iced



water, or brandy or champagne ; rubbing the limbs will relieve cramp. The patient's courage should be kept up, and medical assistance obtained as soon as possible. When the reactionary stage sets in, the patient must be kept cool, the diarrhœa and vomiting checked, and the diet should be non-stimulating, light, and nutritious. This brief outline of diarrhœa, dysentery, and cholera is all that can be attempted in a work of this kind. For further information the reader is referred to the many excellent books which exist on this subject.

#### CONSTIPATION.

Turning from the discussion of some of the most serious diseases which affect the traveller in the tropics, we must now allude to the abnormal state known as constipation, which might seem, to those who do not give it sufficient thought, a very trivial matter. It is not, however, the serious diseases, which by their violence and fatality command attention, men are apt to neglect, but it is the slight affections and trivial complaints met with in our

daily round that receive such wholly insufficient notice; and yet these are often the abiding source of irritation, discomfort, and annoyance, in some instances rendering the body increasingly susceptible to many of the more dangerous maladies, and in others laying the foundation of many very formidable chronic complaints. While strongly discountenancing the practice so many have, especially in the tropics, of constantly taking purgative medicines with the idea of cooling the blood, we seriously advise everyone to adopt the many simple means he has at his command to keep the bowels in a healthy state and ensure their constant and regular action.

*Treatment.*—One of the chief means of correcting constipation is the acquirement of a regular habit. It matters little at what hour of the day the action of the bowels may take place, but everyone should try and get into regular habits in this respect. Many people take too little fluid, and a glass of water taken the first thing in the morning will often have a marked effect. In the tropics, however, this

practice is open to some objection; but the cup of tea or coffee, which we have suggested should be taken before going out in the morning, will have the same result. Oatmeal porridge or brown bread are very useful. One or two dried figs steeped in sweet oil overnight, and taken the first thing in the morning, have been found by us to be a most excellent remedy. Fruit generally, is very serviceable; but the precautions with regard to its use, which we have mentioned above, must not be lost sight of. Prunes or French plums, when obtainable, soaked in water for a few hours and then stewed with a little sugar, form a most excellent laxative. Enemata of warm water, or warm soap and water, used as directed above, may be resorted to in more chronic cases, but if they are used frequently the coats of the bowels are weakened, and their use cannot then be dispensed with. Kneading the abdomen with the hands is sometimes very useful. In spite of the adoption of these means, it will, of course, often be necessary to resort to the use of some mild

purgative medicine. Granulated sulphate of magnesia, a small dose of castor oil, a little Epsom salts, sucking one of Cooper's effervescent aperient lozenges, a grain of ipecacuhana taken fasting every day, one or two drops of the tincture of nux vomica in water two or three times a day, the use of Cockle's pills, or the ordinary rhubarb or colocynth pills—any of these will generally be found to produce the desired effect.

#### HÆMORRHOIDS OR PILES.

These depend upon congestion of the mucous membrane of the lower bowel, and a varicose or twisted condition of the veins, which results in the formation of little tumours filled with congealed blood. There are two kinds of piles, the *external* which are placed immediately outside, and the *internal* placed within the lower bowel. These latter are often composed of small arteries, as well as veins, and are liable to be the source of much bleeding when the bowels act. Piles are in many instances produced by constipa-

tion, and in others by an engorged state of the liver. Attention to the regular action of the bowels, and to the condition of the liver, are the chief preventive means we have. The symptoms are generally those of irritation about the part, straining, and often the passage of blood, and pain in the lower part of the back. Sometimes the pile becomes congested and swollen, when the pain is very intense. When piles have once made their appearance, the treatment consists in paying great attention to the action of the bowels; and their regular action may be ensured by the adoption of any of the simple medicines mentioned in speaking of constipation; or the use of equal parts of confection of senna and confection of sulphur, a teaspoonful or two to be taken the first thing every morning, will be found most useful as a gentle laxative. The local applications consist of alum lotion, bromide of potash (one part to five of glycerine), calomel ointment, or, in the more painful cases where the piles are swollen and congested, the ointment of galls and opium

will afford great relief. In cases where the piles appear to be attended with a general congested state of the liver, three or five grains of calomel with a grain of opium should be given, followed by a saline purgative the next day. In all cases medical aid should be obtained as soon as possible.

#### FLATULENCE.

This condition, which often produces much inconvenience, may be relieved by a brisk calomel purge, or by an emetic of warm water or ipecacuhana, followed by a purge. A little sal volatile, or five-drop doses of dilute sulphuric acid in water, or Carlsbad water when it can be obtained, are remedies which will be of service. The amount of sugar and starchy food, as potatoes, bread, rice, &c., also tea, should be curtailed.

#### HEARTBURN AND ACIDITY.

These may both be much relieved by the use of dilute nitric or hydrochloric acids in five-drop doses in water, taken before or after meals.

## THE LIVER, SPLEEN, AND KIDNEYS.

These organs are all liable to many serious affections which it is impossible to discuss in a work of this description. In many cases, however, there may be some slight derangement of the liver, attended with a feeling of uneasiness over the right side, a dull aching or, sometimes, even an acute pain between the shoulder blades, distension of the stomach and bowels, a general feeling of nausea, together with loss of appetite, drowsiness, and disinclination to undertake active bodily or mental work. The tongue also may be foul, the face sallow, the eyes slightly tinged with bile, and headache may be present. In such cases a calomel purge, followed by salines and a sparing diet, will be found beneficial. When these attacks are of frequent occurrence, much good will be derived by the use of the following pill:—A quarter of a grain of podophyllum, two grains of extract of taraxacum, and a quarter of a grain of extract of hyoscyamus. When one

of these attacks comes on, two of these pills should be taken at night, followed, in the morning, by a dose of granulated sulphate of magnesia or some Lamplough's pyretic saline. If the symptoms still continue, one of these pills may be taken every other night for a week or two.

GIDDINESS is often one of the symptoms in a bilious attack such as we have just been describing, or it may be due to some simple disturbance of the digestive organs. An over-distended state of the stomach, flatulence, and indigestion may often produce palpitations and shortness of breath. Any of the simple means we have more than once alluded to for the relief of a disordered state of the stomach will prove effectual when these complaints are due to such causes. In these remarks on the disorders of the digestive tract, we have had in some instances to inculcate a very sparing diet, and in others an almost total temporary abstinence from food. The reason of this will be very apparent, if we call to mind how delicate are the digestive organs. When an individual



receives a wound, or any injury to his limbs, it does not take him long to discover that, if he would restore the member to its normal state, he must keep it at rest. The work the limbs have to perform is mechanical work, and when they have sustained any serious injury they require mechanical rest. The organs of digestion have to execute highly complex physiological work, upon which the health, nay, the very existence of the organism, depends, and when they become temporarily disordered and incapacitated, it is only right to suppose that they will be benefited by physiological rest, and this may be obtained by curtailing the amount and modifying the nature of the food we take.

#### FEVER.

It is almost impossible to pay a visit of even limited duration to many parts of the tropics without experiencing in our persons, or witnessing in that of others, one or other of the varieties of fever which are so common to these countries. It has fallen to our lot to

observe in the Melanesian islands some very severe types of this disease. The three chief varieties of fever are—(1) simple fever, (2) intermittent fever, and (3) remittent fever.

(1) SIMPLE FEVER.—This usually comes on with head-ache, muscular pains, general loss of appetite, and a feeling of weakness and *malaise*. The causes which produce it are probably very simple: changes of temperature, the effect of a hot climate on a constitution not accustomed to it, or it may be malaria, being among the conditions which bring it about.

*Treatment.*—If possible, stay at home; let your diet be light, take plenty of cooling drinks; ten grains of Dover's powder during the hot stage, a little quinine afterwards, and sometimes a mild purge, will probably be all that is required.

(2) INTERMITTENT FEVER.—This form of fever is due to malaria. It is impossible for us to enter into any discussion here as to the nature of malaria. It will suffice to say that a soil saturated with moisture, heat, decaying vegetable matter, and certain physical pecu-

liarities of country, are the conditions which seem to favour the development of the malarial influence, whatever the true nature of that influence may be. An attack of intermittent fever is usually preceded by a general feeling of lassitude, and the subject of the attack may have expressed himself as having been generally "out of sorts" for two or three days. Suddenly a sensation of chilliness comes over him, and he complains of weariness, headache and muscular pains; presently the patient begins to shiver—the shivering sensation starts in the back and is communicated to the rest of the body; the fits of shivering now give place to distinct rigors, the teeth chatter violently, and there are convulsive tremblings of the whole body. During this stage, which is known as the "cold stage," the temperature rises rapidly. After a period, the length of which is liable to great variations, the sense of chilliness lessens, there is diminished force and frequency of the rigors, and the patient begins to feel warm; this relief is, however, only temporary, for he has to pass through

another series of trying symptoms; the feeling of heat is now intense, the skin becomes hot and dry, the respirations rapid, and the thirst almost intolerable. This, which is known as the "hot stage," may last from one to eight or ten hours. At last the sense of heat gradually lessens, and the skin becomes bathed in a profuse perspiration; this is known as the "sweating stage." This fever is properly called "intermittent," as it comes on in paroxysms, the periodicity of which is remarkable. The length of the intervals between the paroxysms has led to the division of intermittent fever into several forms; when twenty-four hours interval exists it is called "*quotidian ague*"; when forty-eight hours, "*tertian ague*"; and when the paroxysms take place every third day, "*quartan ague*."

(3) REMITTENT FEVER.—In this fever the paroxysms occur, sometimes, twice a day; but during the intervals there is no marked fall of temperature, and when the paroxysms come on there is a further elevation of the already existing high temperature.

*Treatment.*—During the cold stage the patient will obtain much relief from the application of warmth applied by warm bottles to the feet, or even by the use of a hot bath. During the hot stage cooling drinks may be given and a dose of Dover's powder. After the hot stage has passed, quinine, in doses of five to ten grains, should be given every four hours; when the full effect of the drug, as indicated by deafness and noise in the ears, is observed, the frequency of the doses may be lessened; but, as a rule, it is well to take a dose a short time before a paroxysm is expected, as it may prevent it altogether. The preventive measures against ague are these:—All drinking water must be boiled; always sleep off the ground; when practicable, avoid going out at night-time or in the extremely early morning; during the time you are in a specially malarious district, small doses of quinine may be taken every day with advantage. The efficient draining of malarious districts, and clearing away some of the dense underwood and vegetation, is probably the only real safe-

guard against ague, and the numerous other complaints due to malaria.

#### AFFECTIONS OF THE LUNGS, RHEUMATISM, ETC.

When, after exposure to cold or wet, muscular pains come on, associated with chills, rigors, and a high temperature; when the skin becomes hot and dry, the tongue foul, the bowels constipated, the urine scanty and high coloured, and the stomach disordered; or when difficulty of breathing is experienced, with acute pains over the region of the lungs, and these symptoms do not yield to any of the simple means of treatment we have recommended above, you should adopt a sparing diet, guard yourself carefully against cold, and take immediate steps to get within reach of medical aid as speedily as possible.

#### GENERAL DEBILITY.

From prolonged exertion in a climate which is naturally enervating, or it may be simply from the climatic influence itself, a man often falls into a state of weakness and languor

which, if it does not absolutely incapacitate him, certainly makes him disinclined for active work, and renders his life more or less a burden to him. This feeling of lassitude is more especially felt in the morning; when he has plunged into the work of the day it passes off, or at least is not so much noticed, but it returns again in a greater degree each succeeding day; still, he cannot afford to rest, there are duties which must be undertaken, however ill he may feel, the non-performance of which might be attended with even serious disaster. Such a man feels the want of something more than the ordinary tonic, something which, if taken early, shall give him an appetite for his morning meal and a general "fillip" for the day. We have seen several instances in which this debility has existed in a remarkable degree, and, in these cases, the use of "Burrough's beef and iron wine" was followed by the most marked effect. This preparation contains beef-juice and citrate of iron in solution in wine, and is a powerful and rapidly acting tonic. A tablespoonful should be taken in

water in the morning, or between meals. As a general tonic in these cases, the simple quinine mixture we have recommended above, or the following mixture, will be found suitable:—Two drachms of citrate of iron and quinine, three drachms of tincture of nux vomica, half an ounce of spirits of chloroform, and eight ounces of infusion of calumba or water; a tablespoonful should be taken three times a day. Many cases of general debility are rendered worse, or in some cases set up by, derangement of the digestive organs, or errors in diet, and everyone should pay attention to these particulars.

#### ORCHITIS, OR INFLAMMATION OF THE TESTIS.

This condition may be brought about by a blow, or, in some instances, from over-exertion in the saddle. As people in hot climates are very liable to this affection, a few remarks on the subject will be serviceable. There is acute pain in the testis, it becomes congested, swollen, hard, and tense; the pain extends up into the groin, backwards into the lower part



of the spinal region, and then downwards into the thighs. There is in most cases a rise of temperature and a feeling of nausea; sometimes violent vomiting takes place. The tongue is foul, the skin dry, and the urine scanty.

*Treatment.*—Rest in bed, warm fomentations to the affected part, a dose of Dover's powder, and a saline purgative will probably be all that is required. The affected organs must be supported by a pillow, or a very good plan is to place a piece of cardboard with an elliptical piece cut out, across the thighs so as to afford support. The object of cutting a piece out of the cardboard is to allow it to fit well up underneath the scrotum. In severe cases, where the pain is intense and the tension great, half-a-dozen leeches applied over the affected organ will afford marvellous and instantaneous relief. It is well for everyone in tropical climates who has much riding to do to wear a suspender.

#### SNAKE-BITE.

The symptoms brought on by a bite from a

poisonous snake will vary with the amount of poison introduced into the system. The general symptoms produced are those of profound nervous prostration, there is a feeble and intermittent pulse, vomiting, great rapidity of respiration, the speech becomes indistinct, the pupils dilate; finally, the patient becomes unconscious, convulsions come on, and death soon takes place; the part bitten becomes swollen and livid, and diffuse inflammation of the surrounding tissues sets in.

*Treatment.*—Supposing that a limb has been bitten, at once place a cord round it a few inches above the wound, and, passing a stick between the limb and the cord, twist it round several times, till the utmost degree of tension is produced. Two or three other ligatures should be applied above the first, a few inches intervening between each. The wound must now be freely incised, and every part of it touched with a hot iron, or some strong carbolic or nitric acid may be applied, give fifteen drops of liquor ammoniæ in water, and continue the administration every quarter of

an hour for two or three hours, or equal parts of hot brandy-and-water or any other spirit may be given. If no symptoms appear in half-half-an-hour, relax the ligatures; if symptoms have appeared the ligature must be kept in position until the patient has recovered, or until there is no danger of the poison spreading from the affected part. The practice of making a man walk about with the view of rousing him should not be followed. When the wound is not on a part of the body that can be ligatured, it must be incised, and a part of the skin and subcutaneous tissue taken away all round, and the hot iron or acid applied as in the former case (Fayrer). In Australia, Professor Halford has found great benefit result from the injection into the viens of twenty to thirty drops of the strong liquor ammoniæ diluted with three or four times its bulk of water, and, in that country, many lives seem to have been saved by the adoption of this treatment. We have the great authority of Sir Joseph Fayrer for stating that this treatment is of no avail in India.

## MOSQUITOES.

The application to the skin of a weak solution of ammonia is very useful in bites from mosquitoes ; Goulard water will also be found very soothing. The best preventive means is always to use mosquito-curtains. An apartment may be cleared of mosquitoes by closing the windows and doors and discharging a small quantity of powder, the concussion kills them, and they will be seen lying about in hundreds, or they may be got rid of by fumigation, for which Keating's insect powder will be found very useful.

## MOTHS.

Moths are often a source of great trouble in hot countries ; a lump of camphor should be taken in your portmanteau with a view of keeping them off.

## WOUNDS.

All wounds should be washed out with a solution of carbolic acid (1 in 20), and then brought firmly together by means of silk sutures, or sticking plaster.

BLEEDING FROM A WOUND.—When the wound

is severe, the bleeding which takes place will require special treatment. First ascertain if the bleeding is from an artery or a vein. If from an artery the blood will be of a scarlet hue, and will come out in jets. Pressure above the wound, that is, between the heart and the wound, will stop the flow of blood, and, on removing the pressure, it will at once recur. If the bleeding is from a vein, the blood is of a purple colour, and pressure below the wound, that is between the wound and the extremity, will stop it. Bleeding from a vein only requires a little pressure, by means of a pad and bandage; but that from an artery, especially if the artery is of any size, will require the application of direct pressure to the artery above the wound. This may be applied by means of a tourniquet, or, when there is no tourniquet at hand, a twisted handkerchief must be tied round the limb, and a stick placed between the limb and the handkerchief, and twisted till the vessels are thoroughly compressed, and the bleeding ceases. In cases where the position of the artery is known to

the person applying the pressure, more direct pressure of the artery may be obtained by placing a stone or some other resistant material inside the handkerchief, and then, taking care that it coincides with the position of the artery, tighten the handkerchief in the manner just described. When the bleeding is slight it may generally be checked by stuffing the wound with lint or shreads of linen, and applying firm pressure by means of pad and bandage over all. The chief local applications for checking bleeding are cold, perchloride of iron, a solution of chloride of zinc (40 grains to the ounce), a solution of sulphate of copper, matico leaves, and the hot iron. In some parts of the tropics wounds are very difficult to heal, and this is especially the case in Egypt. Small particles of sand or dust get into the wound, and set up a considerable amount of irritation. The practice of washing out all wounds with carbolic lotion, and carefully closing them, will, to a great extent, prevent the entrance of such foreign particles.

BRUISES AND SPRAINS are, as a rule, best treated by the application of some spirit lotion,

or by a cold-water bandage. In some cases, however, the knee-joint may from a sprain or blow become swollen and inflamed. This condition must on no account be neglected. Very simple means will, as a rule, produce a cure, whilst if the case is neglected a state of chronic inflammation of the joint is liable to result, serious degenerative changes may take place, and the utility of the limb may be permanently impaired. When, from any cause, the knee-joint becomes painful, inflamed, and distended, the joint itself and the muscles which act on it should be set at rest by the application of what is technically called a "back splint," which may be made from a piece of board, covered with a good pad made of any soft material, and sufficiently long to extend from the upper part of the back of the thigh to within six inches of the ankle-joint. The splint may be kept in position by means of a long strip of plaister passed firmly round the limb at either end. The first factor in the treatment has now been adopted, and the inflamed part has been set at rest. The further treatment con-

sists in the application of cold, which may be applied directly, or by the irrigation method (described in discussing the treatment of sun-stroke), or, instead of cold water, lead lotions, or the evaporating lotion already described, may be applied. Attention must be paid to the state of the patient's bowels, and to his general health. Under this treatment the inflammation will probably subside; the joint may still be slightly enlarged, but the application of a little iodine will cause this to disappear. The splint may now be taken off, but the limb should still be kept bandaged for a time, until it feels perfectly strong; if any stiffness exists, the knee should be well rubbed two or three times a day with soap liniment, or a weak ammonia liniment. The treatment we have here indicated will, of course, apply to any joint which is acutely inflamed.

#### REMARKS ON A FEW OF THE COMMON REMEDIAL AGENTS.

BATHING.—We have already spoken of the necessity of thorough cleanliness so as to keep



the skin in a healthy state. Bathing in cold water in the morning is generally very invigorating; but you must be guided by its effects. If the cold bath produces a pleasant glow you may conclude that it agrees with you. If you feel chilly after its use you had better use a tepid one. Avoid too much bathing, and never bathe after a heavy meal. The hot bath will be found useful in feverish states of the system, but it should not be adopted generally. When the skin is irritable, an alkaline bath, such as we have suggested in speaking of prickly heat, will afford much comfort.

**DISINFECTANT FLUID.**—About eight grains of permanganate of potash dissolved in an ounce of water will make a preparation similar to Condy's fluid, and it may be used, when diluted, for the same purposes. It is much more convenient to carry the crystals than to carry the bottles containing disinfectant solutions.

**CARBOLIC ACID.**—A well-stoppered bottle of the crystals should always be taken. The crystals will liquefy when the temperature rises

to 40° Fah. A small quantity will last a long time, as you only require to use it diluted in the proportion of 1 in 20 or 40 parts of water.

**WATER-DRESSING.**—When this is applied a piece of oiled silk should be placed over the lint, and care must be taken that it extends beyond the lint all round, or it will very soon become dry.

**IODINE.**—Tincture of iodine will be found of great use in many simple complaints. When you wish to obtain the action of iodine for some time on any part, say on a joint such as the knee, you should paint one side of the joint only, the second application should be on the other side of the knee, the third above and the fourth below it; and by that time you will be able to come to where you started, and go round again if desired. In this way the prolonged action of iodine may be secured without any chance of producing blistering.

**LINT.**—When lint is used for application to a wound, the smooth, and not the fluffy side should be placed next the raw surface.

In addition to the things we have already mentioned, the following simple remedies will

be found useful, and will not take up much room. Some "Cockles pills," one or two bottles of Collis Browne's chlorodyne, a stick of "Lapis Divinis," one or two bandages, some good sticking-plaister, a small quantity of lint, some of Lawton's absorbent cotton, and a strip of "spongiopiline." Small chests containing a few medical necessaries can readily be procured from any chemist.

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## CHAPTER III.

## GENERAL REMARKS ON DIET.

IN the preceding pages we have frequently had occasion to refer to the important part diet plays in the maintenance of the health of the individual. As a general rule, people pay but little attention to what they take as meat and drink. In the tropics, however, the question of diet is a very serious one. In these countries errors in this particular may be followed, not only with temporary inconvenience and discomfort, but by permanent injurious results. The importance of this fact has become so generally recognised that there are now many valuable books which discuss every aspect, and enter into every detail of this com-

prehensive and intricate subject. Such being the case, it will only be necessary for us to put forward very briefly those suggestions which our own tropical experience may have led us to regard as interesting and important.

1. As regards what a man should take to drink. All authorities are now pretty well agreed that the less anyone who may be called upon to visit tropical countries takes in the way of alcohol, the better it will be for him. Apart from the fact that alcohol in any considerable quantity is prejudicial to even the healthy body, it must be remembered that we have to resort to its use during many critical periods of disease, and the benefit derived from its administration on these occasions will depend, in no small degree, upon the amount we were accustomed to take when in a state of health. Few, however, will be found who will altogether dispense with the use of alcohol, and, indeed, there seem to be very many people who derive a certain amount of benefit from partaking of a moderate quantity in the course of the twenty-four

hours. Assuming, then, that by far the greater number of people will prefer to take a moderate amount of alcohol, the question arises as to the form in which it should be taken. There can be but little doubt that good claret taken with water is the least injurious; next to this, *light* wines, especially the Australian light wines, are the best; then there is beer, and lastly spirits. Of all the forms of alcohol which can be taken in a hot climate spirits are the most injurious. Tea and coffee may be partaken of in moderate quantities; the former especially should be taken sparingly, as it has a tendency to produce flatulency. Chocolate will be found by many to be a very nutritious and pleasant beverage. The addition of a little carbonate of soda to a tumblerful of lime juice and water will make a pleasant effervescing drink. Cold tea and lime juice is very refreshing. The pulp of two tamarinds beaten up in a pint of water, and strained, makes a good drink. Sherbet is pleasant and harmless. Ice, when procurable, may be used largely.

We now come to the important question of water. All waters used for drinking purposes must, if possible, be boiled and filtered, but never drink it without filtering it. You should take care that it is not obtained from any place where it may have been contaminated with decaying animal and vegetable matter. Boiling it, however, is the greatest safeguard. As regards the question of thirst, a little water taken frequently, on the march, or when exposed to the influence of a hot sun, is better than taking large quantities at a time. While on this point, we would draw attention to the fact that it is not the rapid introduction of fluid into the stomach which allays thirst, so much as the gradual passage of moisture over the back of the throat. It is a cardinal point to remember this fact, that *the more slowly the fluid passes down the throat the greater will be the relief experienced.* We have ourselves experienced the truth of this statement; when almost deprived of water for several days, we easily made a cocoa-nut gourd full of water suffice us for the whole day. From time to

time a little of this precious fluid was allowed to pour slowly into the mouth, and we did not allow it to pass down into the stomach until the whole of the back of the throat had been well moistened. If this means of taking fluid be adopted, a very small quantity will suffice to relieve the sense of thirst and dryness about the throat which is otherwise so terrible. We confidently recommend "Cooper's effervescing thirst lozenges" as a great palliative of thirst. These lozenges are about the size of an ordinary acidulated drop; when placed upon the tongue an effervescence immediately commences, such as would be produced by dry sherbet, and, indeed, the flavour of the lozenge is most agreeable and very similar to sherbet itself. When the mouth is very dry, and no fluid can be procured, some people experience relief from slowly chewing a piece of dry biscuit. Before bringing these remarks to a close, we must give a word of warning about the milk of the green cocoa-nut. Many people on first entering the tropics take large quantities of this milk, but it is not a wise



thing to do. It often disturbs the stomach and bowels, and should only be partaken of sparingly.

TOBACCO.—We advise the use but not the abuse of this article.

### FOOD.

MEAT.—In hot countries meat, as a rule, is not tender, as it has to be cooked so soon after it is killed. Mutton, when it can be obtained, is much to be preferred to beef, being much more tender. Pork should be avoided unless home-fed.

FISH is very wholesome when fresh, but it should be carefully inspected before use, as the natives have a way of concealing its staleness by the grease in which they cook it. If stale, it is very injurious. All shell-fish should be avoided.

FOWLS and ducks, especially the former, can generally be obtained, and are very wholesome.

VEGETABLES, when they can be obtained, are very desirable as an article of diet. Care

must be taken that they are thoroughly well cooked. In addition to the vegetables common to the tropics, such as yams, sweet potatoes, bread-fruit, &c., the natives of these countries bring into daily use many vegetable products, such as the shoots of the young bamboo, and the mango and plantain when in the green state, which a European would not think of utilising as vegetables. Many European vegetables are to be met with in different tropical countries.

MILK is generally difficult to obtain; the natives, to prevent its turning sour, are in the habit of boiling it, and, owing to the way in which this is done, it is generally rendered smoky and distasteful. By adding fifteen grains of bicarbonate of soda to a quart of milk, you may delay its turning sour for some time. The natives of many tropical climates are in the habit of curdling the milk by adding some acid substance. They partake of it in this form, finding it most refreshing and nutritious. Carefully prepared, and in limited quantities, this is

an acceptable article of diet for the European. While on this subject, we would point out the inestimable boon the "Anglo-Swiss milk" is to the ordinary traveller. It is portable, pleasant, and nutritious, and no traveller should be without a supply of it. The better descriptions of tinned butter, as supplying the place of inferior ghee and other oleaginous messes, for cooking purposes, is most acceptable.

EGGS can generally be procured, but most frequently in a more or less stale state. The common native method of testing the freshness of an egg, is to immerse it in a pot of water, when the fresh egg sinks to the bottom and the stale one is more or less buoyant.

BREAD.—In India you must be most particular on this subject, as the bread, being made with fermented toddy instead of yeast, is apt to turn sour in a very short space of time. Good, wholesome, plain biscuit, when obtainable, should be laid in by anyone undertaking a journey, as he cannot calculate on the bread keeping in an eatable state for more than

two or three days at the outside. In cases where biscuits are not obtainable, the bread should be cut into slices and baked in a slow oven so as to form "rusks." In this form, if kept in tin boxes and overlooked from time to time, it will keep almost as long as biscuit.

TINNED PROVISIONS.—In the present day there are such facilities for obtaining tinned provisions that the traveller who is provided with them may consider himself more or less independent of supplies from the country through which he has to pass. But we would remark, generally, both on the score of health and economy, that it is inexpedient to use tinned provisions when fresh can be obtained. Nevertheless, it frequently happens, that a man is almost entirely dependent upon such stores as he can carry with him. In such cases, while leaving it to him to select what he may consider necessary, we will confine ourselves to advising him, when he is purchasing them, to open a tin or two to assure himself of the freshness of the contents, because the tin will retain its outwardly fresh

appearance long after the contents have become unfit for consumption. Most tinned provisions have more or less of an unpleasant flavour if used immediately after opening the tin. This may be avoided by turning them out some hours before they are intended to be used. The directions for opening a tin should be carefully read, as one special side is generally indicated.

RICE is the best substitute for bread, but remember, cold cooked rice is most unwholesome.

FRUIT.—In the morning a little fruit is a very good thing, but, in partaking of it, the precautions we mentioned above must be remembered. Be cautious of eating fruits and berries, except those which are generally known.

NATIVE COOKING.—The general fault of the cooking is the use of too much ghee or grease, also the too free use of condiments. The ghee, or clarified butter, which is used in nearly every kind of cooking in the East, is sometimes of the most inferior description, and even,

occasionally, in a rancid condition. Natives, generally, have no hesitation in using it in this state, and the utmost precaution should be taken to inspect it daily. In the East, besides earthenware, native cooking pots and utensils are made of a basis of copper, which is "tinned" over, and care must be taken that the tinning is carefully renewed. In regiments the Government order such utensils to be "tinned," or "callayed," once a month. We have always found a block-tin "Warrener" cooking-pot most useful when travelling. In it an excellent stew may be made, or your meat and vegetables can be boiled separately in it at the same time. We have used this cooking-pot over the ordinary wood or charcoal fire. Complicated cooking arrangements that require spirit lamps, &c. are a mistake. When travelling an excellent method of keeping your cooking-pot clean is to make a paste of wood ashes and water, and well bedaub the outer side and bottom of the pot before placing it on the fire. When your cooking is finished for the day, this paste easily washes off with

a little water, leaving the pot bright and clean.

The remarks in this chapter have been of a very general character, but many hints of equal value to the civilian as to the soldier may be obtained from that most useful work "The Soldier's Pocket-book," compiled by General Sir Garnet Wolseley.

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## CHAPTER IV.

## CLOTHING AND EQUIPMENT.

THE duties that call upon men to serve in tropical climates are so varied in their nature, that the following remarks upon clothing and equipment must be accepted as subject to modification, not only in accordance with the special features of the climate of the country to be visited, but with due regard to the nature of the employment to be taken up. It is obvious that the kit and clothing required by a man whose work necessitates frequent exposure to the full effects of the climate will, in few respects, be adapted to the requirements of one whose occupation is of a sedentary nature. We confine ourselves, however, to describing the various items of kit we consider necessary for



one who may be temporarily called upon to perform active out-door work, leaving to the experienced outfitter the more elaborate task of providing for those who contemplate permanent residence and employment in the tropics. Confining ourselves to the statement contained in our preface, that these suggestions are only intended to assist those who may have had no previous experience of active work in hot climates, we will proceed to discuss, in detail, the various items of outfit that would be generally required.

#### CLOTHING.

HEAD COVERING.—To combine comfort with due protection to head and neck is the main consideration. A hat should be light in weight, well ventilated, properly balanced on the head, and of substance to resist effectually sun or rain. Hats and helmets made of pith, cork, or felt, with or without puggaries, are obtainable at most of the leading London hatters, in such variety of shape and special excellence, that the selection of a fitting "Solar Topee" should be a

matter of no great difficulty ; but the purchaser should bear in mind the following points :—

(I.) If required to wear in a specially dry climate—Egypt, for example—pith would be the most suitable material to select, as being lighter than either cork or felt. But remember, a pith hat is useless in a wet climate, becoming saturated with rain, its weight is enormously increased, it loses its shape, and soon falls to pieces.

(II.) A puggary certainly gives a finish to a hat, besides affording additional protection ; but on horseback, especially when riding fast, it is often found to be inconvenient, as by adding to the weight of the hat it disturbs its balance, and gives it a tendency to shift to the back of the head, thus dragging at the chin-strap and half choking the wearer. If a man's work necessitates his being frequently in the saddle, he should select a hat that can be worn with or without a puggary, and one provided with a strong leather chin-strap.

(III.) Too much attention cannot be given to the proper ventilation of a hat. Besides ventilation in the crown, there should be plenty

*Does  
ventilation  
properly*

of space all round for the free passage of air between the head-band and the inner side of the hat. Attention is paid to these points in all the better description of hats sold for tropical wear; but, on service, much discomfort is occasionally experienced from the fastenings connecting the head-band with the body of the hat becoming loose, and the hat shifting about the head, although the head-band remains tight round the forehead. In choosing a hat, therefore, be careful to test the head-band, and see that it is firmly connected with the body of the hat, while still allowing proper space for side ventilation.

(IV.) Many helmets lack proper protection for the sides of the head over the ear, while affording ample shade front and rear. It must be remembered that it is just as necessary to protect the sides as the back of the head, and a shape affording such protection should be selected accordingly.

(V.) All hats or helmets which, in themselves not offering a sufficient amount of protection, require detached covers, should be rejected.

From frequent use the fastenings of such covers become loose and unserviceable, while the covers are liable to shrink and lose their shape, thus taxing the patience of the wearer by continually calling upon him to exercise his ingenuity in devising new expedients for keeping them in proper position. In riding, also, detached covers, unless very securely fastened, are liable to be blown off the hat, and the chances are the rider, not having the wherewithal to resecure the cover, stuffs it into his pocket, and continues his ride under a scorching sun with but scant protection for his head and neck.

(VI.) The position of a head-band in a *solar topee* is also a matter to be noted. If set too deep within the hat it has not only the effect of bringing the head of the wearer too near the crown of the hat, but the brim, coming too far down over the eyes, interferes with the line of sight, and necessitates a constrained backward position of the head that is most trying and irksome. It is no uncommon thing, in hot countries, to see a man with his head so buried in

an enormous helmet that the lower features of his face being alone visible, appear as struggling to emerge therefrom, like a young chicken trying to wriggle out of its shell. Such a description of helmet probably suggested an amusing picture that appeared in one of our comic papers some time back, of a man wearing a huge hat, but who was requested to "come out of it," as it was of no use his trying to hide himself, for he had been "recognised by his legs." On the other hand, a head-band that is not set sufficiently deep in a hat has the effect of making the same *to cock* on the head, without affording sufficient shade to the eyes, or protection against the slanting rays of the morning or afternoon sun.

(VII.) The brim of any hat or helmet that may be selected should be lined with some material of a dark green colour, as a relief to the eyes, while the outside colour of the hat should be white, drab, or light grey.

(VIII.) The ordinary band of leather to fit round the forehead, with which most hats are supplied, becomes, when the wearer is exposed

to extreme heat, saturated with moisture. This leather hardens, more or less, on drying, and, besides being exceedingly uncomfortable to wear, in course of time perishes and breaks into fragments. The substitution of a double fold of fine flannel for the leather band will be found to afford much comfort. It is fairly durable, and has the advantage of being readily replaced.

(IX.) After sundown a man is glad to dispense with his *solar topee*, and should be provided with a comfortable machine-stitched cloth or tweed hat or cap, which should be made of some soft compressible material so as to pack easily in a portmanteau or between rug-straps. A stiff felt hat is troublesome while travelling or on the march, as constituting in itself an extra package, unless it is crammed into your canvas kit-bag with spare boots and other "odds and ends," and experience teaches you that none but a *very stiff* felt hat will long retain its shape under such treatment.

BODY CLOTHING.—When we consider that a man's health and comfort are so materially

dependent upon the manner in which his body may be clothed, under the varying circumstances of climate, and the peculiar nature of his occupation, the selection of proper material, and the adoption of such patterns of dress as practical experience may have shown to be most generally fitting and serviceable, becomes a question of paramount importance. In choosing an everyday working costume for out-door wear in the tropics, the essential points to be considered are:

First, as regards material:—

1. That it should be as light in texture as is compatible with durability.

2. That it should be of sufficient strength to withstand the roughest treatment.

3. That the colour should be a *fast* colour, calculated to stand frequent washing, and selected with a view, not only to concealing, as far as possible, the discolourations produced by daily toil, but with due deference to the recognised rule, that *light* not *dark* colours are most fitted for tropical wear.

Secondly, with reference to pattern:—

1. That they shall be shaped so as to afford

perfect freedom of action to body and limbs, in either riding or walking.

2. That the material employed shall afford sufficient protection without taxing the wearer's strength by unnecessary complications of folds and pleats.

Outer garments made of either flax, khakee, or drill, are most suitable; and light brown is the best colour to select.

JACKET.—The "Norfolk Jacket," made with or without stand-up collar, is the pattern most universally adopted by old campaigners; and there is no better material for it than brown khakee. This pattern provides a fold of material, or, better still, a strip of stout padding down the back, for the protection of the spine, and has a pad on each shoulder for carrying gun or rifle, and several outside pockets, with or without flaps to fasten with a button. If made with a stand-up collar, the collar should be sufficiently easy to admit of a single fold of silk handkerchief being worn beneath, to prevent chafing. If made with a turn-down collar, a white silk handkerchief, several times folded,



should be worn, loosely tied, for the protection of the back of the neck. A piece of oiled silk ought to be worked in under each arm-hole, and the length of the jacket should be adjusted so as barely to reach the saddle when mounted. Any tightness of the collar-band must be carefully avoided, and due allowance be made for shrinking from repeated washings.

PANTALOONS AND TROUSERS.—Nether garments should be of the same material as the jacket; but the pattern to select, whether trousers, pantaloons, or breeches, will depend on the style of boot proposed to be worn. Discarding breeches altogether, we would recommend one pair of khakee pantaloons, and one pair of khakee trousers to be taken. The pantaloons to be worn with either the "field-boot," or ordinary shooting-boot and gaiter; and the trousers for wear when the gaiter is not required. Pantaloons may be kept in position by either waist-belt or braces. The waist-belt is apt to allow the shirt to ruck up at the waist, while the braces in riding act as a certain restraint upon the free action of arms and

shoulders. Our own experience leads us to prefer a belt to wear with pantaloons, and braces with trousers. Both pantaloons and trousers should have a small pocket in the waistband, lined with chamois leather over oiled silk, for a watch, and the trousers should be provided with roomy side-pockets. The pantaloons should fit easily in the seat, and over the knee, but fairly tight to the leg between the knee and ankle. If the wearer contemplates much work in the saddle, he should have the pantaloons made of double cloth in the seat and inner side of the leg to below the knee.

**BRACES AND BELT.**—All elastic substances soon loose their elasticity in hot climates, and elastic braces and belts in particular, from being continually saturated with perspiration, generally become stretched and unserviceable. The material we would recommend for a belt is brown leather, and braces should be made of silk or cotton web.

**SHIRTS.**—Kashmir is the best material for shirts. It is a mixture of silk and wool, is very

light in texture, perfectly absorbent, and combines all the properties of flannel, without the weight and thickness. The neck-bands should fit easily, and be made of silk or cotton gauze; the latter is preferable. In making up, a certain allowance should be made for shrinking, as, even with advertised "all shrunken" materials, it is surprising how the wristbands of one's shirts work up the arm after repeated washing. No buttons should be affixed to shirts. Holes for studs and sleeve-links should have a silk or cotton gauze backing, or they soon become distended, and the studs fall out. There should be a hole in the back of the neck-band for a collar-stud.

STUDS AND SLEEVE-LINKS.—White bone, or mother of pearl, will be found the best material for these, as there is not the temptation for natives to steal them, that there is with more valuable materials. The studs should be of a good useful size, and cut out of the solid, while the sleeve-links should be strong enough to stand a good strain. It is well to be provided with an extra set of sleeve-links, and an odd

lot of collar and other studs, in case of accidents. Bone, or mother of pearl studs, with metal backings, are objectionable on two grounds—the metal, coming in contact with the skin, often produces troublesome sores, besides which it sometimes becomes disconnected from the material with which it is faced, and cannot be mended.

VEST.—An Indian gauze vest, with short sleeves to elbow, should be worn beneath the shirt. These do not take up much room in a portmanteau, and a liberal supply should be provided, as a frequent change is necessary to ensure comfort.

DRAWERS.—Elastic cotton will be found the most comfortable and serviceable material for drawers. They can be obtained with double seats, and are made to reach to thigh, knee, or ankle. Double-seated, and full length to ankle, will be found most comfortable. A lining of flannel to the waist-band of the drawers, will answer all the purposes of an anti-cholera belt, and be found much more comfortable to wear during the daytime.

ANTI-CHOLERA BELT.—It is most essential for the preservation of health that a double fold of flannel, made in the form of a broad belt, to button at the back, should be worn round the abdomen night and day. When the waistband of the drawers is lined with flannel, this belt will only be required for night wear. They can be obtained ready made of all outfitters, and two or three should be included in a man's kit.

SOCKS.—There are probably few articles of clothing about which there exists greater divergence of opinion, even amongst known pedestrians. It would seem reasonable to suppose that the stout knitted hose worn in the highlands of Scotland, was scarcely suitable for wear in the Australian bush, yet there are many men who will stoutly maintain that a thick knitted woollen sock is the only one to ensure comfort in walking and immunity from blistered feet, even in the hottest countries; while others, again, think nothing but silk or cotton fit for wear in the tropics. Our personal experience, based on many a long weary tramp

over parched ground and hot sand in Egypt, India, and elsewhere, prompts us to suggest fine woollen socks as the most comfortable for hard wear, and fine merino for ordinary wear on service. If a man would avoid all the miserable discomforts attendant upon tender and blistered feet he should pay just as much attention to the selection of a properly fitting sock as he bestows on his boots; and not contenting himself with having the sock carelessly measured around his clenched fist, should try it on his foot, bearing in mind that all descriptions of socks, even those of the best material, stretch and become comparatively loose after they have been worn a short time. Fancy-coloured socks should be avoided, as the dye comes off on to the foot. A man going on service should not stint himself in the quantity of socks he takes with him, and both as regards comfort and durability, it is true economy to procure them of the very best material and make.

SLEEPING SUITS.—Two sets, “wash and wear,” will be sufficient for a man going on

temporary service. The suit consists of a loose jacket, reaching to about the middle of the thigh, and "pyjamas," or very loose trousers. Kashmir is the best material to make them of, being much lighter in weight than flannel, and more comfortable to wear next the skin. Silk cords should be used for fastening the "pyjamas" at the waist, as the Kashmir waistband runs more freely on it than on ordinary tape; besides, silk cord is not liable to get into knots. A pocket in the jacket is useful to hold a pocket-handkerchief.

POCKET-HANDKERCHIEFS.—These should be of silk, and of medium size. In use, silk is not so irritating to a tender skin as either cotton or cambric, and is less bulky in the pocket; and pocket-space, being valuable, should be economised. Three or four square full-sized white silk handkerchiefs should also be taken. There is nothing more comfortable and suitable for wear round the neck, and in the event of any accident to hand or arm they are most useful as a sling.

BOOTS.—The value of a well-fitting, com-

fortable, serviceable boot, that, by giving unobstructed play to the muscles and bones of the foot, and allowing free circulation of blood, renders walking a pleasure, is most thoroughly appreciated even by the pedestrian who, at home, has within his reach every means of availing himself of the boot-maker's skill. The additional importance, therefore, of a man providing himself with a suitable and complete outfit in this particular before proceeding to regions where he will be thrown on his own resources, or, at best, dependent on the crude efforts of the native "chuckler," cannot be too strongly insisted upon; and we would invite our readers' most serious attention to the remarks we have to offer on this most important subject.

It not unfrequently happens to the man on service that issues of the most vital importance, on occasion even his own life, are dependent for the time upon his walking powers; in such emergency a good boot is his best friend. The best description of boot for service wear has been a matter of endless discussion, and



the gravity of the question, as regards the soldier's marching powers, fully recognised; and it is needless to observe that that which affects the soldier is equally applicable to the ordinary traveller. The "Ammunition Boot" has been fixed on by the military authorities as most generally serviceable for the Infantry; and having ourselves severely tested this boot in both wet and dry climates, we can testify to its undeniable adaptability for general use. But "Ammunition Boots" are not always to be procured; we, therefore, proceed to note down the points to be observed if you would procure a boot affording ease and comfort in walking.

(I.) The sole should be generously broad and sufficiently thick, without being too heavy, and should protrude all round beyond the upper.

(II.) The boot should be square at the toe so as to allow the toes full play in walking. A boot with a pointed toe is a fashionable abomination, that by cramping the foot into an unnatural position, ends by more or less

crippling the tortured wearer. If a square-toed boot be objected to on the score of its unsightly appearance, the shape can be modified by slightly rounding, but such rounding should be made almost wholly on the outer edge of the sole in accordance with the natural outline of the foot.

(III.) When the boots are placed side by side the inner edges of the soles should touch nearly the whole of the length, from the ball of the foot to the end of the great toe.

(IV.) The heel should be deep, broad, flat, and not too high.

(V.) Both soles and uppers should be made of thoroughly seasoned leather of the best description procurable. Ordinary shooting-boots, made for wear at home, are not generally suitable for wear in the tropics, especially in very dry countries, although if made not too heavy they would do for use in Burmah, where much wet prevails. For general use, on foot or horseback, we have no hesitation in recommending Dean's celebrated "Field Boot." This boot reaches to just below the knee, like the

“Butcher Boot,” but has the special advantage of being laced over the instep, so that, in addition to being a comfortable riding-boot, the heel does not chafe in walking, as is the case with the ordinary walking-boot. Made in russet leather for hot, dry countries, and in porpoise leather for wet, we know of no fitter boot to wear with pantaloons in saddle or on foot. A pair of ankle lace boots, of russet or porpoise leather according to the country to be visited, should be taken to wear with trousers, or with pantaloons and leggings. You should never, if possible, be without a spare pair of boots. A pair of soft leather slippers, three or four extra pairs of porpoise-hide laces, a tin of porpoise-oil for dressing “Field Boots” (if made of porpoise leather), will complete this portion of the outfit.

LEGGINGS are most comfortable to wear with pantaloons and ankle-boots. They can be made of canvas or even lighter material. For wear with a khakee suit we would recommend leggings made of the same material, and lined with thin brown leather. Buttons are always a

source of trouble and annoyance; the leggings should fasten up the outer side of the leg by leather loops, passed through eyelet-holes, and looping the one with another, the last loop at the top being secured by a small strap passed through it and fastened.

WATERPROOF COAT AND LEGGINGS COMBINED.— During certain seasons of the year the rainfall in the tropics is very heavy, necessitating the use of waterproof overcoats, &c. Waterproof clothing is especially irksome to wear in a hot country, and it becomes a question of some importance to obtain it of as light a texture as is consistent with its being able to stand fair wear and tear. The ordinary long mackintosh coat, so useful when on foot, is, by its shape, most unsuitable when mounted. Messrs. Thresher and Glenny, the well-known outfitters, have shown us a set of "Indian waterproof hunting-coat and leggings combined," which, from lightness and make, the waterproof being faced and backed with a light but strong cotton material, is in every way suitable. The coat is cut short to wear

in the saddle, and the leggings adjusted to protect the thighs and legs whilst riding, and, the rubber being faced and backed with a cotton fabric, there is no fear of it sticking together when exposed to a hot sun.

LOUNGE SUIT.—Except under very occasional circumstances some relaxation from daily toil is to be looked for after sun-down, even on the roughest description of duty, when it becomes a luxury to doff one's working dress and don a lounge suit. Blue serge is the best material for such a suit, and a few false collars and a black necktie, to wear with the same, will not take up much room in a portmanteau, or add perceptibly to its weight.

In concluding these remarks on clothing we may add that even under the conditions of temporary out-door duty of an active nature, to meet the requirements of which the above suggestions have been offered, occasions may yet arise when a man may be much inconvenienced by the want of a dress suit. We can indeed call to mind more than one occasion when we have been placed in such a dilemma. The

probability of such a contingency arising should be duly considered. A dress-suit made of light diagonal, with shirt, collar, tie, &c., can be packed within a small space.

#### EQUIPMENT.

The advantage of travelling with as few *impedimenta* as possible is at no time more practically illustrated than when a man is thrown upon his own resources to find carriage for his luggage. Under special circumstances—on active military duty for instance—such luggage is limited to a certain fixed weight, when, of course, it becomes a question of excluding everything but absolute necessaries; but, as a general rule, no one should hamper himself with more than, “at a pinch,” he could carry without assistance. As regards equipment, the term “necessaries” will be variously interpreted; many items, considered necessary by the experienced traveller, would be deemed superfluous by the “old stager,” and *vice versâ*. Experience in “roughing it” alone teaches a man how to provide for his personal requirements

under such conditions; and, on service even, it is curious to note the difference of opinion that exists on this subject. Colonel A., for instance, will carry his kit in his pocket, while Lieutenant B., "just joined," will place the most generous interpretation upon the luggage limitation weight published for his guidance in G.O. On reaching the scene of labour one soon finds out any items of kit that may be superfluous, and they can be easily dispensed with, but it is not so easy a matter to provide yourself with any article that may be found deficient; so, in getting together your "traps," should any doubt arise as to the necessity of taking any special item, it is as well to be on the safe side, and find a corner for it. We never yet found an article of equipment that, not wanting ourselves, someone else was not glad to take.

PORTMANTEAU.—The size should be such that, when fully packed, it can be conveniently carried in one hand. Only the lightest make of solid leather portmanteau should be selected, but the quality of the leather, details of work-

manship, fitness of lock, and strength and proper adjustment of outer straps, are matters that require the most careful inspection. The handle of the portmanteau should be strong and well fastened on; it should also be broad, and afford a good grasp, or it will be found to cut the hand if heavily packed. There should also be a loose spare broad strap attached, for fastening to the kit-bag, so that both packages can, if necessary, be strung over the shoulder or across a pack-animal for convenience in carrying. You should also be provided with a spare key for the portmanteau. Brown leather is generally better than black. Have your name painted legibly on the top, and initials in large letters at both ends. It should be provided with an inside pocket sufficiently large to contain foolscap paper, blotting-pad, official envelopes, &c.; and a narrow compartment at the end, with a lid working on a hinge, will be found particularly useful for containing simple dressing requisites, and odds and ends that are liable to be mislaid if packed in the body of the portmanteau.



**KIT-BAG.**—This should be made of stout canvas, well waterproofed, and double-sewn all over. Shaped like a bolster-cover, it should measure about 40 inches in depth, and 14 inches in diameter. It should fasten with a stout double cord, and be provided with a strap and padlock, to securely close the neck when packed. Your name should be painted lightly thereon, and initials on the end in large letters. In this bag (excepting your waterproof ground sheet and blanket, which will go in the rug-straps) should be packed spare boots, and all articles of equipment for which you may not have room in your portmanteau.

**VULCANISED RUBBER WATER-BOTTLE.**—Covered with felt, these bottles are conveniently shaped to fit against the side of the body, when slung over the shoulder by a strap, with which they are provided. They are made in sizes, to contain respectively 1,  $1\frac{1}{2}$ , and 2 pints of water. The smallest size, empty, weighs 12 oz. with strap complete. They were largely used in the Ashantee and Zulu campaigns, and the pattern

was approved of by the highest military authorities.

POCKET FILTER (ATKINS' PATENT). — These pocket filters proved a great boon to the troops during the Abyssinian expedition, as, by their means, the men were often able to quench their thirst with water obtained from muddy pools, that would, without such handy and efficient means of filtration, have been undrinkable. No travellers in the East should be without one of these filters. A ball of carbon, into which an India-rubber suction tube with bone mouth-piece is fitted, it is contained in a small tin box that can be comfortably carried in the pocket or wallet. Be careful to provide yourself with a spare India-rubber suction tube.

INDIA-RUBBER BASIN.—These are circular in shape, some 14 inches in diameter, and made to fold flat, for convenience in packing. When required for use, the sides are kept in position by ash uprights, which pack in the bottom of the basin.

INDIA-RUBBER BUCKET, with India-rubber

handle, and 10 inches in diameter; made to fold like the basin just described.

**TENT-POLE STRAP.**—One of the many inconveniences to be looked for in tent-life, is the want of pegs on which to hang clothes. The “Tent-pole Strap” is ingeniously contrived to supply this want. It consists of a short strap fitted with four strong brass hooks. When this strap is fastened round the tent-pole, the hooks stand out all round the pole, and are most useful to hang clothes on. This strap is strong, portable, and light in weight, weighing only six ounces.

**WATERPROOF GROUND-SHEET, FITTED EYELETS.**  
—When you have to make up your bed on damp or wet ground, as not infrequently happens when on service abroad, the protection afforded by a waterproof ground-sheet can be easily understood. As a provision against rheumatism it is invaluable, and fastened over the top of a country cart when travelling, it keeps out the heaviest rain.

**SCARLET BLANKET.**—This colour will be found more serviceable than white. The blanket

should be sufficiently large to fold double, if necessary. On cold nights, or in case of sickness, good and sufficient covering will be fully appreciated.

**AIR-PILLOW.**—One made of India-rubber, to be inflated at will, adds to comfort, and occupies but small space when rolled up.

**BATH-TOWELS AND SPONGE.**—These should be of good size.

**DUBBIN** will be required for your boots in wet weather. Six small tins will pack conveniently in a large tin box.

**CASE, WITH KNIFE, FORK, AND SPOON,** made of leather. The knife, fork, and spoon are made with a hinge to fold up, a convenient form of carrying these necessary articles. A small metal box is included in case, to contain salt and pepper.

**HOUSEWIFE,** fitted with scissors, needles (including a couple of packing needles), thread, &c.; should contain also a punch for stamping holes in leather, a lancet, and a piece of cobbler's wax.

**SOAP.**—Several cakes of "Terebine" soap and a bar of carbolic soap.

DISINFECTANT, *see* page 76.

COOPER'S EFFERVESCENT THIRST LOZENGES, *see* page 83.

LANTERN AND CANDLES.—If it is intended to pack the lantern in the kit-bag, it should be of moderately small size, and fit into a tin case for the protection of the glass. It must be fitted to burn either oil or candles, and a good supply of candles and lamp-wicks should be taken. For our own part, we have found a hurricane lantern, fitted to burn a duplex wick, fully repay us for the trouble of carrying as an extra package. In countries where there is comparatively no twilight, the comfort of being supplied with a good light can be only truly estimated by those who have had to perform heavy office work under the flickering light of a farthing rushlight or its equivalent. Any description of lantern that may be taken should be fully protected at the sides and top with wire gauze, or the wick will soon get clogged by the myriads of insects it will attract.

TIN-OPENERS.—Two should be taken, one for

opening circular and one for opening square tins.

POCKET-KNIFE should be stout and serviceable, and provided with corkscrew and a stone-extractor for removing stones from a horse's hoof.

A FLASK WITH METAL COVER FOR CUP, A PEWTER to hold a pint, with metal lid on hinge, SEVERAL NOTE-BOOKS fitted with pencils, A LARGE BALL OF TWINE, FLINT, STEEL, AND TINDER-BOX. This last is not absolutely necessary, as matches are now obtainable over the whole globe, but it would be useful if the matches got wet.

WATCH.—A good serviceable watch in hunting case ; and have it carefully inspected by a watchmaker before you start.

LOOKING-GLASS.—You will find a very small one answer all needful purposes.

GUIDE-BOOK AND MAP.—A small guide-book, with a good map of the country to be visited, should be taken. Messrs. Henry S. King & Co., the well-known agents and bankers, have lately compiled two small handbooks containing, in a compressed form, a mass of useful

information, that will be of the utmost value to outward or homeward-bound travellers to and from India and the East. These little books can be obtained gratis, on application at their offices, 65, Cornhill, and 45, Pall Mall, London; and we would strongly recommend those going abroad to avail themselves of Messrs. Henry S. King & Co.'s liberality.

UMBRELLA.—A large white umbrella lined with dark green. The stick should be stout and strong, without being too heavy, and the handle large enough to afford a comfortable grasp. Messrs. Sangster & Co., of Regent Street, have shown us an excellent umbrella of this description.

GOGGLES.—“Calhins' patent,” *vide* pp. 21, 23.

POCKET-COMPASS.—A good pocket-compass will be found most useful.

MOSQUITO CURTAINS.—An indispensable article of equipment in nearly all tropical climates. They should be made of best green net, bound at the edges with strong binding tape. Dimensions of top piece about six feet long by three

feet wide, and sides to hang down about four feet and a half.

There is no need to include a night-cap in your kit. Should you require such an article, a very possible contingency in countries which generally swarm with mosquitoes, gnats, &c., an excellent and comfortable substitute can be made as follows:—Spread out a large square silk handkerchief, take hold of the two corners furthest from you, and turn or fold under some five or six inches. With the handkerchief in this position, take the right and left corners of the fold thus formed, and bring them, downwards, forwards, and inwards, until they meet in the middle. The handkerchief now somewhat resembles a cocked hat. Now take the right and left-hand corners that are nearest you, and roll tightly in an upward direction, until the lower border of the fold that was originally turned under is reached. Raise the handkerchief without letting go your hold, and, drawing the cap thus formed over the head, tie the ends under the chin. This operation, which has taken so



many lines to describe, may be done in less than half a minute.

REVOLVER.—We can confidently recommend *Adam's Patent Double-acting Central-fire, Breech-loading Revolver, 4.50-inch bore*. This weapon is exclusively adopted by Her Majesty's War Department, which is sufficient guarantee for its excellence in every respect. This revolver has six chambers, and can be cocked for deliberate aim, or discharged in rapid succession by merely pulling the trigger. It is made in two sizes, the larger size with a six-inch barrel, and the smaller with a four-and-half-inch barrel, and three quarters of an inch shorter in the butt.

Up to fifty yards, as good results can be obtained with the shorter barrel as with the larger one, but at longer ranges greater accuracy could be obtained with the six-inch barrel. The difference in weight is only three ounces, the two sizes weighing respectively 2 lbs. 6 ozs., and 2 lbs. 3 ozs. A special cartridge has been designed for this weapon by Colonel Boxer, R.A.

With the revolver should be taken—

A Waist-belt,	} made of brown leather, and weighing 1½lbs.
Holster,	
Pouch for cartridges,	

A tin-cased pouch holds twenty-four, and a flat pouch forty-eight cartridges.

A SHOULDER-BELT, for carrying the revolver when mounted, will be found convenient. This belt should have a waist attachment to prevent the revolver jerking up and down when riding fast.

SADDLERY.—In selecting this most important part of your equipment, you should bear in mind that horses in the East are generally of a lighter build than those you are accustomed to see at home, and that, accordingly, medium-sized equipments are likely to prove most suitable. Go to a saddler who has an Indian or colonial business connection (there are many in London, such as Peat, Whippy, and other well-known firms), and be fitted for a saddle with as much care as you would be measured for a boot; your future comfort is likely to be as equally dependent upon the one as upon the

other. The saddle should be fitted to carry roomy saddle-bags, and provided with a carefully-adjusted *numdah*, or piece of felt for the protection of the horse's back beneath the saddle. An unnecessarily large *numdah* is both unsightly and cumbersome. Girths made of plaited hide are the best. They are cooler in use, stronger, and less liable to gall the horse than the ordinary girth. A spare pair of stirrup leathers should be provided. Clothing should be made of warm but not too heavy material. Bridle, light and strong. "Fancy" bits, "punishing" curbs, &c. should be rejected. Stable-gear should be limited to the barest necessities, made of the lightest description of serviceable material. A few general remarks as to the *treatment of your horse* in tropical countries may not be out of place here.

FEEDING.—When a horse is in work green food should be given in limited quantities only, and care should be taken not to give wet grass. The daily forage should be divided into three feeds, given in the morning, before work, mid-

day, when resting, and evening, after work. Hard food, like chenna, gram, and beans should be either crushed or soaked in water for a few hours. Horses in Egypt keep in splendid working condition on chopped straw, in addition to their feed of beans; and during our tour of duty in that country in 1868, we were surprised at the pack-horses preferring this most uninviting-looking food to the deliciously-scented compressed forage which was sent out from home in bales, but which, in most cases, they refused to touch.

WATERING.—If your horse have a hard day's work before him, give water but sparingly before starting, let him have a few mouthfuls, at intervals, during the day, but reserve his "big drink" until after he is picketed down for the night. When picketed out, or in the stable, on non-working days, your horse should always have free access to a bucket of water; if left within his reach, he will not over-drink himself, unless he be too hot, when he must be allowed to get cool before the water is given.

GROOMING.—After a day's hard riding, the girths should be loosened, and the horse walked to and fro, so as to gradually cool down before the saddle is removed. After a good rub down with a wisp of straw, the feet should be washed and examined, and the hand passed over the back to see if there be any tenderness caused by the rubbing of the saddle. Should any tenderness be observable, special precautions should be taken to avoid a saddle-gall, and the portion of the saddle that has pressed on the back carefully examined, with a view to preventing its further pressing on the affected part.

Your personal attention should be given to your horse's shoeing, and on a long journey you should be provided with a spare set of shoes and nails. Salt-and-water is a simple and efficacious treatment for a saddle-gall. On hot, hard soil, a mixture of tar and grease should be rubbed into the hoof to prevent sand-crack.

Attend yourself to the feeding and grooming of your horse; no natives are to be

thoroughly trusted in this matter. Learn the use of, and provide yourself with, a few simple horse medicines for the treatment of ordinary complaints. For horses in a low condition "Restorine," a preparation composed of the inner bark of the smaller branches of the red elm (*Ulmus Campestris*), specially prepared with suitable aromatics, is strongly recommended by E. T. Cheesman, Esq., Veterinary Surgeon, 1st Class Army Veterinary Department, in charge of 5th Dragoon Guards, and J. Tatam, Esq., Inspecting Veterinary Surgeon, Her Majesty's Forces (Retired List). A pack-horse will carry about 200 lbs., inclusive of pack-saddle; and a mule and bullock, respectively, will carry the same weight.

In concluding this chapter on clothing and equipment, we would remark that if our reader possess histrionic ability or musical talent there is every chance, in the course of his wanderings in "furrin parts," of his being called upon to contribute his share to the amusement of his fellow-travellers, and his being able to do so, in however small a degree,

will meet with a most cordial acknowledgment.

We have in our possession a tin-whistle that has travelled with us over a good portion of the globe, and whose dulcet tones have often served to "soothe the savage breast" or "trip the nimble toe"; whilst an old, tattered, two-character farce could tell strange stories of theatrical performances, got up in the most out-of-the-way places, and under inconceivable difficulties, but which have, nevertheless, served to pass the hour pleasantly. We never noticed that the weight of our portmanteau was sensibly increased by these trivial additions.

Finally, we would beg to tender our fullest acknowledgment for the many valuable hints we have obtained from the works of Sir Joseph Fayrer, K.C.S.I., Dr. Bristow, Dr. Ringer, and Surgeon-Major Horton, A.M.D., in our compilation of the chapter on the diseases of tropical countries.

Our notice of these subjects has, necessarily, been very brief, and those of our readers who would seek further information

are referred to the above works. We trust that these suggestions may afford practical assistance to those whom commercial enterprise, the good of their fellow men, or the service of the Queen may summon "on duty under a tropical sun."

---



## A D D E N D A.

## CARBOLIC ACID.

MESSRS. CALVERT & Co.'s No. 2 Carbolic Acid for external medicinal use (in crystals) is the best to take. When wanted for use stand the bottle, up to the neck, in hot water, when the acid will readily liquefy and the amount required can be measured out. It will solidify again on cooling.

## TENDER FEET.

Bathing the feet in alum or salt and water will harden them. Soaping the stockings and greasing the boots, which renders them both soft and waterproof, will be found useful. See the "Soldier's Pocket Book" by General Sir Garnet Wolseley, G.C.B., G.C.M.G.

## SUNSTROKE.

P. 16. It is a good plan to shave the head in these cases previously to the application of cold by the irrigation method.

## FREEZING MIXTURES.

A simple freezing mixture may be obtained by mixing equal parts of ammonium, nitrate, and water. This will lower the temperature from  $50^{\circ}$  to  $-4^{\circ}$  Fah. Equal weights of nitre and sal ammoniac (chloride of ammonium), dissolved in their own weight of water, lowers the temperature from  $50^{\circ}$  to  $-10^{\circ}$  Fah. The temperature of the contents of a bottle may be considerably lowered by wrapping it in a moist cloth, or better in a flannel jacket moistened with water, and placing it in the sun; or, instead of this, take the bottle wrapped in the cloth by the neck, and whirl it round in the sun. Evaporation takes place, and heat is abstracted from the bottle and its contents.

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## ERRATA.

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Page 39, second line from the top, *for* "actea" *read* "actæa."

Page 44, fifth line from top, *for* "passes" *read* "passes off."

Page 77, first line, *for* "rises to 40° Fah." *read* "exceeds 60° Fah."

Page 113, fifth line from the bottom, *for* "experienced" *read* "inexperienced."



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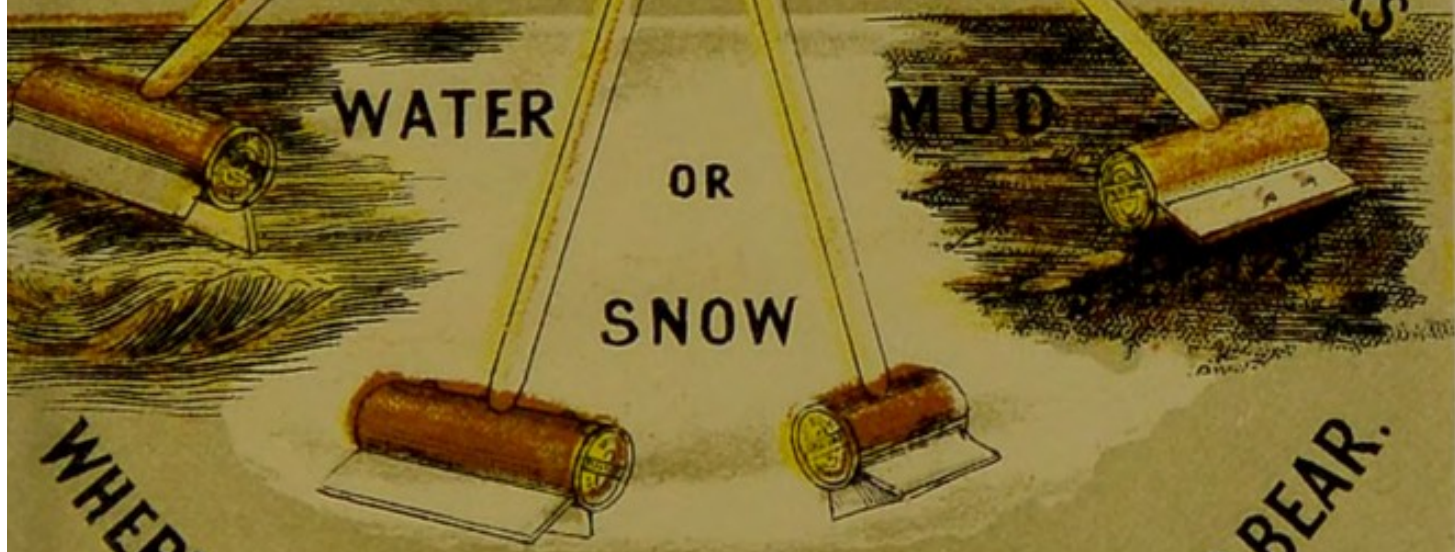
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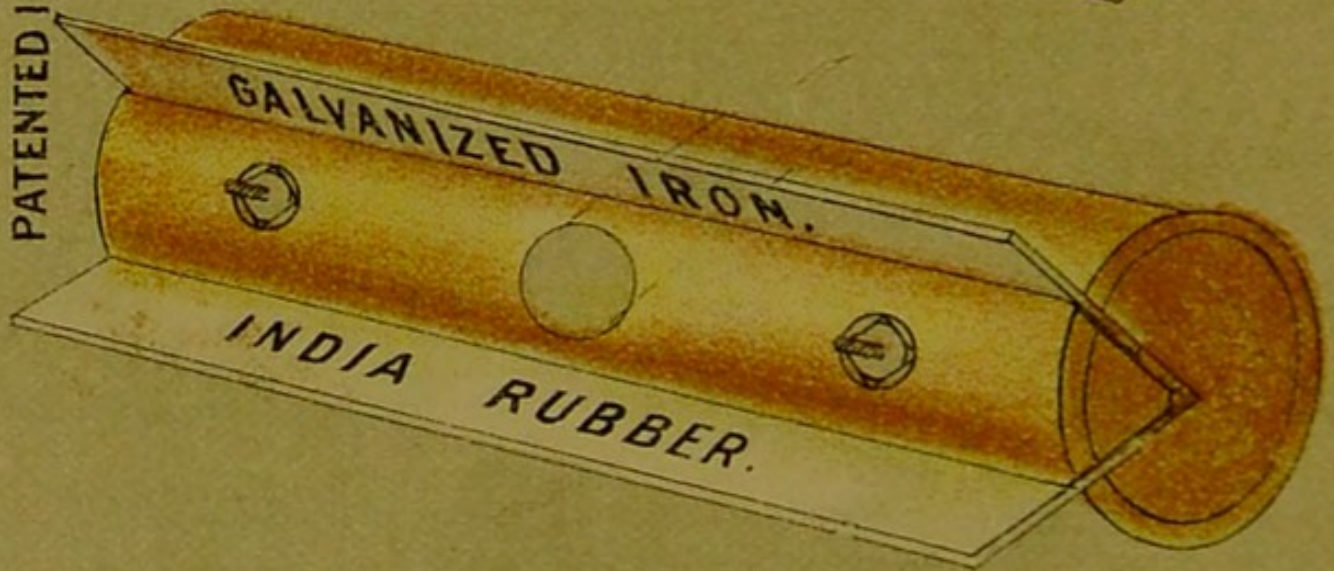
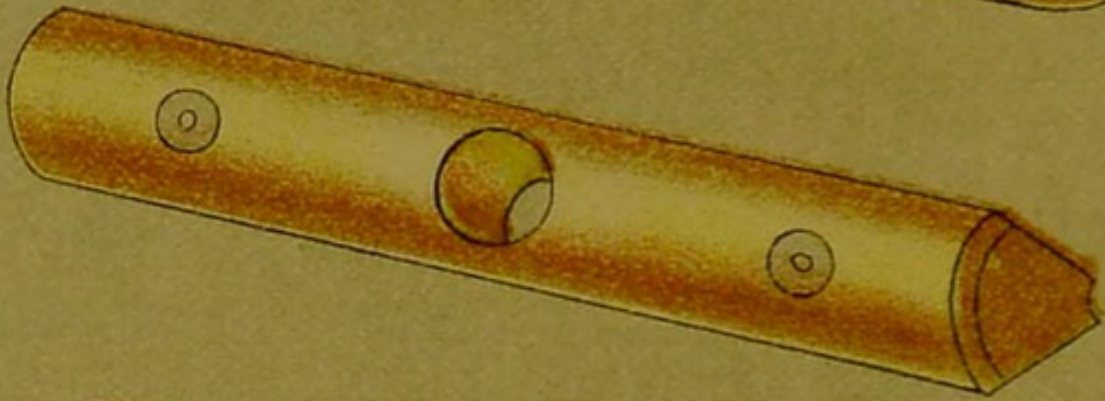
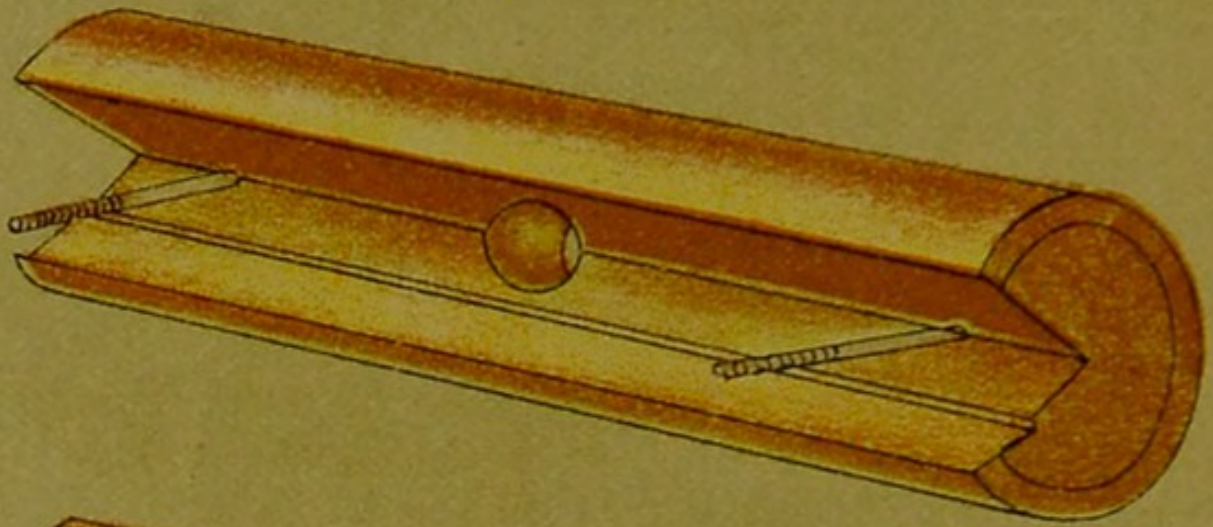
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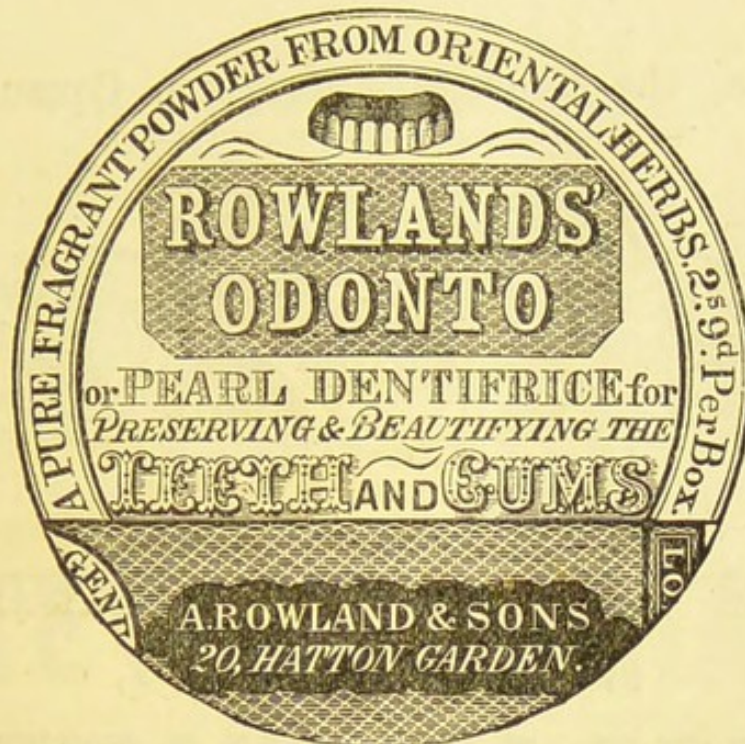


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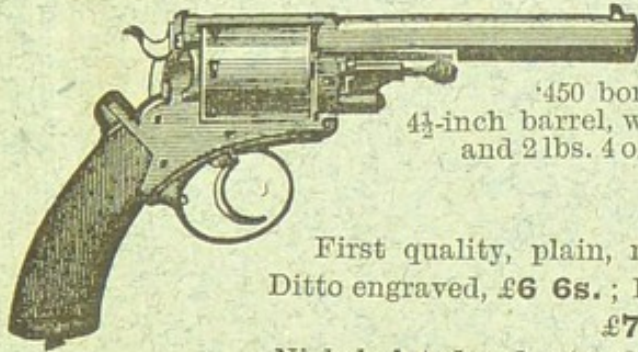
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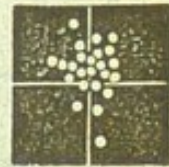
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