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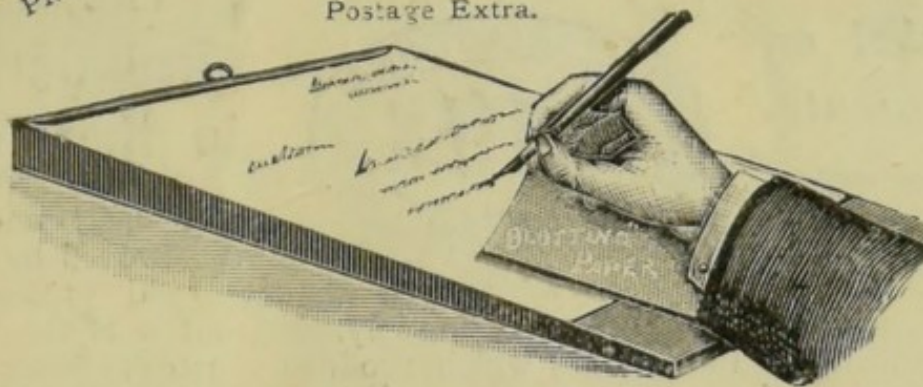
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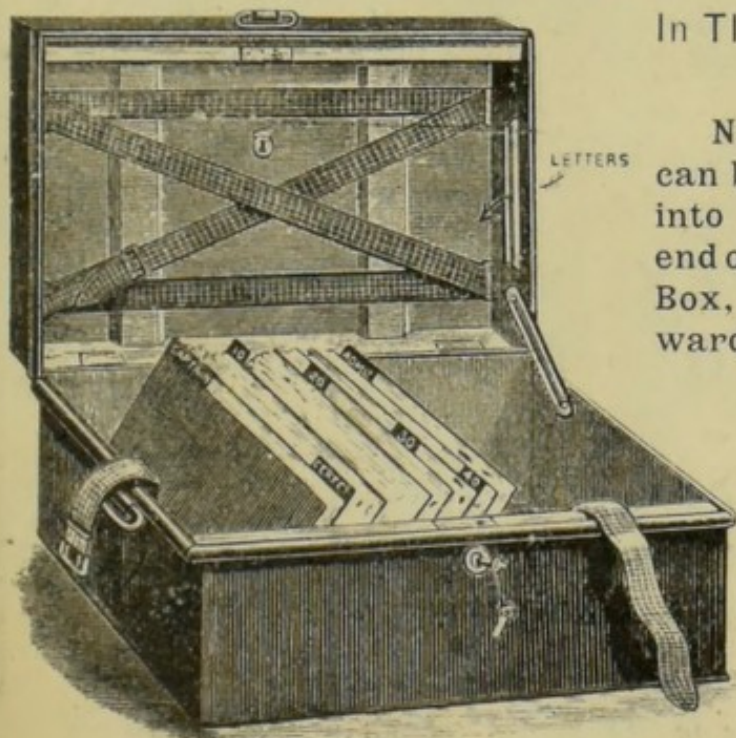
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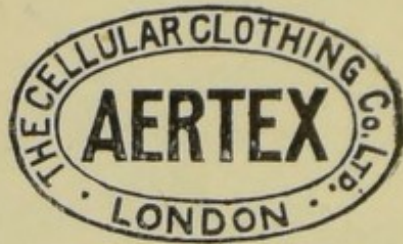
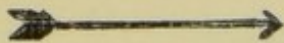
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HINTS ON OUTFIT

FOR

TRAVELLERS IN TROPICAL COUNTRIES

BY

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OUTFIT TO THE ROYAL GEOGRAPHICAL SOCIETY

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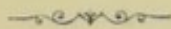
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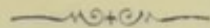
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HINTS ON OUTFIT

FOR TRAVELLERS IN TROPICAL COUNTRIES.*



INTRODUCTORY.

TO TRAVEL is an education; and if full use is to be made of the opportunities which present themselves to all who travel, whether for duty or pleasure, time and thought must be expended in making the preparations for the journey, so that health and comfort may be safeguarded and the success of the journey assured.

But it is not sufficient to set forth lofty ideals and vague theories; success depends in this as in most other concerns upon attention to details, small in themselves, but which combined make all the difference between health and illness, comfort and discomfort, usefulness and uselessness. In attempting, then, to answer some of the questions which present themselves, the following hints are commended to the consideration of intending travellers.

VARYING CLIMATES.

It is obvious that climate must have an important bearing upon outfit; and as the meteorological and other conditions which go to make up climate vary, not only in different localities but in the same locality at different seasons, it is impossible to give general directions suitable for all cases, so that it is advisable to obtain information about local conditions from some one familiar with them. At the same time there are

* The Royal Geographical Society accepts no responsibility either for the inclusion or omission of names in these 'Hints'; they have been inserted by the editor solely for the convenience of travellers.

certain general principles which should guide the intending traveller in the selection of his equipment, which are dealt with in succeeding pages.

It should be noted that the Hints here given have been designed for the explorer rather than for the resident in tropical climates, so that no mention has been made of the houses or furniture which would be needed by such. With this exception most of the advice would apply generally to all Europeans at work in the Tropics. It has not been thought necessary to refer to the clothing or other requisites which might especially be needed by ladies, not from any failure to recognise the valuable work which has been done by ladies as explorers, but because it will be perfectly easy for any such to adapt the advice given to their own circumstances. All reference to Scientific Outfit is omitted, as this has already been given in 'Hints to Travellers.'

It should also be understood that the Hints are designed especially for Tropical Travellers, no attempt being made to deal with the special questions of Arctic or Antarctic exploration.

LOCAL MATERIALS.

One of the first points to be ascertained by those going abroad is the facility with which local materials can be employed either for food or clothing. For instance, in India, China and Japan many articles of dress can be obtained which are more suitable for the particular country, and much cheaper than they would be in England. As regards food, this is a still more important matter, and we may take it as an axiom that the food supply of each country should be employed in every possible way before having recourse to preserved foods, which are valuable, and often necessary substitutes for fresh products, but should be regarded only as substitutes. The same principle would also apply to other articles of outfit, so that it is important in addition to the general advice given here to consult some one who is well acquainted with the local conditions of each country.

TRANSPORT AND CUSTOMS.

The question of transport must always be taken into account in planning an outfit. If the journey includes any long distance in which the baggage must be carried on men's heads or animals' backs, it is clear

that the weight of various articles is a more important question than their prime cost, and everything must be reduced to the smallest possible compass which is consonant with health, in order that the traveller may not be impeded. Where, on the other hand, railway or steamer accommodation is available, the weight of goods does not make the same difference.

It is well, however, in all circumstances to avoid all unnecessary articles on long journeys, and the late Mrs. Bishop's advice is a good one: "Never take anything you can possibly do without." Whilst this is the advice usually given by experienced travellers, others lay stress upon the importance of having sufficient comforts to render tolerable the strain of tropical travel. Undoubtedly the question of comfort and convenience should be considered at every turn, so far as it does not hinder the traveller in attaining his chief object, and this consideration is kept well to the front in the detailed advice given in each chapter. Inquiry should also be made before starting as to Customs regulations, for in some cases great inconvenience has been caused through taking articles which are subject to a high duty, or failing to produce the bill of lading or the invoice of goods for the satisfaction of Customs officials.

INSURANCE.

All provisions and personal baggage should be insured against accidents or loss at sea or by fire, and against robbery. This can be done at a very reasonable rate at most of the leading Insurance Companies.

PRICE.

The question of price is one which must influence to a considerable extent the selection of an outfit. We have only to say on this point, "See that you get the best value for money." It is often better to have a few reliable articles and pay a good price for them, than a host of other things which will not stand wear, or which may be positively harmful. For instance, there are a number of so-called air-tight cases in the market, and it is a great mistake to sacrifice cheapness to efficiency in this respect: it is better to spend a little extra money over a good box than to have your outfit spoiled through an indifferent one.

It is a strange thing that people should expect to pay prices for

clothing for use abroad much less than they would pay if required at home, and yet they are expected to wear for a much longer time.

AGENCIES.

It is undoubtedly an advantage in going abroad to employ one of the agencies which exist especially for the packing and forwarding of goods. Some of these have been studying travellers' and missionaries' requirements for many years, and undertake to supply all that is needed in the matter of outfit. It is, however, a mistake to make a rigid rule of obtaining everything under one roof. Some things may be obtained better at one place than at another, and this should be kept in view.

PACKING.

Nothing is more likely to affect the reputation of an agency than the matter of packing. Care is the more necessary, as nothing can exceed the carelessness of some of the great steamboat companies' servants in dealing with travellers' goods. The goods supplied may be of the best, but if they arrive in fragments at the end of the journey this fact will afford poor consolation for the loss of necessary articles of outfit.

Further notes as to details of packing will be found in a later section.

AN OUTFIT LIST.

It is impossible to present with these Hints a detailed list of the articles of outfit which would be needed by travellers, as these vary in every individual case, but the index of Contents on pages 3 to 6 will form a suggestion as to the sub-divisions of such a list, and the details can easily be filled in from the articles mentioned in each chapter. This may also be supplemented by lists which can be obtained from outfitters, or from other travellers who have gone to similar regions, but these should in every case be checked by the advice given in these Hints.

BE IN TIME.

Few people, except those who have already been abroad, can realise the importance of making preparations in good time. Too often outfitting is left till the last moment. The traveller then suddenly awakens to the

fact that there is no time to do things properly. Farewell visits, business concerns of many kinds, have to be crowded into the last days at home, and consequently nothing is satisfactorily done. The readers of these Hints are strongly advised to get their things together in good time, as by so doing they will have the best opportunity of obtaining a suitable outfit, and without the hurry and strain which is most prejudicial to one who is starting on an important expedition.

LIST OF FIRMS.

A list of firms with their addresses is given. This is inserted for the convenience of travellers, and the firms are those of whom the author has some considerable experience either directly or indirectly. It must not be thought that the Royal Geographical Society incurs any responsibility for the insertion of names in this list nor the omission of others, but the author will be glad to have his attention drawn to firms who could produce as good, or better articles than those included in this list, so that in the possible issue of other editions corrections may be made, and he hopes that the mention of these names may be of service to many in the practical arrangement of their outfit.

Some criticisms have been received concerning firms whose names are still retained in the list, and the author of these Hints desires to impress upon outfitters the great importance of care and courtesy in endeavouring to meet the requirements of travellers. He hopes that the present edition may be used much more largely by these various firms, and he will be glad at any time to receive any hints concerning improvements which could be made in a future edition.

THE NEW EDITION.

The plan adopted in the previous edition of 'Hints on Outfit' has been followed in this one, though some sections have been extensively revised, and some almost rewritten.

The author desires to acknowledge with very sincere thanks the criticisms and suggestions which have been received from distinguished explorers, travellers, and administrators in Tropical countries, in view of the publication of this new edition. All of these have been carefully considered, and in the main incorporated in the book. It would be

invidious to select special names for mention, but a great debt of gratitude is due to each of those who have given valuable assistance. The same may be said of a considerable number of business firms, though it may be noted that some of those to whom requests were made for assistance did not even acknowledge the letter. This does not seem as if these firms recognised the great importance of dealing with the matter of travellers' outfit in a scientific manner, and it is to be regretted that very few firms seem to have paid any attention to the important suggestions as to the arrangements of the canteen which were made in Chapter III. of the last edition, and which are repeated here. It is hoped that travellers will insist upon the planning of their outfit on really scientific lines, and that thus the business firms may be compelled to co-operate.

The names of all business firms have been omitted from the text of this edition, except in cases where such reference was necessary in order to describe certain articles, and this it is believed is the fairest plan to adopt.

Hints on Outfit are given in periodical lectures delivered at Livingstone College, to which travellers may be admitted. Particulars may be obtained from the Principal, Livingstone College, Leyton, E.

CHAPTER I.

CLOTHING.

GENERAL PRINCIPLES.

IT should be understood in the first place that in hot climates the skin acts much more freely than in cold regions, and that it is largely by this means that the temperature of the body is regulated. At the same time this excess of perspiration renders the body especially liable to chill, and this is a common source of danger in the tropics. It is imperative, therefore, that the clothing, especially that worn next the skin, should be of such a character that it will not retain the perspiration, as in the case of closely woven cotton or linen fabrics, but allow of free evaporation, as is the case in various forms of porous cotton or linen materials, or in woollen garments. Another point upon which stress should be laid is that clothing is intended to keep the body warm, and that this is urgently needed even in warm climates, so that the idea that all clothing should be of the flimsiest possible description is unreasonable and often dangerous. It is generally recognised that those materials are most suitable for retaining the heat of the body which are spongy in texture, owing to the air which they contain, and this is an additional reason for the use of clothing of the character already described.

The problem of the influence of the sun's rays upon the body is one which also needs attention, and it has been suggested that the use of materials of red or orange colour may be of benefit in the tropics in the protection of the body from the actinic rays of the sun which are believed to act prejudicially upon the system. The suggestion is an interesting one and it is most desirable that a trial should be made of these colours, particularly for the lining of helmets, or umbrellas, in preference to green linings which were formerly used for this purpose.

UNDERCLOTHING.

Materials.—After careful consideration of the best forms of material to be used for underclothing in the Tropics, experience seems to show that some form of porous cotton or linen material is best adapted for wear next the skin. This material fulfils the general principles described in the preceding paragraph, and has the special advantage of being non-irritant. The advantage of this in the tropics is very great, on account of the liability to irritation which exists where much perspiration is present. Not only may irritating garments aggravate the troublesome condition known as Prickly Heat, but it may also lead to the development of boils which are very common in hot climates. The best qualities of the Aertex cellular cotton underclothing have been most extensively tested and with very satisfactory results, but there are other forms of porous cotton or linen underclothing which some prefer, especially those who desire close-fitting garments, which can be obtained more readily in some of the more elastic forms of fabric. A red form of cellular clothing has recently been devised for tropical use, known as non-actinic cellular. This is well worthy of a trial.

For those who prefer woollen underwear, Wolsey clothing is very strongly recommended as being unshrinkable and maintaining its softness of texture even after repeated hard washing. There are of course many varieties of woollen underclothing which are stated to be unshrinkable, but the variety suggested seems to have stood the most rigorous tests. It may be an advantage to have some thicker woollen underclothing for use on the voyage or for colder weather, such as may be met with on the higher plateaux or on the hills, though changes of temperature may be guarded against by the use of a sweater or by suitable arrangement of the outer garments, a cellular garment still being worn next the skin. Silk is recommended by some as a material for underclothing, but it is not to be depended on, and the same may be said of various mixtures of wool and cotton, whilst great care should be taken not to be misled by the term “flannelette,” which is made entirely of cotton.

Style of Garments.—As to the kind of garments to be worn, a shirt of any of the above materials without a vest may probably be sufficient under ordinary circumstances if suitable outer clothing is worn, but vests should also be taken which could be worn when the weather is

colder, and it is probably the safest plan to wear both. Many wear a strong woollen shirt with pockets, known as a bush shirt, without any coat. In this case a cellular vest should be worn next the skin. For ordinary travelling it would be found most convenient to have shirts with collars, but they can be obtained separately either of woollen or cellular material if so desired. Woollen ties, which might be required in settled stations, can be obtained, if needed, in a variety of styles and colours. Cellular drawers, which are loose and which do not come down to the knee, are strongly recommended. They are known as trunk drawers. Where there is much perspiration, the band of the trousers should be of woollen material and not of linen, which is liable to cause chills.

Cholera Belt.—There is some difference of opinion as to the advisability of wearing what is known as a cholera belt, and this probably arises from the fact that many people wear something which is dignified by this name which is worse than useless, because it is not efficient. It may be explained that the purpose of a cholera belt is to protect the vital organs of the abdomen, from a tendency to chill, which may easily occur in the Tropics in sudden changes of temperature, especially since the clothing is often light in texture. It is unfortunately the case, however, that many cholera belts are so badly constructed that they do not keep in position, and sometimes are found after a short time to have become folded until they appear like a rope round the waist. It is, however, most important to have some protection round the abdomen, and a broad flannel belt, fixed by two buckles, and slightly stiffened so that it will keep in position, is probably the best kind of belt to wear, and it should be worn outside the vest or shirt. One writer has suggested that it may be sufficient to have the trousers high at the waist instead of any belt, whilst others wear a piece of material wound round the waist known as a "Kamarband."

HEAD GEAR.

The protection of the head and spine ought to be carefully attended to. A good light pith helmet with special protection for the back of the neck is the best thing that can be employed, and the chief things which are to be desired are that it should be light in weight and colour, red or orange lining being also an advantage, as explained above. These may

often be obtained best and cheapest abroad, but some of the best pith helmets are finding their way to this country. Some helmets can be obtained with washable covers, and this is generally an advantage.

A soft felt hat, or a good Panama hat may be worn early or late in the day when there is not much sun, and on these occasions a trial might be made of the so-called Anti-Sol head gear, devised by Burberrys, but on no account must it be thought that these can take the place of the helmet when exposed to the tropical sun, especially as none of these hats afford sufficient protection for the back of the neck.

A puggaree made of muslin or cotton cloth may be worn in addition to the helmet if the sun is hot, and this too may be of red colour. In cases where by any misfortune the helmet may be lost, a puggaree attached to one of the foregoing hats is a valuable protection. A sun umbrella should be taken, and this is preferable to merely taking a white cover on an ordinary umbrella, though for much marching where an ordinary umbrella would be required, it may save space to take one or two extra covers for the umbrella. The sun umbrella should also be lined with red, and it has been suggested that the most efficient form is one in which the inner layer is of red, the middle one of black, and the outer one of white or cream colour. If, however, three layers are employed, it is essential that the material should be thin, otherwise the umbrella would be unduly heavy.

A spinal pad, though recommended by some, is hardly necessary where the suggestions already given are complied with, but for those who are campaigning or for sportsmen, or others who must do much marching in a hot sun, it is advisable to protect the back of the neck and the upper part of the spine by one or two extra layers of material sewn into the back of the coat or shirt as an extra lining. Non-actinic cellular or red woollen material is best used for this purpose.

FOOT GEAR.

If the feet are to be kept in good condition, some trouble must be taken to obtain proper foot gear. Socks or stockings should be woollen, undyed, and of a medium thickness. Thick socks should be used for heavy marching, and an extra pair always kept at hand to change at the end of a march. Material for mending socks or stockings should also

be included, and it has been suggested by some that a darning-weaver should be taken.

Many different opinions are expressed by travellers as to the selection of suitable boots and shoes. For heavy marching, strong boots are required, and it is very important to see that these are thoroughly comfortable before starting, as few things are worse than ill-fitting boots. A little money laid out on specially good boots would be well spent, as it is a serious thing to become footsore on a long march. Some recommend Scaife's patent soles, though one writer says that they are useless in the rains. Others recommend cotton soles, such as are made in Indian gaols, for travelling in a rocky country, but probably most travellers who expect to do much rough travelling or mountaineering will be accustomed to certain kinds of boots which they would prefer. One writer recommends that nails in boots should be driven into the bottom sole and clinched over before the bottom sole is sown on to the boot, and states that nails so put in will remain in as long as the sole lasts, and cannot come through the inner sole to hurt the foot. In some cases, leather for re-soleing boots and tools necessary for this purpose, should be taken, but advice should be obtained on this point from the bootmaker who supplies the boots.

In dry weather, and where the walking is not too rough, shoes may be worn, especially if they are combined with putties or gaiters to protect the ankles from mosquitoes. The use of mosquito boots for the evening will be alluded to later on under the heading of mosquito protection.

Comfortable slippers should be taken for the evening, for use inside a mosquito net or when ill, and these may be of felt or woollen material, or of soft leather. In many countries suitable leather slippers may be obtained.

A pair of indiarubber high boots, for wading through swamps may be of use in certain parts, and brown leather riding boots with soft tops are also recommended.

Opinions differ as to the best kind of gaiters to be used. Leather gaiters are probably the most efficient protection, but canvas gaiters are more comfortable for hot climates. Many, however, prefer to use putties which may be of serge, or if it is necessary to protect the legs from thorns, Gabardine putties are recommended. Where there is the least tendency to varicose veins, putties are particularly useful.

OUTER CLOTHING.

In no department of outfitting has there been so great a change of opinion within the last few years as in that of the best material for tropical suits. White or khaki drill, or some other cotton material, used to be regarded as the standard article, but these are quite unsuitable where marching or other hard exercise must be undertaken. For these purposes woollen suitings are strongly recommended: these may be of serge or flannel or tweed or some other woollen cloths which are designed for tropical wear. Solaro is a woollen material in which a red thread is woven into the cloth, thus forming a red lining, which is believed to afford some protection against the sun, as has been already described.

To advise a traveller to dress in woollen suits would have suggested a short time ago the idea of white cricketing flannels, and the fact that many go abroad with cheap suits of this kind is accountable for the prejudice which exists in many minds against wool. As a matter of fact, strong, stylish, comfortable, durable suits can be made of the materials already described, and they are infinitely more healthy than cotton goods. But there is something more required besides a good material, and that is, that it should be well made up, and the exact cut of a coat may make all the difference between comfort and discomfort, nor can we altogether afford to ignore the question of appearance.

Travellers are recommended to communicate with the various tailoring firms mentioned on pages 59-61, who will be prepared to submit patterns of clothing, and many of them can supply valuable advice as to the garments which they have found most useful.

Whilst ordinary woollen materials are adaptable for a great variety of conditions, many explorers will need a somewhat stronger material which may also offer some protection against rain. Burberry's weather-proof clothing may be commended. Their Gabardine is a mixture of cotton and linen, and has been treated by a special process in the thread before being woven, which renders it resistant to rain, and yet without interfering with the porous nature of the cloth. This, when united with a woollen lining material, forms a combination which will protect the wearer against thorns. Gabardine is sometimes used in the tropics unlined, but it is better as a general rule to be lined. Further information on waterproof material may be obtained from Burberry's catalogue.

A Norfolk jacket with a number of pockets is usually considered to be the most convenient coat for the traveller, and in order to guard against changes in the temperature a good sweater will be found of service, especially if a coat is not worn. A woollen Cardigan jacket has been recommended by one writer which would be especially comfortable when resting or in case of illness.

Whether trousers or some form of knee-breeches should be worn is a matter upon which there is a good deal of difference of opinion. Some experienced travellers recommend the wearing of trousers with canvas gaiters, as affording greater relief to the legs at the end of a march. Some regard breeches as a necessity for riding, and a material known as Indian whipcord, furnished by Askew & Co., is well spoken of, as also are many kinds of woollen suiting provided by this firm. Jhodpore trousers, as used in India, not made too fashionably tight at the knee joint, are excellent for a combination to march and ride in, and in a country where extremes of heat and cold may be met with during the day's march, they are a great protection against chill.

If braces are worn they should be of some woollen material, but most travellers prefer to wear a belt, to which may be attached a knife, and possibly a revolver and some ammunition, or even medicines; but in matters such as these the needs and the habits of the travellers vary very greatly, so that it is difficult to suggest any one arrangement which would be suitable for all.

A waterproof coat will be needed, and for this purpose Burberry's slip-on or some other variety of gabardine coat is recommended. A mackintosh is not a very wholesome garment anywhere, and is almost unbearable in a hot climate. It may be worth while to have a warm though light woollen overcoat, which might be used as a dressing-gown in case of illness. The so-called Mexican poncho is really a sort of blanket with a hole through it for the head, which can be used as a cape, and which might serve as an additional bed covering at night when required.

NIGHT GARMENTS.

For night wear woollen pyjamas are recommended, though there is no reason why cellular garments should not be worn if these are preferred. Great care must however be taken to prevent catching a chill, as there is

often a lowering of temperature in the early morning following upon a hot night, and unless the body is properly protected there is great risk of a chill.

BED CLOTHES.

Blankets of a really good quality, which are light, and yet warm should always be taken. They should be closely woven with a smooth surface, so as not to pick up burrs, grass-seed and dust. They should be of material which will wash well, for it is often necessary for a man, to shake off a cold or a fever, to go to bed and induce copious perspiration. They should be longer than the common household pattern, for a man who sleeps in the open (and it is best even for those who have tents, to be prepared to do so) will wish not only to tuck the end under his feet, but to have enough over to cover his face in case of severe cold or heavy rain. It is well to remember that whatever part of the body may be neglected at night, the feet must be kept warm. Blankets answering to this description will be expensive, but they are well worth the extra cost both in efficiency and durability. A Scotch plaid or woollen rug may be an advantage. Woollen sheeting is much to be preferred to cotton, though sheeting of Aertex cellular might be employed. A pair of cotton sheets may however be of use, especially in case of illness where a cold pack is required, a method of treatment which is most valuable in cases of fever.

CHAPTER II.

CAMP EQUIPMENT.

THE provision of suitable camp furniture contributes in no small degree to the success of the expedition, but in this department it is especially important not to be too elaborate and so impede free movement.

TENTS.

A really good tent is indispensable for anyone taking a long journey in an uncivilised country, and the tent which appears to have been most extensively used is the double roof ridge pole tent of Benjamin Edgington, which is made of green rot-proof canvas. It is a useful addition to this tent to have the outer cover prolonged in front, so as to form a verandah, which may be of great comfort and provide a good place for having meals. The size of the tent must naturally depend upon the number of persons who wish to use it, and it will be easy then to choose the most suitable size. Somewhat similar tents may be obtained from other tent makers, whose names are given, and all of these would give good advice as to details.

Several travellers strongly recommend Burberry's Gabardine as a material for tents, as being much lighter than canvas.

It is suggested that ridge pole tents should, if possible, be pitched north and south, so as to get as much shadow as possible during the day. The ridge pole should be fitted with hooks by means of a tent pole strap, on which garments can be hung, whilst pockets in the walls of the tent will also be found extremely useful.

Various forms of hammock tent have been devised, chiefly consisting of a hammock over which a covering of canvas or Gabardine is arranged as a protection. One writer employs a piece of Gabardine 12 feet by 6 feet stretched between two trees or poles over the hammock, but whilst this may be suitable for night time none of these can be regarded as in

any way an adequate protection from the tropical sun. A good ground sheet should be, of course, provided for the floor of the tent.

PORTABLE BEDS.

Next to the tent, and in some cases of even greater importance, is the choice of a suitable camp bedstead. This should be compact, light, simple in construction, so that it is not liable to get out of order, and not too narrow. The bedstead which appears most nearly to answer to this description is that which appears in the price list of the Army and Navy Stores, under the title of "The Gold Medal Camp Bedstead." The design is the same as the folding iron bedstead which has been the favourite until recently of African travellers, but which is very heavy. Another bedstead which finds a good deal of favour, is the X Compactum bedstead, which can be obtained from any tropical outfitter. It is not so simple as that mentioned before, or so easily put together. If the bulk of the equipment is not a great point, a folding hair or cork mattress may be added, but this is not indispensable. A good pillow is of great convenience in illness, and it can hardly be regarded as true economy to do without one, though some may decide to improvise a pillow either from the clothing which is taken off at night or from materials to be obtained locally, and this can easily be arranged in the form of the bed described above. Pillows or mattresses may be stuffed with a material known as Kapok, which is better than hair and softer than cork. Many, however, will decide to take with them a good feather pillow, as nothing can fully take its place. Linen pillow-cases should be taken, but a couple of pillow-cases made of Turkey towelling might be useful in cases of fever where there was much perspiration, to put underneath the linen pillow-cases. Pillows covered with an ordinary mackintosh material tend to excessive perspiration, which is undesirable. A valise or canvas bag such as is referred to under the chapter on Packing is a necessity to properly protect the bed clothes. A piece of extra canvas to repair the bed if necessary and fitted to it should be taken if possible. The question of mosquito fittings will be discussed later.

SLEEPING VALISE.

There are many varieties of patent sleeping valise which are not only used for packing the bedding, but which also combine the functions of a bed and tent. This no doubt has certain advantages, but on the whole it is not recommended.

TABLES.

Many varieties of folding tables are in the market. The Uganda table is strongly recommended, though some may prefer the X folding table with a canvas top, from the point of view of compactness; the Paragon table is also recommended for the same reason. One writer suggests the use of an ordinary butler's tray, as combining simplicity with efficiency. If survey or mapping work is to be done, the wooden top of the table must be of the best seasoned wood, practically a drawing-board upon legs. The folding legs must be strong, and spare hinges and screws taken if going to a country where a very dry season is followed by a very damp one.

CHAIRS.

The choice of a chair or chairs from the many patterns which can be obtained must depend largely on the habits of the individual. The Roorkee folding chair is much commended and for those who desire to save space some of the X folding chairs may be taken, though these are hardly as durable as the stouter chairs.

A good deck chair with a leg rest which can be used on board ship and easily carried afterwards is also very advantageous. This may either be a well-made canvas chair especially made for the tropics, or a cane folding deck chair may be preferred. A strong camp stool is also useful. Nothing cheap should be taken.

BATH AND WASHSTAND.

Folding baths do not seem to find much favour with experienced travellers, the ordinary tin travelling bath with a removable wicker lining being generally preferred. In this articles of clothing needed for

the night can be packed. The bath itself, in addition to its primary use, may be utilised for storing water in camp, and has even served the purpose of a raft for crossing a river. The lid also makes a good tray.

An enamelled iron basin with a canvas cover enables all toilet requisites to be carried in the basin, and is recommended.

LAMPS.

Good folding lamps can be obtained from most of the prominent outfitters, Lord's patent lantern being the usual favourite, where oil can be obtained. A hurricane lamp is also useful. Various forms of candle lamps and lanterns are employed, but great care should be taken, in taking candles, to ascertain that they are suitable for tropical climates. Most of the chief candle firms prepare especially hard candles for this purpose.

CHAPTER III.

CANTEENS AND COOKING REQUISITES.

THIS department of the explorer's outfit might be included under the head of camp furniture, but owing to its great influence on health a special section is devoted to it. The usual plan which has been adopted in the past by travellers has been either to take a bucket canteen, including most of the articles required for culinary and table use, or else to have a canteen basket to hold not only articles for the table, but also food materials. Neither of these plans is satisfactory, and careful consideration is invited of the following arrangements of the utensils which are needed either for preparing the food, preserving it, or for the table. The following loads will be needed, though in certain cases where the weight is not too great two of them might be combined to make the load of one carrier, if human porters are being employed; (1) cooking requisites; (2) the canteen; (3) food-box; (4) provision-boxes. These must now be described in detail.

1. COOKING REQUISITES.

Different travellers will require very different utensils for cooking, but what we feel to be most important is that cooking utensils should be kept by themselves, and not mixed up with the things which are needed for the table, for it is practically impossible to keep saucepans absolutely clean, especially when they are being used on the march, and this often spoils the knives, forks, spoons, etc., which are often placed in them. These can most appropriately be packed in a venesta box with a hinge and padlock, and with partitions so arranged as to fit the contents. If, however, it is preferred, there is no reason why a basket or some other receptacle should not be arranged to contain the cooking utensils, and in some cases this might be obtained locally.

The following is a suggested list of cooking utensils:—

1. 1 strong kettle, preferably aluminium.
2. 1 smaller kettle.
3. 1 frying-pan.
4. 1 6-pint seamless steel saucepan.
5. 1 4-pint " " "
6. 1 2-pint " " "

The so-called seamless steel saucepans, or, better still, tri-metal saucepans, are probably more serviceable than aluminium, though the latter are more expensive than the first. Saucepans with detached handles are not recommended.

7. 2 small baking tins for bread or cakes.
8. 1 mincing machine.
9. 1 pastry board and rolling pin.
10. 1 fire stand.
11. 3 enamel iron basins.
12. 1 meat chopper.
13. 1 grid.
14. 1 suet scraper.
15. 2 cook's knives.
16. 2 cook's forks.
17. 1 cook's spoon.
18. 2 butcher's knives.
19. 1 flesh fork.
20. 1 steel.
21. 3 wooden spoons.
22. 1 pepper box.
23. 1 salt box.
24. 1 tin opener.
25. 1 corkscrew.
26. 1 tea infuser.
27. 1 kitchen saw.

To these may be added a so-called dinner carrier, by which is meant a portable form of steam cooker, and what is known as a field oven, consisting of two baking tins, the top one larger than the bottom one, and fitting over it.

In the case of large expeditions it may be worth while to take a

camp stove, but native cooks usually prefer to make fires in their own way, and sometimes to use their own cooking utensils.

It may, however, be a convenience to take a Primus stove, if paraffin and a small supply of methylated spirit can be carried.

2. CANTEEN.

It is intended that the canteen load should only contain articles for table use, all of which should be kept scrupulously clean, so that an attractive table can be kept, which is quite compatible with the greatest simplicity.

No cooking utensils or food-materials of a perishable nature should be allowed in the canteen box or basket. This may consist either of a venesta box of the same size and style already referred to, or the same articles may be fitted into a special canteen basket. This may contain the following articles:—

1. 6 soup plates.
2. 6 dinner plates.
3. 6 breakfast plates.
4. 2 meat dishes.
5. 2 table spoons.
6. 6 knives.
7. 6 forks.
8. 6 dessert spoons.
9. 6 tea spoons.

If a canteen basket is used, the knives, spoons, and forks may be packed in a long roll, similar to that which is often used for tools, the roll being made of green baize, and lined with washleather. If a basket is used, these might be fitted in slits in the lid of the basket.

10. 6 tea cups.
11. 1 tea-pot.
12. 1 pepper-box.
13. 1 salt-box.
14. 1 sugar-box.
15. 1 biscuit-box.
16. 1 table-cloth.
17. 6 serviettes.
18. 1 tin-opener.
19. 1 corkscrew.
20. 1 box matches.

The latter (Nos. 16-20) may be included in a tray if a basket is employed, but in case a canteen box is used, these articles would be placed in one of the divisions of the box.

N.B.—The plates, cups and dishes may be of enamelled iron ware, and great care should be taken that the boxes containing food materials should have tightly fitting lids, so as to prevent any possibility of coming open on the journey.

A sparklets syphon, with a box of charges and a Thermos flask, are valuable additions to the canteen.

It may be well to have a small separate basket containing a small spirit stove, a small kettle, one or two cups, and a tea-infuser, which can be used for making a cup of tea before the other cooking utensils can be unpacked.

3. FOOD BOX.

In most cases canteens for travellers' receptacles have been arranged for containing cooked food and butter, and other provisions which are in daily use, but it will be found a much more convenient and hygienic plan to set apart a special box to contain nothing but the various articles of food which are in daily use, and which may be known as the food-box. This should consist of a venesta or wooden box (the size recommended being 2 feet 6 inches by 1 foot by 1 foot), with a well-fitting lid with a padlock to fasten it. This box should be regarded as the travelling larder, and should contain several jars with fixed covers and a few screw-top, wide-mouthed bottles. In the jars might be kept American corned beef, when removed from the tin, or tongues, or even occasionally cooked meat or fowl, if found necessary to keep till next day. Condensed milk, after opening a tin, butter and jam should be kept in bottles, as also sardines when removed from the tin. In addition there should be included about 2 lb. each of flour and oatmeal, 1 lb. of peafLOUR for soup, also some cornflour, arrowroot, baking powder, dried vegetables, etc.; salt, pepper and condiments, meat extracts, dried soups, coffee, tea, cocoa and sugar. The greatest care should be taken as to the arrangement of this box. No food should be allowed to remain in it from day to day, and it need hardly be said that the box and every receptacle in it should be kept scrupulously clean. Slovenliness in this respect is

unpardonable. There are quite sufficient risks to life in Central Africa without running the risk of poisoning by putrefying food.

It may be added that no other provision box need be opened on the march, the food-box being filled up in camp the previous evening.

The exact way in which these different loads may be arranged and the arrangement of the different articles in the canteen and food-box which each traveller may wish to make will probably vary. The great principle, however, which is emphasised here is that the cooking utensils, canteen, and the food-box should each be kept absolutely separate, and not mixed up as is the case with almost every canteen now on the market. Joseph Tucker, who has assisted in the planning of these boxes, and Wareham & Co., are prepared to fit up boxes of the kind on the lines here laid down, in order to meet the needs of individual travellers, and other outfitters will doubtless be able to follow out these instructions.

4. PROVISION BOXES.

In addition to the travelling larder, which we have described above, a travelling store will be needed, which should consist of ordinary packing cases provided with hinges and padlocks. It would also be well for these boxes to have the lid fastened down by a few good brass screws which could be taken out when the box is being used. These provision boxes should be packed with such an assortment of preserved foods as the traveller is likely to require on the march, but the number of these which would be required, and the provisions which should be taken must depend on the length of the journey, the tastes of the individual and the possibility of getting provisions en route. In some cases it will be found best to obtain some of the provisions locally, but in most cases it will be well to take selected provisions from England, such as will be described in the following section, and some suggested lists of provisions for these proposed boxes are there given.

CHAPTER IV.

PROVISIONS.

THE proper use of the food supply of the country will probably go a long way towards ensuring the success of any expedition, and the less dependence is placed on preserved provisions the better is likely to be the result. Nevertheless, it is generally necessary to take a supply of provisions from home, and the quality is more important than the quantity.

CONCENTRATED FOODS.

Those who intend to travel with the least possible equipment may decide to rely mainly on the food which they may be able to obtain on the journey, supplemented only by a few concentrated foods which are of high nutritive value, and which can be packed in a very small compass. As instances of these, we may give the following: Plasmon, which is the albumen extracted from milk, and one of the most concentrated forms of nourishment known. As it consists of a white powder, it is not likely to decompose, and will be found of the greatest value both in health and disease. Various milk preparations, such as Horlick's Malted Milk may be included under this heading, but they will be specially referred to in the next section. Chocolate is also a valuable concentrated food, specially in the form of Plasmon Chocolate, and combined with wheatmeal biscuits or Plasmon biscuits a very sustaining form of diet is secured. Bovril and Lemco appear to be the best forms of meat extract, and they are no doubt of high nutritive value. Ivelcon tablets form a convenient method for making beef tea, and are very palatable. Maggi's soups, and specially the well-known Consommé, are also well spoken of, whilst Lazenby's soup squares and Edwards' Desiccated Soups have been found of great use on expeditions, and they are cheap and portable. Special emergency rations may be obtained from various sources. All of these foods would maintain life for considerable periods even if no other food could be obtained.

INVALID FOODS.

It may appear strange to put prominently forward in the essentials of an explorer's equipment invalid foods, but whatever else may be omitted, some of these should be taken, for whilst a healthy man or woman may be able to live on very rough diet when in good health, it is in times of sickness, which must be provided for, that special comforts are needed; and even if the traveller is so fortunate as to maintain perfect health, a supply of foods for illness may be useful in emergency. Under this heading we advise a selection from the following:—

Milk Preparations.—A good supply of unsweetened condensed milk should be included, and amongst those which can be recommended are Ideal Milk, which is the unsweetened brand of the Anglo-Swiss Condensed Milk Co. and the unsweetened milk of the Bernese Alps Milk Co. Sweetened forms of condensed milk cannot be recommended.

Allenbury's Milk Foods, Nos. 1 and 2, and malted food No. 3, as well as Allenbury's Diet, which contains some grain extracts as well as milk.

Horlick's Malted Milk, also a powdered form of milk, but containing extracts of wheat and malt. All of the above are easily prepared, highly nutritious, and readily preserved.

Glaxo and Trumilk are other forms of dried milk preparations, which are recommended, and Plasmon is an important invalid food, specially for mixing with other foods.

Benger's Food is also one of the best foods for illness.

Grain Foods.—In additions to those preparations which are combined with milk, the following are important:—

Arrowroot, which may be combined with Plasmon if desired, under the term Plasmon arrowroot.

Brown and Polson's Cornflour, and

Robinson's Groats and Prepared Barley.

Meat Extracts.—A special form of Bovril for invalids, or a preparation known as Nursing Oxo, both of these being unseasoned and highly concentrated.

Brand's Essence of Beef or Chicken is most valuable for invalids, and Brand's Fever Food is also well worthy of a trial.

Valentine's Meat Juice again is a highly concentrated meat preparation which may be used in severe illness.

These foods should be kept together, perhaps in a special case, so that they may be readily available in case of necessity.

BEVERAGES.

Water is undoubtedly the most important beverage, and the best methods of purification will be alluded to in another chapter. Tea, coffee, and cocoa should also be taken, especially cocoa, because of its sustaining properties. Cold tea is a very refreshing drink, and tea which has been made the night before and poured off the leaves after not more than four minutes, may be placed in an ordinary bottle to cool until the morning, and then placed in a Thermos flask, which will keep it cool until it is desired to drink it.

Limes, or lemons, if they can be obtained, can be used to form an excellent beverage, or in their absence various forms of lime-juice may be employed: Feltoe's Lime Juice, or Rose's Lime Juice Cordial are probably the best, whilst various preparations are available for making lemonade, such as the Eiffel Tower Lemonade. A Sparklets bottle or syphon with a supply of charges may be found useful, specially in case of illness, to make an aerated drink.

Reference will be made to the subject of alcohol under the heading of Medicine, as experience shows that not only is alcohol quite unnecessary as a beverage for the explorer, but is a positive hindrance in climates where there are extremes of either hot or cold.

ORDINARY PROVISIONS.

Whilst it may be desirable on certain pioneering expeditions only to take concentrated foods such as those described above, there are obviously very many who will prefer to supplement the food supply which they can obtain locally with a reasonable quantity of stores such as they have been accustomed to use in ordinary life at home. These may be briefly summarised as follows:—

Meat.—The use of ordinary tinned meats such as are commonly employed are dangerous to health, and are not recommended, but some good corned beef and ox tongues, such as Paysandu Tongues, keep well, and are a pleasant change. Various meat rations may be a useful

addition, such as those prepared by the Bovril Company, and concentrated soups have been alluded to in an earlier section. Some good forms of potted meat complete the list of meat preparations which are recommended.

Fish.—Tinned fish as a rule cannot be eaten without considerable risk in hot climates, and tinned salmon or lobster should especially be avoided. Sardines, however, might be taken with advantage if they are liked.

Vegetables.—The difficulty of obtaining fresh vegetables in many parts of the world renders it important to take some dried vegetables. McDoddies' products can be highly recommended, and their potatoes, French beans, spinach, turnips, carrots, and onions, are all good substitutes where fresh vegetables cannot be obtained. Many other varieties are supplied by the same firm.

Fruits.—Dried fruits such as apple-rings may be worth having, and evaporated apricots and prunes may also be taken, and these are more economical in space than bottled fruits, though there is no reason why these should not be employed, except for the question of bulk and weight. Neither tinned fruits or vegetables are recommended. It ought to be possible in most parts of the tropics to get fresh fruit—bananas, if nothing else.

Biscuits.—Some plain unsweetened biscuits are useful in cases of illness, and cabin biscuits are often used instead of bread.

Cereals.—Wheat flour is almost a necessity, though it can be replaced to some extent if other grain is available. It is best taken in 2-lb. tins. If larger tins are taken part of it is very likely to go mouldy before it is used. Brown and Polson's Paisley flour is a self-raising flour, and most valuable for mixing with ordinary flour in cooking.

Butter and Suet.—Some tinned butter will be needed, not only for the table, but for use in cooking. Hugon's Atoxa beef suet is the best form of grease for cooking purposes, and is excellent for suet puddings. This is more compact and more economical than ordinary suet or lard, and much more wholesome. A suet-grater will be needed for this, which is included among the kitchen requisites.

Preserves and Condiments.—Jam and marmalade may be taken in tins. Some pepper, salt and mustard may be needed, and the latter may be useful in case of illness; it is also well to have some curry powder

and a few bottles of Worcester or other sauce, which may help the appetite when the food is insipid.

Packing.—The general question of packing will be considered later, but it is of great importance to know that in packing provisions for the journey each box should contain an assortment of provisions, so that only one box need be opened at a time. These boxes should be closed with a hinge, and might be screwed down until they are wanted. A simple lock might also be a convenience.

It is an excellent plan to put up complete food for the Europeans of the party for one day in separate packets, as has been done by several prominent explorers. Much unpacking and waste are thereby avoided. There should be variety in detail in the daily provender.

CONTENTS OF PROVISION BOXES.

Reference was made in the last chapter to the arrangement of boxes of provisions which might be needed on an expedition. The exact arrangement of such boxes may depend not only upon the tastes of individuals, but also upon the possibility of obtaining a suitable food supply in the country. At the same time, in order to give an idea of an assortment of provisions which might be arranged for the use of one man for a week, the following two lists are given, which it is hoped may give at least some suggestion to those who are called upon to plan expeditions. These lists have been modified from certain lists which have been actually used by explorers in order to accord with the advice given in this chapter. Any of the well-known provision merchants would make up such boxes, and it is recommended that Venesta cases should be used.

Provision Box (A).

2 tins unsweetened Ideal milk.
 1 tin potted meat.
 1 2-lb. Paysandu tongue.
 1 tin Maggi's Consommé,
 1 tin Lazenby's soup squares.
 1 tin Lemco.
 1 tin Bovril rations (Blue).
 2 tins of corned beef.
 1 tin sardines.
 1 tin tea.

1 tin Van Houten's cocoa.
 2 bottles lime juice.
 French beans (McDoddies).
 Celery sticks (McDoddies).
 Carrots (McDoddies).
 1 tin Muscatel raisins and almonds.
 Dried prunes.
 1 tin apple rings.
 1 tin cabin biscuits.
 1 tin Bath Oliver biscuits.

Plasmon biscuits.
 McVitie & Price's oat cakes.
 1 tin wheaten flour.
 1 tin Scotch oatmeal.
 1 tin small sago.
 Brown & Polson's cornflour.
 Brown & Polson's Paisley flour.
 Plasmon.
 Plasmon chocolate.
 Bird's custard powder.
 1 tin butter.
 1 tin Cheddar cheese.

1 tin Hugon's Atoxa beef suet.
 1 tin loaf sugar.
 1 tin jam.
 1 tin marmalade.
 1 tin salt.
 1 tin mustard.
 1 tin white pepper.
 1 bottle pickles.
 1 bottle sauce.
 1 packet candles.
 1 cake Primrose soap.
 1 tin opener.

Provision Box (B).

2 tins unsweetened Ideal milk.
 1 tin ground coffee.
 1 bottle lime juice.
 2 tins lunch tongue.
 1 tin potted meat.
 2 tins corned beef.
 1 tin Bovril rations (Red).
 1 jar Bovril.
 1 tin Ivelcon soup squares.
 Spinach (McDoddies).
 White onions (McDoddies).
 Dried apricots.
 Figs.
 Plasmon biscuits.
 1 tin water biscuits.
 1 tin Bath Oliver biscuits.
 1 tin wheaten flour.
 1 tin Scotch oatmeal.
 1 tin pea flour.
 1 tin Patna rice.

1 tin grape nuts.
 Robinson's groats.
 Plasmon.
 McDoddies egg in powder.
 1 tin Cheddar cheese.
 1 tin butter.
 1 tin jam.
 1 tin marmalade.
 1 cake chocolate (Plasmon).
 1 tin crystallized sugar.
 1 tin salt.
 1 tin mustard.
 1 tin pepper.
 1 bottle pickles.
 1 bottle mango chutney.
 1 tin curry powder.
 1 packet candles.
 1 cake Primrose soap.
 1 tin opener.

CHAPTER V.

PROTECTION FROM INSECTS AND PARASITES.

THE knowledge which has been recently gained as to the part played by mosquitoes not only in carrying malaria, but yellow fever and other serious diseases, renders it imperative that every traveller who values his own health and that of his expedition should take the most rigorous steps to avoid mosquito bites. Nor is this all, for other insects are concerned in the propagation of disease. Tsetse flies convey Sleeping Sickness, ticks convey Relapsing Fever, the fleas of the rat convey Plague, whilst sand-flies and other insects may convey disease. It is beyond the scope of these Hints to give any special advice as to the choice of a camp, but great care should be taken when pitching the tent for the night that it should not be too near to stagnant water or to places where mosquitoes are likely to breed freely.

The same care should also be taken to avoid the haunts of the Tsetse fly, and especially in places where Relapsing Fever is common, native camping places or rest houses should be avoided.

MOSQUITO NETS.

A mosquito net for use at night is the obvious precaution which every sensible traveller has adopted for many years past, not necessarily from any idea of the relation of mosquitoes to malaria, but from the point of view of personal convenience. The net may be of various patterns. The simplest consists of a piece of calico about the size of the bed or rather smaller, to form the roof of the net, to which the mosquito netting is attached all round, so that the top of the mosquito net will be from 6 to 7 feet from the ground, the bottom being weighted with shot at intervals in order to allow it to rest absolutely on the ground. It is generally best, however, to tuck the sides in under the mattress or bedding. There is some danger lest mosquitoes should bite through the sides of the net, where

the camp bed is not very wide, and where the body, or in particular the hand or foot of the individual, may come in contact with the net. For this purpose it is recommended that a piece of calico about 18 inches wide should be sewn round the mosquito net so as to protect the body in this situation. This mosquito net is suspended by tapes attached to the four corners of the calico roof which are easily fixed either to the inside of the tent or any other suitable place. If it is preferred, a mosquito canopy can be provided, consisting of a framework over which the mosquito net is stretched. Mr. Joseph Tucker provides special corner pieces for the making of such a canopy to which bamboos can be fixed either in this country, or if available they may be fixed on the spot. Most outfitters have devices for the erection of mosquito canopies, some of which are made of metal, and fold up into a small compass. Corrie's Patent Mosquito Net Support is an ingenious arrangement devised by a lady, which is applicable either to a bed or to a chair. Silver and Co. supply special brass adaptable corner pieces which can be fitted to any size of bamboo or even to a wooden frame. Whichever device is selected, good strong mosquito netting must be taken, and the mesh should be not less than 15 holes to the inch, and of course it must be so arranged as definitely to exclude mosquitoes. Even the best mosquito net may be unavailing if it is not properly used, and this depends on the common-sense of the user. In any case it is advisable before getting into bed at night to search the inside of the mosquito net to see that no mosquitoes have entered, and this can be done best by getting some one to hold a candle or other light outside the net all round. The mosquitoes are usually attracted by the light, and then can easily be detected.

If it is desired to exclude sand flies as well as mosquitoes, muslin must be used instead of mosquito netting.

Whilst the desirability of using mosquito nets at night is usually conceded, it is often forgotten that one of the worst times for mosquitoes to bite is in the early evening, and it is doubtless due to this fact that the hour after sunset has been regarded as the most deadly time for contracting malaria. It is even possible to have the evening meal under a mosquito canopy, by simply arranging an opening in one side of the mosquito net to which entrance is obtained by a sort of funnel of mosquito netting, through which plates and dishes can be passed from outside to within the canopy without risk of admitting mosquitoes. If

the traveller is alone, one of Corrie's supports might be utilised, or a simple and quite inexpensive device may be adopted which was suggested by the late Mrs. Bishop, and which may be described in her own words: "It consists of an umbrella-shaped canopy of mosquito netting without any frame, and attached to this all round is a net curtain about 8 feet long, which falls straight to the ground. At the top of the canopy there is a loop of tape, and where the curtain joins it is a hoop of crinoline steel which keeps it extended. This can be removed and put away when not in use. This net also protects from other insects which are often a great nuisance." She adds: "Another plan which I have adopted to avoid the torments of vermin is to have a large sheet 6 feet by 8 feet of unbleached cotton, which is treated by being soaked in boiling linseed oil, then dried, then soaked again in the same and dried. This I spread on the ground under my bed and chair." This would be especially useful in cases where ticks are likely to be present.

MOSQUITO BOOTS.

For those who cannot arrange to have their meals under a mosquito net, it is a good plan to have a pair of soft leather boots for use in the evening, made somewhat in the shape of a shooting boot but with a sole suitable for a house shoe, and with very loose tops. Sometimes the tops are made of canvas. These can be obtained from most tropical outfitters, but Norris of Bishopsgate, and Thierry, Ltd., of Regent Street, are well acquainted with what is required. Unless some device of this kind is adopted, the ankles are certain to be badly bitten by mosquitoes, which usually bite in this position during the evenings. Of course the neck and other exposed parts must be guarded, but there is less difficulty about this.

CHAPTER VI.

BOXES AND PACKING.

WATER-TIGHT BOXES.

It is of little use to spend money on an expensive outfit if care is not taken that it is properly packed; so that it is of the utmost importance that suitable boxes should be taken.

Silver's water-tight metal boxes, which have been largely used by explorers, are the best; and they have recently been improved, so that the contents of the boxes may be preserved intact, even if the box should be submerged at the bottom of a river. This is more than could be said of many so-called air-tight boxes which are on the market. The smaller cases are specially arranged so as to form a load for a carrier, and where they are intended to be carried on men's heads it is well to have wooden bottoms fixed on to the bottom of the case. In some instances, and especially with the larger cases, it is necessary to have an outside wooden case, but this is not usually necessary for the smaller ones, which are most likely to be used in an expedition.

PACKING.

For a traveller in countries where baggage is carried on the backs of animals different arrangements will have to be made. In some instances strong saddlebags of some waterproof material are employed, but it will probably be found that there are special methods of dealing with baggage suitable to each particular part, and it would be well for the traveller as far as possible to conform to the customs of the country. As regards the general question of the packing arrangements of the equipment, the following paragraphs are given, practically unchanged, from the last few editions of 'Hints to Travellers.'

This subject may be dealt with under the following four heads, viz. (1) methodical arrangement, (2) security, (3) economy, (4) the catalogue.

1. *Methodical Arrangement*.—Articles likely to be in most frequent use should be packed together, care being taken not to bring articles likely to injure one another into close contact. Tins must be kept apart from anything breakable. Fragile articles (such as glass bottles) should be packed in small separate boxes or cases, so that, should they be broken, they may not leave a void which will cause all the contents of their case to jumble about. Chemicals and explosives should be kept separate from other things, and, before being packed, inquiry should be made as to regulations to which they will have to submit on shipboard, etc. If the goods have to undergo Customs examination, the traveller must be present himself, or he risks the goods being disarranged and carelessly repacked, and the eatables extensively tested by tasting.

2. *Security* against (a) breakage, (b) damp, (c) robbery should be studied whilst packing.

(a) To guard against breakage, packages should be of reasonable dimensions. For an inland traveller, 75 lbs. gross weight should be about the maximum of any single package. A horse or mule can take a (conveniently shaped) box of this weight on each side. Where goods are intended to be carried by porters, it is not recommended that any single package should weigh more than 56 lbs. Heavier packages will almost certainly have to submit to very rough treatment. Further security against breakage can be had by subdivision, that is to say, by packing boxes inside boxes, tins within tins, etc. Everything should be *tightly* packed, and all vacant spaces filled up. Oblong boxes travel best.

A few large bags of the sort known in Tyrol as *Rucksacks* made of Willesden canvas, of which various approved sizes can be obtained, are most convenient for the carriage of small packages, and when not in use are so light that they can easily be stowed away. It is obviously desirable that some of the packages should be capable of being kept under padlocks. Such Willesden canvas bags are specially valuable for packing bedding where a special valise is not employed, and it is particularly important that bedding should be kept from contamination by vermin, especially ticks, in countries where these are prevalent. Several canvas bags and several dozen linen bags are very useful for packing.

(b) To guard against damp (on ship-board, in countries with heavy

rains, passage of rivers, etc.), all perishable things should, where practicable, be enclosed in tin and soldered, *particular care being taken that everything is thoroughly dry before being soldered up*. It pays the traveller well to have his outer wooden cases made of the best deal, closely fitted, and varnished or double varnished to prevent absorption of moisture by the wood. Or it may be better to employ a special material for making light packing cases known as Venesta which appears to be much better than ordinary wood. It possesses the following advantages: It is exceedingly strong. It is much lighter in weight than any ordinary wood, and is a better protection from damp. It may be obtained from Venesta, Limited, 20 Eastcheap, E.C.

(c) Closely-fitted, well-made cases afford great trouble to thieves, and gaping packages, with partly-exposed contents, invite robbery. Boxes which are *screwed* down are more secure than nailed boxes, as thieves are frequently not provided with screw-drivers. Use *brass* screws, if possible, for cases which have to be frequently opened and re-opened; iron screws, if used, should be tallowed before insertion; they will then unscrew more easily. Articles of value should be kept out of sight as much as possible.

3. *Economy*.—It is false economy for the traveller to buy any but the best articles for his outfit, or to carry useless things. Many articles may be put to double uses, and economy can be effected by selecting such materials as can be most widely applied. For example, articles to be used as presents may also be put to use on the journey. There should be no waste space in the packages. Every interstice can be filled up with articles which may be turned to account. For the finishing touches, tow, cotton-wool and paper, crumpled into balls the size of walnuts, may be advantageously employed, as all these materials can be used for a diversity of purposes. If the traveller does not himself superintend the packing of his goods, he must not expect foresight in these small but important particulars.

4. *The Catalogue of outfit*.—As each package is finished, its contents should be carefully catalogued, and the package numbered distinctly on several sides, corresponding numbers to be entered in the catalogue. In the event of the contents of a box being varied and numerous, roughly classify them before entering. The traveller himself should carry the catalogue on his person, and, where there are a large number of packages

and articles, it will be found of advantage to form a classified catalogue showing the disposition of the articles, as well as a numerical one, showing the contents of each package.

It is worth while to have several duplicates of this catalogue, and where it is necessary, as in some cases, to despatch some of the baggage beforehand, it may be necessary to send an exact list of the contents of each box to the port of landing for the use of the Customs officer, as this may save a great deal of inconvenience.

CHAPTER VII.

STATIONERY AND WRITING MATERIALS.

THE requirement of travellers in the matter of stationery and writing materials will obviously depend largely upon the character of the expedition and the tastes of the individuals taking part in it. There are, however, certain details concerning which some advice may be helpful.

A File for letters and other papers is a very great convenience, and we strongly recommend some variety of the Ceres file, which forms at the same time the simplest possible file for the arrangement of papers and letters and a box for packing stationery. Probably the metal-box file (quarto size) with a canvas cover would be the most useful variety. One writer suggests the Bank of England file as the cheapest and most convenient letter file for the bush. It is made of thin paper and card and is said to be durable, but obviously it cannot afford the same security for papers as a stronger file.

A Typewriter may be of use to those who intend to do much writing on their journey, and it is especially useful from the fact that several carbon copies can be taken off at the same time, thus enabling copies of all letters to be kept without the trouble of taking a letter book and copying press, and making it possible to send copies of the same letter or journal to several different people. This may prove to be an enormous advantage, and it is strongly recommended that whatever system is adopted, the traveller should keep a copy of everything that he writes and several copies of the most important documents. He should keep with him at least two of each in separate boxes, so that if one is damaged or lost the other may be preserved. The typewriter should be one which is not only portable but simple in construction and easily adjusted in case of damage by accident or rust. The Empire typewriter is one which can be confidently recommended from this point of view. Whichever

form of typewriter is selected, its mechanism should be understood, if possible, before starting, and spare parts taken as may be advised, so that in case of any small accidents it may be possible to remedy them without difficulty. Care should also be taken to secure a case for the machine which will be suitable for travel.

Manifold Books for use with carbon sheets might also be taken, and if a typewriter is not taken, they may be employed both for writing journals and for letters. The same system can be employed for obtaining copies of letters in which loose sheets can be used, which is in many ways preferable. The Ceres writing copier is an ingenious device for accomplishing this object which is warmly commended.

Account Books, note books and alphabetical index books may be useful, or a small box of cards on the card file system may be of service for notes. Some advise a form of journal which can be closed with a lock and key.

Gem Paper Clips as provided by the Gem Supplies Co. are convenient.

A carefully selected fountain pen would be found useful. It would be well to take two in case of accident or loss.

A form of ink should be taken which would be suitable for use with fountain pens, and though ink pellets may be of use, if other ink is not available, the fluid form is much to be preferred.

Envelopes should be tough and not transparent, and for especially important despatches it is advisable to have some linen-lined envelopes. These should be kept carefully in one of the water-tight cases, as otherwise they will all stick together and become of very little use.

Letter Scales of a simple kind may be obtained which go into a very small compass.

Sundries.—Blotting paper, sealing-wax, gum, a few pencils, india-rubber, etc., should not be forgotten.

CHAPTER VIII.

LITERATURE.

LOCAL maps and special geographical books including 'Hints to Travellers,' must be taken as a matter of course, and on the subject of general literature Sir Harry Johnson's suggestions, which were quoted in the last edition of this book, are worthy of attention.

"As regards food for the mind, I cannot too strongly recommend all travellers to supply themselves with quantities of light literature. By 'light' I do not mean frivolous in character, but devoid of great material weight, so that it can be easily packed and readily transported. There are a great many standard books now published in cheap editions in paper covers, and these, together with a supply of good novels, sensational tales, old magazines, and reviews, should be taken. Although the traveller should endeavour to supply himself with books that are worth reading and re-reading, still, it is astonishing with what pleasure he will peruse the veriest rubbish in the wilderness, and really crave for anything that may serve to distract his mind at times from the savagery around him."

The many portable editions of standard works which have recently been issued by various publishers are preferable from the point of view of weight and portability to those published in paper covers.

A Bible would naturally be taken, and perhaps a prayer-book; and religious books will suggest themselves to those who would value them.

The latest copy of Whitaker's Almanack gives information which may often be of great service, and a good telegraphic code, such as the "Via Eastern Telegraphic Social Code," should also be included.

CHAPTER IX.

MEDICINES AND MEDICAL REQUISITES.

THE medical hints which are included in the second volume of 'Hints to Travellers' deal at considerable length with the question of medicines which are suitable for use by those who have had little or no experience of medical subjects, and sufficient advice is given there to enable a traveller of ordinary common sense to deal with the usual emergencies. These hints should be consulted before planning the medical equipment of a journey. It may not, however, be out of place to make some suggestions as to the best form of medicine chests which can be obtained for use in travel, though it is difficult to give much detailed advice for expeditions which must differ from one another to a large extent both in the members of the party, the length of the journey and the possibilities of transport. Medicines and medical stores may very conveniently be carried in one of the Venesta hinged boxes such as those recommended for the canteen. This may be divided into compartments to contain (1) a small medicine chest, (2) a few of the more commonly used drugs in addition to those in the medicine chest, (3) surgical and nursing requisites including dressings, (4) invalid foods as detailed in Chapter IV.

MEDICINE CHESTS.

There can be little doubt that compressed drugs in the form of tablets are the most suitable form for the use of travellers. It is quite true that there is some risk lest these should not be properly dissolved or assimilated, especially in cases of severe illness, but in such cases it is quite possible for the tablets to be crushed and used as a powder, or dissolved in water previous to administration, and this should always be done in any case of doubt. It is important, however, that these preparations should be obtained from well-known firms, whose preparations have been well tested, and therefore can be relied upon. Messrs. Burroughs Wellcome & Co., whose compressed drugs are known by the special term of

“tabloid,” have undoubtedly the greatest experience in supplying the needs of travellers, but Messrs. Parke, Davis & Co. have also considerable experience in this matter, and their preparations can be confidently recommended. Both of these firms have a large selection of Medicine Chests especially designed for the use of travellers, and they are able to give many valuable hints as to the best methods of planning the Medical equipment of an expedition. Some travellers prefer to use the preparations of Messrs. Oppenheimer, Son & Co., some of which are known as “palatinoids,” by which is meant a small capsule in which different drugs are contained in powder form. These, however, should not be administered in cases of serious illness without dissolving the contents. The same firm are now making preparations known as “pulverettes,” which are likely to be of value, though they are not quite so compact as compressed drugs.

Travellers are recommended to take at least one small black-metal Medicine Chest, which may contain the following drugs, as well as certain portable dressings and other accessories.

1. CONTENTS OF METALLIC MEDICINE CHEST.

16-1 $\frac{3}{4}$ oz. glass stoppered bottles, containing—

Tablets or Tabloids—

Quinine bisulphate, gr. 5.

Acetyl salicylic acid, gr. 5.

Sulphonal, gr. 5.

Aromatic chalk with opium, gr. 5.

Dover's Powder, gr. 5.

Soda mint.

Ammonium carbonate, gr. 3.

Iron and arsenic compound.

Bismuth subnitrate, gr. 5.

Phenacetin, gr. 5.

Cascara sagrada, gr. 2.

Ipecacuanha, gr. 5.

Cathartic compound, sugar coated.

Voice.

Pepana.

Fluid Preparation—

Chlorodyne.

In the Tray—

Tablets or tabloids in 4 drachm vials—

Calomel, gr. 1.

Tincture camphor compound, min. 15.

Ammonium bromide, gr. 10.

Podophyllin and euonymin.

Santonin, gr. 2.

Potassium permanganate, gr. 2.

Zinc Sulphate, gr. 1.

Boric acid, gr. 15.

The last three are intended merely for external use, and are known by Messrs. Burroughs Wellcome & Co. as "Soloids."

Also 1 bottle of tablets, or soloids, Corrosive Sublimate, gr. 8.75, in special poison bottle.

Sundries—

1 Lancet with metal handle.

1 No. 7, Silk web catheter.

1 Pair dressing scissors.

1 Caustic holder and point.

1 Clinical thermometer.

1 Pair dissecting forceps.

1 Box safety pins.

2 Suture needles in a book.

1 Reel suture silk.

 $\frac{1}{4}$ yard court plaster.

2 compressed bandages.

1 x 2 oz. packet compressed boric lint.

2 Packets sterilized double cyanide gauze.

1 x $\frac{1}{2}$ spool adhesive plaster.

1 Packet boric wool.

3 Mustard leaves.

1 Collapsible tube lanocyllin.

3 Pieces tooth stopping.

1 Tube Borofax, or Boracic ointment.

1 First Aid Medical Guide.

2. OTHER MEDICINES.

In addition to the drugs taken in a compressed form, a small supply should be taken at least of the following—

Castor oil.

Sulphate of magnesia.

Boric acid.

Ammonia.

Salvolatile, and

A supply of pills, for the use of native carriers and servants.

In addition extra supplies of compressed drugs for replenishing the medicine chest should be taken of any which may be required in large quantities, and especially of quinine. In cases of large expeditions considerable quantities of crude drugs may be needed for which a Medicine Chest may be supplied. The following firms will give good advice on this subject: Allen and Hanburys, Howard Lloyd & Co., and Dakin Bros., as well as other wholesale chemists, though those mentioned have special knowledge of the requirements of those who travel abroad. An adaptation of Messrs. Howard Lloyd & Co.'s Station Chest would be a useful chest for an expedition.

ALCOHOL.

A bottle of brandy, half a dozen small bottles of champagne, and two bottles of port wine might be taken, as they are sometimes recommended for use in illness.

These could hardly be included in the medical case, though they should be regarded as part of the medical equipment, and it would probably be well that they should be taken in a case by themselves.

3. DRESSINGS AND NURSING REQUISITES.

A First Aid Case, such as that designed by Messrs. Burroughs Wellcome & Co., will be found useful, and their compressed dressings especially of such things as antiseptic gauze are most convenient.

A few useful surgical instruments might be taken by those who know how to use them, and these can be obtained from any surgical instrument maker.

A few syringes, including an enema syringe of best rubber, a waterproof sheet and a few other accessories for use in illness should also be taken, and it is most important to have some knowledge as to their use before starting on a pioneering expedition. Two spare clinical thermometers should be added in addition to the one provided in the medicine chest.

A bed pan would also be useful, though this would be rather too large for the special medical case, and something of the kind might be improvised in case of emergency.

CHAPTER X.

WATER PURIFICATION AND SANITARY APPLIANCES.

THE question of water purification is of such vital importance that it merits special consideration. It should be clearly understood that the danger of drinking impure water is due to the possibility of contamination with the germs of such diseases as Cholera, Typhoid Fever or Dysentery, or some parasitic diseases, and it is unfortunately the case that no filter can be absolutely relied upon to ensure complete protection from the minute forms of disease germs. One thing, and one thing only, can be relied upon to give full protection from a tainted water supply, and that is the action of heat. In a word, water must be boiled on all occasions where the water supply is not above suspicion. This may be done by means of an ordinary kettle, but unless the water is boiled under the eye of the traveller there is a danger lest this should not be thoroughly carried out.

A simple portable sterilizer has been devised by an old student of Livingstone College which ensures that the water shall be efficiently sterilized. Particulars may be obtained from Allen and Hanburys, Ltd.

There are also portable stills in which drinking water can be distilled, but the process is naturally slower than that of boiling, and much more fuel is therefore necessary.

The addition to muddy water of alum in the strength of six grains to the gallon is sufficient to cause the suspended impurities to settle in the bottom, or a similar result can be attained by using any sort of simple filter, it being clearly understood that the water should subsequently be boiled.

SANITARY PAIL.

A sanitary pail with a seat is a great advantage, and it may be useful to serve as an earth closet when settled for any time at one station.

DISINFECTANTS.

Carbolic powder, Izal powder, or Jeyes' Sanitary Powder, are the most useful for disinfecting purposes, whilst each of these disinfectants may be had in fluid form. Chinosol can be obtained in the form of sanitary tabloids, which are therefore more compact and portable than fluid preparations.

CHAPTER XI.

TOILET REQUISITES.

THE arrangements for the toilet should be as simple as possible, but it is of the utmost importance that they should be adequate, as there is a tendency in the tropics to excessive perspiration, and to prickly heat and other affections of the skin which are closely connected with it, and at the same time there are many parasitic diseases which need to be guarded against.

This is best done by very scrupulous attention to cleanliness. For this purpose two good bath towels, not too thick or too thin, should be taken, and also two or three soft towels. A good soap may be obtained from many different firms, and each traveller will probably have his preference. Some antiseptic soap should certainly be included, and Izal toilet soap is specially to be recommended.

Two moderate-sized sponges and two or three tooth-brushes will be needed, and in this connection it is well to remember that careful attention to the teeth is of the utmost importance. A reliable tooth powder should also be taken, and at the request of the author of these Hints a special tooth powder, designed by an experienced dentist, can be obtained from Messrs. Dakin Bros. under the name of the "Traveller's Tooth Powder." This is put up in hermetically sealed tins, and may be ordered through any chemist.

Dressing bags or cases are generally quite useless in the tropics, but a waterproof case should be taken, arranged similarly to the hanging toilet tidies which are provided on most steamships. In this can be placed a sponge, tooth brush, tooth powder, as also a brush and comb. Aluminium combs are undoubtedly the best, for they are practically unbreakable and most cleanly. A soap box to fit the soap taken is also a great convenience, and this might be of aluminium. Nail brushes, a

good clothes brush, and a folding looking-glass will however be needed. There is a difference of opinion as to whether shaving materials should be taken. Those who decide to do so may find the Gillett equipment a convenience.

Many will decide to keep the hair quite short, and for this purpose hair clippers are most advisable. A pair of nail scissors and a pair of scissors for cutting the hair should also be taken. Many of the toilet requisites may be conveniently packed inside an enamelled basin, as will be found described in Chapter II., on Camp Equipment, on page 24.

For use in fever a bottle of Eau de Cologne and some smelling salts are useful additions. A good supply of pocket handkerchiefs will of course be remembered.

CHAPTER XII.

GUNS, RIFLES, AND AMMUNITION.

It is exceedingly difficult to give any general advice on the subject of Guns, Rifles and Ammunition, which will be suitable to all cases, and it is clear from the communications which have been received from various experienced travellers that considerable difference of opinion exists as to the best equipment to provide under this heading. It is clear that individual preference must be considered, and that the conditions of different countries must be taken into consideration. It is particularly important that any one taking arms or ammunition abroad should obtain full information beforehand as to the local conditions which regulate the use of firearms, and these vary, not only in different countries, but in almost every administration. Instead, therefore, of attempting to summarise the experience of many different travellers the advice has been obtained of Mr. F. C. Selous, whose experience as a sportsman in Africa is unrivalled, and the following notes which he has most kindly prepared for this chapter will be welcomed by those who are seeking advice on this important subject. Mr. Selous is anxious that it should be understood that he writes from the point of view of Africa alone, but the hints which he gives will doubtless be of value for other parts.

“Until towards the end of the last century there was doubtless a great diversity of opinion amongst experienced sportsmen as to what were the best rifles for big game shooting in Africa. The tremendous power of the cordite rifles of .450-bore and upwards, which English gun-makers were then only commencing to build, was not generally known, and certain old hunters were still to be met with who looked doubtfully at the new weapons, and still put their trust in the 8- or 4-bore black powder rifles, or smooth-bore guns, which had served them so well in days gone by.

“But I take it that such conservative old sportsmen, if not now all dead, have been converted to the opinion that modern cordite rifles are

better weapons than the heavy, black-powder rifles which they have at any rate now entirely superseded.

“As to what is the best modern rifle for African shooting, it must be acknowledged that there is no one rifle which can be pronounced the very best weapon for all kinds of African game. The best rifle for elephants or buffaloes—which will in all probability be met with in dense jungle, bamboo forest, or long grass—is undoubtedly the most powerful rifle an individual sportsman can use with ease and comfort. The late Mr. Arthur Neumann, the greatest of modern elephant hunters, a man of medium strength and build, always used a double .450-bore cordite rifle, by Rigby, on his later expeditions, and he told me himself that he had found it a far more deadly weapon than any of the large-bore black-powder rifles he had previously used. A big, heavy man would, however, be well advised to use a .500 or .577 bore rifle for elephants, if he found that he could handle such a weapon easily.

“But the best rifle for elephants and buffaloes in thick bush would not, of course, be also the best weapon for use on the open plains of Africa, where game has often to be shot at long ranges.

“Up till quite recently such small-bore rifles as the Lee Enfield .303-bore, or the Mannlicher .256, have been generally considered the best for such shooting, but it is quite likely that before long such rifles as the American ‘Springfield’ and the Canadian ‘Ross’—rifles which shoot a very deadly form of pointed bullet, and have an excessively low trajectory—may be found to be superior weapons for shooting in open country than any of the older forms.

“The sportsman or traveller, therefore, who is proceeding to Africa, and who wishes to shoot every kind of game to be found in that vast Continent, may be advised to take with him, if he can afford it, a heavy cordite rifle, either double-barrelled or magazine, for elephants, buffaloes and rhinoceros, or for following wounded lions into cover, and one or other of the many different kinds of small-bore magazine rifles—they are all good—for use against all animals met with in open country.

“Should an intending traveller only be able to afford one rifle, then let him take a .350-bore Mauser, by Rigby, or a .375, by Holland, or some similar rifle. Such a rifle would not be the best for every kind of game, but every kind of game could be killed with it.

“For all very heavy animals such as elephants, rhinoceros, buffaloes,

and giraffes, solid nickel-coated bullets should be used, as any form of expanding bullet, though it might penetrate to the lungs of one of these animals, should it be hit behind the shoulder when standing broadside on, would, in all probability, break up in the thick muscles covering the shoulders of such ponderous beasts, without reaching the heart. For all antelopes, as well as for lions and leopards, expanding bullets should be used, and, in my opinion, the best form of expanding bullet is that known as the 'Dum Dum,' in which only just the point of the leaden core of the bullet is left uncovered by the nickel coating.

"Besides the rifle or rifles which every traveller will take with him to Africa, an ordinary shot-gun will often be found useful, if it can be carried, to shoot guinea fowls and francolins for the pot. Personally, I do not think that any form of shot and ball-gun combined is to be recommended for African shooting, and I consider a revolver in most parts of that country a useless encumbrance."

CHAPTER XIII.

SUNDRIES.

DOUBTLESS there are many 'things not mentioned in the preceding chapters which would be needed by travellers going for a long journey in uncivilised parts, and we may mention under the above heading certain articles which occur to us as necessary, or at any rate useful for a journey. A roll of good tools should most certainly be taken, and screws and nails, a hatchet, and cold chisel, which is useful for opening boxes, should be included with this. A knife or knives, scissors, string, and some tubes of seccotine will be found useful for mending all kinds of breakages. A chain and padlock may also be taken.

A housewife containing an assortment of needles and cotton as well as strong thread for mending, and with a good supply of buttons, especially linen ones which are not so likely to be damaged in the wash where due care cannot be relied upon. A tape measure should not be forgotten.

It would have been possible to devote an entire section to the subject of saddlery and accoutrements for horses and other animals. The author is however of opinion that the varying conditions of different parts of the world make it impracticable to offer any general advice under this heading. He hopes, however, that each traveller will enquire beforehand as to what is required in the particular country to which he is going, so that he may know whether to take saddlery from England or whether he may rely on native articles. A horse cloth should be taken and used, specially in any doubtful tsetse fly belts.

No mention has been made of scientific instruments, as these have been dealt with in 'Hints to Travellers' in a detailed manner, and reference is made to the latest edition of that valuable work; but, in addition to other meteorological instruments, it may be well to have one or two ordinary thermometers.

Field glasses and a telescope should also be taken, and fittings for these which enable them to be fitted to a saddle will be found very useful.

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60 HINTS ON OUTFIT FOR TROPICAL COUNTRIES.

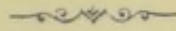
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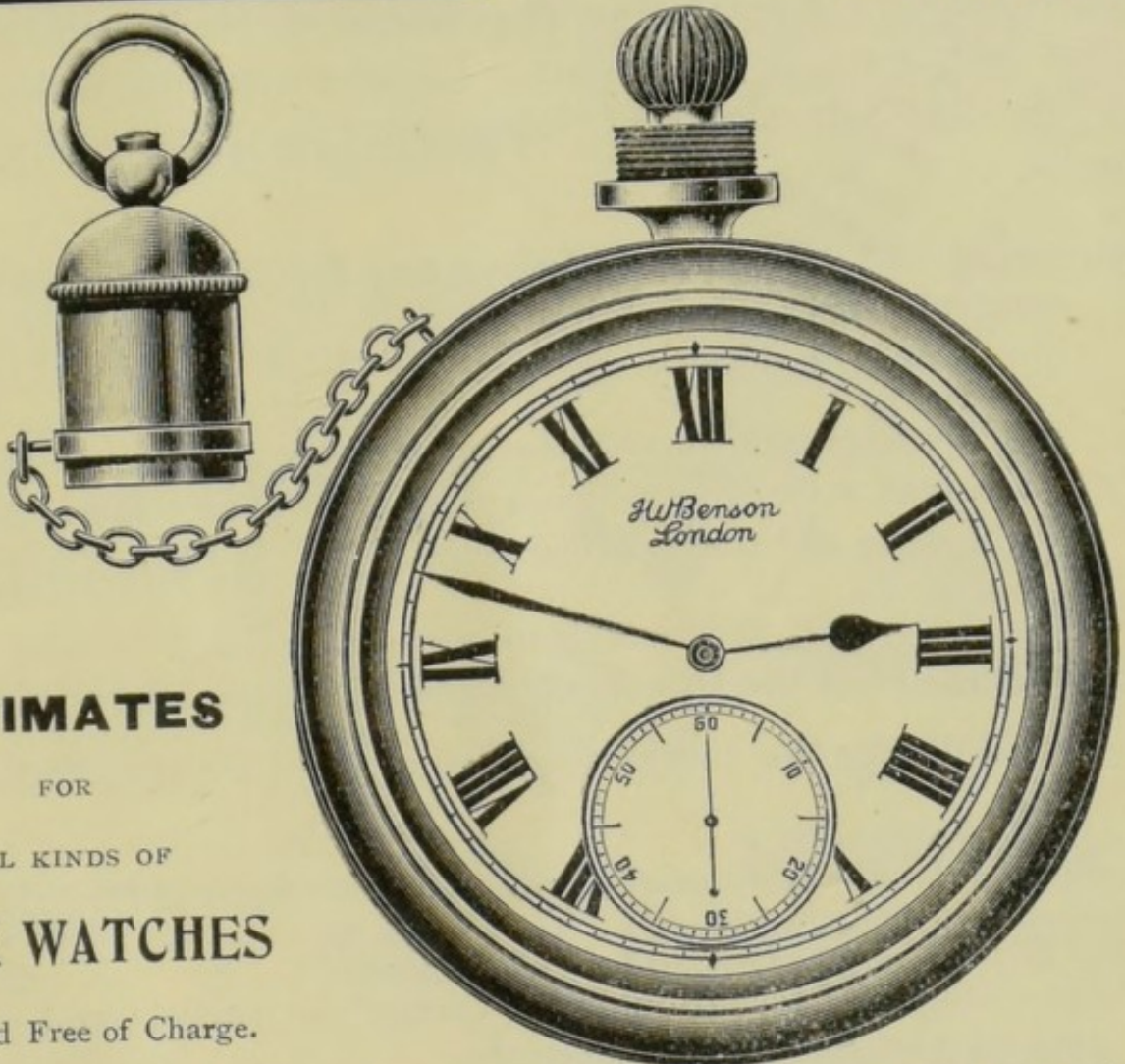
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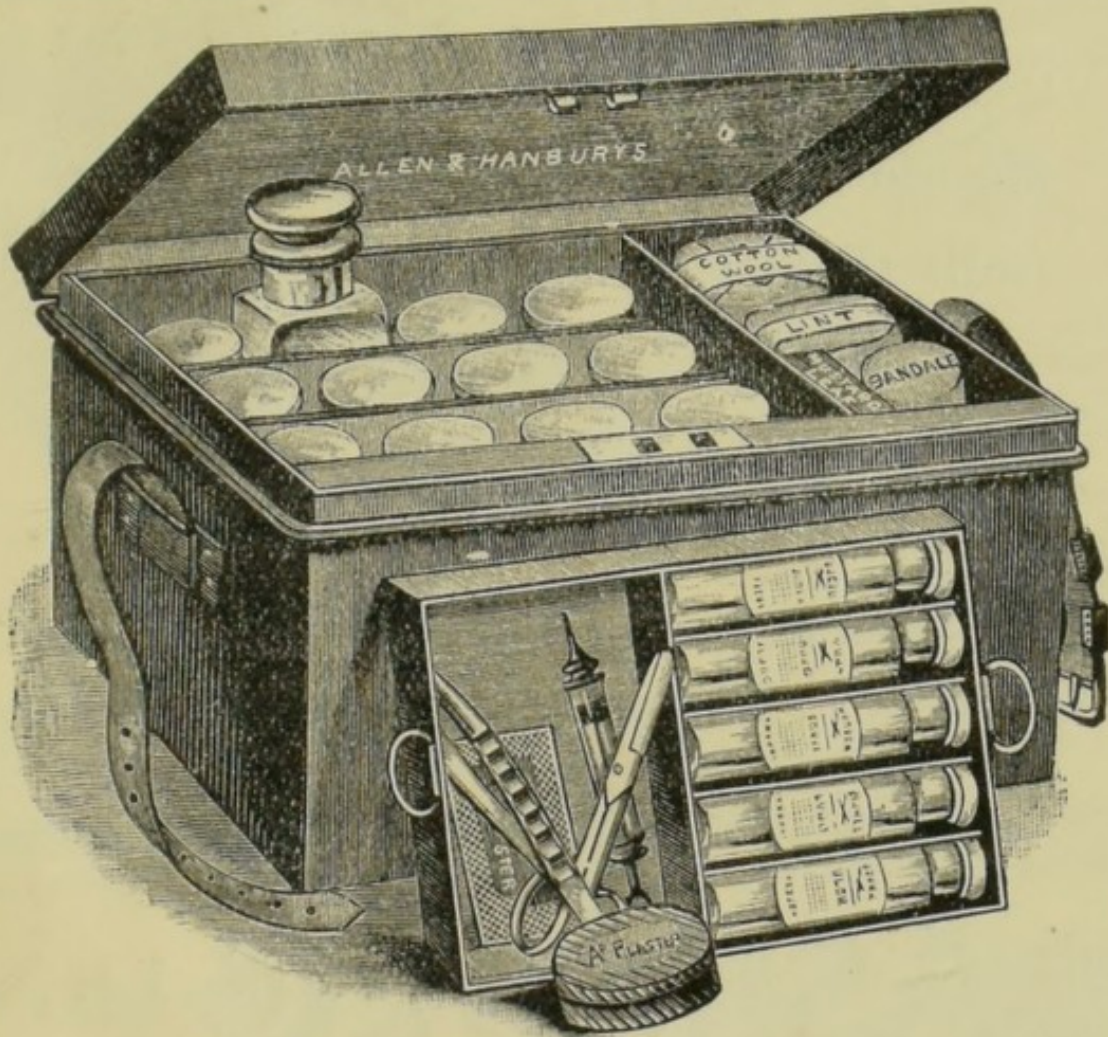
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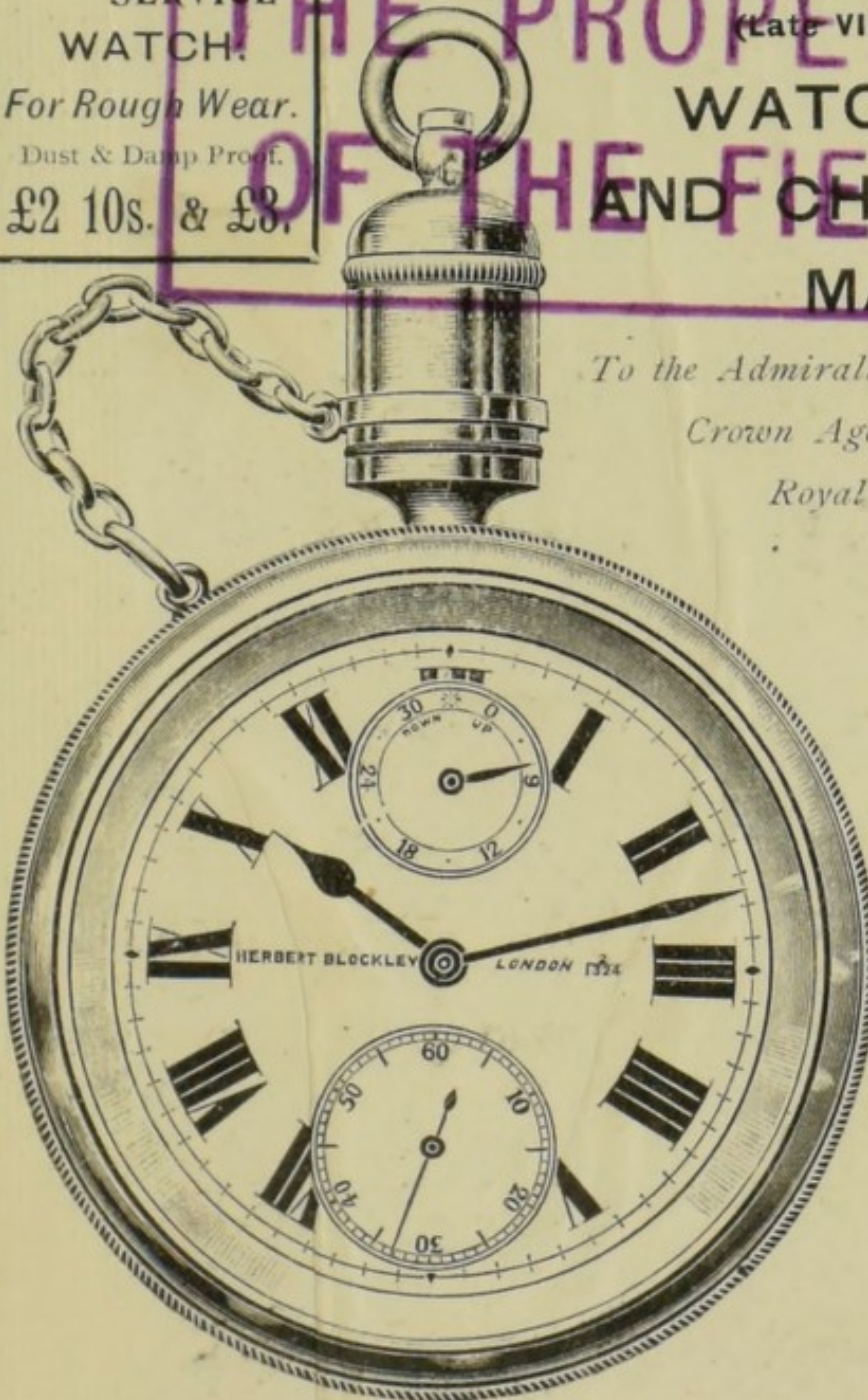
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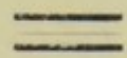
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