



Short medical notes for explorers

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the author
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SHORT
MEDICAL NOTES
FOR
EXPLORERS.

W. H. CROSSE, M.R.C.S., F.R.G.S.,

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PREFACE.

THE fact that these notes have had to be hurried through the press against time and for a special expedition must be my excuse for any imperfections and omissions.

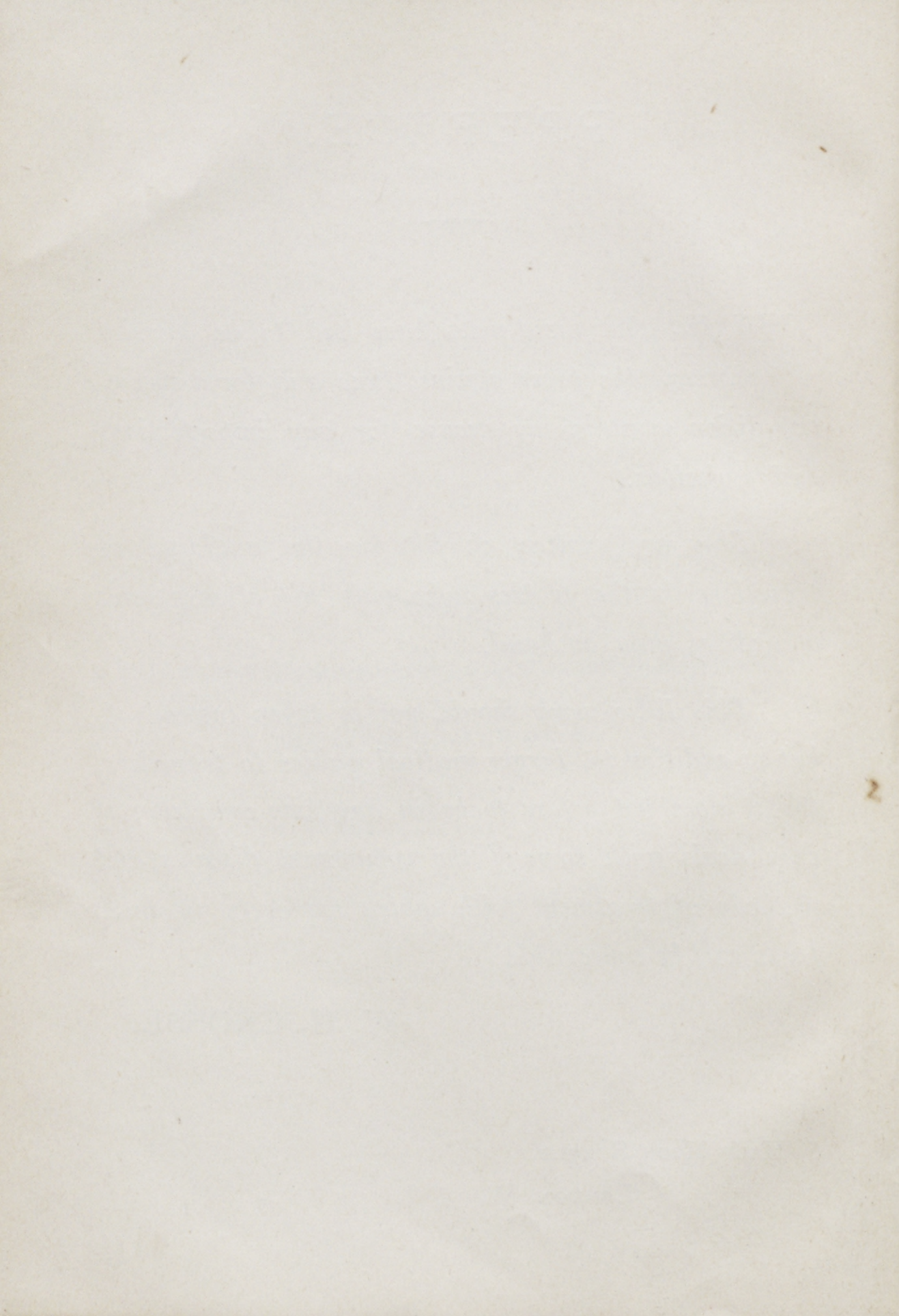
They are written chiefly for the guidance of travellers in the tropics, who may not always have a medical man at hand.

This little work should not be taken instead of, but in addition to, larger medical guides to travellers, for it does not aspire to be in any way complete; it only deals with some of the commonest diseases and methods of treatment with which explorers in these parts will be concerned.

W. H. CROSSE.

6, HALF MOON STREET,

LONDON, W.



Short Medical Notes for Explorers.

MALARIAL FEVER.

Prevention. Avoid chills, never take a cold bath in Africa unless ordered to do so by a doctor. Wear warm clothes at night. Change underclothing when damp. Avoid cool sea breeze, and the direct rays of sun. Wear a large helmet. Do not take too much animal food. Never begin work on an empty stomach. Spirits should only be taken if ordered by a medical man. As a rule alcohol in any form is not necessary, but good claret or light lager will not do harm. Avoid iced water. It is better only to drink mineral waters at sea, as filters on board ship are very often defective. Ordinary filtered water is not nearly as safe as boiled water. Never neglect a slight attack of fever or diarrhœa. Keep bowels gently opened—once a day is quite enough—avoid strong purgatives. Remember that the malarial poison is most active between sunset and sunrise. Always sleep under a mosquito curtain.

Take five or six grains of Quinine every second day when nearing Africa, and when the coast is reached, take at least five grains a day. Remember that in Africa any uneasiness or malaise is almost certain to be due, at any rate in part, to Malaria.

The Malarial Attack may be sudden but it usually follows a premonitory period, which is shown by languidness, yawning,

and malaise ; this is followed by the cold stage which is usually short in the tropics ; then comes the hot stage which is often long, and this passes into the sweating stage.

After the sweating stage, there is a period of Remission or Intermission of the feverish symptoms and they may not return ; usually, however, after a few hours, the attack again comes on beginning with the cold stage. If the fever is treated very early, the disease may pass off with premonitory symptoms only.

As a rule in Africa when a patient is suffering from malarial fever the attack returns each day, in some cases it does not return till the second or third day.

Treatment. Put the patient to bed and cover him up well, if the bowels are not freely open give three aperient pills or tabloids and if they do not act well in about four hours, give a dose of Citrate of Magnesia or fruit salt to assist their action. If there is not a free evacuation a warm water enema should be given. Don't on any account delay the administration of Quinine, give ten or fifteen grains with or before the purgative. If there is a tendency to vomit give twenty drops of Chlorodyne with the Quinine. If the Quinine cannot be retained by the stomach it must be administered by the bowel and at least forty grains should be given in the twenty-four hours. When vomiting is persistent, it is best to drink water freely, half a pint to a pint or more, to allow the stomach to be well cleared, then a sedative draught containing from twenty to thirty drops of Chlorodyne may be given. A large warm water and soap enema will help to relieve vomiting by increasing the action of the bowels. A mustard leaf to the pit of stomach is also useful. A little strong spirit and water sometimes does good ; five or ten grains of Bismuth Subnitrate may be given to allay the vomiting.

During the COLD stage give hot drinks such as thin broths, weak tea or a little hot spirit and water. A hot water bottle in bed is useful. Sponging with warm water often gives relief at the beginning of a fever and tends to make the skin act freely.

During the HOT stage give from five to ten grains of Antipyrine, this will soothe the patient and promote perspiration. A hot bath or sponging with warm water usually helps to shorten this stage and to bring on the sweating stage. If the skin is very dry, four tabloids of Warburg's tincture should be given. The dose may be repeated in three or four hours.

Drinks of lime juice well diluted will be found refreshing ; if the lime juice is given too strong it may make patient vomit.

Cloths kept wet with an evaporating lotion made of one ounce of spirit in half a pint of water, may be applied to the head. If the patient is restless the Antipyrine may be repeated.

Cold sponging of the face, neck, arms and chest helps to lower the temperature, is very refreshing and can do no harm if the patient is not allowed to get chilled. If the patient is very feverish it may be necessary to give a cold bath.

SWEATING STAGE.—Care must be taken that the perspiration is not stopped by a chill being taken. Hot drinks will help to make the skin act freely.

Give five to ten grains of quinine towards the end of the sweating stage, and another ten grains before the fever returns. Usually the total amount given during twenty-four hours should not exceed twenty to thirty grains, but if the patient gets worse then give from forty to sixty grains of quinine a day, support his strength and keep the skin acting.

If the patient is very uncomfortable during the attack of fever, twenty drops of Chlorodyne may be administered to soothe and quiet him.

If the urine is irritating, give plenty of fluid and administer

five grains or more of bicarbonate of soda twice a day or oftener.

An ordinary fever is usually cured in three or four days ; as it begins to abate, less Quinine is to be taken, say fifteen grains a day for two days, and then nine to ten grains should be taken for three or four days after the fever has gone.

Quinine in fairly large doses must not be left off too soon as relapses are common.

As soon as patient can stand it, that is, when the fever is nearly gone, give him tabloids of quinine, arsenic and iron, one to be taken three times a day for at least a week, or Parish's food or some other preparation of iron.

If the quantity of urine is obviously getting smaller, then patient must be purged and the skin must be made to act by Antipyrine, Warburg, hot drinks, Dover's powder—in small doses—and warm stimulants. Bicarbonate of soda helps to increase the flow of urine and may be given freely, ten or fifteen grains should be given three or four times a day.

Patients must be fed between the attacks of fever, or when the sweating stage is on, with good soup slightly thickened with sago or rice, and with eggs beaten up with milk. If necessary a small amount of whisky may be given, it should be mixed with milk.

If the patient cannot take food, then eggs and salt must be injected into the bowel with the long tube pushed up as high as it will easily go, and with a little manipulation (to avoid hitching against the folds of the bowel) it will pass up five inches or more.

Benger's peptonized beef jelly is already partially digested, and will therefore be easily absorbed by the bowel ; one table-spoonful may be injected in the same manner as the eggs and salt. Fill the syringe before the end is inserted into the bowel, so as not to inject useless air.

Baths, etc. In ordinary cases it is not necessary to take special measures to reduce a temperature of 102 or 103 unless it is kept up; but if the temperature reaches 104 or 105 and keeps there for a couple of hours, then in my opinion, it is risky to leave it up, and cool water should be applied to the whole of the body.

In fever the pulse is quick, the respiration is hurried and the temperature is high; cold applications reduce these.

Wet Pack. Slip waterproof under patient, wring a sheet out in cold water and pass it under him and wrap him in it, cover with three or four blankets and tuck him in. At first, he will feel cold and chilly, soon the surface vessels will dilate again and he will begin to feel hot and very likely will sweat; keep him in the wet pack with the clothes carefully tucked in round neck, feet and sides for about half an hour. Then dry partially and put him into bed between warm blankets and give hot drinks to encourage perspiration.

Cool Bath. Where patient is really getting worse and does not perspire and the temperature continues high or rises higher, then I think the best thing is to lift him gently into a long bath at about 90 F.; add water as cold as can be obtained, keep the water circulating and running out; one boy must all the time pour water on to the head. It is usually enough if the patient's temperature goes down to 101. After the bath put the patient between warm blankets and give him some hot soup. If any signs of faintness, give strong spirit and water; i.e., one part of each; ammonia may be also given.

Note.—Weak spirit and water has little or no stimulating effect on the heart, therefore in cases of fainting, shock, ex-

haustion, or collapse from any cause, give a little spirit and give it strong.

Delirium with high temperature, say 104 to 105, is a certain sign that the fever is doing harm and must be reduced by—

SWEATING

COLD SPONGING

WET PACK

or

COLD BATH.

If the patient is really very ill, don't trust too much in drugs ; cold water is necessary. To delay giving a bath is dangerous.

In cases of Sunstroke or where there is acute malarial poisoning, with temperature rushing up to 105, 106, 107, or even higher, don't wait to undress patient or get a bath ; empty gallons of water over him, one boy to keep head constantly soused ; while this is being done, a bath can be procured and the patient undressed, or better, have his clothes cut off, because it is dangerous to lift such a patient about. Remember that when a patient is very weak and ill he should not be allowed to stand or sit up suddenly, or he may faint.

If a long bath is not at hand, put a blanket over a waterproof sheet, and let the patient lie on it, get six or eight boys to hold up edges, and give patient his bath in that way. A good plan is to dig a shallow trench in the sand and to put a waterproof in it. It is less difficult then to keep the edges of waterproof up as the patient is lying in a groove. It is not necessary to make the bath really cold if the cool water can be kept running. I have hardly ever been able to get the water below 80 F.

Blackwater Fever is an aggravated form of Malarial Fever, in which the urine is dark, bloodlike and scanty, the skin yellow, and in which there is frequent vomiting, the vomit often being green in colour. Treat as a bad case of malarial fever. Give bicarbonate of soda, 30 to 60 grains a day. Support strength. Bath if necessary. Keep bowels open. Make skin act. Apply poultices, fomentations or mustard leaves to the loins.

Death from simple malarial fever is hardly known, patients should be told this.

Dark coloured urine is usual in all fevers, it is also scanty during the height of the fever, especially if there is much sweating; of course, where it is obviously bloody, the case is more grave, but as a rule, it is only men broken down in health and those who have resided in West Africa for more than a year who suffer from this complication.

Readers desiring fuller information upon the subject of the Malarial Fevers of West Africa are referred to the Author's work "Notes on Malarial Fevers," published by Simpkin, Marshall and Co., London.

DIARRHŒA.

Diarrhœa. As diarrhœa, or looseness of the bowels, is usually due to some irritant, e.g., bad food, unripe fruit, etc., at first give a mild purgative, so as to clear out the intestines. A warm water enema is useful.

If diarrhœa continues, give—

Chlorodyne, 20 m.

Essence of Ginger, 10 m.

Water, to 1 oz., two or three times a day, and in addition give five grains of tannin, three times a day. Give also five grains of quinine or more each day as the diarrhœa may be purely malarial.

Tincture of iron or sulphate of iron may be used instead of tannin.

All food should be semi-solid and tepid ; soup thickened with arrowroot or rice is good. Patient should be kept in bed and should wear a flannel band round the abdomen.

If the diarrhœa continues for more than a few days, it is probably dysenteric and should be treated as such.

DYSENTERY.

Prevention. Same as Malarial Fever. Don't drink palm wine, as it has very likely been diluted with dirty water. Natural milk must be boiled ; condensed milk should be mixed with boiled water. Beware of common filters, it is really best to filter first and boil afterwards, as boiling kills all germs.

Signs of Dysentery. Diarrhœa with pain in the belly, straining and frequent desire to go to stool, the motions soon become small in amount and slimy and free from natural bilious yellow colour, and contain more or less blood. There is pain and distress about the abdomen ; heat, tenderness, and bearing down about the anus, with considerable prostration, and probably some fever. All these symptoms may be due to ordinary severe diarrhœa, but in the tropics it is best to treat them as if they were dysenteric ; they may also be due to typhoid fever, but this disease is rare, and at any rate the treatment would do no harm.

Treatment of Dysentery.

Essentials :—

1. Rest.
2. Warmth.
3. Ipecacuanha.
4. Suitable food.
5. A mild aperient if the case is seen early.
6. Quinine.
7. Some opiate, but not more than necessary.
8. Mercurial treatment in certain cases.
9. Poultices or mustard leaves when there is pain.
10. Enemas in some cases.

The object of treatment is *not* to block up the bowel—as

might be done by giving large doses of opium or tannin—it is to cure the disease of which the looseness is only one symptom. The most favourable sign during an attack is a return of the colouring matter to the motions, this shows that the liver is again acting, and that the treatment is doing good. With the return of colour (which at first may be intermittent), the other symptoms, such as pain and bloody discharge, will abate, and the motions will become more solid and healthy.

Put patient to bed. Flannel band round belly. Gentle purgative if case seen early. Take temperature; if it is not high give from three to five grains of quinine twice a day; if high, give nine or ten grains twice a day or more often. When bowels are opened give twenty drops of chlorodyne, and in half an hour give thirty grains of ipecac. The chlorodyne is to quieten the stomach so as to help it to retain the ipecac. Give ipecac either solid or else mixed with a wineglass of water (arrowroot or starch or gum water will help to suspend the drug). Now absolute quiet; no moving in bed, no talking and no food or liquid for at least two hours. Darken the room. If much thirst give water in tea-spoonful doses.

To help to prevent vomiting put a mustard leaf over stomach. If there is no vomiting for an hour, certainly a good part of ipecac has been digested. If the ipecac has been vomited, wait for half an hour and then give another full dose. If vomited again, wait for two hours and give twenty drops of chlorodyne, then administer fifteen grains of ipecac. In twelve hours from the first dose repeat it in exactly the same way. Of course ipecac will act more quickly if it is taken suspended in a liquid, but it is then more likely to cause vomiting. If thirty grains are too much at a time give twenty, three times a day, for not less

than sixty grains should be taken in twenty-four hours. Between the doses feed patient, giving little and often.

Sedatives, such as laudanum or chlorodyne are always of use, they relieve pain and sickness and quieten the bowels ; the full dose in an ordinary case is twenty drops three times a day. Where less can be done with, it is all the better. Drowsiness is a sign that patient has had as much as is good for him. No patient should take more than thirty drops at a time, unless it is ordered by a doctor.

Poultices, mustard plasters, and hot fomentations to the belly by lessening the congestion of bowels and liver do good.

If the lower bowel is uneasy, then a small enema, say of ten ounces of warm water may give considerable relief ; or a soothing enema may be administered.

If ipecac cannot be retained by stomach, it must be given by bowel. For the convenience of travellers I have had tablets—which are called *enimols*—manufactured by Messrs. Burroughs, Welcome & Co. Each *enimol* contains—powdered opium, 1 grain (equal to about 15 drops of laudanum), powdered ipecac 15 grains, gum acacia 14 grains.

To administer an *enimol*, fill the ball of the enema syringe with water, empty the amount into a cup, bruise up the tablet with a spoon in another cup, *gradually* add the water so that the gum may become liquid and suspend the ipecac and opium. Still stirring, warm the liquid by standing the cup in hot water. Squeeze out air from syringe, draw up the fluid, oil the tube and inject into the bowel. Let patient lie quiet so as to retain enema. Up to four *enimols* may be given in the day. Too much ipecac cannot be given, the thing is to watch the opium, and if more ipecac is wanted, add it in the form of *tabloids* which do not contain opium.

As the disease begins to abate, reduce the ipecac and give

tannin, five grains or more three times a day, then half that amount. Where diarrhœa is very profuse, tannin may be taken during the attack to help to assist the bowel by its astringent action. Sulphate of iron or the solution of the perchloride of iron are very useful towards the end of an attack as they are astringent and tonic.

Bicarbonate of soda, five grains dissolved in an ounce of water, is useful as it allays irritation of stomach, it may be given two or three times a day from the first.

Mercurial Treatment of Dysentery. When the ordinary treatment fails then this disease should be treated by the administration of perchloride of mercury, i.e., corrosive sublimate.

As corrosive sublimate is a very active poison, it is better that it should only be administered by a medical man. A solution of the strength of one part of corrosive sublimate in a thousand of water should be made, and of this solution forty to sixty drops or one tea-spoonful should be given three times a day in an ounce of water. The early symptoms of overdosing by corrosive sublimate in medicinal doses are pain in the stomach, salivation, i.e., running at the mouth, tenderness of the gums and a coppery taste in the mouth. The medical attendant will at once note these symptoms and will lessen the strength of the dose or stop it altogether for a time.

I have often found that the above treatment does good even when other drugs such as ipecac are being given, but the mercury should not be administered at the same time as any other drug.

During an attack of dysentery or other acute disease it is advisable to keep the lower part of back on something soft, such as a pad of wool or an extra pillow, in order to avoid a bed sore.

To prevent this it is well to rub the back with oil or white of egg three parts and spirit one part.

In dysentery and severe diarrhoea a patient should not be allowed to get up to stool; a box cut obliquely across will make a rough slipper bed-pan—put sand in it and pad the edges.

Diet in Dysentery. It is necessary to give the patient food which can be wholly or nearly wholly digested—that is, taken into the blood, so that little or nothing is left to be carried away by the bowels.

Food should be tepid, and either liquid or nearly so. Patient should take little and often. If he cannot take it by the mouth, it should be given by the bowel.

1. Milk—best of all foods.
2. Beef jelly, peptonized, is very valuable as it is already digested.
3. Eggs beaten up with milk.
4. Fresh strong broths thickened with well boiled and therefore quite soft, rice or sago.
5. Arrowroot made with water or milk.

A table-spoonful of spirit may be given twice a day if the patient is weak. Claret towards end of attack is good. Trust most to milk and soup and eggs; starchy things like arrowroot are not wholly digested, and so a good deal is left to pass by the bowel which is not desirable. If there is much prostration, the amount of spirit must be increased.

SNAKE BITE AND POISONED ARROW WOUNDS.

Tie a piece of tape *tightly* a little above the wound, i.e., between the wound and the body, tie another still nearer body, say three inches from the first. Dissolve as much potash permanganate as possible in warm water; have it stirred to make the solution quickly. Cut across the wound or wounds to encourage free bleeding. Inject ten drops of the strong solution of potash permanganate well below the skin within half an inch of the wound, five drops in two places (one on each side). For this purpose it is best to keep a small bottle of saturated solution always ready. Some of the solution may be injected into the wound or the drug itself may be pressed into the cut.

In cases of snake-bite the marks of two fangs will usually be found.

Give spirit strong, that is, one table-spoonful to one of water. Give at least four doses in the first hour.

If the patient is heavy and stupid give two tablets of strychnia, 1/100 of a grain each in half a wine-glassful of water, or dissolve two in twenty drops of water and inject well below the skin into the muscle of back. If there is no improvement in an hour give two more tablets and if necessary one or two more in another hour.

If potash permanganate is not at hand, apply pure carbolic acid or a red hot wire or burning stick to the injured part. Ordinary caustic may be used in the same manner.

The first thing is to tie up, next cut freely and suck or squeeze out as much blood as possible. When the ligatures begin to cause much pain, loosen the one next the injured part gently for a second or two, then tie again at or near the same place, and then loosen the other one for one minute and tie again; in the course of two hours both tapes may be taken off.

The object of tying up is to allow only a little of the poison to get into general circulation at a time.

It is safe to suck a poisoned wound but the mouth should be well washed out immediately with a pink solution of potash permanganate.

If a medical man is present he may think fit to inject anti-venomous serum as an antidote to snake poison.

In cases of arrow wounds (poisoned) about the body, cut out a piece of the flesh and apply pure carbolic acid to the scar.

Convulsions occur after some poisons, for instance, strychnine, certain snake poisons, and some arrow wounds ; these are best treated either by—

1. Inhalation of Chloroform.
2. Administration of chloral, bromide of potash, or sulphonal.
3. Hypodermic injection of morphia.

Wounds. In case of a small cut wash with pale pink solution of permanganate of potash, or a weak solution of carbolic.

Dust on a few grains of iodoform.

Apply a little pad of dry lint or rag.

Bandage to keep air out.

Remove bandage in twenty-eight hours and dust on a little more iodoform and bandage again ; disturb wound as little as possible.

In case of a large wound do the same but put in enough silk stitches to keep edges together ; remove them in about four days. If the wound is on the face, where the stitches would leave a scar, remove them in twenty-four or thirty-six hours.

If much bleeding, clean the wound, dust on iodoform and sew

up, or apply a small pad soaked in hot water, in which as much tannin as possible has been dissolved.

If the blood vessels are pumping out a large amount, remember that, pressure just above (nearer the heart), will as a rule, compress the vessel. Look for the bleeding end in the wound and seize it with the catch forceps, draw it out a little and tie the vessel with silk; or twist it four times by rotating the forceps, this will close the vessel; the forceps may then be taken off.

Simple firm pressure with tannin plugs will stop almost all bleeding, except from very large vessels.

If the bleeding does not stop when tannin pads are applied, then it is best to soak small pieces of lint in a solution of perchloride or sulphate of iron—these preparations of iron are more astringent than tannin—apply to wound and bandage firmly.

Before tying either boil or soak the silk in one in fifty carbolic solution.

Before touching a wound the hands and instruments should be well washed in hot water, and should then be dipped in some antiseptic, such as carbolic lotion or solution of permanganate of potash. Dressings may be used a second time if they have been well boiled.

Normal pulse (adult) about 72 per minute.

Normal respiration (adult) 15 to 18 per minute.

Normal temperature, 98·4 F., but it varies in health between 97·5 and 99.

Slight or moderate pyrexia, or fever, from 99· to 101· in morning or to 102·5 in evening.

Severe pyrexia, from 101° to 103° in morning or to 105° in the evening.

Hyper-pyrexia, above 105.

NOTE.—The temperatures should be taken in degrees Fahr.

To take the temperature in an ordinary case, dry the armpit and put into it the bulb of the thermometer and hold the arm firmly to side for five minutes. When the patient is really ill, the best plan is to put bulb of thermometer under the tongue and to close the lips on the stem for at least three minutes, the reading so taken is very accurate.

If the patient is seriously ill, light-headed, or in a bath, grease the bulb of the thermometer and pass it about one inch or so into the lower bowel.

Always shake the mercury down to 97° before taking a temperature.

WEIGHTS AND MEASURES.

SOLIDS.

		A Grain	Symbol	Gr.
20 Grains	-	1 Scruple	„	᠑
60 „	-	1 Drachm	„	5
437.5 „	-	1 Ounce	„	᠓

NOTE.—An ounce weighs not 8 but rather under $7\frac{1}{2}$ drachms.

1 Gramme	-	$15\frac{1}{2}$ grains.
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LIQUIDS.

			Symbol	℥
1 Minim	-	About 1 drop	„	᠓
60 Minims	-	One fluid drachm	„	5
8fl. drachms	-	One fluid ounce	„	᠓
20fl. ounces	-	One pint	„	0
1 pint	-	Rather over half a litre.		
1 tea-spoonful	-	About one fluid drachm.		
1 table-spoonful	-	About half an ounce.		
1 wineglass	-	About two ounces.		
1 tumblerful	-	About half a pint.		

Hypodermic Syringe. Boil a little water and add to it enough solution of Permanganate of Potash to give it a pale pink colour. Draw up through the syringe enough of the solution to fill it, then very slowly drive out the fluid. Instead of the above a solution of carbolic acid (one in fifty) may be used. Draw into the syringe slowly the fluid in which the hypodermic tabloid has been dissolved. Hold the syringe with the needle pointing upwards and shake it in order to make any bubbles of air float on the top of the fluid. Push the piston gently up till all air has been driven out and the solution begins to come through the needle.

Pinch up the skin where the injection is to be made between the forefinger and thumb, then push the needle well through and then under it, keeping the point slightly away from the skin until the needle is almost entirely covered. In this way the point of the needle will be lying in the loose tissue—between the skin and the muscle—into which the fluid ought to be injected. Holding the needle firmly in position, slowly press the piston until the required amount has been injected; withdraw the needle slowly, keep the finger over the minute opening in skin so as to close it at once, and with another finger rub where the fluid has been injected in a direction away from the opening for a few seconds, this assists its absorption. Always wash the skin before giving an injection.

The best place to inject is under the skin of the back or chest.

The forearm is the usual position selected but there are various slight objections to it.

If the injection is made into the leg or arm the point of the needle should be directed towards the body.

After giving an injection wash out the syringe as before, dry needle well and pass through it a piece of thin wire to keep it open.

As strong solutions of permanganate of potash attack the plunger of the piston, the syringe should be well washed with water directly after it has been used when this drug has been injected for snake bites.

NOTE.—The needles are sent out with wire in them to keep them open, of course these must be removed before the needle is put on to the syringe.

Hypodermic Tabloids should be dissolved in about ten drops of water, but as each tabloid contains a definite amount of the drug, it does not matter in exactly how much one is dissolved.

Usually only medical men should use these tabloids. I advise others, if they use them, only to inject half or a third of the amount of the fluid in which a tabloid has been dissolved.

Often it is not necessary to inject these tabloids for they act nearly as well if given by the mouth.

Morphia in quarter grain doses may be given to allay great pain.

Cocaine in one-sixth grain doses may be injected into the gums or other parts to relieve local pain.

In cases of acute pain in the eye two or three drops of a one in twenty solution of COCAINE MAY BE DROPPED ON TO THE EYEBALL.

Enema Syringe. This is fitted with short and long tube. After use, hang it up to drain, dry it well but don't oil it. To use the long tube slip it over the short one which will hold it.

After an enema syringe has been used, it is better to carry it loose than coiled up, so as to avoid risk of the rubber kinking at the flexed portions of the tube.

A small ball syringe is useful when it is only desired to inject a little fluid into the lower bowel.

The higher up into the bowel a nutrient or medicinal injection is passed, the more rapidly will it be absorbed, therefore the long tube is the best.

Before giving a quinine or nutrient enema, it is best to wash out the lower bowel with warm water.

NUTRIENT ENEMA.—

Two eggs,

Half tea-spoonful salt

A wine glassful of Milk.

Beat up the eggs, then add the salt and milk and mix well, Inject slowly through the long tube well up into the bowel.

NUTRIENT ENEMA.—

Benger's Beef Jelly, one table-spoonful.

Milk, about two ounces.

Inject slowly through long tube.

WARM WATER ENEMA.—To relieve uneasiness of lower bowel, as in dysentery, piles, etc., warm water half a pint or more by short tube.

SOOTHING ENEMA.—Laudanum, thirty drops ; warm water, about two ounces. A little starch paste may be added. Inject through short tube, give second injection in three hours if patient is not easier.

QUININE ENEMA.—Bisulphate of quinine, twenty grains or more ; warm water, about two ounces. Inject half, give second half in about an hour, or the whole may be injected at one time.

IPECAC AND OPIUM ENEMA.—Ipecac, thirty grains ; laudanum, twenty drops ; starch or gum water, about three ounces. Especially useful in dysentery, where the stomach will not retain ipecac ; it also gives relief in bearing down about anus from other causes.

APERIENT ENEMA.—Wash hands with plenty of soap in thirty ounces of warm water, or use plain warm water or weak gruel, add one table-spoonful of oil. Inject slowly into bowel with short tube ; if it does not cause uneasiness, inject whole amount. Retain as long as possible.

As far as possible I have had drugs for explorers put up in the form of tabloids—by Messrs. Burroughs, Welcome & Co.—which are accurate as to weight and are more portable and reliable than the ordinary preparations of the same drugs.

In regard to drugs, I have kept well within the dose, so that there may be no trouble on that account ; for instance, at times I would give sixty drops of laudanum for a dose, but I advise people who are not medically qualified to give not more than sixty drops in twenty-four hours.

Tabloids are usually taken in the solid form, of course they will act more quickly if dissolved in about an ounce of water.

Antipyrine. Dose, three to ten grains.

Antifebrin or Acetanilide. Dose, three to eight grains.

Phenacetin. Dose, three to eight grains.

Antipyrine, Antifebrin and Phenacetin are frequently used to reduce the temperature of the body or to relieve pain.

As they depress the heart's action they should be used with care, and it is advisable to give a stimulant within half-an-hour after their administration. Phenacetin is said by Dr. Hale White, to depress the heart very little.

I have found antipyrine very useful in the tropics. It causes sweating, relieves headache and lowers the body temperature.

Bicarbonate of Soda. Dose—five to ten grains or more. Five or ten grains dissolved in water may be given twice a day for acidity, flatulence, heartburn.

If the urine is acid and scalding give twenty grains two or three times a day. Useful in dysentery to allay irritation of stomach ; five or ten grains may be given an hour before each

dose of ipecac. Bicarbonate of soda is given in cases of Black-water Fever when the urine is not sufficient in quantity.

Bismuth Subnitrate. Dose, five to fifteen grains. Often given to stop vomiting, can be given with chlorodyne or opium.

Boric Acid. Disinfectant and Antiseptic.

Two to six grains in an ounce of water makes a good eye lotion. The solution may also be applied to wounds and sores, or may be used as an injection.

One part mixed with five parts of vaseline makes a useful healing ointment.

Bromide of Potassium. Dose, five to twenty-five grains. Is a sedative and used in convulsions, epilepsy and delirium.

Calomel. Purgative dose, two to five grains ; usually for an adult it will be necessary to give at least four grains. The drug acts best when combined with some other aperient. If given alone it should always be followed by a draught of citrate of magnesia or fruit salt.

Carbolic Acid. For external use only. Undiluted is a strong caustic and may be applied on a sharp match directly into snake bites or poisoned wounds.

A solution of one in fifty may be used for cleansing knives and other instruments.

For toothache, due to a hollow tooth, wind a speck of wool round a pointed match, dip this just into the carbolic acid, press it into the cavity and leave the wool there. If a little acid touches the mouth, it will do no harm except to cause a little pain and perhaps a sore ; wipe the part of the mouth touched with a bit of rag as quickly as possible and apply oil.

If carbolic acid is by mistake taken internally give epsom salts. Sulphate of zinc, ipecac, or mustard may be given as an emetic. Give also plenty of white of egg, castor oil or olive oil, also give milk and flour.

Carbonate of Ammonia. Dose, three to ten grains. Same uses as sal volatile and solution of ammonia.

Note.—All preparations of ammonia should be administered in about an ounce of water.

Cascara Extract. Dose, two to six grains. A useful aperient, especially in chronic constipation. Two or three of the compound cascara tabloids may be given.

Chloral. Dose, five to twenty grains. Relieves pain, restlessness and delirium, and produces sleep. Larger doses than twenty grains should not be given.

Chloride of Ammonium. Dose, five to ten grains. Useful in congestion of the liver, neuralgia, and bronchitis. Promotes action of the skin.

Chlorodyne. Dose for an adult ten to thirty drops. Same uses as laudanum, and like it, its usefulness depends mostly upon the morphia it contains. However, it is to be preferred for administration by the mouth, as it more readily stops vomiting and is more palatable. The ordinary dose is twenty drops; thirty or even forty drops may be given if there is great pain, but a second dose should not be administered for four hours; if full doses have been given, do not administer a third dose for at least twelve hours and do not give it at all if the patient is drowsy; it is best not to give more than forty or sixty drops.

in twenty-four hours, unless there are very special reasons for giving a larger quantity.

Chloroform. Ten to thirty drops sprinkled on a handkerchief and inhaled relieve pain. Two drops can be given with advantage with almost any drug. It allays irritation of stomach, hence it is useful in vomiting due to sea-sickness and other causes. As it does not mix readily with water, put six drops in one ounce of water, *shake well*, and sip a tea-spoonful every five minutes till the ounce is finished.

One or two drops put on a piece of loaf sugar and sucked will often stop sea sickness or other vomiting,

Compound Cathartic Tabloids. Dose, two or three. Contain colocynth, jalap, calomel and gamboge. Valuable aperient.

Essence of Ginger. Dose, five to twenty drops. This is put up in tabloid form, one tabloid is equal to five drops of the essence or strong tincture of ginger.

It is useful in cases of cramp and colic, and indigestion, especially if combined with five or ten grains of bicarbonate of soda and two or three drops of chloroform. If there is much pain, ten drops or more of chlorodyne or laudanum may be added.

Hazeline. Dose, thirty drops, or more. Powerful astringent, very useful in spitting of blood, bleeding, etc. May be applied locally to bleeding parts.

Iodoform. Is only for external use; it heals wounds rapidly. The dry powder may be dusted lightly over the part, or it may be mixed with eight parts of vaseline, fresh fat, or oil and applied on lint.

Ipecacuanha.

Expectorant, $\frac{1}{2}$ to 2 grains.
 Emetic, 20 to 40 grains.
 For Dysentery, 10 to 30 grains.

Compound Ipecac Powder or Dover's Powder.

Dose five to fifteen grains. Ten grains contain one grain of opium, or about the same amount as fifteen drops of chlorodyne or laudanum; the powder also contains a little ipacac. Five to fifteen grains, with a little spirit and water, act as a sedative and cause sweating; a second dose of ten grains may be given in two hours. Useful in relieving colds and coughs. The powder does not contain enough ipecac to be useful in dysentery, but it is often does good diarrhœa.

Fifteen grains of Dover's powder will sometimes check an attack of fever.

Iron and Arsenic Tabloids. Dose, one or two twice a day after meals. Tonic, especially useful after malarial fever.

Laudanum. (Tinct. Opii.) Dose for an adult ten to thirty drops.

Narcotic, sedative, antiperiodic. Useful in diarrhœa, dysentery, colic, cramp, pain and restlessness. Helps to cause sweating; allays vomiting. Sometimes cuts short an attack of malarial fever.

Lactate of Quinine. Is only used for Hypodermic Injection in cases of severe malarial fever. Ten grains should be boiled in about sixty drops of water. The solution when cool should be injected under the skin of the back. It is better to make four or five injections into different parts of the back than to inject the whole of the fluid into one place.

Liniment of Iodine. For external use only. Is very strong, therefore only a little of it should be painted on at a

time. Is about four times as strong as tincture of iodine ; any spirit may be added to weaken it.

Acts as a counter-irritant ; may cause blistering. Does good if painted over swollen joints or enlarged glands ; should not be applied if the skin is broken. May be painted on to the chest or over the liver if there is pain.

Liquor Ammoniaë, or Solution of Ammonia. Dose, five to twenty drops ; should be well diluted. Contains about one part of the liquor ammoniaë fort or strong solution of ammonia to two of water.

It is a most valuable stimulant, especially in cases of fainting or shock from injury ; e.g., snake-bite, poisoned arrow and gunshot wounds. Liquor ammoniaë undiluted may be injected into snake-bite wounds.

If inhaled relieves headache. Useful in coughs and colds and in cases of debility.

The strong solution should not be sent out as it does not keep well in the tropics and is very likely to burst its bottle and so destroy other drugs.

Liquor Ferri Dialysatus. Solution of dialysed iron. Dose, ten to thirty drops. Useful in cases of anæmia and debility.

Liquor Ferri Perchlor Fort. Strong solution of perchloride of iron. Dose, two to five drops in an ounce of water. Valuable blood tonic and astringent. The tincture is the preparation generally used ; see page 36.

Parish's Food. Dose thirty to one hundred drops two or three times a day in a little water. It should be given soon after meals. It is a useful blood tonic and is given in cases of aneamia and debility brought on by diarrhœa, dysentery and fevers.

Pepsine Tabloids. Dose, one or two after meals. Preparations of pepsine aid digestion.

Pill of Colcynth Calomel and Hyoscyamus. Dose—mild, one; medium, two; strong, three or four. Probably most valuable of all aperient pills for occasional use.

Colocynth increases flow of bile and intestinal juices, stimulates bowels and gives a watery motion, but causes a little griping, though this is to a large extent done away with by combining it with the hyoscyamus, and can be further neutralised if necessary by a draught containing ten drops of chlorodyne or laudanum with essence of ginger.

Calomel does not help the secretion of bile, but it acts on upper bowel and hurries along the bile secreted so that it is not re-absorbed. It is very useful if the tongue is furred and there is constipation, heaviness, weight over liver and dyspepsia or congestion of the liver.

The combination of the three drugs is better than taking them separately, for the one assists the other.

It is always well to take a dose of citrate of magnesia or fruit salt, from four to six hours after taking pills; a second dose may be given if the bowels have not acted freely.

The action of the pills will be hastened if the white coating is scraped off; in urgent cases the pills should be broken up into small pieces, and hot drinks should be taken to assist in dissolving them rapidly.

Where there is a tendency to suppression of urine, these pills must be pushed till the patient passes free watery motions.

The ordinary dose is two pills, and two often cause less griping than one, but it would be well to begin with one if there is no urgency.

Pill of Colocynth Hyoscyamus and Capsicum. Dose, two or three pills, or more.

As these aperient pills contain no calomel they can be given in cases where calomel is objected to ; their action may be assisted by giving citrate of magnesia or fruit salt.

Podophyllin. Dose, a quarter to a half a grain. Is a purgative ; it is best to give it with some other aperient, such as calomel.

Potash Permanganate is the active principle of Condyl's fluid, which contains about four grains of the drug in one ounce.

One grain gives a purple colour to a gallon of water. Impure water turns the purple rapidly to a brown colour, therefore the permanganate is a good rough test for presence of organic matter in water.

In solid form it is a mild caustic.

It is disinfectant, deodorant and antiseptic.

One part of this drug is soluble in about sixteen parts of water.

A very pale pink solution is useful as a gargle or mouthwash, also as an injection in gonorrhœa. Wounds may be cleansed with a pink solution.

For disinfecting motions put ten grains into half-a-pint of water and pour into the chamber.

Sal Volatile. Aromatic spirit of ammonia. Dose, twenty to sixty drops. Like liquor ammoniæ it is a good stimulant and antispasmodic. Is more useful as a stimulant than alcohol.

People suffering from the effects of too much alcohol are benefited by taking ammonia.

Soda Salicylate. Dose, ten to twenty grains. Relieves pain in rheumatic fever. Lowers temperature. Large doses depress the heart. Often useful in obstinate cases of malarial fever.

Sulphate of Iron. Dose, one to three grains, or more. Very valuable astringent and blood tonic.

Sulphide of Calcium. Dose, half to one grain three or four times a day. Useful where patient is suffering from boils.

Sulphate of Zinc, As a prompt emetic, give twenty grains in half-a-pint of warm water. If patient does not vomit give a pint or more of warm water and tickle the back of the throat. A second dose of the drug may be given.

Two grains to an ounce of water make a valuable astringent lotion for raw surfaces, ulcers, inflamed ears and eyes; for eye lotions generally begin with half strength, this may be increased to six grains to the ounce.

Two grains of sulphate of zinc to an ounce of water makes a solution which may be used as an injection in cases of gonorrhœa. The strength of the solution should be gradually increased.

Sulphate and Bisulphate of Quinine. Tonic—one to three grains or more.

The sulphate and bisulphate have the same action and are given in the same doses. The sulphate is not so soluble in water as the bisulphate, though it is readily soluble in the gastric juice.

When quinine is spoken of usually the sulphate or bisulphate is meant.

Some bisulphate should be kept for injection into the bowel in case quinine cannot be retained by the stomach.

In malarial fever very large doses of quinine may be given, say up to thirty grains three times a day, but they are very rarely necessary.

When there is marked ringing in the ears and deafness, it is a sign that patient has taken enough quinine for the time being

Sulphonol. Dose, fifteen to thirty grains.

Gives refreshing sleep like chloral. Is very insoluble and therefore its action may be delayed till the day after taking it. Acts most quickly if given ground up in a wineglass of hot water or milk. Begin with a fifteen grain dose.

Tabloids of Quinine, Iron, etc. Tonic and anti-malarial. Dissolve one in half wine-glass of water. Dose, one tabloid three times a day after meals.

Tannin. Dose, two and a half to ten grains or more. The tabloids contain two and a half grains each. Tannin is a powerful astringent, used internally and externally.

Can be dusted on sores to dry up and stop the discharge by its astringent action.

Applied freely to bleeding sores or cuts it will help to stop the hæmorrhage.

A solution of two and a half grains to the ounce of warm water is useful as an astringent gargle for sore or relaxed throats, or as a wash for bleeding gums and ulcers of mouth.

In five to ten grain doses it helps to stop diarrhœa, bleeding from stomach, bowel, piles, and bladder. If there is continued bleeding increase dose to twenty grains and repeat it as often as necessary.

In case of diarrhœa tannin is usually given with some preparation of opium, for instance, half a grain of opium with five grains or more of tannin mixed in half a wine-glassful of water.

Of course, tannin, like other drugs, can be given in the tabloid form, but it will act more quickly if it is mixed with water before administration.

Tinct. Benzoin Co. Friars' Balsam. Dose, thirty drops, or more.

Internally is useful as an expectorant.

Externally, lint soaked with it is much used by travellers as a dressing for wounds and sores. When first applied it causes a good deal of smarting, but this soon passes off.

Tincture of Catechu. Dose, thirty to sixty drops, or more. A valuable astringent used chiefly in cases of diarrhœa; is often given with some preparation of opium.

Thirty drops in half an ounce of water make a good gargle for cases of relaxed throat

The usefulness of tincture of catechu depends upon the tannin it contains.

Tincture of Iron. Dose, five to twenty drops. It is made by diluting one part of the strong solution with three parts of weak spirit and water. Water alone may be used.

Preparations of the perchloride of iron should be taken with plenty of water, and the mouth should be well washed out afterwards. Good tonic, very useful in diarrhœa.

Warburg's Tincture. One tabloid is equal to thirty drops of the ordinary tincture.

To produce sweating, after the bowels have been opened, give four to eight of the tabloids with a little hot spirit and water. In three hours, if necessary, give four to eight more. Do not give food or drink immediately after the first dose, and if possible, not till after the second. But if the patient is thirsty give hot drinks of weak tea or spirit and water. Keep him covered up and put a hot water bottle in the bed.

Urgency of a case is the guide as to how many tabloids ought to be given. With this, as with all other drugs, the smallest dose which is effective is the best.

Zymine Tabloids. Dose, one or two after meals. Same use as pepsine.

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