Life & Health

TRIANGULAR BANDAGE OF HAND

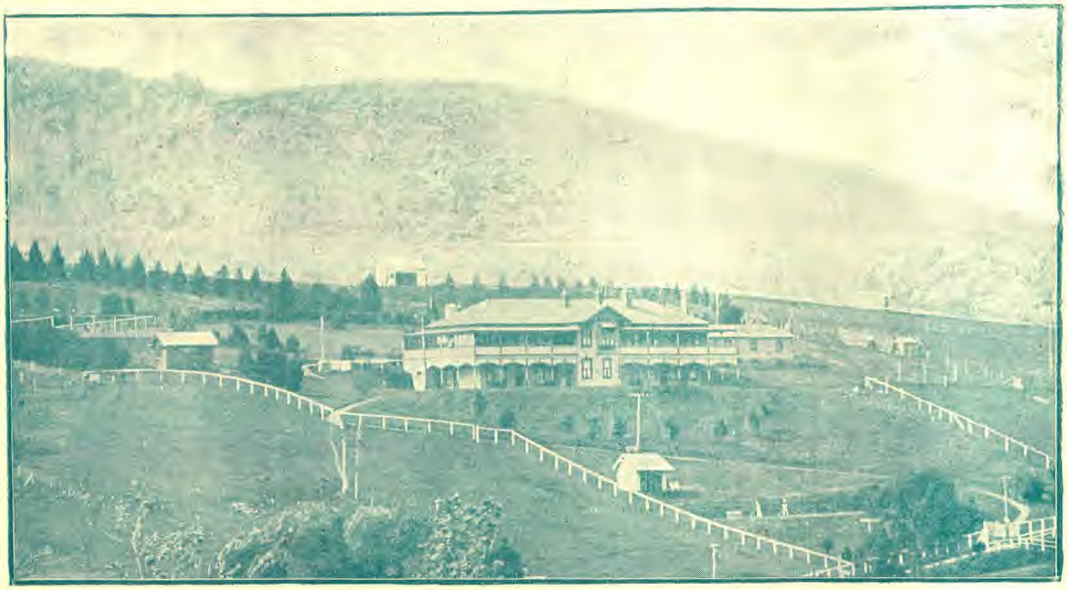
PRICE
SIXPENCE

SUMMER

November-
December
1918

Australia's Home of Health

WARBURTON, VICTORIA



THIS institution has been established for the purpose of treating persons suffering from all kinds of diseases except infectious cases. For those who are "run down" and require a bracing atmosphere or a change of diet, the Home of Health is the ideal place. The institution is well equipped for treating disease by the most modern methods. Maternity and surgical cases receive special attention. Registered by the Board of Health as a Private Hospital.

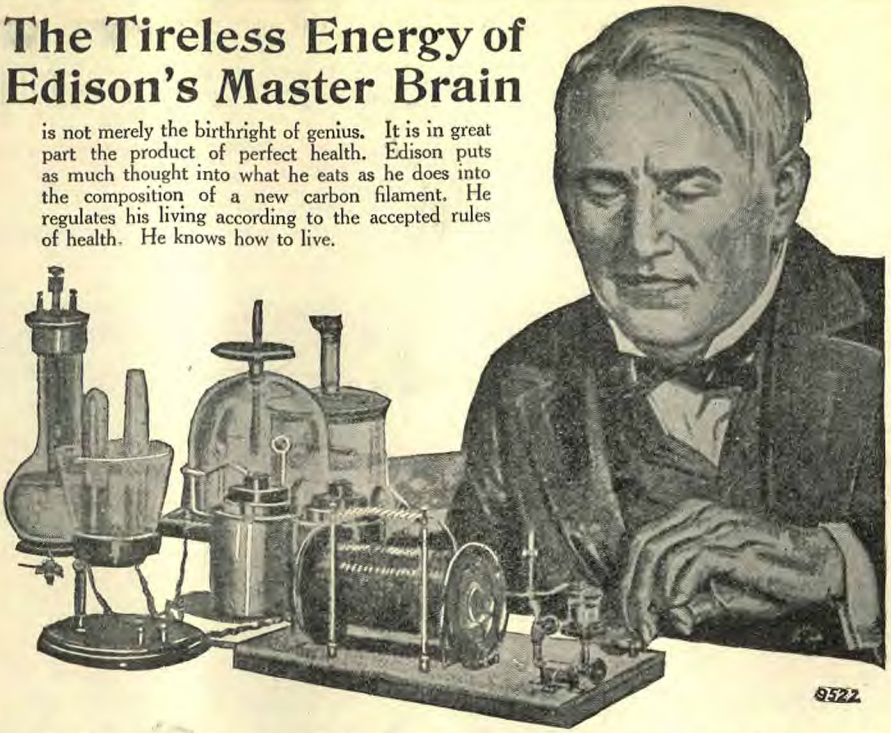
Send to-day for illustrated booklet and further information to

THE MANAGER, Australia's Home of Health,
Mt. Donna Buang Road,
Warburton, Victoria

Telephone 5, Warburton Exchange

The Tireless Energy of Edison's Master Brain

is not merely the birthright of genius. It is in great part the product of perfect health. Edison puts as much thought into what he eats as he does into the composition of a new carbon filament. He regulates his living according to the accepted rules of health. He knows how to live.



Take a Leaf From Edison's Book

Live properly. On your health depends to great degree your enjoyment of life. On it rests largely your capacity for full achievement—the ability to utilise to the full your talents, gifts, and experience.

No man does himself justice who is hampered by imperfect health, and most men fail to attain to more than 60 per cent. of the physical and mental well-being which is their birthright.

Yet health after all is rather a simple matter. It is largely a question of knowing the outstanding laws, and of applying them to your living.

Under the auspices of the now world-famed Life Extension Institute of New York—an organisation which claims the services of the greatest American physicians, hygienists, and health authorities, there has now been prepared a very complete

Course of Health and Culture

It deals with all fundamental matters of health. It treats of diet, of what to eat and not to eat. It instructs on the care of the body, from the soles of the feet to scalp of the head. It deals comprehensively with general and personal hygiene. Every possible aspect of the health question is completely discussed. You learn how to win perfect health and how to keep it.

May we tell you more about this remarkable course? Use the Coupon.

Health and Study Club,
Institute of Efficiency
100 FLINDERS STREET, MELBOURNE

To the HEALTH AND STUDY CLUB,
INSTITUTE OF EFFICIENCY.
100 Flinders Street, Melbourne,

Please send me, without any obligation to enrol, full particulars of the Life Extension Institute's Course in Health and Physical Culture.

NAME .....

ADDRESS.....

.....

PATON

The "L.S." COLLAPSIBLE GO-CART

92/6

A

Handso meModel

that will give
Particularly
Good
Service

In appearance, this "L.S." Model will meet the demands of the most exacting parents. As to service, it is hard to set a limit to the time it will last.

The Perfect Springing System, which is a notable feature of the design; the Padded Seat and Back, which can be adjusted in Three Positions, and the Adjustable Footrest, absolutely ensure complete comfort for Baby all the time, which is, after all, the most important item.

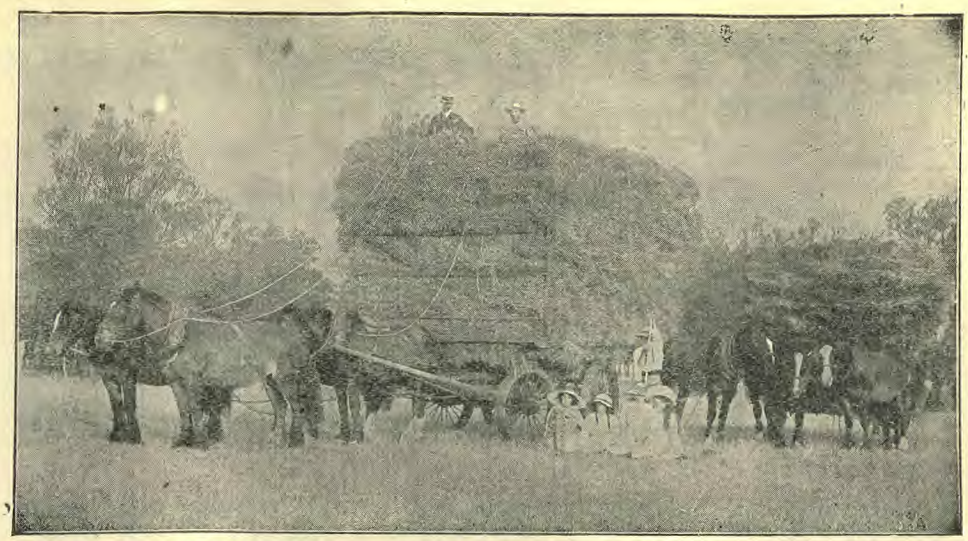
The Frame is of Flat Steel with Tubular Steel Pusher, 10-inch wheels, ½-inch Rubber Tyres, Mudguards, 4-Bow Hood, Leatherette Upholstered, Nickel Finished throughout.

POST YOUR ORDER—WE GUARANTEE SATISFACTION

Lincoln, Stuart & Coy. Pty. Ltd.

"BABY CARRIAGE SPECIALISTS"

244-254 Flinders Street :: :: Melbourne



THIS IS A HILDYARD WIDE-TYRE STEEL-WHEEL WAGGON

The user says:—
"I am putting 2,000 sheaves on the Steel-wheel Hildyard waggon and only 600 sheaves on the wooden-wheel old-style waggon. Carting only takes half the time now. Six horses pull ninety bags after one inch of rain. It is the lightest and most handy waggon in the world."

These waggons are now fitted with Patent Roller Bearings and pull one-third lighter draught.

Catalogue free Send for one Delivery prompt HILDYARD WAGGON WORKS, KENSINGTON, MELBOURNE

ROBERTSON & MOFFAT Pty. Ltd.

"THE HOUSE OF QUALITY"

SANITARY BEDDING

TO sleep well it is essential that you should have comfortable and sanitary bedding. Comfort, Durability, Cleanliness, Healthfulness, and Economy, are features pre-eminent in our Bedding, which is made in our own factory by expert workmen, absolutely guaranteed, and recognised by our numerous customers as "THE BEST THAT CAN BE MADE"

	3 ft.	3 ft. 6 ins.	4 ft.	4 ft. 6 ins. wide
Kapok Mattresses	**22/6**	**25/6**	**30/-**	**35/-**
Fibre Mattresses	**14/6**	**16/6**	**18/6**	**21/-**
Hair Mattresses	**57/6**	**70/-**	**82/6**	**90/-**

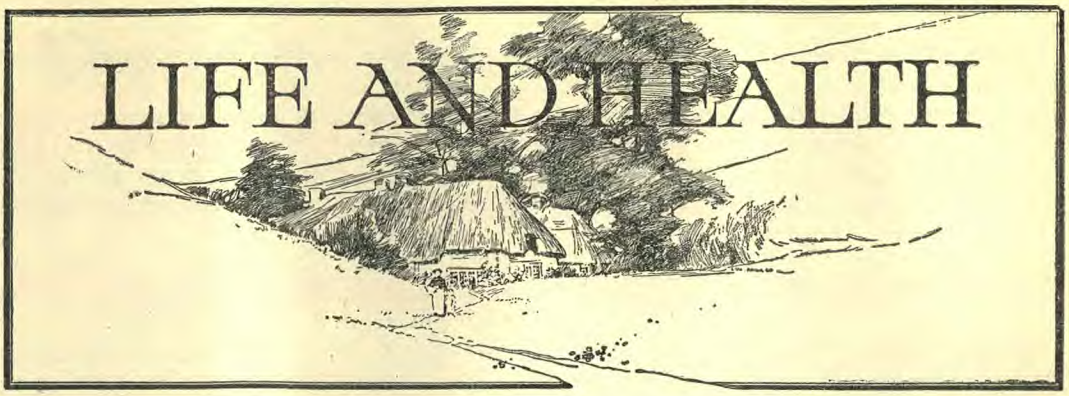
WE RE-MAKE BEDDING

Special Attention is given to this branch. — Our Carter will call for your Mattress; we will have same re-made and return it next day if necessary.
CAN WE SERVE YOU?

Call, Telephone, or Write. — PHONE NOS. 9340, 9341, 9343, 9344
INSPECTION INVITED :: :: :: BOURKE STREET

CONTENTS

"IN EVERY RANK, BOTH GREAT AND SMALL,
'TIS INDUSTRY SUPPORTS US ALL"



Vol. 8 **November-December, 1918** **No. 6**

Editor: CHARLES M. SNOW **Associate Editors:** W. HOWARD JAMES, M.B., B.S. EULALIA RICHARDS, L.R.C.P. & S., Edin.

DON'T work because you have to; work because you are glad to. This makes all the difference between drudgery and bubbling happiness.

ʊ ʊ ʊ

SOME boys' lives are so filled up with "don't's" that one of two things is sure to happen: either all ambition and incentive and ingenuity will be crushed out of them, or they will, at the first opportunity, break through all restraint, break their parents' hearts, and *do* every don't they ever heard if there is in their hearts still a lingering desire to do the things they were commanded not to do. Don't use so many don't's. Lead them into some fields of activity or interest where you can invite them to *do* something. Show them how, and let them work it out. The transformation in them will surprise you.

ʊ ʊ ʊ

WE are right up to the time now when that deadly scourge of the human race, *musca domestica* (the house-fly) will begin to demonstrate his vicious activity at the expense of human beings. Would you shudder if you saw someone pointing a pistol at your infant son or daughter, or any other member of your household? But you do not shudder when you see a house-fly, or several, walking over your baby's lips, or over the nipple of its nursing bottle, or crawling over its little hands that spend so much of their time in baby's mouth. Is the pistol more deadly than the fly? Perhaps it is more sudden and certain and noisy if it happens to be loaded. It is not always loaded; but the feet of the fly generally are; and when they are, they are both dangerous and deadly. Typhoid fever, diarrhœa, "summer complaint" (and lots of indispositions that are charged to the weather, the water, the milk, and other things), are suffered by children because they are permitted to be the "happy hunting grounds" for the ubiquitous house-fly. He comes straight from the places where disease itself breeds, and plants its seeds wherever you let him. The unscreened house is a standing invitation to Disease and Death to walk in and make themselves at home. "It is expensive to buy screen cloth." It is expensive also to pay doctors' bills and buy little coffins (or big ones) and pay funeral charges. This latter is an investment that pays no dividends except grief and loneliness. When a few yards of wire cloth will put a protecting shield between your household and the deadly activities of an omnipresent plague, it is not the part of wisdom or fairness to begrudge the cost of the wire.

The Triangular Bandage

THIS forms a very effective and easily applied first aid dressing for an injured hand, arm, or elbow. In putting it on the hand, the bandage should be spread out, and the hand placed upon it, palm down, with the fingers toward the central point, which is then turned back over them to the wrist. The two ends are folded about the hand, crossed, and tied at the wrist. For the elbow or arm, the bandage should be folded into a wide cravat, the middle and widest portion

being placed over the injury, and the ends crossed and tied.

For a permanent protection for injuries to the fingers, hands, or arm, or even for a first-aid bandage in cases where the injury is of considerable extent, the roller bandage is the most satisfactory one. If such bandages are made at home, they must be rolled very tightly; or it will not be easy to apply them firmly and evenly. One end of the strip should be folded over several times upon itself, until a small hard roll is formed; then, with the roll held firmly between the thumb and middle finger of the right hand, and the free end between the extended first and middle fingers of the left, the remainder of the strip should be rolled as tightly as possible.

Emergency Remedies

Wounds from Rusty Nails

FROM the first, such "punctured wounds" should be taken seriously, for they frequently cause much trouble. The chief trouble arising from the puncture of a rusty nail is frequently caused by the fact that the nail is not clean. Nails in old pieces of boards about the sheds and yards are frequently covered with germs that cause lock-jaw. If the wound is deep, it may be best to call a physician immediately, and he may open up the wound so as to clean and disinfect it thoroughly. If the puncture is not deep, it will simply need careful dressing. Soak the wound in hot water containing a few drops of carbolic acid. It is well also to syringe out the wound with five per cent solution of carbolic acid.

Dress the wound with a flaxseed or charcoal poultice. The wound should be kept open until it has thoroughly healed inside. If any complication arises, a doctor should be called immediately.

Sprains

Sprains most frequently occur in the ankle joint. Only a slight accident of this kind sometimes results in the loss of a limb. The best treatment for a sprain is fomentations, light massage, pouring with hot and cold water from a height of three or four feet, and complete rest.

The chief trouble usually arises from failure to keep quiet. Urgent business and the apparently trivial nature of the sprain lead the patient to resume his work too soon, and the trouble is aggravated.

Choking

If a child chokes, hold his head down and slap his back vigorously. Or, lift first one arm and then the other straight up by the side of the head. This will induce deep breathing and stop the choking.

If a small fish bone or bristle from a tooth-brush lodges in the throat, swallow some coarse pieces of hard bread or biscuits. This will usually dislodge it.

If something has lodged in the throat and does not yield to simple remedies, it is sometimes necessary to call a physician.

The Treatment of Diabetes Mellitus

Diet for Diabetic Sufferers and How to Prepare the Food Required

THE treatment of diabetes by the fasting method has vastly improved the outlook for the sufferers. Dr. Joslin, the most recent authority on the subject of diabetes, writes: "The introduction of prolonged fasting and the new horizon which this opened up for fruitful investigation, have changed the treatment of diabetic patients from a duty to a pleasure."

The object of fasting is to free the blood and urine from sugar. A fast of from one to four days will often do more for a patient in this direction than all the special dieting that has been advocated from time to time. Fasting, however, has its limitations, it does not suit every individual; diabetics who have suffered from the disease for a considerable time and enjoy a fairly comfortable life as well as elderly people often develop unfavourable symptoms on fasting.

In the past the first year of treatment of the diabetic patient has been a very fatal one from the development of diabetic coma—the most usual cause of death in this disease. Now it is recognised that this coma is the result of "acidosis," a development of acid bodies in the blood and the urine, and that this "acidosis" is likely to develop from excess of fat—either in the food or tissues of the patient. In the days of blood-letting it was frequently observed that the blood of diabetics after being withdrawn from the body developed on its surface a layer of fatty material like a layer of cream.

In healthy people carbohydrates (starches and sugars) should form the main part of the diet (1,500 to 2,000 calories out of a total of 2,000 to 2,500 calories), but these foods can only be taken sparingly by the diabetic; consequently fatty foods, such as butter, cream, and olive oil, must be partaken of more freely in order to supply the necessary amount of food. This procedure is proper, but its effects have to be closely watched, and if unfavourable symptoms develop, the fat must be omitted and an orange or some carbohydrate food, such as gruel, must be taken. The symptoms indicating "acidosis" are: Want of appetite, nausea, vomiting, restlessness, listlessness, discomfort, and painful or deep breathing. In fact, any symptoms of ill health in the diabetic render the examination of the urine necessary for these acid bodies. If they are not present, the treatment need not be interrupted. It is the absence of carbohydrates that renders the excess of fats dangerous to the diabetic, consequently it is important for the diabetic to learn how much carbohydrate he can take without sugar appearing in the urine. Every diabetic should learn how to test his own urine, for it is only by so doing that he can regulate his diet satisfactorily. The most simple test is that of Fehling's Solutions No. 1 and No. 2. One teaspoonful of each of these solutions and one teaspoonful of urine are placed in a test tube and boiled over the flame of a spirit lamp. If sugar be present the blue colour of the solution will change to a decided orange. The percentage of sugar should be ascertained, but that must be left in the hands of a competent analyst. The Benedict test is more delicate and gives some idea of the quantity of sugar present. To a teaspoonful of this solution add eight to ten drops of urine. Boil for three minutes and allow to cool spontaneously. If sugar be present the entire solution is filled with a precipitate which is greenish-yellow or red according to the amount of sugar present. If the quantity of sugar be low (below $^3/_{10}$ per cent) the precipitate forms only on cooling.

Those who are stout should approach the fasting treatment gradually, for although no fat is taken as food, acid bodies may develop from the fat in the tissues. In the fasting treatment fats

should first be omitted from the diet, then the proteids (nitrogenous foods), and finally by degrees the carbohydrates.

If a patient has been accustomed to a low diet and is not obese, fasting treatment may be commenced at once. Dr. Joslin writes about fasting: "Fasting is never so rigorous as doctors or patients expect. . . . Fasting does not seem like fasting to the patients when they receive coffee, tea, cracked cocoa, cocoa shells, and broths, and are given an unlimited supply of water. Warm drinks are preferable. If the quantity of urine, as it often does, falls to less than normal, the patients are urged to drink water freely. Clear meat soups are a great satisfaction. An analysis of 1220 ccs. of broths taken by Case No. 765 during three days showed the total amount of calories (units for measuring the nutritive value of food) therein contained to be negligible. Contrary to my experience with digestive cases, broths do not stimulate the appetite in fasting diabetics, they relieve it." This statement reveals the fact that these meat broths contain practically no nourishment, but we know they are harmful to the individual in health, and consequently they must be more so to one with a weakened constitution as in diabetes. Non-nutritive broths can readily be made from vegetables, which will be quite free from hurtful qualities of animal broths. For instance, a good broth may be obtained by boiling tomato juice and flavouring with a little onion and salt. Dr. Joslin states that the salt in the broths enables the patient to maintain his weight, but any vegetable broth can be utilised for conveying salt to the blood current.

If sugar appears in the urine after a four days' fast, alternate feeding and fasting should be adopted—one day of each. Intermittent fasting is more pleasant and gives less cause for anxiety in reference to the development of the "acidosis" already referred to. Many diabetics find a weekly fast day of great advantage.

When the urine has been free from sugar for twenty-four hours, the fast may be broken and food gradually increased. The first food to be taken should be some carbohydrates.

Carbohydrates

The first dish should be five ounces of the five per cent vegetables, which may be selected from the following: Lettuce, cucumbers, spinach, asparagus, rhubarb, endive, marrow, beet greens, Swiss chard, celery, tomatoes, Brussels sprouts, water cress, sea kale, cauliflower, cabbage, radishes, leeks, French beans, and broccoli. They can be mixed or taken according to the liking of the patient. After being thoroughly cleaned, they should be cut up fine and soaked in water, then placed in a large muslin bag so that when they swell in cooking they will not stick together. Place in a saucepan of cold water. Bring to the boil and boil for five minutes. Pour the water off and add boiling water and again boil for five minutes. Repeat this procedure a third time. Vegetables thus cooked will not contain more than three per cent of carbohydrate. Five ounces would thus contain only one-seventh of an ounce. A little salt should be added. On succeeding days, the amount of carbohydrate can be gradually increased until sugar appears in the urine or until we reach the point of the patient's tolerance. One-sixth to one-third of an ounce of carbohydrate can thus be daily added. It should be remembered that fasting increases the tolerance of the patient for starches and sugars, and that when a mixed diet is again taken up the tolerance may be lower. After a few days some of the ten per cent vegetables may be used. These when cooked contain about six per cent of carbohydrates. These include pumpkin, turnip, kohl-rabi, squash, carrots, onions, and mushrooms. After the vegetables carbohydrates may be added in the form of cream, strawberries, or oranges—a small portion twice daily.

Potatoes and oatmeal make an agreeable addition later on. Potatoes contain about one-third the amount of starch in bread. One-third of an ounce of dry oatmeal or one ounce of cooked potato

would contain about one-fifth ounce of carbohydrate. Many diabetics by giving up all bread foods can take a moderate amount of potato. The potato cooked contains about 20% of carbohydrate. They should be baked in their skins, and if well washed the skins may also be eaten and will help to keep the bowels regular. If placed in cold water and boiled they lose some of their proteids (nitrogenous element), but when placed in boiling water or baked in their skins these are retained.

The amount of carbohydrate taken by the diabetic should as a rule not be more than one ounce for every one and a half stone weight. Seven ounces is a very large allowance for a man of eleven stone. After three months of sugar-free urine, this amount may be carefully increased. A table of the quantitative analysis of all foods should be kept by the diabetic.

Proteids

As soon as the urine has been free from sugar for two days, two-thirds of an ounce of proteid may be added to the diet, and then half an ounce daily until the patient is receiving two ounces daily. An egg of average size contains one-fifth ounce of proteid. Children need a larger proportion of proteid than adults in order to supply material for growth. Eggs form a very convenient food for the diabetic, as they contain no carbohydrate whatever. One of the most remarkable developments in recent treatment of diabetes is the decided limitation of proteid food. Joslin speaks of the safe limit of proteid as 1 gramme per kilogramme weight; *i.e.*, a man weighing 70 kilogrammes (154 lb) should not take more than 70 grammes of proteid—about two and one-third ounces. Chittenden has clearly demonstrated by his epoch-making experiments that two ounces of proteid — the amount of the nitrogenous food in half a pound of beef steak— is the maximum that should be taken by a man of eleven stone doing an ordinary amount of work, if he wishes to have the best of health — physical and mental. The diabetic has a decidedly weakened constitution, and is more prone to the diseases due to excessive proteids —gout, rheumatism, kidney disease, etc. —than the individual with normal health. The old standard of proteid was from three to four ounces. The diabetic certainly should not exceed three ounces of proteid daily. One ounce could be obtained from five eggs daily—two used in cooking of various dishes, and three taken in the ordinary way. Two-thirds of an ounce can be obtained from a pint of new milk, but this, it should be remembered, contains one ounce of carbohydrate.

Hutchison, in his recent work on Dietetics, gives a recipe for freeing milk from all its sugar. This recipe we will give further on.

The nut foods are excellent for the diabetic. Joslin gives the percentage composition of protose and nuttolene as follows: *Protose* (*Sanitas*). — Protein 22.6%; fat 9.2%; carbohydrate 3.6%. *Nuttolene* (*Sanitas*).—Protein 12.7%; fat 21.8%; carbohydrate 6.3%.

The almond meat, nut meat, and nuttolene prepared by the Sydney Sanitarium Health Food Company are excellent preparations for the diabetic. The diabetic rolls prepared by the same company are now largely used for diabetes, and are excellent on account of their bulk and digestibility; they can be taken with butter or cream or cooked with milk and water making a dish very much like the ordinary tripe in appearance and taste. They contain 40 per cent of proteid and about 50 per cent of carbohydrate. Three ounces would contain about one and one-half ounces of carbohydrate. The gluten meals make very excellent breakfast foods, the 80 per cent (proteid) contain only 6 per cent of starch and the 40 per cent about 47 per cent of carbohydrate. Two level dessertspoonfuls will make a good dish of porridge. Cream, especially the clotted, contains very little carbohydrate (about one and a half per cent), and may be used with gluten porridge or the diabetic rolls.

A good substitute for milk can be made by adding clotted cream to water.

Chalmers Watson gives the three following recipes:—

Sugar-free Milk

(1) Place 4 tablespoonfuls of cream in 1 pint of water. Mix well. Allow to stand for twelve hours. Then skim off the fat and place in a second vessel; to this add water (cautiously), a pinch of salt, a trace of saccharin, and a little white of egg, until the fluid has the consistency and colour of ordinary milk.

(2) Dissolving Devonshire Cream in water.

(3) To a glass of water a teaspoonful of cream and one or two tablespoonfuls of Biogene powder is added and well mixed.

Hutchison's Recipe

This is an exceedingly good one and may be used in cooking like ordinary milk. It requires some skill, however, in preparation and a knowledge of the metric system. Any reliable chemist, however, could follow out the instructions, and the diabetic could readily learn to make the preparation.

Take 1 litre of skim milk, heat to a temperature of 38°C., and add 10 c.c. of glacial acetic acid, diluted with 100 c.c. of water. Mix and allow the mixture to stand for about fifteen minutes. Collect the separated casein, and let it drain on very fine muslin, using no pressure.

Remove the casein to a mortar, rub into a smooth paste, add ½ litre of distilled water, and strain as before. Repeat this washing of the casein twice. Transfer to a mortar, rub until quite smooth, and add 2.5 grammes of potassium hydrate dissolved in 100 c.c. of water (or as much of the KHO as is necessary to make the product just alkaline to phenolphthalein).

Add 100 grammes of ordinary Devonshire Clotted Cream, 5 grammes of gelatin previously dissolved, 1 grain of saccharin, and water at about 38° C. up to 1 litre. Lastly strain through fine muslin.

Hutchison states concerning this product that it "tastes very much like ordinary cow's milk, and can be taken either plain or with some effervescing water, or it can be made into custards with eggs. In some cases as much as 5 pints of it have been taken in one day, and it does not seem to have any appreciable effect in increasing the output of sugar.

Fat

After fasting, fat is the last item to be added to the diet of the diabetic. When the patient is taking 1 gramme of proteid per kilogramme weight of body, the fat may be increased gradually. The increase may be at the rate of one-third ounce daily. Where there is little tendency to "acidosis," the increase may be at the rate of nearly one ounce (25 grammes) daily. As long as there are symptoms of sugar of urine or of acidosis fat must be kept low.

Diabetics should learn to live on from 1,500 to 2,000 calories (units of nutritive value) per day. Three ounces of proteid give 360 calories. Three ounces of carbohydrate (a liberal allowance) give 360 calories. This leaves 800 to 1220 calories to be made up in fat such as butter, cream, or olive oil. Every ounce of pure fat gives about 280 calories. About four ounces of fat will thus give the full diet. This is about double the standard for a healthy individual. Bulk must be given to the diabetic menu by the use of five per cent vegetables as already described. The bowels must be kept regular. Bran is excellent for this purpose. The coarse variety should be used (that used for cattle). It should be placed loosely in a muslin bag and thoroughy washed under a tap. Wash until the water is quite clear. This bran may be mixed in various dishes. Dr. F. M. Allen gives the following prescription for

Bran Cakes for Constipation

Bran	60 grammes (2 ounces)
Salt	¼ teaspoonful
Agar-Agar powdered	6 grammes (⅛ ounce)
Cold water	100 c.c. (½ glass)

Bring the agar-agar and water (100 c.c.) to the boiling point. Add to washed bran the salt and agar-agar solution (hot). Mould into two cakes. Place in pan on oiled paper, and let stand half an hour;

then, when firm and cool, bake in moderate oven for thirty or forty minutes.

Dr. Joslin gives the accompanying recipe for bran cakes which is richer and more palatable than the one on the previous page.

Bran Cakes for Constipation

Food	Amount	Protein Grammes	Fat Grammes	Carbohydrate Grammes	Calories
Bran	2 cups	-	-	-	-
Melted butter	1 oz.	-	25	-	225
2 Eggs	4 ozs.	12	12	-	156
Egg white (1)	25 grms.	3	-	-	12
Salt	1 teaspoonful		-	-	-
		15	37	0	393

About 30 grammes make up one ounce.

Tie bran in cheese cloth and wash thoroughly by fastening on to the water tap, until the water comes away clear. The bran should be frequently kneaded so that all parts come in contact with the water. Wring dry. Mix bran, well beaten whole eggs, butter and salt. Beat the egg white very stiff and fold in at the last. Shape with knife and tablespoon into three dozen small cakes. If desired one-half a gramme of cinnamon or other flavouring may be added. Each cake contains: proteid, 0.5 gramme; fat, 1 gramme; calories, 11. W.H.J.

The Elements of Foods

DR. THOMAS has demonstrated that a little more than one ounce of proteid daily in milk and rice will keep the body in nitrogenous equilibrium; that is, by the taking of one and a half pints of milk or thirteen ounces of rice all the tissues can be kept in a normal stationary condition. Professor Chittenden and his co-worker, Mendel, both lived on a little more than one ounce of proteid daily for several months. Chittenden by a large number of experiments extending over many months has demonstrated that the adoption of a maximum standard of two ounces of proteid daily—the amount contained in eight ounces of beef steak—means increased health and strength both of body and mind. All recent writers recognise the startling experiments of Chittenden which lower the standard of proteid food necessary to keep the body in nitrogenous equilibrium about one half. The previous standard of from three to four ounces was not arrived at by actual experiment, but by comparison of the dietaries of individuals in every avocation of life and in every nationality. Dr. Joslin, in his most recent work on Diabetes Mellitus, writes: "When Professor Chittenden's epoch-making studies appeared many felt that he went to extremes, but to-day his statements appear very moderate." Page 246. The men experimented on by Chittenden were allowed to obtain their two ounces of proteid from either the animal or vegetable kingdom, but they found that in order to obtain sufficient nourishment on this standard they were compelled to adopt a vegetarian diet. After six months' trial, the strength of the various muscles of the body was tested in the gymnasium of the Yale University, and the results were as follows:—

Increase of Strength on Six Months' Low Protein Diet

(Professor Chittenden)

Name	October	April
Broylis	2560	5530
Coffman	2835	6269
Cohn	2210	4002
Fritz	2504	5178
Henderson	2970	4598
Loewenthal	2463	5277
Morris	2543	4869
Oakman	3445	5055
Sliney	3245	5307
Stelz	2838	4581
Zooman	3070	5457

There is a remarkable increase of strength in each of the above experiments. The experiments prove that a high protein diet is not necessary for maintenance of

FOOD MATERIALS	Proteid Percentage	Carbohydrate Percentage	Fat Percentage	Water Percentage	Mineral Matter Percentage	Fuel Value per lb.
Fresh beef, loin, lean edible portion	24.2	-	3.7	70.8	1.3	615
Fresh beef, round, lean, edible portion	22.3	-	2.8	73.6	1.3	540
Fresh beef, tongue	19.0	-	9.2	70.8	1.0	740
Fresh sweetbreads	16.8	-	12.1	70.9	1.6	825
Cooked beef, roasted	22.3	-	28.6	48.2	1.3	1620
Cooked round steak	27.6	-	7.7	63.0	1.8	840
Fresh corned beef edible portion	15.3	-	26.2	53.6	4.9	1395
Salt codfish, edible portion	25.4	-	0.3	53.5	24.7	410
Canned salmon edible portion	21.8	-	12.1	63.5	2.6	915
Canned sardines edible portion	23.0	-	19.7	52.3	5.6	1162
Fresh oysters, solid	6.0	3.3	1.3	88.3	1.1	230
Fresh hen eggs	13.4	-	10.5	73.7	1.0	720
Boiled hen eggs	13.2	-	12.0	73.2	0.8	765
Butter	1.0	-	85.0	11.0	3.0	3605
Full cream cheese	25.9	2.4	33.7	34.2	3.8	1950
Whole cow's milk	3.3	5.0	4.0	87.0	0.7	406
Corn meal, unbolted	8.4	74.0	4.7	11.6	1.3	1730
Oatmeal	16.1	67.5	7.2	7.3	1.9	1860
Rice	8.0	79.0	0.3	12.3	0.4	1630
Wheat flour, entire wheat	13.8	71.9	1.9	11.4	1.0	1675
Boiled rice	2.8	24.4	0.1	72.5	0.2	525
Shredded wheat	10.5	77.9	1.4	8.1	2.1	1700
Macaroni	13.4	74.1	0.9	10.3	1.3	1665
Brown bread	5.4	47.1	1.8	43.6	2.1	1050
Whole wheat bread	9.4	49.7	0.9	38.4	1.3	1140
Ginger bread	5.8	63.5	9.0	18.8	2.9	1670
Apple pie	3.1	42.8	9.8	42.5	1.8	1270
Custard pie	4.2	26.1	6.3	62.6	1.0	830
Tapioca pudding	3.3	28.2	3.2	64.5	0.8	720
Dried lima beans	18.1	65.9	1.5	10.4	4.1	1625
Dried beans	22.5	59.6	1.8	12.6	3.5	1605
Cooked beets	2.3	7.4	0.1	88.6	1.6	185
Fresh cabbage edible portion	1.6	5.6	0.3	91.5	1.0	145
Green corn, ed. portion	3.1	19.7	1.1	75.4	0.7	470
Dried peas	24.6	62.0	1.0	9.5	2.9	1655
Green peas	7.7	16.9	0.5	74.6	1.0	465
Raw potatoes, ed. por.	2.2	18.4	0.1	78.3	1.0	385
Boiled potatoes	2.5	20.9	0.1	75.5	1.0	440
Fresh tomatoes	0.9	3.9	0.4	94.3	0.5	105
Apples, edible portion	0.4	14.2	0.5	84.6	3.0	290
Banana, yellow, ed. por.	1.3	22.0	0.6	75.3	0.8	460
Oranges, edible portion	0.8	11.6	0.2	86.9	0.5	240
Peaches, edible portion	0.7	9.4	0.1	89.4	0.4	190
Fresh strawberries	1.0	7.4	0.6	90.4	0.6	180
Dried prunes, ed. portion	2.1	73.3	-	22.3	2.3	1400
Almonds, edible portion	21.0	17.3	54.9	4.8	2.0	3030
Peanuts, edible portion	25.8	24.4	38.6	9.2	2.0	2560
Brazil nuts, edible portion	17.0	7.0	66.8	5.3	3.9	3265
Soft-shell walnuts, ed. por.	16.6	16.1	63.4	2.5	1.4	3285

Selected from "Nutrition of Man," pages 7-10.

HEALTH-FOODS, *from Joslin's "Treatment of Diabetes Mellitus."*

Almond meal (New York)	49.1	15.9	21.8	-	-	2285
20% Gluten meal (Kellogg)	27.5	71.7	0.5	-	-	1785
40% Gluten meal ,,	43.7	47.3	0.9	-	-	1835
80% Gluten meal ,,	81.3	6.2	0.9	-	-	1825
Lister Bros. Dietetic Flour	84.5	-	3.6	-	-	1860
Plasmon	78.7	-	2.7	-	-	1695
Zwieback	32.5	49.3	6.9	-	-	1945
Granola (Kellogg)	13.9	76.3	0.8	-	-	1840
Malted nuts ,,	23.7	43.9	27.6	-	-	2595
Nuttolene (Sanitas)	12.7	6.3	21.8	-	-	1360
Protose ,,	22.6	3.6	9.2	-	-	940
Plasmon cocoa	52.8	20.9	10.8	-	-	1960

strength. Nevertheless, do these experiments prove that the increase of strength is due to a lowering of the proteid standard? May the increase not be due to special training in muscular exercise? In order to decide these questions, Chittenden next selected a number of athletes, men who were accustomed to the muscular exercises, and the results were the same, a decided increase in strength.

Effect of Low Proteid Diet on Athletes

NAME	JANUARY	JUNE
G. W. Anderson	4913	5722
W. L. Anderson	60 6	9472
Bellis	5993	8165
Callahan	2154	3983
Donahue	4584	5917
Jacobus	4548	5667
Schenker	5728	7135
Stapleton	5351	6833

In the words of the director of the gymnasium, "These eight men were in constant practice and in the pink of condition; they were in training form when they began the changed diet." — "*The Nutrition of Man*," *page 205*. In commenting on the above experiments, Chittenden writes:—

"This is in harmony with the principle, already discussed, that the energy of muscle work comes primarily from the breaking down of non-nitrogenous material, and consequently a diminished intake of proteid food can have no inhibitory effect, provided, of course, there is an adequate amount of proteid ingested to satisfy the endogenous requirements of the tissues."—Page 204. "All the subjects showed this great gain in strength; and, furthermore, there was a noticeable gain in self-reliance and courage in their athletic work, both of which are likewise indicative of an improved condition of body." — Page 205. "Further, most of the tests indicated that the gain was progressive, each month showing an improvement, in harmony with the growing effect of the diminished proteid intake."—Page 207. "Another fact to be emphasised in this connection was the conviction, gradually acquired by many of the subjects, that they suffered less from fatigue after vigorous muscular effort than formerly." —Pages 207, 208.

Amount of Proteid Necessary

The total amount of proteid daily required by a man doing an average amount of work can be obtained from the following:—

Two Ounces (60 Grammes) Proteid Are Contained in

½ lb. lean beef	9 hen eggs
1 lb. fresh cod	½ lb. cheese
½ lb. salt cod fish	3 pints new milk
9 ozs. canned sardines	3 pints skim milk
10 ozs. ,, salmon	3/5 lb. dried beans
33 ozs. oysters	11 ozs. almonds
5 lb. potatoes	1⅛ lb. white wheat bread
1 lb. macaroni	1¼ lb. shredded wheat
13 ozs. dry oatmeal	6½ ozs. oatmeal + 1½ pints milk
1¼ lb. biscuits	1⅓ lb. flaked rice

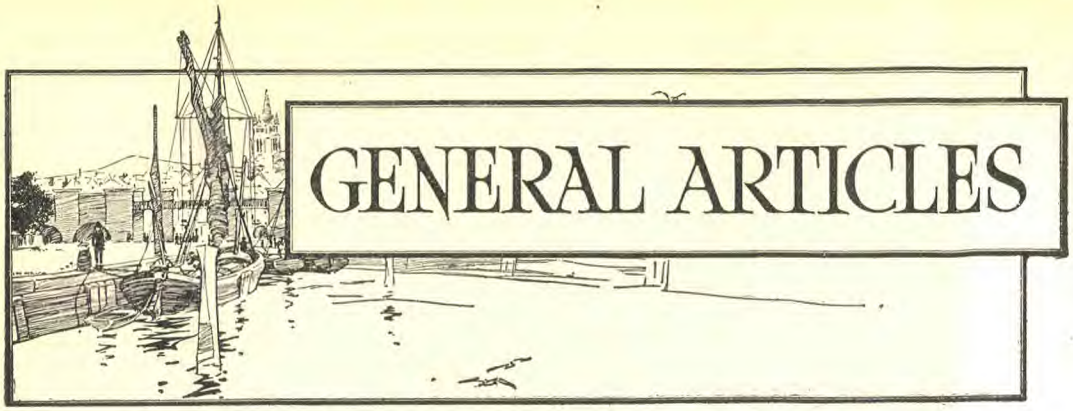
The number of calories (units of heat and energy) required daily according to Chittenden range from 1800 to 2500. In estimating the value of our food, the table on page 254 will be useful.

It will be interesting and practical to remember that the following approximately contain 100 calories:—

FOOD AND QUANTITY	CALORIES Proteid	Fat	Carbohydrate	Total
12 almonds (½ oz.)	13	77	10	100
3½ ozs. banana	5	5	90	100
1 slice bread (1½ ozs.)	13	6	81	100
1 pat butter (4/9 oz.)	½	99½	-	100
1 large egg	32	68	-	100
3½ ozs. potato	10	1	89	100
5 ozs. milk (¼ pint)	19	52	29	100
5 teaspoonfuls sugar	-	-	100	100
1 oz. granola	16	1	83	100
5/6 oz. oatmeal	16	17	67	100
1 oz rice	10	1	89	100
1 oz. macaroni	16	2	82	100
1 oz. wheat flour	17	5	78	100
1 oz. lima beans	22	4	74	100
1 oz. dry peas	24	2½	74½	100
1 oz. dates	2½	-	97½	100
11/12 ozs. figs	5	-	85	100
11/12 ozs. prunes	2½	-	97½	100
1 oz. raisins	3	-	97	100

W.H.J.

NEW corks for sealing your bottles and jars can be made by cutting pieces of old muslin about 2½ in. square, and pouring melted sealing wax over them. While the bottles or jars are hot, place the squares, wax side down, over their necks, pressing down well over the top of the bottle.



Fatty Degeneration of the Heart

A. B. OLSEN, M.D., D.P.H.

THE heart is subject to various structural changes such as simple dilatation, when the heart enlarges without increase of muscle, hypertrophy, or enlargement with proportionate increase of muscular substance, thickening of the valves, rendering them imperfect or incompetent, and certain degenerations. Strictly speaking, all these disorders involve structural changes in the tissue substance of the organ, although a fatty heart such as one finds in obesity is not generally regarded as organic heart disease. The condition of the muscular substance of the heart naturally determines to a very large degree the health and activity of the organ. Anything that weakens the muscle cells weakens the heart and proportionately interferes with its working capacity.

Fatty Infiltration

Whether a man is lean or stout is determined by the amount of fat or adipose tissue which is distributed throughout the body. The kidneys, liver, lungs, heart, and the voluntary muscles are very much the same as regards their size and structure whether a man is poor in flesh or of normal weight. But if there is anything like a marked increase in the fatty tissues so that a state known as obesity obtains, fat is found permeating and infiltrating practically all the tissues and organs of the body. The heart is no exception, and it becomes more or less embedded in fat.

This increase of fat around the heart is a distinct disadvantage to the organ and renders its work more laborious and difficult to perform, but this is not all, for the adipose tissue also penetrates the muscle cells of the heart, where it is deposited in varying quantities throughout the heart substance. This abnormal infiltration of fat still further interferes with the normal activity of the organ and renders pumping of the blood more difficult. A judicious course of treatment, including the use of Professor Bergonie's famous electric couch, combined with careful and abstemious dieting and gentle exercise in the fresh air, reduces weight, that is, reduces the amount of fat, and in proportion as this is accomplished the heart regains strength and efficiency. It is quite safe for an obese person in the majority of cases to drop anything from one to two or three pounds per week and at the same time gradually improve in vitality and physical vigour.

Fatty Degeneration

But there is another form of fatty change to which the heart is subject, which is far more serious than mere fatty infiltration, and this is a degenerative process which the heart muscle cells undergo, by which the muscle substance is gradually changed into a lower form of fat. It is well to bear in mind that fatty degeneration of the heart is by no means confined to stout or obese persons, but that anyone may suffer from it. Fatty degeneration is a more serious change than mere infiltra-

tion, because the muscle cells of the heart, when once destroyed, cannot afterwards be renewed or restored. Fatty degeneration is now known to be a rather common affection of the heart. At first the degenerative process develops very slowly and gradually, and for some considerable time, perhaps for years, there is no obvious sign or symptom of the mischief that is undermining one of the most vital organs of the human body. Steadily, although slowly, day by day, the heart muscle undergoes a change whereby the active contractile substance is displaced by an oily substance which is not true adipose tissue. The degenerative change is extremely insidious in the early stages and during the first few years, but all of a sudden, when the organ is put to some rather exceptional strain, a marked weakness is discovered, and a visit to the doctor reveals the fact that the normal muscular strength of the heart has been to a large extent lost, and that the organ is undergoing degeneration whereby its normal functions are gradually, but none the less surely, weakened.

NIAGARA IN THE GRIP OF WINTER

Some of the Causes

Any form of poisoning, whether from lead or other poisonous metals, or, which is far more common, from the use of drugs, and especially alcohol and tobacco, is very liable to start fatty degeneration in the muscular substance of the heart. The use of alcohol, whether in moderate or immoderate quantities, is probably one of the most common causes of fatty degeneration of the heart muscle. The habitual use of even the weakest alcoholic drinks, such as light wines and beers, is very prone to set up fatty degeneration, and there are few, if any, beer, wine, or spirit drinkers of several years' standing who do not suffer from some degree of fatty degeneration of the heart.

What is known in medicine as the "tobacco heart" simply means a heart undergoing fatty degeneration, which has been brought on by the poisonous effect of the nicotine. Some smokers are far more liable to suffer in this way than others, but those who have formed the habit of smoking, whether a pipe, cigars, or cigarettes, and who use two ounces or more of tobacco per week, are rarely free from some degree of fatty degeneration of the heart.

We must also point out that ptomaine and milder forms of self-poisoning, usually termed autointoxication, all have much the same influence upon the heart, and are very liable to cause fatty degeneration. This means that meat eaters, and particularly those who take animal flesh freely, are liable to suffer, while fruitarians and vegetarians are believed to be less susceptible to this degenerative process.

Again, all wasting diseases, and especially chronic Bright's disease, sugar diabetes, pernicious anæmia, consumption, etc., are almost always, and especially in the latter stages, accompanied by this degenerative change in the heart substance whereby the organ is steadily weakened.

Are Eggs Worth Eating?

Do They Form a Valuable Substitute for Meat?

HORACE G. FRANKS

IF historical fact may be believed, the answer to the question which forms the title of this article must be in the affirmative. Both savage and civilised nations the world over have for many generations used eggs in their dietary, while possibly no other article of diet is more commonly served or eaten to-day in a greater variety of dishes than eggs. The investigative and experimental science of to-day is justifying the common use of eggs, with, of course, certain restrictions.

ARTICLE	Percentage of Waste	Percentage of Water	Percentage of Protein	Percentage of Fat	Percentage of Carbohydrates	Percentage of Ash	Fuel Value per lb. in calories
Hen egg, as purchased ...	11.2	65.5	11.9	9.3	small	0.9	635
Hen egg, edible portion	...	73.7	13.4	10.5	small	1.0	720
Hen egg—white ...	...	86.2	12.3	0.2	...	0.6	250
Hen egg—yolk ...	...	49.5	15.7	33.3	fractional	1.1	1705
Whole egg—boiled (edible portion) ...	...	73.3	13.2	12.0	small	0.8	765
White-shelled egg, as purchased ...	10.7	65.6	11.8	10.8	small	0.6	675
Brown-shelled egg, as purchased ...	10.9	64.8	11.9	11.2	small	0.7	695
Duck egg, as purchased	13.7	60.8	12.1	12.5	small	0.8	750
Duck egg, edible part ...	...	70.5	13.3	14.5	small	1.0	860
Egg substitute ...	...	11.4	73.9	0.3	5.3	9.1	1480
Custard powder ...	...	13.0	2.1	3.14	80.9	0.6	1690
Steak, as purchased ...	12.8	54.0	16.5	16.1	...	0.9	985
Milk	...	87.0	3.3	4.0	5.0	0.7	325
Potatoes as purchased	20.0	62.6	1.8	0.1	14.7	0.8	310

THE VALUE OF EGGS COMPARED WITH OTHER FOODSTUFFS

In times past, the egg, like milk, has been called the "perfect food." But this term is certainly misleading, for although both foods contain the elements required for the development and growth of the young bird and animal, the proportion of these elements is not such as to meet all the needs of an adult human being. Nevertheless they are excellent nutrients, and form a staple addition to the human dietary.

Eggs consist chiefly of two nutrients—protein and fat, although small quantities of carbohydrates are also present. The diagrams and tables accompanying this article will illustrate in a simple way figures and proportions which would make dry and lengthy reading.

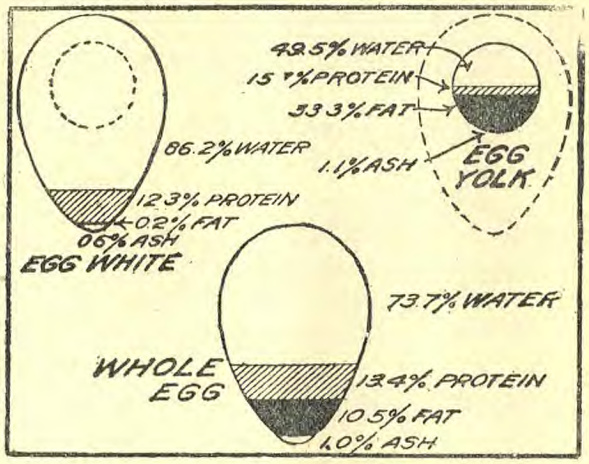
The White of Egg

The white of the egg is generally supposed to consist of pure albumen; but there are really four different kinds of albumens, some carbohydrates, a small percentage of phosphoric acid, and traces of salt which enter into its composition. When hard-boiled, this albuminous substance offers more resistance to the digestive juices than the fluid white of a raw egg or the semi-fluid white of a soft-boiled egg. The person having a weak digestion, therefore, should not partake of eggs boiled hard, while even persons with good internal machinery should refrain from eating these delicacies thus prepared unless they are determined to masticate them thoroughly. Undigested particles of hard-boiled eggs may remain in the digestive tract for many days in a decomposed condition, followed by trouble usually blamed on some other innocent article of diet.

Yolks

The yolk of an egg is a very complex

chemical composition, containing a number of substances the names of which are very rarely seen outside of text-books. And here is one of those rare exceptions. The composition of the yolk includes vitellin, which is the protein matter; palmatin, stearin, and olein, which are the fatty constituents; lecithin, which furnishes the phosphorus; traces of calcium, magnesium, potassium, sulphur, and iron; and the colouring matter. Investigations of recent years show that the lecithin furnishes the body with the phosphorus in a form that is most easily assimilated, in addition to greatly aiding the digestion itself. Thus the egg becomes a food which can only with difficulty be duplicated for concentration and nutrition, and is hence invaluable for invalids. The desirable rich colour given to the yolks of eggs is contributed chiefly by green feed.



Raw Eggs or Cooked?

In giving eggs to invalids, the doctor must have first say as to the method of serving; but for ordinary use, a few observations may be interesting. It is popularly declared that raw or only slightly-cooked eggs are digested easily and without physical discomfort. But, says one writer, "the term digestibility has another meaning. This is the thoroughness of digestion—that is, the total amount of nutritious material which any food gives up in its passage through the digestive tract." Since only soluble or emulsified matter can pass through the walls of the stomach and intestines into the circulation to nourish the body, it is evident that only material which is either soluble or is rendered soluble by the action of the various ferments in the digestive juices, is truly digestible. Thus it is that the original condition of the food, the method of cooking, and the amount eaten at a given time are all determining factors in digestibility.

The reader may draw his own conclusions from the following figures obtained by scientific experiments: Hard-boiled eggs and fried eggs take $3\frac{1}{2}$ hours to digest in the stomach; soft-boiled eggs require 3 hours; roasted eggs, $2\frac{1}{4}$ hours; raw eggs, not whipped, 2 hours; raw eggs, whipped, $1\frac{1}{2}$ hours.

Eggs in Puddings and Cakes

When eggs are whipped, air is beaten into them, and when these beaten eggs are added to dough, the air bubbles are distributed through the mass. During the process of cooking, the enclosed air expands with the heat, the result being a porous structure. Modern recipes call for fewer eggs than did those of a generation ago. The reason is to be found in the sad fact that the modern cook or housewife depends upon baking powder instead of eggs to make her cakes "light," using only sufficient eggs to give the desired flavour, texture, and colour. Therefore the cry should be, "Back to the country and to the eggs!"

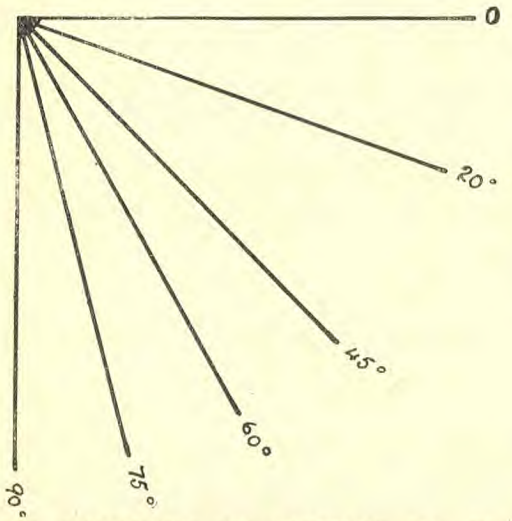
Are Eggs a Cheap Food?

It has been calculated that, on an average, eggs furnish 3 per cent of our total food, 5.9 per cent of the total protein, and 4.3 per cent of the fat used per average person per day. And so in these days of high prices and economy calls, it is asked, "Do eggs make a cheap food?"

In the first place, they are a good sub-

stitute for meat, for the two foods are much alike in composition. But eggs, even at a high price per dozen, are, in these days, much cheaper than meat, and equally satisfying. In a college in England attended by 115 women students, the quantity of meat required per meal was thirty-six pounds of beefsteak or forty-five pounds of mutton. But only fifteen pounds of eggs were required.

When eggs are 1/3 a dozen, tenpence will furnish one pound of total food



THE PROTRACTOR FOR MEASURING THE AGE OF AN EGG

material, containing about two ounces of protein and over an ounce of fat, with a fuel value of 635 calories. But tenpence expended on beef at 1/3 a pound will furnish but two-thirds of a pound of total food material, containing $1^3/_5$ ounces of protein and $\frac{2}{3}$ of an ounce of fat; in addition meat contains uric acid and other impurities. In other words, whereas $1\frac{1}{4}$ lb. of beefsteak, costing altogether about 1/6, would be necessary to serve five adults with one meal, five eggs, costing $6\frac{1}{4}$d. (at 1/3 a dozen), would serve the same number. And if each adult required two eggs, there would still be a financial gain of about 6d., or $33\frac{1}{3}$ per cent, per meal. The fact that eggs require less time, less fuel, and less labour for cooking than all meat foods, is surely an additional consideration in these days of hurry, expense, and work!

But Beware!

Over-indulgence in eggs, as in most things, is dangerous. Be temperate in all things, even in the consumption of eggs, for indigestion and other bad effects are the result of egg gluttony.

Furthermore, eggs may easily become disease carriers. The shell of the egg is porous, and offers no greater resistance to disease germs than it does to those which bring about putrefaction. If an egg remains in a dirty nest, defiled by micro-organisms which cause typhoid and other fevers, carried there by the hen's feet or feathers, there is every possibility of those germs penetrating the shell, infecting the egg, and, later on, the consumer.

Do not eat dirty eggs; insist on purchasing clean ones. If you keep fowls, see to it that the nests are kept clean and sanitary.

Testing the Age of Eggs

But perhaps the greatest cause of bacterial infection from eggs is the consumption of stale eggs, that is, eggs in which the hydrogen of the albumen has combined with the sulphur of the yolk. To test the age of eggs, prepare a solution of one part of salt to two parts of rain or distilled water. An egg up to thirty-six hours old will sink to the bottom of the vessel and lie horizontal. When between two and three days old, it will float horizontally just below the surface, with a slight tendency on the part of the thick end to rise upwards. This tendency becomes more pronounced at the end of four days, when the egg slopes at an angle of 20° from the horizontal. This angle increases daily until the end of the eighth day, when it is 45°; on the fourteenth day it is 60°; on the twenty first it is 75°, while an egg a month old will be upright in the solution, the smaller end downwards. If the accompanying protractor be either pasted on cardboard or re-drawn, it will be a simple matter for even a child to tell the age of an egg.

Home Exercise for Constipation

GROUP 1.—These are easy to execute, and are suitable for weak and elderly people.

1. Abdominal kneading and stroking. Kneading. — Lying down, with knees slightly drawn up. Place hands one on top of the other on the abdomen at the right groin; with small circular movements and deep pressure work upwards until the ribs are met, then cross toward the left, following the boundary line of the chest, then downwards to the left groin. Repeat twenty to fifty times. *Stroking.*—With hands similarly placed, make long, steady, and deep strokes following the same route. Repeat twenty-five to one hundred times.

2. Leg rolling.—Lying down, take hold of both legs just below the knees, press the knees up close to the abdomen, then carry them apart, then down and inward until they meet again; thus letting the knees describe two circles. Repeat ten to twenty times.

3. Abdominal compression. — Standing against the wall with the hands clasped behind the neck, draw the abdomen forcibly in, using the abdominal muscles, hold a second, then let go. Repeat ten to twenty times.

4. Trunk rolling.—Standing with hands on hips, feet apart and legs well stretched, roll the upper body in a circle on the hips by bending forward, to the left, backward, and to the right. Then reverse, and repeat six to twelve times each way.

GROUP 2.—*These require more force, and should be used by strong people only.*

5. Leg lifting, single and double.—Lying on the bed, or better still, on the carpeted floor, with hands clasped behind the neck, lift the well-stretched legs up high, slowly letting them down again, either alternately or both together. Repeat six to twenty times.

6. Trunk bending sideways.—Standing with the hands clasped behind neck, bend body way over to the left, then back, in upright position, and then over to the right. Stop a second at the extreme bend positions. Repeat five to ten times.

7. Trunk bending forward and backward. —Standing with arms straight up in the air, throw the trunk forward as far as can be done without bending the knees, then

upward and slightly backward. Repeat six to ten times.

8. Trunk falling backward.—Sitting on a stool, with hands on hips, legs outstretched and feet braced under some heavy object (instance, a radiator), let the upper part of the body slowly fall backward, then raise to sitting position, and repeat four to eight times.—*Sundelius.*

What to Do With Old Potatoes

TOWARDS the end of the season there are always a certain number of badly shrivelled potatoes. Many of these are almost useless from the cooking standpoint, but they may be turned to valuable account in the following manner.

In most houses it is possible to discover some dry corner that is perfectly dark. This might be in a cupboard or in a cellar. On a shelf or the floor spread a layer of dry soil an inch or so in depth, and into this press the old tubers so that they are covered to about half their extent. See that each potato is quite distinct, as it is rather important that they should not touch one another. Here the tubers may be left, and they will require no further attention save a very occasional slight sprinkling of water. The soil should never be really damp or mould will be likely to appear. Sometime during the summer little white spots will begin to appear on the potatoes, and these will finally develop into small potatoes. When these are about the size of walnuts they may be gathered and cooked; they will be found to be altogether delicious. Strange although it may appear to be, the old potatoes will go on producing the new crop for many months until there is nothing left of them save a little skin. The only essential feature of the treatment is that the old tubers be kept in total darkness. If any light can reach them continuously they will tend to send out shoots rather than the tubers that are desired.—*Scientific American, June 29, 1918.*

Fruit Preserving in Sand

AFTER some prolonged experiments, a French scientist has given to the world a simple plan by means of which many kinds of fruits and vegetables can be kept for a lengthy period in the raw state. First secure a quantity of fine dry sand. It is well to sterilise this by baking it in the oven for a few hours. By spreading the sand out on big dishes and placing these in the oven it is easy to sterilise a considerable quantity of sand at a time. Now get some wooden boxes; these might be of any convenient size, although they should not be less than five or six inches in depth. The next step is to collect the fruits and vegetables. The very soft fruits such as raspberries, strawberries, currants, etc., are not suitable. In the experiments good results were secured with plums, peaches, tomatoes, and such vegetables as cucumbers, marrows, and even peas and beans. It is very important that all the specimens should be quite dry externally, and that they should be without blemish. In the case of fruit it is well that this should not be quite ripe; certainly there must be no sign of splitting open. Take each fruit and vegetable and wrap it closely in tissue paper, twisting the ends closely together at the top. Now spread a layer of sand in one of the boxes; this should be about two inches deep. Then place out the fruits or vegetables, allowing two inches between each. Finally the sand is packed in all over the fruits, the most important thing being to see that there is a good two inches of the material round each specimen. If undisturbed, sand packed fruits and vegetables will keep fresh and of good flavour for many months.—*The Garden Magazine.*

CHATS WITH THE DOCTOR

NOTICE TO SUBSCRIBERS: All questions for this department must be addressed to the EDITOR, "LIFE & HEALTH," WARBURTON, VICTORIA, Subscribers sending questions should invariably give their full name and address, not for publication, but in order that the Editor may reply by personal letter if he so desires. Because of this omission several questions have not been answered. To avoid disappointment subscribers will please refrain from requesting replies to questions by mail.

188. Chronic Inflammation of Uterus

"Mrs. J.E." complains of the above. There is also prolapse—a falling of the womb. Pessaries do not afford any relief. She complains of nervous headaches and pains in various parts of the body. She suffers from indigestion and constipation. Milk suits her well. Vegetables and rich foods do not agree. She is very anæmic and wishes to know if an operation is advisable.

Ans.—In these cases we have found rest in bed, with good nourishing food, such as fresh milk, raw eggs, etc., with tonic hydropathic treatments very good. Water should be taken freely during the day in order to help the bowels. Prunes, dates, figs, and other fruits would also be helpful. Granose biscuits, wholemeal bread, and unfermented wine should be partaken of freely. Sitz baths and the application of a liniment made up of equal parts of the strong and weak tinctures of iodine to the neck of the womb are very helpful. The latter of course could only be applied by a medical man. The treatment is in our experience very satisfactory. This treatment, if it does not cure, will so improve the parts that an operation will give much more satisfactory results. A fortnight's sanitarium treatment is always to be recommended in these cases before an operation is performed.

---

189. Chronic Indigestion.

"Scot" complains of the above. He suffers from eructation of food from the stomach after meals. At first it does not appear to have undergone any change, but in about one and one-half to three hours the risings become very sour and acidy. "I eat three meals a day, but on realising that meat and tea increase the trouble, I have lately almost entirely excluded them from my diet. At one time I was greatly troubled with constipation, but for some time past have remedied this by taking about a quarter of a packet of Epsom salts with a cup of tea before breakfast. Would this aggravate the stomach trouble? I am told that Epsom salts are injurious to the stomach. Is that so? I have very little mental or physical energy. I masticate my food fairly well. Would it be best for me to take two meals a day instead of three?"

Ans.—Tea is injurious to the stomach at all times, but especially on an empty stomach. The salts, if the dose has not to be increased above a quarter of a packet, may be continued, but it should be taken in half a pint or more of hot water one hour before breakfast. Two meals a day would probably suit much better than three — omit preferably the evening meal. Thoroughly masticate before each meal a granose biscuit. This will take some time, but the alkaline saliva produced will help the action of the stomach. This is a case of hypo-pepsia —deficiency of gastric juice. Most prescriptions of doctors for this complaint contain from 10 to 15 grains of bicarbonate of soda with some bitter tonics to

be taken half an hour before meals. The natural alkali of the saliva is preferable to that of the soda. Alkalis before meals increase the flow of the natural acid of the stomach. The acids produced from one and a half to three hours after meals are acids of chemical changes and fermentation. A drink of hot water one or two hours after meals will dilute the acid contents of the stomach and give relief. Cold compresses a quarter of an hour before meals and fomentations after meals are helpful. Take as much exercise out of doors as possible, sponge the whole body daily with cold water, and sleep in a well ventilated bedroom.

---

190. Bad Odour from Nose

"Miss M.F. (N.Z.)" complains of the above. She has had the trouble twice within three months, and it comes with a slight pain on the upper nose bone extending over one eye.

Ans.—Possibly there may be a small piece of decayed bone, but probably it is due to simple disease of a part of the lining membrane of the nose. Make a normal saline solution by boiling two teaspoonfuls of common salt in a pint of water. Keep in corked bottle. Use as a wash for the nose twice daily. Pour a little, diluted with equal parts of hot water, into the palm of the hand and sniff it up the nose. If it is drawn into the back part of the throat it will be better.

---

191. Pain in Left Groin

"W.S.G." writes: "For the past three weeks I have been troubled with a severe pain in my left groin; when I sit down it is with difficulty that I get up again; when walking I do not feel the pain so much. I do no hard work and am temperate in my habits."

Ans.—Probably it is a case of sprained muscle. Apply three or four good fomentations on retiring at night and paint the parts with liniment of iodine three times a week. A medical examination would be more satisfactory.

192. Is Tea Injurious?

"E.R. (West Australia)," after complaining of a private trouble, writes: "My age is 37, my youngest child is over four years. I am very thin and only weigh 7 stone 12 lbs, although I am 5 feet 7 inches in height. Is tea harmful to take, as I take it every meal? I do laundry work, so have to stand on my feet a good deal."

Ans.—When the excessive bleeding complained of arises there should be absolute rest. Correspondent needs building up. Take half a pint of fresh milk with each meal; it will be infinitely better than the tea. Tea is decidedly injurious to the stomach and robs the food of much of its nutritive value. It also causes constipation and upsets the nervous system. A raw egg in addition to the ordinary meals should be taken twice daily.

---

193. Dilated and Dyspeptic Stomach

"F.F.J." asks for diet for the above.

Ans.—It would have been more helpful if correspondent had given her exact symptoms instead of the diagnosis of her complaint. We would advise dextrinised foods such as granose biscuits, puffed wheat, or toasted corn flakes with unscalded cream. Gluten gruel, grainut, zwieback (twice baked bread), rusks, or thin toast buttered cold. Eggs lightly cooked; creamed rice or sago; fresh butter; cream; stale bread. Avoid all porridges, soups, and vegetables. Ripe fruit will agree with many.

---

194. Boils

"Stellar" writes that their family have been vegetarians for three years and that all of them are subject to periodic attacks of boils. "Our diet," she writes, "is roughly as follows: *Breakfast.*—We always have porridge, toast, and fresh fruit. Children drink cocoa; ourselves tea or frucerea. *Dinner.*—I have a vegetarian cookery book and always make a savoury of some sort, with potatoes and any vegetable in season. Also vegetable soup occasionally, not every day, and always either a milk pudding or light boiled

pudding (no suet of course). I use Crisco for everything like that. *Tea.*—Just bread and butter, home made jams and cakes, sometimes fruit or celery or boiled eggs. Children drink milk and hot water, ourselves tea. No supper except a cup of frucerea made with milk and a few biscuits."

Ans. — Very frequently in changing from a flesh diet to a lacto-vegetarian, the mistake is made of taking more food than is necessary. Half a pound of meat would contain all the nitrogen a man would need for the day, but to supply the total amount of food required for the upkeep of the body he would have to take four and a half pounds. This quantity of ordinary bread would supply more than double of both the quantity of nitrogen needed and the total amount of food required. Too free use of eggs and pulses (peas, beans, and lentils) will overload the blood with impurities, and make the skin sluggish, and certainly predispose to the development of boils. Boils are the result of the development of special germs in the glands of the sluggish skin. A hot bath twice weekly and cold sponges daily with plenty of friction will help in getting rid of the trouble. All sweet and fatty food must be used in great moderation. "Stellar" suggests that something may be "missing" from the diet, but the probability is in the other direction. Vegetables and fruit will certainly be helpful. Cocoa is a fatty food and should only be taken sparingly. Children certainly are better with water only or milk and water. The same, of course, can be said in regard to adults, but the acquired habit of taking hot drinks with meals is often strong and not always easy to overcome; a child should be trained up in the way it ought to go — that which is best for its future health and happiness.

---

195. Bladder Trouble

"Bladder" writes: "For two years I have been suffering from a constant pain over the region of the bladder with frequent calls to urinate. Urine and bladder have been thoroughly examined by doctors and they can find nothing wrong. I have to urinate about every half hour. . . . I cannot take any kind of cold drink. All cold drinks seem to make my condition worse, it seems to get worse when my stomach is empty, and after I have had a movement of the bowel. My doctor is giving me Bromides."

Ans.—The bladder has been tested by a sound for stone but still a stone may be present and covered over in a small pouch of the bladder. An examination of the bladder has been made by a "Systoscope" (an instrument by which the lining membrane of the bladder can be seen) with negative results, but still a stone covered by lining membrane would be unseen. The patient is only 30 years of age and this excludes enlarged prostate. As the urine is normal there can be no cystitis. The doctor is evidently treating the case as of nervous origin. This may be the case, but we are more inclined to the belief that there is a stone in a pouch of the bladder. An operation would allow the bladder to be thoroughly examined and would leave no bad effects. We would advise that flesh foods, legumes, and highly nitrogenous foods be eliminated from the diet, also all stimulants, as tea, coffee, or alcohol, and rich foods. Sponge the body with cold water every morning, and take a hot sitz bath (108° F.) on going to bed. Keep feet also in hot water during bath.

---

196. Beet Sugar and Chilblains

"J.H. (Singleton)" asks where he can obtain beet sugar and also for a remedy for chilblains.

Ans.—As a preventive of chilblains the feet should be kept warm; bathe in hot water until they are warm and then rub briskly with cold water morning and night. When the chilblain first appears, paint with surgical collodion on a little absorbent cotton wool. If they are broken, mix boracic acid with vaseline (about two level teaspoonfuls to one ounce of vaseline) and apply twice daily. We do

not know where beet sugar can be obtained. Write to some of the large Sydney or Melbourne firms.

---

197. St. Vitus's Dance

"Mrs. T.P." states that her "little boy often gets twitchings of his arms and fingers going very fast, and then he gives a real good jump, and some nights he wakes up and cannot go to sleep for hours. . . . Sometimes his hands twitch while he is asleep. There are times during the day when he lies down and starts to think and twitch, and at times he falls off in a sort of faint, helpless condition. . . . About two years ago he passed a worm six inches long."

Ans.—This is a case of St. Vitus's dance (Chorea). The boy should be kept very quiet; not allowed to go to school. In severe cases it is often necessary to put them to bed. He should not be excited in any way. His food must be very plain and his bowels must be kept regular. Twice a day he should have a neutral bath of from twenty minutes to one hour each. The water should be just below blood heat (96°-97° F.). Keep a covering over the bath. Dry thoroughly and put to bed. Hot fomentations to the spine, followed by cold wet compresses (cover with flannel), are helpful just before bedtime.

---

198. Irritation, Throat Catarrh, Worms

"Mrs. B.S." complains of the above.

Ans.—For the irritation we would advise the injection of about a quart of water containing a little permanganate of potash—half as much as will go on a threepenny piece. Three times a week inject a quart of water with a teaspoonful of alum. For external application, use carbolic oil (8 per cent). For throat catarrh we refer our subscriber to the last issue of LIFE & HEALTH under the heading of "Chats." A teaspoonful of ordinary salt boiled in a pint of water makes a good gargle to be used three times a day. If there is any trouble in the nose, sniff some of the same solution up the nostrils. Daily injections of salt and water (tablespoonful to a quart) will usually cure threadworms. A dose of Santonin (3 grains) at night, and a tablespoonful of castor oil in morning on waking is helpful once a week.

---

199. Flatulent Dyspepsia

"Wondai" writes: "I am troubled with wind coming up my throat. I have been more or less troubled with it for years, but lately I am worse than usual. I enjoy general good health."

Ans.—Avoid all sloppy foods. Do not drink tea, coffee, or cocoa at meals. Half a pint of hot water or hot water and milk may be taken instead. Avoid fried foods, cakes, scones, new bread, pickles, spices, and all rich foods. Cabbage, parsnips, carrots, and turnips cause wind. One vegetable besides potatoes is ample at one meal. Granose biscuits can be substituted for bread with advantage. Chew all food thoroughly. Omit the evening meal altogether.

---

200. Prolapse of Womb and Bladder

"Mrs. W.R. (Thora)" complains of the above coming on after a confinement.

Ans.—From the symptoms given we would certainly advise an operation. An operation would mean three or four weeks in bed.

---

201. Paralysis after Diphtheria

"Mrs. S." states: "I have been in the hospital for four weeks with diphtheria. I am now home and have a paralysed throat. What treatment would you recommend?"

Ans.—Paralysis of the throat is a very common trouble after diphtheria. Very often the antitoxin used in treatment gets the blame, but such is far from being the case. Antitoxin is nature's own remedy, and causes no adverse after-effects. The paralysis will disappear in from two to four months, and really requires no special treatment. The general health must be attended to. Good, plain, nourishing food and plenty of fresh air are necessary.

202. Abdominal Sprain

"Renew" writes: "About 12 months ago, whilst lifting a weight partly on my stomach and hands, I contracted a pain in the region of the bladder on left side, extending to the private parts. The pain subsided in the course of a week. Twelve months later while using a pick and shovel I contracted the same pain. Have I ruptured or strained myself? What remedy would you suggest?"

Ans.—A rupture would be accompanied by a swelling which would probably disappear on lying down and would return on standing. Generally on coughing if the hand be kept over the rupture the impulse of the coughing can be felt. We believe, however, this to be a muscular strain. Correspondent should take as much rest as possible. At night apply four or five hot fomentations to the parts, allowing each to remain for about ten minutes. For two minutes between each fomentation apply a wet cold compress.

---

203. Over Feeding and Constipation

"Hopeful" writes: "I am not really ill, but oftentimes feel ailing; may be it is natural to my time of life. I am 65, 6 ft. tall, weigh 11 stone 3 lbs. Was 12 stone 7 lbs. for years, but the last three years I have gradually lost weight. The only weakness I feel is in the back; especially when doing any stooping I get an aching pain at the lower part of the back. Have suffered with constipation for years and have always to take some purgative, as cascara, salts, or pills. Appetite is too good, could eat more than I could digest. Water is irregular, often have to rise twice during the night; occasionally it seems an excessive quantity. Sleep is very disturbed, seldom sleep more than 3 or 4 hours and always dream a lot. . . . Have frequently white blisters on mouth and tongue. Often notice a peculiar odour in my perspiration like burnt rag. I do not drink either beer or spirits, but smoke about two pipes an evening."

Ans.—Over feeding and constipation would produce all the symptoms given by "Hopeful." He will find a reduction in the amount of food taken very helpful, especially in the nitrogenous elements. After the age of 50 decidedly less food should be taken if one wishes to keep really well. The diet should consist of wholemeal bread, granose biscuits, toasted corn flakes, farinaceous puddings, fresh milk, milk puddings, fruit—stewed or fresh,—a little oatmeal or wheatmeal porridge, vegetable soup, one egg daily. Avoid flesh foods and all rich diets. Vegetables, including potatoes, should be taken once daily. A warm bath should be taken twice weekly, and the bedroom should be well ventilated. Make the evening meal very light—a little bread and butter and fruit.

---

204. Ocular Neurasthenia

"Interested" asks: "Would you kindly give me a few facts as to Ocular Neurasthenia? What it is, its cause, and cure."

Ans.—Neurasthenia is a condition of weakness or exhaustion of the nervous system arising from a great variety of causes and producing an ill defined and motley group of symptoms, which may be general, referring to the whole system and mind, or local, limited to certain organs, as the brain, eyes, heart, or stomach. Ocular neurasthenia would thus mean a special weakness of the nervous structures connected with the eyes. An aching or weariness of the eyeballs after reading a few minutes, or flashes of light are common eye symptoms in some neurasthenic cases. Great mental strain, anxiety, trouble, excessive mental work, or inherited nervous weakness are the main causes of neurasthenia. Sexual excesses are at the back of some neurasthenic troubles. The chief treatment is rest, to allow the nervous system to recuperate. Abundance of good nourishing food (plain and easily digested) is generally necessary. Outdoor exercise, short of fatigue, cold bathing, and a well ventilated sleeping room are necessary. A change of environment and pleasant associations are helpful. Foods of a fatty nature are generally advised,

and this advice is good as long as the fat is taken in its natural conditions, as in fresh milk, eggs, oatmeal, etc., but not cooked fat. Special glasses may be necessary to relieve the eye strain. Often some form of iron is necessary. We are convinced that such drugs as strychnine and the bromides do harm.

---

205. Catarrh and Advertisements

"H.W.T." sends us some advertisements *re* a remedy for catarrh, and asks our opinion about the matter.

Ans.—We have absolutely no faith in advertised remedies for this complaint. Local treatment is not sufficient in itself. The general health must be attended to, especially the digestive organs. The fasting treatment would be good, or a fruit fast, living on ripe mature fruit only. A week of such treatment would be ample. We would like correspondent to give this treatment a trial and write us the results. In all cases fats, sweets, and flesh foods should be omitted from the dietary. The throat and nose should be kept clean by the use of a normal saline solution (a teaspoonful of common salt boiled in a pint of water) used three times a day. The throat should be gargled and some sniffed up each nostril from the palm of the hand. A syringe that would direct the solution upwards behind the soft palate would be better than gargling. Gargles mostly only reach the parts in front of the soft palate.

---

206. Indigestion in Old Age

"P." writes: "My father, who is 78 years of age, has suffered considerably from indigestion. His heart is affected, apparently as a result of continued indigestion. He is liable to faint at times. Otherwise his health is perfect. He is of good spirits and has led a very energetic and active life. He rests considerably. He has been a heavy meat eater, but has never smoked. Doctors have restricted his diet considerably. It is now as follows: *Breakfast.*—Two poached eggs, white bread and butter, and cocoa. *Dinner.*—Very small piece of grilled steak or baked roast. Pumpkin and sometimes celery and barley; bread and butter. Milk puddings. At times baked custard and stewed fruit. *Tea.*—White bread and butter; baked apple; and cocoa. No fried foods are given him. He consumes very little cane sugar. The doctor ordered him a tablespoonful of brandy at times as a stimulant, to be taken in hot water and sugar."

Ans.—We would advise "P" to read in this issue of "Chats" what has been said *re* overeating in old age. One egg would be sufficient for breakfast. Milk puddings with bread and butter at dinner make an excessive meal, one item should be omitted. The tea should be as light as possible. The fainting is due most probably to flatulent distension of stomach, and the giving of brandy gives only temporary relief; it would be better omitted. Teaspoonful doses of very hot water or the use of smelling salts would be preferable.

---

207. Circumcision

"H.S., N.S.W.," states that he needs the operation of circumcision and wishes to know if the operation is a serious one for an adult and how long he would need to remain in the hospital.

Ans.—The operation is no more serious in the adult than in the child. If a baby is circumcised during the first fortnight, as a rule no anæsthetic is given, but adults need either a local or a general anæsthetic—we advise the latter. One week in bed is ample. We have known cases do well without actually going to bed.

---

208. How to Make Charcoal

"C.J.G." writes: "Could you tell me how to make charcoal to be as near Bragg's Charcoal Biscuits as possible. I have heard that the willow tree wood burned in the oven and powdered up is good."

Ans.—Charcoal is prepared by burning wood under turf or in a retort, so that the

hydrogen and oxygen are driven off and the charcoal alone remains. If there be too much air the charcoal itself burns and leaves ashes. The willow wood is used largely for this purpose. Probably the oven would do very well—it should be a small one and the air rigorously excluded.

---

209. Flatulent Dyspepsia

"Rocky River" was operated on for appendicitis ten years ago, and has suffered from flatulent dyspepsia ever since. He cannot sleep between 1 a. m. and 4 a. m. Has pain in stomach and breast, and pain on pressure over the stomach. Oranges and apples eaten raw give wind and pains. He does not take tea, coffee, or cocoa. His diet consists of: *Breakfast.*—Steamed rice; poached eggs; buttered toast; frucerea made with condensed milk. *Dinner.*—Brown bread and butter; bread and honey; boiled pumpkin; glass of boiled water. *Tea.*—Steamed rice; boiled cauliflower; glass of boiled water. Correspondent feels tired and fatigued after exertion.

Ans.—Possibly there may still be some trouble about the appendix. Old adhesions will certainly give rise to dyspeptic symptoms and pain. In the menu given we would recommend that some dextrinised food be substituted for the steamed rice—such as granose biscuits or toasted corn flakes—with raw cream. Probably correspondent would be better without any drink at all with meals. Take water on rising and going to bed, and about one hour before meals. Toast should be very crisp and buttered when cold. Zwieback would be preferable to bread. Take only a little dextrinised food for tea—raw cream may be eaten with it. This meal should be light.

---

210. Pelvic Trouble

"C.H.B." (Hanley Bridge)" states that she had Alexander's operation and has been ten times worse than before. At present in addition to "bearing down" and other symptoms, she has severe pains in the groins, very bad in the right and very sensitive to the touch. She suffers from backward displacement, and has used rubber pessaries, which have increased her pains.

Ans.— Rest in bed, sitz bath (once daily); hot foments (10 minutes each) alternating with cold compresses (2 minutes each)— 3 or 4 of each—to lower part of abdomen will help. The bowels must be kept regular. The Alexander operation has evidently been a failure, as the womb is still displaced. We cannot see any other satisfactory treatment that would give permanent relief than a thorough operation. We have had many similar cases in our sanitariums and the results have been good. A fortnight's treatment before operation is decidedly beneficial in order to build up the patient and improve the local conditions.

---

211. Anaemia (Poorness of Blood in Iron)

"Wynum" writes that though married for years she is childless. Has had the womb curetted twice and a cutting operation. She has been healthy until the last eight months, but her weight during this time has dropped from 10 stone to 7 stone 8 lbs. Her heart thumps nearly to suffocation. She gets pain at the back of head and neck and on the top of the brain.

Ans.—From the above and other symptoms given in the letter we have no hesitation in stating that "Wynum" is anæmic—there is too little iron in the blood. The taking of tea is undoubtedly one of the chief causes of anæmia, as it destroys the iron in the food. Our food contains but a very small percentage of iron, but under right conditions of living it is ample. "Wynum" should have a cold sponge daily, rubbing thoroughly with a rough towel till a reaction sets in. If there is chilliness after a cold sponge, it would be better to first sponge with very hot water and use the cold quickly after. Foods made from unmodified cereals contain more iron than the specially prepared cereal foods. Wholemeal

bread, for instance, is better than white bread on this account. The brown bread made by many bakers very often is a make-believe and does not contain the ingredients of the wholemeal. Gentle exercise in the open air and plenty of ventilation in bedroom night and day are necessary. Some form of iron should be taken. Citrate of iron and ammonia or any of the scaly preparations are reliable. Take as much as will go on a sixpenny piece after each meal. Take no food between meals. The other circumstances mentioned in letter are an evidence of poor nutrition or perhaps poorly developed ovaries. Fresh milk and eggs should be used largely.

---

212. Nightmare

"R.F.D." writes: "I have a friend, a young woman of 19 or 20 years, unmarried, who has attacks of a form of nightmare, but not the ordinary old-fashioned sort following a late meal. She retires seemingly quite well; at any time during the night, or sometimes toward morning, she will start screaming in her sleep, but lying perfectly still, not convulsed in any way. The parents invariably waken her from sleep at such times, and the following day she is prostrate with great tiredness. She is very fond of flesh foods. Her attacks are often just before menstruation. She knows nothing of the screaming. Three or four doctors have stated that they cannot trace the cause of the trouble."

Ans.—Undoubtedly nightmare is caused by overwrought nervous system and an irritable condition of blood. Excessive eating produces the latter, especially of nitrogenous foods. An excessive amount of proteid in food, particularly that resulting from flesh foods, would produce the irritable condition of the blood—a blood overloaded with waste products, "physiological ashes," must irritate the delicate nerve centres of the brain. A warm bath or other hydropathic treatment at bedtime would certainly be helpful. We would recommend the reading of the article entitled "The Elements of Foods" in this issue of LIFE & HEALTH.

213. Sleeplessness

"Beulah" writes: "Could you give me some cure for sleeplessness? I get on an average from four to five hours' sleep every night. I retire about 9 o'clock and sleep very soundly until about 2 a.m. and then there is no more sleep for me; that is not enough for me as my work is indoors behind the counter. I sleep outside on the verandah. My age is 45. I have trouble with my stomach, mostly with wind, the bowels are regular."

Ans.—We would advise "Beulah" to read advice given above under "Nightmare." Very often the filling of the bladder with urine wakes one. In these cases avoid the taking of much water toward the end of the day. Tea, coffee, and flesh foods certainly hinder sleep. Outdoor exercise is valuable as it helps to circulate and improve the condition of the blood. Exciting literature or much mental work toward the end of the day should be avoided. The last meal in the day should be very light. Milk should be relied on largely for the proteid element of the food and flesh foods avoided.

---

214. Prolapse of the Bowel

"Bicton" writes: "My little girl aged three years suffered very much with diarrhœa about two years ago, and after treatment she passed a large pin. Now the lower part of the bowel always comes out about two inches. The poor little mite is afraid to go to stool. She always seems to know when the bowel is going to come down."

Ans.—Prolapse of the bowels is generally the result of intestinal indigestion —chronic diarrhœa. Constant straining tends to bring the bowel down. Sometimes this straining is the result of a stone in the bladder or tightened prepuce (the foreskin of the penis), but mostly it is the result of diarrhœa brought on by wrong feeding. Mothers should not allow children to sit on the chamber for an unusual length of time. When the prolapse has occurred, the bowels should be opened in recumbent position by the use of a bed-

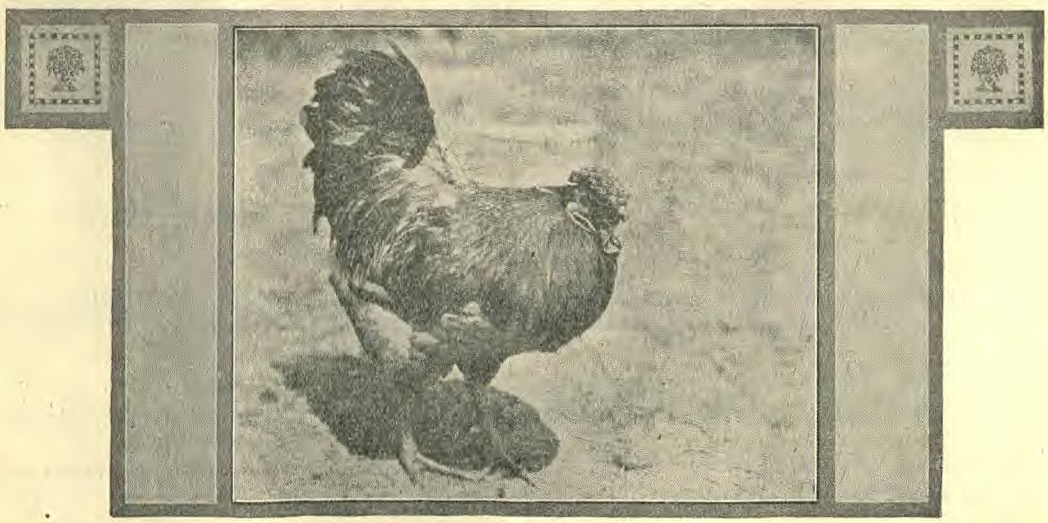
pan or while the child is on its side or standing. The child at the time the bowels are opened should be in attendance of mother or nurse who should place a finger each side of the opening and thus support the parts. Sometimes the prolapse can be helped by pulling the skin of the buttock away from the bowel during the time the child is having its bowels open. After the bowels are open, cleanse the parts thoroughly with a little tepid water, then inject cold water—about a quarter of a pint or as much as the child can retain. If it is difficult to keep the bowel up after it is returned the buttock can be drawn together by pieces of Mead's plaster. The bowel should always be returned as soon as it comes down. Place the child across the nurse's knees and press gently with three fingers; this will reduce size. Then press the centre part upwards. It should be remembered that the centre part of the prolapse must be returned first. If plain cold water does not effect a cure in two or three weeks use a decoction of oak bark (really a solution of tannin). Break up the bark and boil in water for a few minutes and use after straining through a strainer. Sometimes an operation is necessary. The best surgical procedure is brushing the prolapsed parts with nitric acid after they have been thoroughly cleansed, then returning the bowel and strapping the buttocks together for a few days. The bowels must not be opened for three days and the child should rest in bed. A medical man, of course, must attend to this treatment—it is certainly preferable to the knife.

---

215. Always Tired

"Bicton" is a poor mother, who has children and all the duties of the house to attend to. She cannot afford to pay for house help, but has serious womb trouble that requires a month's rest or more in bed.

Ans.—The womb is probably very large and out of position. Her diet should be plain, simple, but nutritious. Rich foods such as those cooked with fat should be avoided. Fresh milk and raw or lightly cooked eggs, unfermented wine, and good whole bread should be used freely. The whole body should be sponged over daily with cold water. A vaginal douche should be used twice daily—two teaspoonfuls of alum or sulphide of soda to a quart of tepid water. "Bicton" really needs one or two months' hospital or sanitarium treatment.



QUIET TALKS WITH MOTHERS

The Moral Training of Children

RICHARD ARNOLD

IT is part of the wonderful economy of the human machine that the mind of the child works in a very different way from that of the adult. The child mind is octopus-like in its reaching out for realities which it would grip and embrace to make its own. The adult mind is analytical; a proverb, a worded direction, or a text is capable of starting into action its myriad wheels, but the child needs to feel, to do, to learn.

One is reminded of the small girl admonished by her mother before she went to her first party:—

"Say good afternoon to Mrs. L. and don't forget to curtesy to her and to everyone you are introduced to. Don't crush your sash, and don't spill anything on your dress, and don't run too hard, and don't talk about family affairs, and don't be shy and stay in a corner, and don't—" but the little girl burst into tears.

"I guess I won't go, mother," she sobbed.

"Why?" It was beyond adult understanding.

"I can't remember which of the don't's to do first," the child explained.

The first step in helping the perfectly unmoral little child into an understanding of morality is to step down to his stature and try to see the world and society from his viewpoint.

Suppose your child steals at the age of six. What did he steal, why did he steal? If he took a chocolate from the box of sweets that belongs to you and from which you eat freely, it is not necessarily a moral lapse on his part. You are his model, and he is using his wits to provide himself with the thing with which you provide yourself. If he lies, look for the cause. Did some adult make him lie by some previous, terrifying punishment from which he endeavours to save himself now by prevaricating? The strongest impulse of the child is to try to keep his very precious, egotistical little personality safe.

If your child kills, he is not necessarily a murderer. A small boy heard his father boast of his ability to shoot a burglar who was successfully terrifying their neighbourhood. The next day the boy found his father's gun, made believe that his boy playmate was a burglar, and shot him dead. When he discovered what he had done, he almost died himself of brain fever. The father was responsible more than the boy. The boy did not know what death was; his act taught him.

So we must teach morality to children, not by words but by experiences.

Very few children lie, or steal, or kill through natural impulse. Such acts in childhood arise from the terrible stress of adult force, or from some abnormal physical condition, and we have to remember that each day pulls our children nearer a world of false social standards

and business relations where to lie and to steal is sometimes to succeed in material things and where ambition and false pride continually murder love and simplicity and straightforwardness.

Our part is to plan a programme of child *doing* and *making* and *being* which will establish such strong chains of habit in the impressionable moral nature of the child that in adult life it will be impossible to act contrary to these standards.

The basis of the moral life of the child seems to divide itself into three main roots: integrity, sympathy, and respect. These overlap each other naturally, but they form a comprehensive working basis for home experiences along moral lines. If we are accustomed from childhood to do things right, we are sure to grow up honest men and women. If we are lovingly sympathetic in childhood, we shall have no place in our lives for pride, avarice, and cruelty. A childlike reverence for values as seen in people and laws and institutions is always a fine basis for good citizenship.

How shall we make these roots of the moral life real and habitual for our children?

Integrity means honesty; honesty means doing and thinking *right*, not a hair's breadth of deviation from the clearly outlined right. We daily harm our children by making it possible for them to be careless and dishonest in their doing and thinking.

"Johnny can't fold his serviette right; let mother do it for him."

"GIVE THE CHILD SOME PET TO LOOK AFTER"

"Mary's blockhouse will tumble down if mother doesn't help her to build it straight."

These are daily crimes against the moral life of our children. Johnny ought

to be taught to fold his serviette with precision. Mary needs to learn how to build a blockhouse with so much care that it will not fall. These are the stone tablets of the child's integrity. They lead him from honest doing to honest feeling and decision of character. The ordinary occupations of the home may lead to this goal. Any one of the following occupations will, if performed with perfect honesty of purpose, lead to honesty of character:—

"No, Willy, you may not play out in the rain, and you may not have any more chocolates, and you may not have the cuckoo clock, and you may not get nearer the fire, and you may not—"
"Please, mamma, may I cry?"

Block building, including a graded series of blocks from large ones to very small ones which demand minute attention to detail.

Picking up toys after finishing with them.

Being responsible for the order of some part of the house.

Doing one or two undirected duties each day in connection with the home. These may be very simple; bringing in wood, picking flowers for the table, or caring for paths. The fact that they involve honest, continuous work makes them important morally.

Using carpenter's tools or a jig saw, or carrying on any kind of home manual training which involves minute honesty in measuring and fitting together.

Playing games which involve honour. This includes games in which there is an opportunity to cheat, which, if resisted, strengthens the child's character. Care should be used, however, not to allow the child to play these games too young, when the temptation will be too strong for him to overcome.

Doing "home work" as laid out by the school with careful following of all directions.

Doing errands where a number of purchases are to be made with a careful return of small change.

Reading books and stories in which the idea of integrity is emphasised.

The development of sympathy in little children is a matter of nourishing it. Almost every child is born with a deeply sympathetic nature. Our part is to allow it a chance to grow and expand and exercise through our home fostering. No evidence of child sympathy should be discouraged; in doing this we may crush the most precious flower of child nature, killing its fruition.

"You mustn't kiss me when your face isn't clean."

"Don't bring that dirty dog into the house!"

How lightly a smudge of dirt and a few mud tracks weigh in the balance with love, the heavy bullion of the soul life. There are daily, hourly opportunities for helping child sympathy to exercise itself. Among them, these experiences are golden:—

Taking entire care of some home pet, no matter how humble.

Performing certain daily acts of helpfulness in connection with some one in the family who is ailing, or old, or exceptionally busy.

Carrying gifts or comforts, especially

if homemade, to a hospital, sick friend, or children's home.

Making birthday or holiday gifts.

Studying through observation and pictures the life and sacrifices of humble insects and beasts, bees, ants, wild song birds, dogs, horses, and wild animals.

Bringing about through individual effort the growth and flowering of plants.

Amusing or caring for a younger child or children.

Making friends among less fortunate children.

Giving simple home parties in the planning of which the pleasure and happiness of others must be considered.

To bring about child reverence means to be reverent ourselves, and especially thoughtful of others in the family in the child's presence that we may give him an example of respect in the home. It means, too, that we must be reverential in our attitude toward whatever the child creates, crude pictures which he makes, the bunch of wilted wild flowers that he brings home as a votive offering, the innumerable useless things which he makes. In no other way can we expect to develop in him a proper respect and the right attitude towards our institutions, our world.

A very important phase of this training for morality is our own very early respect for the child's body. In this way, we pave the way for the child's safe and pure awakening to the sex instinct.

In this training for reverence our opportunities are daily and vital. They include innumerable experiences:—

Early child attendance at church and Sabbath-school, which is the deepest force in establishing a basis of reverence.

Respect, taught by example which the child will readily follow, in connection with all old people and all things sacred.

Refraining from soiling or tearing beautiful picture books.

Respect for the belongings of other members of the family and for fragile home heirlooms, hangings, and the like.

Refraining from marking, mutilating with a pencil, or littering with papers, public beauty spots, woods, parks, picnic grounds, or schools.

Visits to historical monuments and spots of historic interest.

Care in connection with picking wild flowers whose survival is dependent upon distribution of seeds or the preservation of the root.

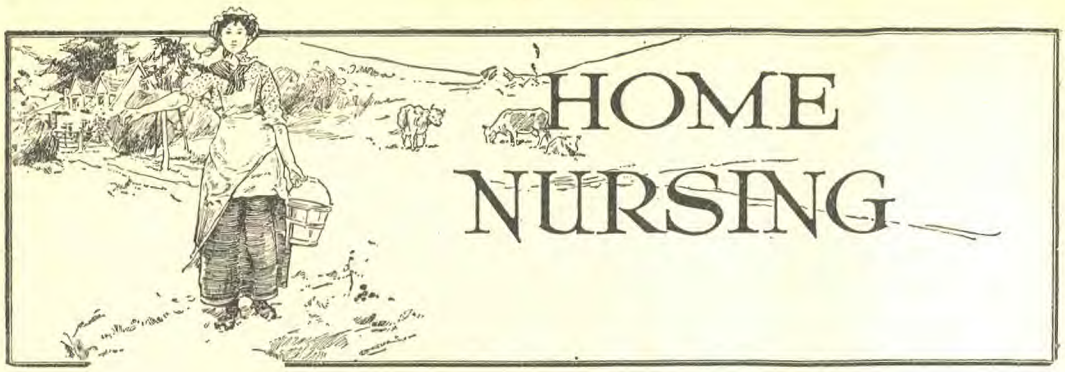
Control of boisterous and noisy play when there is illness in the family.

Study of beautiful pictures, Biblical subjects, and the old masterpieces of art and scripture.

Study of politeness early. The little chap should learn as soon as possible to raise his hat, to carry mother's bundles, and to help her on the tram or train.

All children should be taught to shake hands courteously, to rise when an elderly person enters the room, and to do the innumerable kindly acts which will shortly become their second nature.

Then come the results of our painstaking effort to make the child feel morality rather than to hear us talk about it. His normal nature awakens. From the unmoral, disordered little brown grub whom we began nourishing at first, we see emerge in apotheosis the miraculously coloured, strong-winged moth of the child soul. His pinions are strong; he then needs divine guiding. He is then able to fly safely through the deadly earth atmosphere of pestilential sin and fiery temptation with his wings unscathed.—*The Kindergarten Record.*



Beds and Bed Making For the Sick

MINNIE GENEVIEVE MORSE

IF we are to get the proper benefit from our hours of rest we must have a comfortable place in which to spend them. And if good beds are essential for the well, they are doubly so for the sick. There are plenty of discomforts incidental to illness without adding to them that of a bed that is too hard, too yielding, lumpy, or badly made. When illness invades the household, no pains should be spared to give the patient as comfortable a resting place as possible. If the bed in which he is accustomed to sleep is not satisfactory, it may be well to change it, or transfer him to another room.

The ideal bed for use in illness is that seen in the hospitals; made entirely of metal, adjustable, narrow, and a little higher than the ordinary bed. Adjustable beds are not found in private houses, except occasionally in the case of a chronic bed-ridden invalid, for the sake of whose greater comfort it has been found advisable to get a bed of which sections can be raised or lowered at will. But metal beds are in all cases more desirable than wooden ones. Some of the new wooden beds, as well as many of those which have come down from an earlier time, are unquestionably very beautiful, and they have the advantage of matching the rest of the furniture, but they are never as sanitary as beds of metal, which are much easier to keep clean, have no lodging places for vermin, and can be readily disinfected after a case of infective illness. The reason for the extra height of the bed is that it avoids the necessity for the nurse having to stoop uncomfortably in leaning over it to care for her patient. If a bed is unusually low, and the nurse tall, blocks of wood can sometimes be placed under the legs to raise it, but this is only practicable when the bed does not have to be moved; otherwise it should be upon castors. It is easier to care for a patient in a narrow bed than in a wide one, especially if he is very ill; if a helpless patient gets into the middle of a wide bed it is almost impossible to do anything for him without getting onto the bed, which one should avoid as far as is practicable. But there is one thing to be said in favour of a double bed: it is possible to use first one side of it and then the other, giving the patient a change by moving him to a fresh, cool part of it.

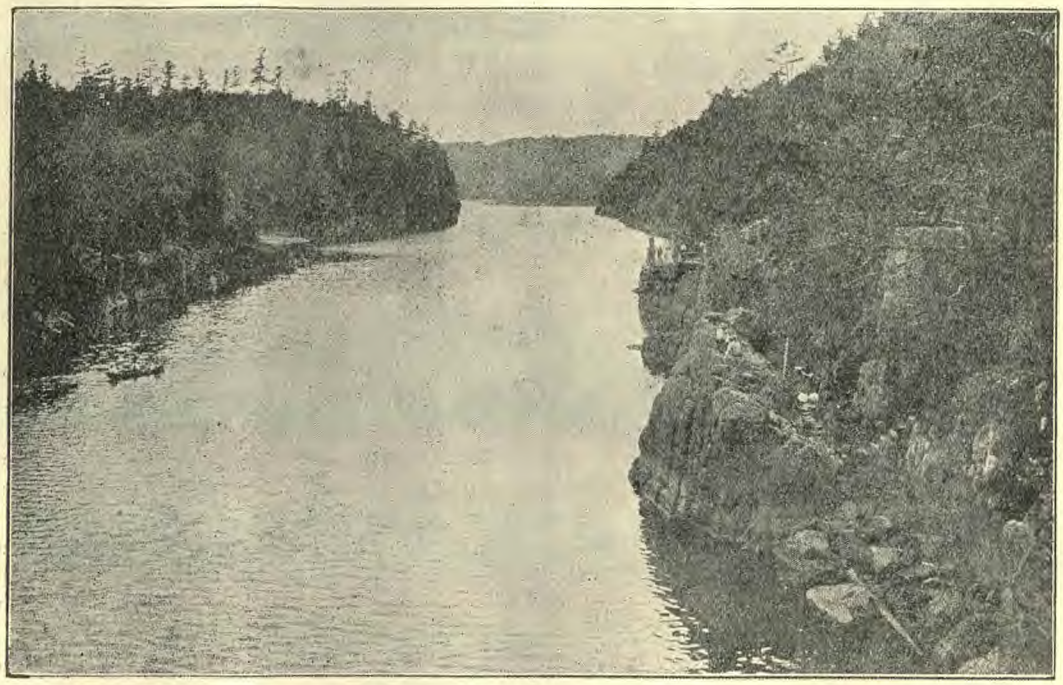
A woven wire spring and a hair mattress are more satisfactory than anything else. A good spring of woven wire gives a pleasant elasticity to the bed, yet is firm and even. One that is too loose, however, and sags in the middle, is bad for the sick or the well. A good quality of hair makes the best mattress, being smooth and substantial, and can be cleaned and disinfected by heat without being injured. When mattresses are made in two pieces, the lower sheet must be put on with extra care, so that the

patient will not have a noticeable crack underneath him. The one thing that a sick person should never be allowed to sleep upon is a feather bed. Someone has said that sleeping on one is like being in a big poultice, for it is warm, damp, and absorbent. It is impossible to keep it smooth, and if a patient who is confined to the bed insists on sleeping on feathers, there is a great danger of the development of bed-sores. As a rule, it is only an occasional elderly person who wants a feather-bed in these days, and even such patients should if possible be persuaded to give up the notion, for otherwise there is almost certain to be trouble in case of a long illness.

In a serious illness, a generous supply of bed linen is needed. There is no cast-iron rule as to how often to change sheets and pillow cases, but they must be changed whenever soiled, and the oftener on other occasions the better for the patient. Sometimes it is possible to use two sets alternately, airing one while using the other.

It is not a good plan to put a blanket between the mattress and the lower sheet, and if the absorbent pads made for the purpose are used, they should be washed very frequently. Cotton sheets are better than linen, except in fever cases or very hot weather, for linen is a good conductor of heat and may seem very chilly to a sick person. Sheets should be thoroughly aired before they are put on the bed, and in cold weather those used for an invalid should have a preliminary warming. Never use damp or chilly sheets; they are very unpleasant, and may do actual harm.

The most satisfactory sheets are those that will turn in well on all sides. If there is much extra length, it is well, in putting on the lower sheet, to turn in more at the head than at the foot of the bed, as the patient's weight is apt to drag the sheet down from the head. The upper sheet, on the other hand, should have the greater



WATER ITS LIVING STRENGTH FIRST SHOWS
WHEN OBSTACLES ITS COURSE OPPOSE.—*Goethe.*

length at the foot as there is where the strain will come upon it.

In cases of serious illness it is usually a good plan to place what is known as a draw-sheet over the lower sheet. This is simply a sheet folded once or twice and laid across the bed under the patient's body, to prevent the bedding from being soiled by discharges. It can be removed without disturbing the patient as much as by changing the lower sheet. It should be folded wide enough to reach down to the patient's knees. If only a small portion is tucked in at one side, and all the remaining extra length on the other, when the part under the patient begins to lose its smoothness and freshness another portion can be drawn into position. If there is much danger of the bedding being soiled, it is wise to place a piece of rubber sheeting underneath the draw-sheet. Table oilcloth or any other waterproof material can be used, and in emergency several layers of newspaper or heavy wrapping paper will make a substitute.

One should always make sure that there are enough covers on the bed to ensure the patient's comfort, but too much covering is quite as bad as too little. Extra coverings are pretty sure to be needed at night. All the bed clothing should be as light as possible. Blankets are lighter and at the same time warmer than quilts filled with cotton. Several thin blankets are warmer than a smaller number of heavier ones, as the layer of air between them will add to the warmth. Eiderdown quilts are both warm and light, but they sometimes make a patient perspire profusely, and it is very difficult to clean or disinfect them, while blankets can be washed, and always should be, when they have been used in a case of infective illness. Very heavy counterpanes should never be used for the sick. Some of the handsomest ones are so heavy as to be an uncomfortable weight upon a patient, but the thin ones of seersucker or pique, such as are used in hospitals, are neat and fresh-looking, and much more comfortable to lie under. If no light-weight coverlet is available, a clean sheet spread over the bed will give it a tidy appearance.

When the weather is cold, or the patient is especially inclined to chilliness, so many covers may be required that the invalid complains of their weight. Hot water bottles or an electric heating-pad placed in the bed will make it possible to get along with less bed-clothing, but if there still seems to be too much weight upon the patient, it is a simple matter to place a good-sized pillow on either side of him, beneath the covers, so that the weight will rest upon them. A little bridge over the patient's feet, made of a half-hoop, will keep the covers from pressing too heavily upon his toes when he is lying on his back.

Plenty of pillows add a great deal to a patient's comfort. More pillows are sure to be needed in illness than would be used on a bed under ordinary circumstances, and it is a good plan, when such a thing is practicable, to have enough so that one can be kept airing all the time, for there are few things that are more refreshing to a restless, feverish invalid than a fresh, cool pillow at frequent intervals. Linen pillow cases are desirable for the same reason that linen sheets are not—because they are cool. Pillow cases should be changed often, and put on carefully, with all the corners nicely in place.

Someone has called crumbs in the bed "one of the minor miseries of illness," and when a patient is taking his meals in bed the latter should be looked over very thoroughly after each repast, and all crumbs carefully removed.

It is not enough that a sick person's bed should present a tidy appearance externally; if it is too loosely put together the covers will soon pull out at the foot and get into hopeless confusion, while the sheet underneath the patient will be reduced to an uncomfortable mass of wrinkles. To make a bed properly for an invalid is quite an art, and requires considerable practice.

Where a person is very ill, what is known as a "surgical" or "pinned" bed adds much to the patient's comfort, and saves time for the nurse in the long run,

though it means more work in the beginning. In this sort of bed the lower sheet is drawn on very tightly and pinned in position, so that it cannot wrinkle or get out of place. It is necessary that the sheet should be large enough to tuck in well. The sides are tucked in first, and drawn tightly. Then the nurse goes to the head of the bed and turns in that end of the sheet with a neat square turn. This turned-in top edge is then pinned to the mattress. The direction usually given is to use three pins, one in the middle and one at each corner, but I have found it more satisfactory to use five, the two additional ones being placed where the side and top edges of the sheet meet. This prevents the spreading of the sheet at the sides when the patient's weight comes upon it. Goodsized pins must be used, and the nurse must be careful to pin through the hem instead of the single part of the sheet, to avoid tearing it, but if the pinning is done properly, there is no danger of injury. Lastly, the end of the sheet at the foot of the bed is fastened in the same manner as at the head. A sheet put on in this manner cannot wrinkle underneath the most restless patient.

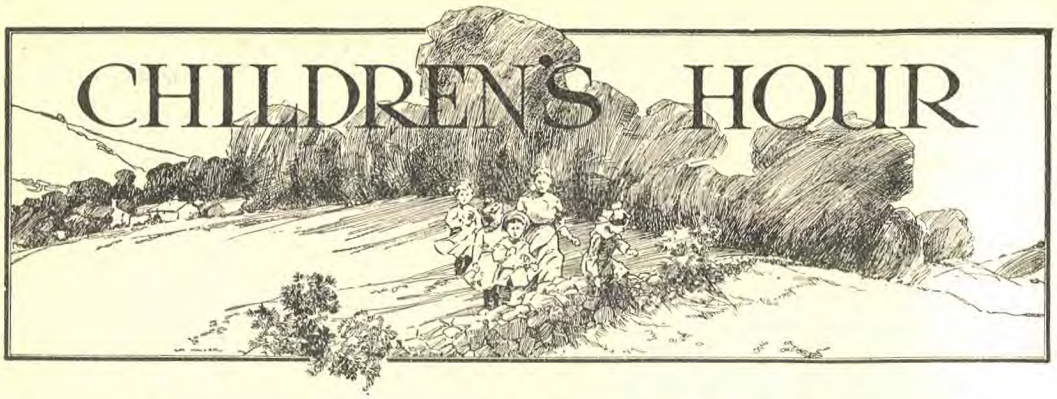
The upper sheet and other covers should be put on in the manner just described, whatever plan has been used for the lower sheet. In hospitals the upper covers are tucked in only at the foot and hang loose at the sides, falling in a diagonal line away from the foot of the bed. This is done by folding the lower end of the upper sheet and other covers around at the side, as directed above, and then turning the side down smoothly over it, letting it fall toward the floor.

The upper sheet should always be put on wrong side out, so that when the upper end is folded over the blankets and counterpane the hem will be on the under side. The blankets and counterpane should reach well up over the patient's shoulders, but should not be long enough to turn down. The sheet, however, should be long enough to fold well over the other coverings, making a neat finish to the bed.

Changing the lower sheet when a patient is too ill to leave the bed is often a troublesome proceeding for an amateur, but when the knack of it is once learned there is no difficulty about it. If the invalid is able to help himself at all, it simplifies matters very much. The upper sheet and other coverings are first of all loosened at the foot of the bed, but not removed, as there must be no exposure of the patient. All the pillows should be removed except a single small and easily handled one. The patient, with the covers over him, is then drawn somewhat to one side of the bed, and turned on his side so as to face the edge of the bed to which he is nearest. The nurse next loosens the lower sheet all around, and on the side farthest from the patient folds it up in long lengthwise plaits until she has brought it as close to the patient's back as she can. This should have uncovered at least half of the mattress. The opposite side of the clean sheet should now be folded in the same way, and the pile of folds laid on top of the first one, after which the other half of the fresh sheet can be smoothed out and tucked in. When this side of the bed is ready for the patient, he can be gently rolled over on to his other side; his head, together with the pillow, can be lifted enough to draw out the folded sheets from beneath it, the feet likewise, and then the remainder can easily be pulled out from beneath his body, after which the clean sheet can be straightened and tucked in, and the upper sheet and other covers properly adjusted.

In changing an invalid's pillows, if he is too ill to lift himself up, the nurse should put one hand under his back, letting his head rest on her arm, while with the other hand she slips the pillows in and out. If she wishes to give him a second pillow, she should put her hand under the first one and raise him upon it.

When piling up pillows to support a patient in an upright position, the nurse should be careful to push a small one well down under his back. A patient who is sitting up in bed will appreciate having a pillow placed under each elbow, so that he sits, as it were, in an armchair.



Stories About the Realm of Nature

HORACE G. FRANKS

Songs and Speech of the Butterfly

ONE does not usually think of butterflies as singing songs or even making any sounds, nor of caterpillars as being noisy creatures, yet we read that the careful student will find some use for his ears when observing the habits of both.

It has been definitely proved that a particular species of butterflies produce sound while making certain movements. The "whip" butterfly, when surprised, makes a noise similar to the cracking of that from which it gets its name, and it does this by opening and shutting its wings in quick succession. Some hibernating butterflies when disturbed make a faint hissing sound by slowly depressing and raising their wings. The noise thus produced resembles very closely that made by blowing slowly through closed teeth. Other butterflies make sounds resembling those which result from rubbing pieces of sandpaper together.

A large number of caterpillars make sounds by striking the head against the leaf on which they are resting, or by swinging the head from side to side, catching the mandibles (or feelers) in the roughness of the leaf or on the silken threads spun on it. It is also declared by naturalists that a certain kind of chrysalis, when disturbed, emits a slight sharp chirping noise, which some liken to a clicking noise.

A Flying Spider

A FLYING spider! Who ever heard about such an insect? Just listen for a few minutes and I will tell you of a spider which does fly. When I was in England some years ago, I remember watching for an hour or so the movements of a tiny gossamer spider around an old water cask. Suddenly, in the midst of its work, which had appeared to me to be frolics, it threw its head downward and commenced the production of a flat thread of web that rapidly grew wider and larger in all its massed entanglements, and made me wonder whether for once nature had gone to sleep and left her spider bairn bereft of its senses. To me the spider had always been a marvel of system and order and law and engineering; but here was one which was spinning in place of a web a hopeless mass of silky gauze.

And as I was wondering what other members of the spider family would do if they came up and saw, in the place of a neatly-fashioned home and trap, this buoyant cloud of silk about as large as the end of my thumb, I noticed the cloud commence to sway like a balloon impatient to commence its conquest of the air. Imagine my astonishment, then, to perceive my little "insane" spider stop its aeroplane manufacture, place itself in position, let go the cask, and start its flight through space as though perched on the Arabian

Nights' magic carpet or in one of Sir Douglas Haig's new war balloons. Slowly to me, but possibly quickly to the spider, the magic silken cloud drifted sideways and upwards, finally being lost to view over the house-top.

On investigation and study, I found that this particular spider belonged to one of the families of the Cinifloridæ, which, though somewhat different in form and habits, are distinguished from all other tribes of the spider kingdom by having, in addition to the six usual spinnarets, another flat, wide spinning organ known as the cribellum, together with a sort of comb on the hind legs with which it draws out the threads to make its balloon, and, having made its primitive aerial vehicle, it soars away in search of other food in the various shapes of flies, moths, and caterpillars.

The Slow-moving House-Carrier

THE little slow-going snail is one of the most interesting inhabitants of nature's insect world. But it must be examined under the right conditions. For instance, to place the snail on the hand gives the snail practically the same feeling that you would experience were you to place your hand on a hot stove. The snail is a cold-blooded creature (unfortunately like so many "naturalists"), and if you wish it to conduct itself naturally as a snail should, you must pay attention to its natural condition. Catch your snail and place it on a piece of glass and away it will go, travelling along peacefully and peaceably by expanding and contracting its broad sucker-like foot, with its two horns or feelers extended in its usual enquiring manner. These two feelers are withdrawn when they come into contact with some obstacle. In a short time we notice that they are being waved around like branches in the wind. That is the snail using its eyes! It is discovering the size and exact position of the obstruction. On the end of each feeler is an eye, which although tiny and "imperfect" (so the scientists say) is certainly capable of discerning between light and darkness.

And now for another surprise about its feelers. We say that the snail "draws in its horns," but it does nothing of the sort. They are not pulled back bodily into sheaths or special receptacles; they are merely turned outside in.

A peep into the little fellow's breathing system proves it to be of the simplest pattern. Let us glance at its right side. Occasionally a distinct hole appears there, remains open for a short while, and then is closed as suddenly as it opened. Thus the air enters its body, where it is kept until all the oxygen is used up in much the same way that our own bodies obtain the life-gas. When the pure air has been made impure and is laden with the deadly carbonic acid gas, the little trap-door is again opened, the poisonous air is driven out and a fresh supply taken in through the little cavity.

And now for its mouth. Oh yes, it has a tongue and a set of teeth. Did you ask how many teeth comprise a set? Well, about twenty-five to thirty thousand! Its tongue is like a long narrow ribbon, coiled up so that only a part is used at a time, and it is on the surface of this ribbon-like tongue that the tiny teeth are situated. Constant use in chewing and eating leaves wears away the teeth; and then comes the necessity for a new set. But the snail is its own dentist, and all it needs to do is to unroll its tongue at the back of its mouth, and fine new sharp teeth are ready for use at once. Since he has all his teeth on the same level, the food is pressed up against the roof of the mouth, which is hard and horny, and thus cut.

Oh yes! our little friend has a nose, or at least it has a very good sense of smell, and right close to the ends of its horns is placed a fairly-well developed ear.

The snail's body, as I suppose you know, is soft. The shell-back snail possesses one bone, and this is on the outside of its body, serving as a sort of armour-plate, which is built up from the lime in the plants on which it feeds.

The slug is only a snail which nature has omitted to supply with any protection whatever.

Wild Animals At Play

ALL children love to play, and playful young creatures they usually are. And this does not apply merely to the children of men, for observation shows that nearly all animals—both young and old—delight in a little time of amusement and relaxation.

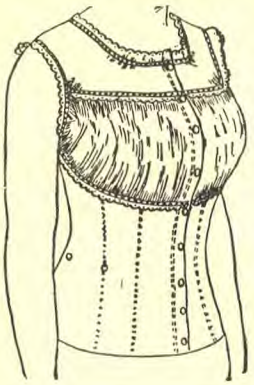
The two games which are most attractive to the majority of children, especially the boys, are sliding and leap-frog. Curiously enough, more than one wild animal enjoys the same two forms of amusement. Otters go in for regular tobogganing. First choosing a steep sloping river bank, where the soil is of clay and the water at the bottom a good depth, they set to work carefully to remove all the sticks and stones which might get in their way; and then the fun begins. Climbing up the bank, the first otter goes to the head of the slide, lies down flat on his stomach, gives a kick with his hind legs, and down he glides, head foremost, into the water. And thus having tested the slide at their leader's risk, the remaining otters follow in quick succession, making the bank in a very little while smooth and slippery. The faster they travel, the more they enjoy it, and slide after slide they indulge in until they are tired out. The next day, and the next, they will return for more sport of the same kind—a practice which proved fatal to many of their tribe, for the mercenary and relentless trapper places his trap just where the happy little creatures leave the water to climb to the top for another exhilarating journey. But it is usually a journey of another kind that the leaders make!

Nor is this tobogganing merely a summer pastime. Far from it. In winter these playful animals will select a snow bank instead of a mud one; and the fun is much more brisk and exciting in consequence.

The famous chamois play a similar game among the Alps of Switzerland. In the warm summer months they climb to the topmost heights, and there in those regions of eternal snow and whiteness, they spend many hours in their solitude leaping from crag to crag in a merry game of "follow-my-leader." Tiring of this, they decide to "change the game." And their choice is tobogganing. Selecting a steep, snow-covered slope, the leader throws himself into a crouching position, and, working his legs as though he were swimming, slides down for a hundred yards or more. On his sudden arrival at the bottom, he springs to his feet and quickly jumps to the top again with a "what-do-you-think-of-that" air in his carriage. The others, not to be beaten, lift up their pretty graceful heads with the replying "of-course-we-will-all-do-it" air, and follow his example in quick succession.

Monkeys in their native jungle and forest homes are even more playful than in captivity behind iron bars, and many a four-footed denizen of the forest as he has gone jauntily along has been surprised by a tantalising monkey springing upon his back and clinging so tightly that no procedure could unseat it. The faster the animal ran, the better the monkey enjoyed it, and we are told on good authority that many a strayed and wandering monkey has seized the opportunity of a free ride home afforded by a large animal going in the same direction. Hide-and-seek and "tag" are other favourite games of wild animals; while antelopes are adepts at "leap frog." These animals have the curious habit of jumping over one another's backs, either when frightened or when simply playing. It is an ordinary sight on the great African veldt to see a herd of these antelopes playing leap-frog with as much zest as a group of schoolboys. They do not require a run before the "take off," but jump as well from the standing position as they do when running at full speed. In leaping they frequently clear small trees, their mates, other antelopes, or anything else that happens to be in the way.

Health Appliances for Home Use



SOLID COMFORT is to be found in wearing the

GOOD HEALTH BODICE

A perfect substitute for the corset. Gives satisfactory support, and allows perfect freedom of movement. A well-made and well-fitting garment.

Patterns, cut to measure (post free), **1/6**

Bodice carefully made to measure in either white or drab jean.

PRICES : plain, **10/6 ;** trimmed, **12/6**

In ordering send bust, waist, and hip measurements, also length front and back from base of neck to waist line. Measurements should be taken snugly over underclothing.

TESTIMONIAL

"Rabenau," Mt. Victoria.

To Manager,

Dear Sir,—The "Freedom Waists" came duly to hand, and they fit splendidly, for which accept my sincere thanks. They are a boon to me, for I have not worn corsets for over twenty years, and on returning to Australia I had a difficulty in buying anything in that line to suit me, until I learned about your "Freedom Waists." Now I am perfectly satisfied.

I remain yours faithfully,

C. J. B. DURHAM.

Address orders to "AUSTRALIA'S HOME OF HEALTH," Wahroonga, N.S.W.

Almost a Man

By Mary Wood-Allen, M.D.

A FRANK talk to a boy who was "almost a man." Every boy will read it and be the better for it.

It is a help to mothers and teachers in teaching the lad concerning himself, purely, yet with scientific accuracy.

PRICE 1/- POST FREE

Signs Publishing Co. Ltd.,
Warburton, Victoria

Telephones Burwood 664 and 427

H. R. REUBEN
Dental Surgeon

Railway Parade
Burwood, N. S. W.

Dietetic Errors

How They May be Avolded; Their Relation to Disease.

By D. H. Kress, M. D.

64 Pages Price Sixpence, postage 1d

Baby's Firsts

By Dr. Mary Wood-Allen

A valuable book on the physical care of the babe from the time of its arrival to the beginning of the second year. Written by a physician and a mother, it treats all the topics considered in a scientific, yet simple and thoroughly practical manner. A boon to mothers; it tells how to make many of the small things which add to the baby's comfort.

Price, post free, 1/-

SIGNS PUBLISHING COMPANY LIMITED,
Warburton, Victoria

Published and printed by the Signs Publishing Company Limited, at Warburton, Victoria

Australia's Home of Health

(The Sydney San.)

Wahroonga, New South Wales

THIS Institution is located among the picturesque hills of the North Shore-Hornsby railway line, and stands over 600 feet above the level of the sea. It is about twelve miles from Milson's Point, and is one of many similar institutions scattered throughout the world. The Institution has been established for about eighteen years, during which time it has been patronised by thousands of people from every part of Australia and New Zealand, who have highly appreciated the help derived from the various treatments prescribed, including Hydrotherapy, Massage, and Electricity.

Among the cases successfully treated are disorders of the nervous system,—such as nervous prostration, neurasthenia, etc. All the life at the establishment is adapted to the building up and reconstruction of the nervous system.

Rheumatism in its various forms yields readily to the treatment and diet; even in the most stubborn cases a considerable degree of improvement will be secured.

Rates Very Moderate

Further information with booklet from

The Manager,
Australia's Home of Health.
Wahroonga,
Sydney, N.S.W.

Phone. Nos. 683 and 684
WAHROONGA

One of the Adjacent Beauty Spots

Nature's Breakfast Food

Enriches the Blood
Strengthens the Nerves
Forms Bone and Muscle
Supplies the needs of growing children

ALWAYS READY
NO COOKING

Saves fuel and time

MANUFACTURED BY

Sanitarium Health Food Company

(Head Office) **308 George Street, Sydney**

BRANCHES IN EVERY STATE (See Addresses on Grainut Advt. elsewhere)