An apple a day / by Sir William Arbuthnot Lane.

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by

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PREFACE

If any justification is needed for the publication of yet another guide to healthy living, it will be found in the incessant demand on the part of the public for information. Without a doubt the interest in healthy habits, especially with reference to diet, is spreading through every class in the community, and it is important that inexperience and ignorance should not be replaced by prejudice or 'faddy' ideas. In this volume some of the main principles of preventive medicine are sketched out in so far as they affect the layman's own contribution, through precept and practice, to individual and general welfare.

I should like to express my great indebtedness to Dr. Philippa Vaus and the late Mrs. Sam Sloan for their valuable assistance in assembling the information conveyed in the first two chapters.

W. Arbuthnot Lane

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PART I

THE FOUNDATIONS OF HEALTH

CHAPTER I

INFANCY

To be the mother of healthy and happy children is the cherished dream of practically every woman. While here and there women exist serenely in more or less selfish spinsterhood, it is clear from the physiological reactions of celibate women that old maids are not part of Nature's scheme of earthly harmony. Psychologically as well as physically the celibate and childless woman strikes a note of discord in her social relationships. The woman who is a spinster by choice may possibly exist, but candidly I have never come across her in the course of a fairly long life. In quite a different category is the woman who is afraid of motherhood ; it is unfortunate that her fear springs from the realization that motherhood may still be a dangerous vocation. This is surely one of the most tragic and disheartening features of present-day civilization. In spite of the many advances in medical science some four or five women die in each thousand births, and many more are

seriously injured as a result of childbirth. There is also the problem of infantile mortality. It is disconcerting to find that this figure, too, has not been reduced in recent years to anything like the mortality rates of older children. Public opinion is slowly being aroused to this dire state of affairs. Safe motherhood is of fundamental importance to the race. The time has come when we must mobilize all our energies to fight and overcome this peril.

Many factors come into the problem of maternal morbidity, but lack of education in mothercraft is one of the most significant. The majority of women still embark on motherhood ignorant of its meaning and its obligations. In particular, they fail to appreciate the primary importance of the nutritional factor, and to-day the best informed opinion holds that the high mortality rates and much of the sickness and disability associated with childbirth could be substantially reduced by proper dieting. Quite obviously, it is impossible to construct a sound edifice from imperfect materials, and it is equally impossible to build up a new human being from poor foodstuffs. Nor can a mother maintain the health and strength which, though at all times desirable, is imperative when she is about to bring new life into the world.

Actually the factor of correct nutrition does not begin with pregnancy, but harks back to the time when the female child is born or even before it is born. The existence of a misshapen pelvis due to rickets is the result of malnutrition and it requires little imagination to appreciate the dangers to life and health in women with pelvic defects. For rickets to occur to-day is almost a crime. We know how to prevent it, for it is a deficiency disease due to a lack of vitamin D in the dietary, and its elimination—which is both desirable and possible—would remove one of the great causes of maternal morbidity.

Let us now consider in some detail the principles governing the nutrition of the expectant mother. To begin with it is now generally held that excessive feeding can do as much harm to mother and offspring as underfeeding. To ' eat for two,' as the old adage puts it, will only result in upsetting the digestion, in adding to the body weight and in generally disturbing the balance of health. Nevertheless, it may be noted in passing that the expectant mother often has a good appetite, a reflection of her general state of well-being, and this within reasonable limits should be satisfied. Particular care must be observed in the matter of the *protein foods*. It is fairly certain that a high protein intake, especially if derived from animal flesh, is

detrimental to health during pregnancy. The products of protein digestion if in excess are liable to disturb the working of the delicate cells of the kidneys and may lead to inflammation of these organs. We must also bear in mind that the kidneys are excreting waste for *two*, so that the level of excess is more readily reached than is the case in the non-pregnant state.

It is an established nutritional phenomenon that excess of one type of food, such as meat or cereal, can be harmful unless it is balanced by an adequate amount of protective food, such as fresh fruit, natural fruit juices, and green vegetables. According to Professor E. Mellanby, one of our foremost experts in dietetics, an unbalanced dietary, perhaps with a high meat consumption, and certainly with a high bread and other cereal consumption, is one of the fundamental nutritional causes of trouble in pregnancy. This being so, the expectant mother should eat minimum quantities of animal flesh, especially if she also eats much cereal food, and it should be remembered that milk, eggs and cheese, especially cream cheese, are good sources of first-class proteins, and that, in any case, the omission of butcher's meat from the dietary will do no harm.

With regard to *fats*, it is not necessary that these should be increased in amount relative

to the ordinary diet, but the source of these fats must be considered in relation to their vitamin content. It is essential that the expectant mother should get adequate quantities of the anti-infective vitamin A and the anti-rachitic vitamin D. These vitamins will maintain at a high level the germ-resisting powers of her blood and will help to safeguard her against possible infections during labour. A recent experiment has shown that the maternal morbidity rate was considerably lowered in a group of cases which were given a vitamin concentrate as compared with the average rate. Incidentally, they will help her unborn child to develop strong, sturdy bones and teeth.

Deficiency of vitamin D in the diet of the mother is one of the chief causes of defective teeth and their early decay, while it is also believed to be related to the development of adenoids. Therefore, the expectant mother should get plenty of vitamin-containing fats, and these are most easily obtained in butter, milk and cream. The addition of a pint to a pint and a half of milk per day to the dietary, along with two teaspoonfuls of cod liver oil or halibut oil (provided the digestion can tolerate it), is an excellent way of ensuring the provision of this vitamin need.

So far as carbohydrates or starchy foods are concerned, these are provided by fresh fruits,

root vegetables and cereals. As already noted, an excess of cereal, for example, in the form of white bread, is to be avoided. Glucose is a useful food, particularly if morning sickness is present. A small dose of some glucose preparation last thing at night will often prevent this unpleasant symptom.

Another vital want of the expectant mother is a proper and balanced amount of calcium (lime) and phosphorus. If the intake of these mineral salts is not sufficient, the salts will be abstracted from the mother's own tissues to make good, if possible, the lack. It is a common saying that a mother loses a tooth for every child, and this, indeed, is often the case, even if a more serious softening of the bones does not arise. There is considerable evidence that a proper intake of calcium is never reached by many expectant mothers. A diet of bread, margarine, lard, jam, rice, meat, fish, tea and sugar has a very low calcium content and yet these are staple articles of diet and form the bulk of the food of the poorer classes.

With these facts in view, it is clear that the diet of the expectant mother should be so arranged that it will provide ample amounts of these mineral salts. Milk, egg yolk, fresh fruit, the natural fruit juices of the lime, orange, or lemon, and vegetables, with a limited intake of cereals, are the foods indi-

cated for this purpose and a diet containing these will help the mother to preserve her own health and will ensure perfectly formed milk teeth in her baby. Cod liver oil is also valuable in preventing tooth troubles, and at this point it may be said that every expectant mother should endeavour to take some cod liver oil every day throughout her pregnancy. More will be said of it later, but to emphasize its importance I will quote Professor Mellanby : ' Cod liver oil is probably the greatest single nutritional factor, next to milk, in preventive medicine that the human race has ever possessed.' Halibut oil is equally valuable, and in some cases may be better tolerated than the cod liver oil.

In the matter of fresh fruit and green vegetables, there are other reasons why they should figure largely in the dietary of the expectant mother. These foods also contain vitamins B and C, and these essential factors are peculiarly necessary for the good health of the mother to be. Vitamin B is an aid in the prevention of constipation, while vitamin C beneficially affects the blood and prevents any tendency to scurvy. Slight degrees of scurvy often manifest themselves in newly-born children as a result of vitamin C deficiency in the mother. Another point is that fruits and vegetables provide roughage, and this will greatly help in preventing

constipation, which can be a most serious complication of pregnancy.

There is also a very urgent need for adequate intake of iron, copper and magnesium in the case of the expectant mother. Iron and copper are required for the formation of the blood corpuscles, and the child within the womb stores supplies of these metals in its liver so that it can be available during the lactation period, because both human and cow's milk are relatively deficient in these metals. This naturally imposes an extra call on the supplies available in the mother, and there is no doubt that many cases of anaemia or bloodlessness arising in connexion with childbirth originate from a lack of intake of copper and iron in the dietary. Therefore, in addition to the inclusion of foods rich in iron such as egg yolk, fruit (raisins, prunes and dates) and green vegetables (especially spinach), *calf's liver*, which supplies not only copper but also a blood-forming principle, ought to be taken occasionally, on an average once weekly, and especially during the last few months of pregnancy. Magnesium is also believed to exert some specific tonic effect during pregnancy, which is yet another reason why fruit and vegetables, and only wholemeal cereals, should be eaten during pregnancy.

Iodine is another element which must be

especially provided for in the dietary of the expectant mother. It is now recognized that the existence of simple goitre is a result of insufficient supply of iodine during pregnancy and early life. Now, the commoner foodstuffs such as milk, meat, bread and cabbage are far too deficient in iodine to protect the mother against the consequences of iodine deficiency. Is there a natural foodstuff which will provide this vital substance in sufficient amount? The answer is sea fish or any kind of living matter from the sea, including cod liver oil. It is advisable, therefore, that sea fish should be included in the diet of all pregnant women—on an average twice weekly. If this is carried out and cod liver oil given to the child after birth, all danger of simple goitre will be avoided.

In a recent article, Professor Mellanby suggests for general guidance that the diet of pregnancy and lactation should include :

2 pints of milk daily.

1 or 2 substantial servings of green vegetables—cabbage, spinach, or lettuce daily.

1 or 2 eggs or egg yolks daily.

An apple or orange or some fresh fruit daily.

Sea fish twice or more weekly.

Calf's liver once a week.

If cod liver oil can be taken, 2 teaspoonfuls daily.

The rest of the diet can be made up as the woman wishes. There can be no doubt that the adoption of a dietary built upon the principles outlined in this chapter would prevent much of the tragic and distressing illnesses which so often mar what is the most important event in a woman's life. All women who anticipate motherhood should give this subject their very earnest consideration. The results will be most decidedly worth while.

The supremely important task for a mother is to secure the sound nutrition of her child. Let her accomplish this successfully and the problems of her child's upbringing, from the psychological as well as from the physical point of view, will present but few difficulties. The well-fed child is nearly always a happy and vigorous child : the ill-fed child is a constant source of anxiety to its parents and the numerous illnesses to which it inevitably is subject adversely affect its outlook upon the world in general. Rickets, tonsils and adenoids, sore throats, colds, bronchitis—even tuberculosis—are a few of the conditions which are made possible through incorrect dieting and inflict untold suffering on young children, exacting a heavy toll on their young lives.

Every mother who wishes to see her child a vital and worthy specimen of his race should

deliberately set out to study how best she can nourish and feed that child. It is admittedly difficult enough for adults in these days of refined 'civilized foods' to obtain a really sound dietary and the possibilities of going wrong with a baby's diet are exceedingly great. To begin with it is hardly necessary to insist that the baby should be breast-fed. In this matter the teaching of mothercraft has borne fruit, for breast-feeding has become increasingly more common in this country in all ranks of society. It is not necessary here to detail the tremendous advantages both to mother and child which accrue from this natural method of feeding, but it is essential to point out that the quality of the mother's milk depends largely upon *her* dietary, which must, therefore, be constructed on sound principles.

During the nine months or so of breast-feeding every effort should be made to establish correct bowel habits. A motion of the bowels should be obtained after the morning, midday and evening feeds. This is not difficult to achieve if the practice is persevered with from the earliest days of life. In fact, it is remarkable how quickly the reflex is established—an important factor in this achievement being the health and *persistence* of the mother. The three-motion-a-day habit firmly fixed will save endless trouble

later on, but its persistence will depend upon the nature of the child's diet when breast-feeding is over. It is well to remember that failure to establish correct habits in the early months of life may lead to the habit of constipation, which may persist throughout childhood and predispose to all kinds of ill-health.

Before going into any detail of the infant dietary some of the main principles of dietetics must be borne in mind. A complete dietary must include several elements, the absence of *any* of which results in a wrongly balanced intake of food and consequently in the defective working of the human organism. It is because milk contains, with the exception of one vitamin easily added in the form of orange or tomato juice, every single element necessary for nutrition that it has been called the only *complete* food. All food may be classified under three main headings, viz. protein, fat, and carbohydrate. These, in their correct proportion, together with water, mineral salts and vitamins, are necessary to all of us for the maintenance of health. At a later stage in this volume I shall explain more fully how our bodies replace the energy expended from day to day ; for the moment it must be emphasized that *every* element must enter into our dietary from the very beginning.

In this connexion we should have regard

to the diet of a nursing mother. Her normal diet need not be increased, but food should be simple and should include plenty of fresh fruit and vegetables, and the correct amount of protein. Animal fat, including egg yolk, butter, cream, dripping, &c., is necessary for the supply of the fat-soluble vitamins A and D. Some American studies have shown that vitamin B is often deficient in mother's milk, and the diet mentioned here will ensure its adequacy. Constipation must be particularly guarded against, as toxic products may be excreted in the mother's milk. A nightly drink of senna tea (made by infusion of senna pods) is the safest remedy when feeding alone is insufficient. Extra fluid should be taken, chiefly in the form of water, between meals, and milk up to, but not exceeding, one pint per day. Part of the latter may be taken in the form of cocoa or similar preparations. Highly flavoured and indigestible foods, such as shell-fish, new bread, food fried in fat, acids, e.g. pickles and vinegar, &c., should be avoided.

Breast-feeding is undoubtedly the best. The exceptions to this rule are very few. In so-called cases of unsuitability of the mother's milk it will usually be found that the real trouble is either overfeeding or underfeeding, the symptoms of which are very similar and either of which can be remedied

by suitable treatment. Four-hourly feeds are best. These should take place at 6 a.m., 10 a.m., 2 p.m., 6 p.m., and 10 p.m. The infant should not be given anything between the 10 p.m. and 6 a.m. feeds, except a little water if he wakes and cries.

Breast-feeding should be continued, if possible, for eight or nine months, and weaning should be done gradually. For the first week one artificial feed a day of a suitable mixture (see opposite) should be introduced, for the second week *two* artificial feeds, for the third *three*, for the fourth *four*, and then give up the breast-feeding altogether. Artificial feeds at this age should be given with a spoon from the beginning, so as to get the child accustomed to a new method of feeding.

About this age, too, some hard food should be introduced, for this is very necessary for the proper development of teeth, jaws, muscles of mastication, palate, and nasal cavities. Too much soft and pappy food leads to malformation of these organs, and consequent catarrh, adenoids, &c.

Most authorities consider that a child should be given a hard crust, a finger of baked bread, or a rusk at about eight months; some advocate its introduction as early as six months, but it should certainly not be given before that. From nine months on-

wards solid food in appropriate forms should be gradually increased (see below).

It has always been a vexed question as to what, after breast milk, is the best food for an infant. The reason lies in the fact that it is impossible to lay down hard and fast rules for artificial feeding, as each case must be judged individually. It is reasonable to suppose, however, that a food which approximates most nearly to human milk should be satisfactory. Cow's milk in a modified form is the best basis for such a substitute, unless there are definite indications to the contrary. Clean, pure milk from a mixed herd (Certified or Grade A milk) should be obtained, and if this is not possible it is better to use some form of dried or condensed milk, of which there are many good preparations on the market.

In adapting cow's milk for infant feeding it should be noted that the average composition of cow's milk and human milk is as follows :

		Cow's	*Human*
Lactose.. ..	per cent	4·7	6·5
Fat	,,	3·5	3·3
Casein ..	,,	3·0	0·9
Lactalbumen	,,	0·3	0·4
Water ..	,,	87·5	88·0
Mineral Salts	,,	0·7	0·2

If the above figures are compared, it will be seen that the chief difference lies in the

fact that the protein content of human milk is much lower and the sugar content higher. Therefore, cow's milk must be diluted to reduce the protein content, and then sugar and fat in some form must be added to adjust their amounts to the correct proportions.

The protein of cow's milk is largely composed of insoluble caseinogen, as against the higher percentage of soluble proteins (lactalbumen and lactoglobulin) of human milk. Therefore, the caseinogen should be rendered more easily digestible for the infant by (*a*) boiling, (*b*) addition of lime water.

Before discussing the modifications necessary for utilizing cow's milk, the benefits of mother's milk may be more exactly stated. Mother's milk is of the same tonicity as baby's blood. Its fatty acids are of the 'human' grouping. Its sugar is lactose, which is energy-producing but not sweet. Many artificial foods substitute cane sugar, which is sweet, sickly and thirst-creating. Lactalbumen is similar to the serum albumen of the blood, and the abundant lactalbumen acts as a protective colloid, and is a most important factor in aiding digestion. The ratio of caseinogen to lactalbumen is *human* milk, 1·1 ; *cow's* milk, 10·1. Lastly, human milk contains the appropriate enzymes and endocrine extracts.

The following directions should be ob-

served when modifying cow's milk for the normal infant :

1. Use clean, fresh milk from mixed herd (Certified or Grade A).

2. Bring to the boil quickly, stirring all the time. This destroys bacteria and renders casein more digestible.

3. Dilute with an equal quantity of boiled water, containing 1½ to 2 oz. lime water.

4. Add sugar (weighed to correct amount, taking ½ drachm per lb. body weight). Lactose is the sugar of human milk, and this is expensive, but ordinary granulated or brown sugar is not so good.

5. Give added fat in some form to bring it up to the required proportion and to supply vitamins A and D. The vitamin content of cow's milk is variable, and probably destroyed by boiling, so that these vitamins must always be given in addition.

The following are the best forms of fat :

(*a*) New Zealand cream.[1]

[1] 'New Zealand cream' equals 50 per cent fats and oils { ⅔ animal oil, including fresh New Zealand butter and cod liver oil. ⅓ vegetable oil—mainly peanut.

40 per cent sugar—mainly dextrose and a little lactose.
10 per cent water.

It is prepared in an atmosphere of CO_2, thereby preserving the vitamins. It is free from all preservatives and keeps well. Calorie value, 180 calories per ounce, or the equivalent of 10 oz. of milk.

(*b*) Pure cod liver oil.

(*c*) 50 per cent cod liver oil emulsion.

(*d*) Halibut oil. This is a recent discovery, and is said to contain 50 per cent more vitamin A and 20 per cent more vitamin D than cod liver oil, so that only very small amounts need be given.

Cream is not a good fat to use, as it is not easily digested by infants, and it usually contains a preservative of some kind. Also, the vitamin content is variable, and it does not contain the iodine found in the fish oils, which is of definite benefit to the child. The fat should be given in small doses before the feeds.

6. Orange or swede juice should be given once a day to supply vitamin C, destroyed by boiling.

7. Feeds should always be given at a temperature of 100° F.

If conditions are such that reliable cow's milk cannot be obtained, more especially in the tropics, or when travelling, other substitutes may be used, the most useful being some form of dried or condensed milk, but it must be remembered that neither of these are necessarily free from bacteria. In using dried milk it should be remembered that, when made up with water according to the directions, a milk corresponding in strength with whole cow's milk is obtained.

Hence this must be further modified to be rendered suitable for the infant.

A better plan is to use a proprietary humanized milk, which corresponds most closely to human milk.

		Breast milk	*Cow's milk*	*Typical humanized milk*
Lactose ..	per cent	6·5	4·7	6·25
Fat	„	3·3	3·5	3·45
Casein ..	„	0·9	3·0	0·8
Lactalbumen	„	0·4	0·3	0·6

As regards condensed milk, the unsweetened form should be used, as the sugar content of the sweetened form is too high. On such a milk the child gains rapidly in weight for a time, but later this ceases and usually digestive troubles arise. The unsweetened form of condensed milk is a good basis for infant food, and is more readily digested than dried milk. It may be given during weaning, if the child does not thrive on cow's milk mixture straight away, and cow's milk can be substituted later. It should, however, be remembered that frequent changes in food are bad for a baby, and it is better to persevere with one form of food, altering the method of modification only, unless there are definite indications to the contrary.

Feeding from nine to twelve months should be carried out as follows :

6 A.M.—The 6 a.m. feed should be gradually discontinued, and the 10 a.m. feed be made earlier. On waking the child should have one tablespoonful of orange, tomato, grapefruit or swede juice, diluted with the same quantity of water and slightly sweetened. A baked crust or rusk can also be given.

8 A.M.—Half a cupful of suitable cereal mixture, *or* crusts in milk (do not allow to stand and get too soft).

This can gradually be added to by giving half a lightly cooked egg, and a small piece of toast and butter.

Milk mixture to drink, but this should not be more than 8 oz., including that used with the cereal.

Middle of morning.—A drink of water.

12.30 P.M.—1st course : Two to four tablespoonfuls (according to age) of meat and vegetable broth, which may be thickened with potato or bread-crumbs and sieved, green vegetables (spinach purée is especially good). Later, add one tablespoonful of pounded chicken or white fish.

2nd course : One to three tablespoonfuls milk pudding (ground rice, sago, semolina, tapioca, cornflour), *or* egg custard *or* junket. About 4 oz. of milk should be used in the

preparation of these. Prune pulp or stewed or baked apple pulp.

5 P.M.—Milk mixture *or* cereal and milk *or* custard. Milk mixture to drink up to a total of 8 oz.

10 P.M.—This feed should be gradually discontinued. The child should not be awakened for it.

It is most important to sieve small hard crusts with all puddings and soppy foods, and to mix them intimately so that the child has to bite and chew each mouthful. Otherwise, these foods are 'bolted' and not properly digested. Cereals should be thoroughly well cooked.

The study of hygiene in relation to the child's needs has taught us that for complete health the skin of the body must receive its proper quota of fresh air, and so we no longer swathe our little ones in layer after layer of various closely-woven fabrics. Nor do we hamper an infant's limbs with lengthy petticoats. We know that the former should have freedom of movement to allow them to develop normally.

Gone, too, are those stiffly starched trimmings at neck and wrists which must have meant much misery and discomfort to the baby with a sensitive skin, and in their place are soft laces and edgings in keeping with the softer material universally used for the layette.

From the general, let us now come to the particular, and discuss the type of clothes for infants and young children which combine the qualities of hygiene, comfort and utility.

I am indebted to a well-known woman expert for the following hints :

'For indoor wear the normal baby's clothing should consist of three main garments, a vest, a petticoat and a frock, over and above the binder. The latter, after the cord is healed, should belie its name, as its only function is to ensure warmth over the stomach and this can be attained by a loosely-knitted or woven belt. It is no longer considered expedient or necessary for the " support " of baby's back, as in former times. The modern infant's muscles are strengthened by use, not by outside aids, and so develop more rapidly. Doctors and nurses differ over this question of extra warmth over the stomach, but my own experience is that in our changeable climate, the binder or body-belt saves many little ones from internal chills experienced frequently by those who do not wear them.

'A most important point to remember is that the young baby's body does not adapt itself quickly to change of temperature. It is therefore essential that the garment next the skin should be one which, while allowing a passage of air to it, keeps the cold from

striking directly or suddenly upon it. A loosely-knitted or woven vest of silk and wool mixture is the best for this purpose. It is also not so irritating to many skins as one of pure wool. For those who cannot wear wool next the skin (and there are genuine cases of such to be found) either one of the porous cellular cotton or spun-silk weaves should be substituted. If woollen vests have been presented, they could still be used with a very thin silk shirt or lining.

'A tape sewn on the front of the vest to which the napkin can be fastened, is a good plan for keeping it in position.

'The well-trained infant soon learns cleanly habits, but there are times, during teething or when otherwise out of sorts, that "accidents" will happen. It is then that the use of the inter "knappe," which acts as a swab which is afterwards burned, will save washing and give baby greater comfort.

'Even to-day it is a common sight to see tiny limbs held apart in a distinctly uncomfortable position by napkins too large and clumsy or very badly put on. An excellent napkin on the market is one which makes all this discomfort impossible, because it is formed like little trunk drawers with slits at either side; it provides the necessary protection without any thick wad between the legs,

and, of course, it keeps in place better than the older fashioned kind.

'As soon as possible, soft, loosely-knitted or woven knickers for warmth should take the place of the diaper, or may be used instead of a pilche when baby is shortened.

'Avoid rubber pants and pilches unless in extreme emergency, as these are apt to act like a poultice on the tender skin.

'Choose a coarse flannel for baby's petticoat to allow of that necessary current of air filtering through. If this, and the frock, are fashioned after the Magyar pattern, then they will still be large enough in the body part for baby to wear for a good many months, the twenty-four to twenty-five inch long skirts being shortened by tucks or a new hem.

'The ordinary square-yoked "bodices" so universally put on infants' petticoats and dresses are not practical, as the healthy baby very soon grows out of them, and unless this is very carefully watched, the chest may be constricted and the lungs only partially doing their job.

'A daintily-yoked frock or two for special occasions may be included in baby's trousseau (there is no doubt the yoke lends itself to prettier adaptations) but for general wear both day and night provide him with the roomier Magyar robes.

'Nunsveiling, cashmere crêpe, and silk are the best materials for young babies' frocks, muslin and organdie being only used for best.

'A vest, not the one worn during the day, and a flannel nightgown, is all the personal clothing he should need at night, his general warmth being regulated by the bed-clothes.

'It is most essential that a child's, and more especially an infant's, extremities, should be kept warm, otherwise the whole body is apt to chill very rapidly. Therefore, unless the weather is really warm, the feet should be enclosed in loose woolly bootees and the little hands covered while baby sleeps.

'A knitted coatee to wear over the dress indoors on cold days, and a cosy shawl in which to be wrapped in his pram, are other requirements. And, of course, his head should be protected when he goes out in severe weather by hat or bonnet, while a light linen hat or a canopy on his pram will do the same when the sun's rays are hot.

'Do not begin baby with a "headshawl" in his nursery. A light, fleecy shawl to wrap loosely round him when carrying him from room to room is all the covering necessary if he is normally healthy. The use of a headshawl or flannel is more likely to make him "soft," and so catch cold more readily.

'Before leaving the subject of infant clothing, just a word about the "woolly baby."

'The woolly baby is an evolution of the last few years and from many points of view is a successful idea. Instead of petticoat, frock and bootees, he starts from birth in knitted overalls and jacket above his vest, shirt and diaper. This is a soft, kindly form of clothing which allows perfect freedom to the limbs, and it is a great saving of labour to the young mother who is her own nurse-maid, because it is quickly put on and more easily laundered than petticoats and frocks. It is also hygienically correct, because it is "airy" but this is where danger lurks. It is too airy if there is a keen wind blowing and the child is not further protected, for his body receives that sudden chill over a large surface, against which I have already sounded a warning note.'

CHAPTER II

CHILDHOOD

BEFORE discussing the physical problems of early childhood, it will not be out of place to touch upon the equally important theme of mental hygiene.

It should be obvious to all that mental hygiene must commence in infancy—in fact, from the time the child is born into this world. We have all heard of the aphorism attributed to the Jesuits : ' Give me the child for the first five years of its life and nothing matters after that.' This assertion has been borne out by modern psycho-analytic research, so that it is imperative that the popular belief, to the effect that attention to the *bodily* needs of the child during its first few years of life is all that is required, must be dispelled. The mind at this time is undergoing a very rapid development which is primarily dependent upon the evolution of its special sense organs. The infant is, in fact, discovering the world around and it requires every encouragement to stimulate its interests.

It is the parents, of course, who are primarily responsible for the mental hygiene of the young child—and it is an onerous and far-reaching responsibility. As adults, we must appreciate in the first place the difficulty in understanding how the child thinks and feels. Forgetful of our own childhood, we are constantly judging our children from adult standpoints, and we are constantly nonplussed by their strange and apparently illogical behaviour. To be a good parent, therefore, you must know something of the inner workings of the child mind, and you must never forget that the child's best preparation for adult life is for it to live *fully* the life of a child. It is not difficult to mould a child into adult ways of thought and feeling, but such a child is being deprived of a natural phase of development and a badly integrated personality will be the inevitable sequel. The parents' job is *not* to mould : at the most, it is to guide and to provide the best environment which will enable mental and physical *growth* to develop.

In these days, we hear a great deal about 'difficult children.' In this category we include children who get 'tantrums,' who have food fads, who lie, steal, truant, nail-bite, thumb-suck, and those who exhibit some variety of what is called 'behaviour problem.' These nervous children are a

great trial to their parents, who foresee difficulties in their later lives and rightly so, for the nervous child very frequently develops into the neurotic adult. How do symptoms of nervousness in children arise? There are some psychologists who maintain that there are *no* difficult children but only difficult parents, and while this statement is rather an exaggeration it does contain a great deal of truth. Investigation of cases of nervousness in children reveals in many cases that it is produced through certain harmful reactions of the parents upon the child mind. It is not a matter of neglect, although occasionally this is a factor; more often it is the over-solicitous, over-protective parent who makes the difficult child. Indeed, the 'too perfect' parent may be a greater menace to a child's mental stability than a relatively neglectful parent.

Of course, a child's mind is not exactly a clean slate at birth. A child is born with instincts and aptitudes and with a certain inherent stability or instability. No two children are alike in their reactions in infancy. Some infants quite early exhibit marked fear responses and such infants will require very careful handling. The influence of *heredity* must not be over-emphasized, however. In the past, there was far too great a tendency to ascribe nervousness and

mental ills to a bad heredity and consequently to adopt a fatalistic passive attitude to these problems. Nowadays, we have a better perspective of the influence of *environment* on child development, and we realize that a good environment not only safeguards the mind but will also eradicate or at least modify any adverse hereditary factors. It is through the environment, psychological as well as material, that measures of mental hygiene are applicable.

There are certain characteristics of the child mind with which all parents should be familiar. Young children have much keener capacities for feeling than they are usually given credit for. Adults often thoughtlessly offend and hurt their children's feelings, and not infrequently the effect is permanent and is a grave impediment to their normal development. Again, *over-emotionalism* in the home, anger, discord between parents, excessive display of affection, all tend to create the anxious, difficult child. It is surprising how parental insecurity ' gets across ' to the child and affects the whole mental outlook. Parents must also bear in mind that every little child is constantly baffled in the fulfilment of his desires and in his striving for self-expression. The understanding father and mother will *never* adopt a superior attitude or ridicule

the childish efforts. Ridicule is a deadly weapon to use against a child ; in time it will kill the natural and true affection which should exist between parent and child. Never accentuate a child's feeling of inadequacy. This is a sure way to fix an inferiority complex which will be ruinous to the child's future happiness.

It is also essential to understand that a child's sense of reality is not the same as an adult's. All children, and especially lonely and imaginative ones, tend to create a certain amount of fantasy life, and wise parents will respect this aspect of childish mental activity. Children have to face the facts of life soon enough and, unless the fantasy life is so excessive as obviously to affect the health of the child, little attention need be directed to it. Another important point is the problem of the moral sense. Here again adults tend to adopt adult values and are surprised at the child's apparent lack of conscience. The young child is by nature an egotist and the moral sense, as we know it, is of gradual development. Curiosity is another feature of the child mind which must be properly evaluated by parents. This quality of the mind should be very noticeable in the young child—especially curiosity concerning its body, and parents will do well not to inhibit this

normal inquisitiveness. A stifled curiosity instinct may have unpleasant consequences in adult life—sometimes being associated with exhibitionism and an undue curiosity in sexual matters.

Let me offer some simple advice to parents. Primarily, it is their duty to try to understand the behaviour of their children with sympathy and reasonable affection, and to remember that children *are* conscious of their worth and their rights. They must endeavour to ensure that their children have such liberty of thought, action and feeling as is necessary for their self-expression. Parents should avoid a patronizing attitude to their children and should never punish unjustly. Shyness and awkwardness are the results of the ridicule of childish efforts. Parents must avoid exploiting their children to fill some blank in their own lives by demanding from them an excessive amount of affection. Unhappily, parents are extremely liable to do this, to the great detriment of their children's emotional lives.

They must also avoid the tendency to prevent their children from growing up, but should welcome and encourage signs of independence and individuality. Parents must on no account play on their children's fears. Wilful frightening or implanting of fears has a devastating effect upon the child

mind, marking it indelibly throughout life. The lot of a parent is not exactly an easy one but the task of bringing up, or more correctly of allowing children to grow up, is worth doing well. It brings its own reward, for later on your children will make a success of their lives and will bring joy to your hearts.

Good parentship is the keystone of mental hygiene, and it is a mistake to imagine that any one can be a good parent. It requires a natural aptitude plus sound knowledge. Those who take parenthood seriously—and all prospective parents should—must deliberately set out to study, among other subjects, the psychology of childhood. No doubt there are some people who are sceptical of the value of theoretical knowledge, but such knowledge is very much better than none at all, and it is the duty of parents to arm themselves against every exigency which may arise in the course of their children's development.

Let me give a few hints on the subject of the formal education of the child. Educational theories and practices are perhaps in a state of flux, but the trend of the modern system is simply that school should provide a means whereby individual physical and mental growth is ensured. The teacher of to-day aims at training intelligence, an object which can only be achieved by providing a free

atmosphere in which the child can work and express his thoughts. This necessitates individual attention on the part of the teacher, for mass teaching inevitably involves repression, and even an intelligent child's capacity is reduced. Unconditional surrender is not to be demanded of the child, nor is he to be regarded as a young animal whose natural exuberances are to be restrained by a severe discipline and whose mind is a mere receptacle for facts and theories. At no time in life is it more important that there should be a balance between mental and physical growth, a balance, however, which is not always easy to achieve. Nutrition is a vital factor, while fresh air and sunlight are equally essential. It is to be hoped that the ' school in the sun ' will soon be an established feature of our educational system. Sleep and exercise must also be kept in mind. Many backward and anxious children are often merely underslept. Education, which is a preparation for life, if it is to be successful, must foster the qualities of initiative and resource, self-reliance and self-confidence, and if it achieves these, it will then constitute a valuable measure of mental hygiene. Care of the mind in childhood is the soundest investment against inefficiency and discontent in adult life.

The physical environment and Nature are all important in the early formative years and it is at that time of life that the main influences of hygiene should be brought to bear on the child if they are to achieve their maximum effect. No amount of subsequent care will compensate for the ill results produced through a faulty application of the laws of health in childhood. The onus of safeguarding the physique and stamina of children rests primarily with parents, and well-directed efforts on their part will not only save them much anxiety, but will guarantee the development of their offspring into sturdy, vigorous and efficient young men and women.

Among the many problems which are associated with the upbringing of children, sleep disturbances are exceedingly common and of considerable importance. The need for sound, peaceful sleep of sufficient duration is a fundamental necessity of child hygiene. Every adult knows how a sequence of disturbed nights rapidly undermines the health of mind and body. In a child, the maleffects are much more intense and fraught with relatively more serious consequences. Mental dullness, stunted growth, anxiety states, and ' tantrums ' are frequent accompaniments of a deficiency of hours of sleep.

Mere lack of sleep is a hygienic error, the

remedy for which is obvious : it is sufficient here to emphasize its dangers. But the nervous disorders of sleep arise from causes which are often far from obvious. These disturbances are generally a source of great concern to parents and frequently lead to much apprehension and unhappiness in the home.

It is one of the characteristics of our age that the number of nervous and problem children is on the increase. Many are the reasons postulated for this happening. Small families, too much freedom, excessive educational stimulation, and over-solicitude on the part of the modern parent are probably the most commonly quoted. No doubt these factors do play a part in creating the hypersensitive, emotionally unstable child, but it is the opinion of most experts in child psychology that it is primarily the neurotic parent who creates the neurotic child. For example, the mother who responds to a difficult or trying situation by a violent display of tears and a headache is illustrating to her child the worst possible way of making adjustments to the problems of life. A bad psychological atmosphere is most often the real cause of the difficult child—from which it is apparent that more often than not it will be the parent and not the child who will require treatment.

Very common among the sleep disturbances of children are what are generally called ' night terrors.' In some respects they are equivalent to the nightmares experienced by adults. During the early part of the night the child awakens, screaming or weeping loudly, often with a look of terror in the face. Usually for some minutes the child is dazed and then on being questioned may be able to relate the horrid, fearful dream which broke into the sleep. For many a nervous child, the happiness of life is overshadowed by fear of the night. It is generally children who have some sense of insecurity, who feel themselves deprived of parental love, or who are in conflict, open or hidden, with a parent, who are subject to such nocturnal upsets. But it is difficult to ascribe the condition exclusively to psychological causes. Physical factors also come into play. Adenoidal growths, intestinal worms and constipation set up an internal irritation which may provoke the psychic explosion during sleep. Similarly, children who are subject to rheumatism, especially the so-called ' growing pains,' and those who are prone to acidosis from night starvation, may occasionally suffer an attack of night terrors.

As the management and treatment of this disorder is similar in principle to the treatment of the other sleep disturbances, it will

be dealt with later. Let us now consider the distressing symptom of enuresis or bed-wetting. In a certain proportion of cases there are organic or physical factors at work. In some, especially those children who sleep very deeply, there is probably some glandular deficiency, either pituitary or thyroid, and in this type the administration of the appropriate gland extract will be most beneficial. Occasionally, local trouble such as a tight foreskin (phimosis) or the presence of thread-worms may set up a reflex irritation and precipitate irregular bed-wetting. Even enlarged tonsils and adenoids, or constipation, if combined with errors in diet and faulty hygiene generally, will constitute a sufficient cause. But it is the child with the nervous temperament, who in some way is maladjusted, who is the most frequent victim of enuresis. Every one knows that under the influence of great fear or panic even adults may experience a desire to empty the bladder or actually perform the act. In a sensitive child, who has been subjected to an emotional shock (fright) or shocks, bed-wetting may arise owing to the unconscious eruption of the fearful situation during sleep. Fear of the dark owing to some unfortunate experience, or fear of punishment, are quite common instigators of this sleep disturbance. Very common, too, is a state of anxiety in the

child mind, engendered by some difficult home situation, such as parental discord, over-protection on the part of members of the family, jealousy of another child, a sense of physical inferiority, or a failure to make progress at school as anticipated by parents.

Psychologists have found that in some children enuresis is an auto-erotic phenomenon—that is, a method of producing unconsciously a gratification of the developing sex instinct. It is interesting that bed-wetting often ceases when the child is removed to a hospital or is sent away from home. This clearly shows that it is the psychological factor which has been operative and that the child has been relieved of some anxiety associated with the home life. Remarks on treatment will be made later, but it should be noted here that bed-wetting is a disorder which calls for careful investigation by a child psychologist. If it is allowed to persist, the habit is exceedingly difficult to eradicate and may persist till adult life. Incidentally, enuresis leads to an acute sense of inferiority in a child, rendering it low-spirited, listless and lacking in confidence, a state of mind which may be a grave handicap to the child in adult life.

Another common disorder of sleep in children is abnormal sleepiness. This is

generally revealed by the child being very dull and tired in the mornings and being reluctant to rise. Normal healthy children awake very regularly and arise promptly and blithely. They are keen to tackle the day's activities and work. Not so the child who is unhappy or frustrated or who is deprived of love and affection, or who has few outlets for his energy. Such a child may wake at the usual hour but then hides under the sheets and falls into a torpor. He will find lots of excuses for not rising in good time and is generally irritable and querulous. This symptom of undue sleepiness is very prevalent in adolescents of both sexes. Adolescence is a somewhat difficult period of life to negotiate. Surges of new feeling are passing through mind and body. The adolescent is conscious of a certain awkwardness. He is meeting the real problems of life for the first time and he is apprehensive and shy of his new responsibilities. Hence a tendency to retreat to fantasy or day-dreaming—a state of affairs which may be considered a more or less normal accompaniment of adolescence. As a rule, this phase is quickly passed through, but occasionally the tendency to retire or retreat from life by way of sleepiness becomes very marked and it may be associated with odd and strange behaviour. In such cases,

medical advice should be sought, for it may be that a mental disorder is developing.

Abnormal sleepiness is also a symptom common to the nervous disease known as hysteria. This complaint may arise in quite young children (contrary to popular opinion), and the child may exhibit attacks of sleepiness—actually going off to sleep at any time of the day. There are usually other symptoms, such as attacks of crying, convulsions, loss of power in a limb, or loss of sensation, which make the diagnosis of hysteria obvious. Finally, abnormal sleepiness may arise in connexion with organic disorders notably of the thyroid and pituitary glands, and in brain disease, such as encephalitis lethargica, popularly known as sleepy sickness.

Sleep-walking or somnambulism is yet another disturbance of the sleep function which is fairly common in children and in young adolescents. Most often it occurs in the highly-strung and intelligent children. The causes are psychological. 'Over-activity in the day, leaving wishes unsatisfied and ambitions unfulfilled, may give an impetus to an inner desire to complete what has been left undone. Some children will get up at night and attempt to complete their lessons or go over to the window, appearing to seek for something which the

day has probably not brought. Those with feelings of insecurity rise and go towards their parents' room seeking for the mother. Some will actually sleep-walk only during the full moon, when they will go downstairs and cross the garden, fascinated by the moon's silver light.' (Emanuel Miller.) No doubt in some cases of somnambulism a rheumatic nervous instability is the underlying cause, but psychologically this minor abnormality grows out of a dream state under the pressure of a strong emotional urge. Children who are prone to day-dreaming in which the sense of reality is temporarily in abeyance are those most likely to walk in their sleep.

How are these sleep disturbances in children to be controlled and treated? We must bear in mind the possible physical factors, such as a rheumatic tendency and the peculiar state of acidosis—a transient defect of the body chemistry. For this latter condition glucose in some form is peculiarly helpful and it has often dramatically cured cases of bed-wetting. For the treatment of rheumatic disorder, the physician must be consulted. Rest, special baths and exercises, dieting and ultra-violet ray therapy, will be necessary. In cases where there is evidence of glandular deficiency, small doses of thyroid extract are indicated, or in pituitary

involvement, especially if associated with constipation, pituitrin injections may be given. Calcium or lime deficiency may exist in some and this may be remedied by giving calcium lactate. For enuresis, it is essential to endeavour to obtain the child's co-operation and trust. Constant encouragement and optimism on the part of the parents are essential. The child should sleep in a comfortable bed in a well-ventilated room. There should be a minimum of fluid with the last meal and before retiring the child should empty the bladder. When the parents retire, it is generally advisable to wake the child and encourage it to empty the bladder again. A night light may be very comforting to a child who is afraid of the dark, especially in the case of sufferers from night terrors. Windows should be secured if there is sleep-walking and blinds drawn when moon-walking is known to occur.

Of fundamental importance in all childhood disorders of sleep is the psychological problem which is so commonly present. It is necessary to attempt to discover if the child is a victim of fears, frustrations, feelings of inferiority and guilt, anxiety over a lack of parental affection, or a lack of outlet for social or play activities. Again, it is necessary to know whether more is expected of the child educationally than the child's

intelligence is capable of, or the reverse, that the child is not receiving a sufficiency of intellectual stimulation.

Parents will require to do a certain amount of stocktaking of their own minds. Let them always remember that it is they who mainly create the psychological atmosphere for their children. If they feel insecure, their children will be insecure and symptoms of behaviour problems are inevitable; in other words, their children will be nervous and highly-strung. The child who is a victim of a sleep disorder needs the help and discriminating sympathy of both its parents. Moreover, the child needs adequate social outlets in order to give full expression to its social instinct. The nervous child at heart is generally an unhappy child, and it is the duty and responsibility of all parents and all who come into intimate contact with children to strive their utmost to bring joy into the lives of the children and to give them a security which will enable them to develop into healthy, confident and robust adults.

I do not think it is sufficiently realized by parents that one of the greatest menaces to the health of their children is the habit of mouth breathing. The cause of this is almost always to be found in enlargement of the adenoid tissue which obstructs the free

passage of the nose and makes normal nose breathing difficult or impossible.

If this habit arises in early life, it inevitably interferes with the proper development of the jaws so that they cannot accommodate the teeth in their proper alignment. The palate is affected and the teeth are further handicapped by being cramped. Ultimately, the mouth breather finds himself with a set of crowded, irregular teeth, meeting their fellows of the opposite jaw so imperfectly as to impair the ability to chew food.

Mouth breathing also checks the normal cleansing action of the saliva in the mouth. Consequently, soft and sugary food tends to adhere to the teeth crevices, and, fermentation taking place, leads to dental caries or decay. The gums too are affected. Around the front teeth the gum margins tend to become red and congested, the first stage of pyorrhoea, to which persistent mouth breathing invariably leads.

To check this bad habit is no easy matter. Attention to the diet and the general health may cause the disappearance of the adenoids —but in severe cases it may be necessary to have the abnormal growths removed by operation before permanent damage is done to the jaws. Even after removal of the offending obstruction it will be necessary to re-educate the child into good breathing

habits. During the day special nose-breathing drill with the lips closed should be practised, and at night the mother should visit the sleeping child, and, when necessary, gently close the mouth and prop the bed-clothes under the chin. Further, the early treatment of irregular teeth by the dentist is essential. The earlier it is carried out the more easily and successfully can it be accomplished.

The clinical thermometer in a home where there are children, though a useful and desirable possession, is a not infrequent disturber of the parents' peace of mind. A few remarks on the subject of 'temperatures' may therefore prove helpful.

First it should be appreciated that young children are prone to rises of temperature from very slight causes, such as a passing disorder of the stomach or bowel or some irritation connected with teething. Even emotional causes may raise a child's temperature. For example, it has been observed that a large proportion of the children admitted to hospital wards show a rise on their first night. It must also be kept in mind that any given cause will produce a higher degree of fever in children than in adults.

As rapid rises of temperature are so common in children from trivial causes, fever alone, unless it is extreme, is not a

sufficient reason for anxiety. It is only when it is continuous, and is accompanied by other symptoms, such as pain, sweating, refusal of food, vomiting, or disturbance of sleep, that it becomes a serious matter. When the temperature of a healthy child rises suddenly, the eyes becoming unnaturally bright and the cheeks flushed, the possibility of an infectious fever should be kept in view. The mother should carefully examine the skin for signs of spots or a rash. Inspection of the throat should be carried out, and in this connexion a piece of advice to mothers may be offered. Young children should be taught to put out their tongues and let their throats be looked at *when quite well*, so that when illness arises the throat can be easily seen without a struggle or a 'nerve storm.' The early detection of infectious disease is very important, not only from the point of view of the child involved, but also from the point of view of preventing spread of infection to other members of the family. Therefore, if in doubt, the parent should not hesitate to consult the doctor.

Here are several practical points about taking temperatures. In young children the temperature is most conveniently taken in the groin, as the child feels less uncomfortable sitting with the thigh bent on the abdomen than it does when the arm is held tightly to

the side. Care should be taken, however, to see that the skin is quite dry and that the thermometer is left in position sufficiently long. It is not advisable to thrust a thermometer in the mouth of a child under five years of age. After use, the thermometer should *always* be thoroughly shaken and cleansed in a disinfectant fluid.

Diet is naturally the most important determining factor in the health of the child and it should claim patient and intelligent study from all who supervise the welfare of children. Here I wish solely to draw attention to the value of fruit in the dietary of the young child. It is now more or less common knowledge that orange and lemon juice have a very special use in the early months of life. To-day, such fruit juices are almost universally included in the dietaries of infants with great benefit to their health and development, but it is not adequately appreciated that quite young babies from six to nine months old can be safely given *raw* fruits, such as apples, bananas and tomatoes.

Most infants, even in these tender months, will delight in grasping, and attempting to chew half an apple, and the exercise necessitated will stimulate the development of the jaws and help the eruption of the teeth. Apart from these mechanical advantages, it has recently been demonstrated that fruit

pulp inhibits the growth of disease-producing germs in the intestine, and that its administration both prevents and cures diarrhoea in children. Now diarrhoea, especially in summer time, is often very prevalent among our city children, and it is therefore to be hoped that a more general appreciation of the specific values of raw fruit pulp—particularly apple pulp—will greatly diminish the incidence of this disease.

With older children, the place of fruit in the dietary is equally important, and it is a wise plan for parents to encourage their children to spend their pocket-money on fruit rather than on sweets. The advantage to their health will be remarkable. Fruit provides the vitamins and mineral salts which are essential for the development of strong, straight bones and sturdy muscles. And not least in importance they supply roughage, the indigestible matter which stimulates the activities of the intestinal canal and prevents constipation. It is a grave matter for a child to become constipated, for this condition readily becomes habitual, and a habit of constipation which commences in childhood is most difficult to eradicate in later life. The most certain way to prevent this evil in children is to make sure that they have an ample daily ration of fresh fruit.

CHAPTER III

ON GROWING UP

THERE is a popular presumption that, once the difficulties of childhood are safely negotiated, the youthful boy or girl should develop naturally and normally *without* any skilled and discriminating guidance on the part of the parents. It is unfortunately the case, even in these relatively enlightened times, that a great many parents adopt a peculiarly negative attitude to that emotional and intellectual unfolding which characterizes the adolescent period of life. Such parents appear to lack the necessary sympathy and insight, and quite unwittingly engender those misunderstandings and antagonisms which mar family happiness and have a harmful effect upon the future welfare of their children. Now, it will be admitted that the foundations of personality are laid in childhood for good or for ill, yet the superstructure is largely built up by the psychological environment created by parents and, to a lesser extent, teachers, during adolescence. Thus, in the interests

of mental health, the management of adolescence, from all points of view, is exceedingly important, and it is to be borne in mind that it calls for considerable parental knowledge and perspicacity if the many pitfalls of this phase of development are to be avoided.

As most people are aware, it is during adolescence that character formation chiefly takes place, but of even greater significance are the emotional changes which are undergone, and it is to these emotional changes that parents must pay particular attention if they would help and not hinder their children on their way to healthy manhood and womanhood. At this time, profound alterations are taking place in the whole organism, physical as well as mental. The influence of the sex endocrine glands are becoming manifest and definite sexual characters are appearing. In consequence, there is an extensive reconstruction of body and mind, and this takes place with surprising rapidity. There is a new vitality experienced which contrasts strongly with that of the pre-adolescent in that its force is directed into entirely different channels. The situation may be briefly summed up thus : the child up to the age of eleven or twelve is essentially self-reliant and egocentred. He is a member of a gang, delights in competitive games and has a well-marked

acquisitive instinct. The adolescent, on the other hand, having lived over the evolution of the race, finds his vitality absorbed in adjusting himself to the world as it is; a world built up upon rules and orders, conventions and laws; a world of which he took but little notice in his earlier years. If this adjustment is achieved harmoniously, all goes well, but if he is not helped in the home and at school, or if earlier repressions have thwarted his rational development, the result may be disastrous.

The newly experienced sex consciousness requires careful handling. It is very easy for much mental conflict, with its dire repercussions in adult life, to be produced through faulty and inadequate education in the facts of sexual life. Parents are often quite oblivious of the anxiety and tension which unsatisfied or wrongly satisfied sex curiosity brings in its train. Their own complexes very often render them quite incapable of giving their children a healthy outlook upon this vital matter. Clearly, it is of primary importance that the new emotions and urges which are experienced by the adolescent should be guided into desirable channels: in other words, it is the duty of the parents to seek for and provide healthy *sublimations* lest pernicious outlets be sought after. If they are wise, they will direct the physical

energies of the adolescent towards team games where initiative and at the same time co-operation may develop one with the other. Equally important and necessary are the outlets for mental energy. To fatigue the body in the hope that emotional impulses will be damped down is a time-honoured fallacy. Such impulses do require training and exercising, and this can be achieved by fostering creative tendencies in art, literature or handcrafts for which the adolescent as a rule shows considerable aptitude.

In the school, I am of the opinion that it is not advisable to pit the abilities of one pupil against those of another. Scholastic rivalry readily becomes morbid and many an inferiority complex is brought into being in this way. Rather, it is desirable to encourage a recognition of the inter-dependence of individuals and an appreciation of the community aspect of existence. Certainly, let leadership be encouraged, but with a sane sense of the value of a leader. How much trouble would be saved in later life if this could be satisfactorily accomplished? No doubt, in this connexion, it will often be necessary to fight against blind hero-worship, but, by fairness and justness and evenness of temper on the part of the masters, it will be quite possible to overcome any tendency to idolatry and misplaced

enthusiasm for causes and persons unworthy of support and enthusiasm.

In our adult reactions and contacts with the adolescent, we must remember that he demands reasons not merely orders. He has reached the stage when he must be convinced of the why and wherefore. Dogmatic assertion on the part of parent or teacher is *not* enough. The adolescent is no longer a child, he is a man in the making, and demands to be treated as such—not ruthlessly dominated and arbitrarily controlled by rules and regulations of a negative order and bearing no relation to life in the world. Mentally, morally and physically, the adolescent is at the transition stage to be made or marred by home influences and school environment. He or she is sensitive and critical, shy and yet also bold in his or her resentments. To his elders he may appear to be a mass of contradictions. Another important feature of this period is that educationally he begins to develop a new outlook. The dull, mechanical processes of learning which formerly he carried out complacently, he now finds irksome. His attitude to the process of learning and what he wishes to learn are changed. He will accept dogmatic statements with mental reservation if his temper will not allow of their being openly challenged. The creative

impulse is strong within him and he desires to make—no longer to destroy. He will accept eagerly that which appears to throw light on his own problems, and cast aside for the time being what to him is artificial and unreal. He delights in out of school activities, and seeks every opportunity to organize—football teams, debating societies, class magazines, picnics and parties, and, it need hardly be said, such activities should be encouraged to the full in order that the adolescent's latent social instinct may have appropriate and complete expression.

Watching over all these various impulses of the adolescent are the parent and teacher, whose duty it is to guide the youth to a full realization of his powers and to help him to avoid the pitfalls which beset him by the way. In the case of the parent, frank and friendly talks on a basis of relative equality will maintain a mutual confidence which will go a long way towards smoothing down the *exaggerated* responses which are peculiar to the adolescent period. The youthful girl or boy is throwing off the shackles of dependence upon the narrow home associations, and the father and mother must encourage this healthy desire for freedom. With fathers and daughters and mothers and sons there is a very great danger of excessive emotional attachments. Too lavish affections

and undue solicitations for their welfare readily breed morbid fears and a continuance of the childish attitude to life. Adolescents maltreated in this fashion grow up nervous, lacking in self-confidence and a true and proper spirit of independence. Conflict between the parents is also another fruitful source of trouble, for this almost inevitably means an exaggerated love from one and neglect from the other. Abnormal mother or father attachment is, perhaps, the most important cause of difficulties and maladjustments in the adult love-life and of nervous breakdown on engagement or marriage.

The too-assertive parent is clearly also a danger to the adolescent. Apart from the sense of inferiority which is liable to be brought about in this way, the adolescent's initiative is dulled and he either develops an exaggerated subserviency to all authority or a rankling feeling of injustice leads to revolt. This may show itself in quite a number of unpleasant ways — truancy, wandering mania, temper outbursts and even stealing, and these bad habits may easily become the direct instigators of delinquencies in adult life. Great is the havoc which can be wrought to the adolescent by the too-assertive and the too-affectionate parent. I do not wish to suggest that discipline is

unnecessary in dealing with the adolescent, but, as I have already indicated, the discipline should be positive and purposeful and never discipline just for the sake of discipline.

Let me emphasize that wise parents must prepare themselves for a loosening of the ties of dependency when their children become adolescent. Fearful for loss of affection, they must never yield to the temptation of preventing their children from growing up. The hampering emotional ties so engendered are very difficult if not impossible to shake off even in adult life and lead to problems in social adaptations and to much unhappiness. Nor should the parents cramp the adolescent's desire for healthy self-expression in any way, nor curb their interests in objects external to the home. Above all, parents should avoid attempting to mould the boy or girl to a particular type. This is certain to result in relative failure and in any case will have a warping effect upon the true personality. Stern and repressive measures are always to be condemned and every precaution adopted to prevent the instilling of harmful fears. Only if these considerations are closely observed will the personality of the adolescent expand and grow naturally and in a balanced, well-integrated manner.

With regard to the school, we must remember that it fulfils a highly important function in that it is a step away from parental dependency and so towards individuality. If the teacher is wise he will seek the aid of all these vital impulses of the adolescent in his task of education. The school has vast possibilities for good or evil and it should operate as a help to the proper development, socially, physically and morally, of the adolescent. From an educational point of view, adolescence is the greatest formative period of the human mind and as such it should be taken full advantage of by the teacher.

A few words are necessary on the subject of sex education. By the time the child reaches adolescence, it will have acquired some knowledge, tainted or otherwise. Sex curiosity, however, becomes much keener when puberty is reached, and proper enlightenment up to a certain point becomes desirable and necessary. The ' conspiracy of silence ' so long practised by parents and teachers, leads not to protective innocence but to ignorance charged with disaster. Poisoned knowledge is terribly dangerous and may be productive of an anxiety neurosis in a sensitive child. Thus, there can be no doubt that tactful enlightenment, according to the physical and mental

development of the child, by the appropriate parent, who should have qualified himself or herself for this important task by a careful study of the subject, is the best way to ensure a healthy and clean sex life for the adolescent. The natural curiosity of the freely developing child is the best guide to the depth of enlightenment the parent proposes to give. It is unwise for the child to receive instruction beyond what it can grasp emotionally as well as intellectually.

Little has been said about the physical aspect of adolescence, but it must not be presumed that this is unimportant. Mental health and development are fundamentally dependent upon physical health and development and it is imperative that every effort should be made by parents and school authorities to ensure that the elemental needs of a healthy environment, sound dieting, fresh air, sunlight, adequate sleep and rest, exercise and clean habits of body, are available for the adolescents in their charge. Without the satisfaction of these primary essentials of health, all else will be of little avail.

With regard to the question of diet, a valuable report was issued by the New Health Society some years ago dealing with the diet requirements of children between the ages of six and thirteen. Without going

into detail it is clear from the investigations carried out by the Committee that, where a marked improvement was observed in groups of children subjected to specific dietaries, this was not due to the extra caloric value of the additional food, but rather to certain specific qualities of the extra foodstuffs. The results point clearly to the fact that the *quality* of the diet was the essential nutritional influence, probably due to vitamins, but possibly to other factors as well. The following points were emphasized :

1. *Bread.*—Should be baked from wholemeal which, if desired, could be diluted with not more than half white flour. Wholemeal flour is essential to ensure an adequate supply of vitamin B and a due proportion of 'roughage.'

1*a.*—Wholemeal flour should be used in all puddings and cakes.

2. *Milk.*—For children of the ages six to thirteen, at least three-quarters of a pint of fresh milk should be provided per head per day. This amount may be distributed over the day, but the major proportion should be given at mid-morning, especially when the interval from breakfast to dinner is from 8 a.m. to 1 p.m.

3. *Butter.*—Substitutes such as margarine should only be served in place of butter to children under fourteen, when the strictest

economy must be observed, in which case a ration for all children of one teaspoonful of cod liver oil per diem is strongly advised. If emulsions or preparations of cod liver oil are used it must be recognized that the proportion of oil is less by 30 per cent to 60 per cent. Syrup or jam are not to be regarded as alternatives to butter.

4. *Unlimited Supply.*—It is essential that at every meal there should be provided an unlimited supply of potatoes or wholemeal bread, with butter or dripping.

5. *Fresh Raw Food.*—Once a day some form of raw fresh food in the form of raw fruit, salad or raw vegetable should be supplied. This is economically given in the form of an orange a day. If watercress can be obtained from a pure source, it should be served regularly when lettuce is not available.

So much enlightenment has spread in the last few years on the need for fresh air and sunlight, that their therapeutic virtues need hardly be stressed. Nevertheless, these are factors never to be lost sight of in planning the welfare of the rising generation. The barbarities of the Victorian schoolroom are well remembered by those who were subjected to its rigours and stupidities. 'Never again,' must be our motto in relation to that positive and narrow-minded period. Our

skin, whose natural element is the air and which craves for light just as our other tissues crave for food, is still starved of its rightful due ; but at all events we do recognize in principle that our skin cannot maintain us in a state of health in the dark and humid atmosphere in which it is imprisoned under conditions of modern life. The wise instinct of children to discard stuffy and hampering clothes is no longer viewed with horror by outraged parenthood ; on the contrary it is diverted into beneficial channels with surprisingly good results. The increasing practice of schools in the matter of a maximum of light and air during working as well as play hours is another gratifying feature the benefits of which will be even more apparent in the next generation, and for this reason : the incidence of what are termed the ' diseases of darkness ' diminishes with the cleansing of the air of our great centres of population. To-day there is a marked decline in the number of children suffering from rickets—a deficiency disease caused by the starving of the growing young organism of essential elements in the rays of the sun. Rickets has always been most prevalent in manufacturing districts lying perpetually under a pall of smoke through which the beneficent ultra-violet rays are unable to penetrate.

With the reduced use of coal for direct combustion the pall of smoke becomes lighter and consequently rickets in children tends to decline. It should not be forgotten, however, that we carry the burden of rickets not only in the twisted bodies of unhappy children, but also in the form of maternal deaths in childbirth, since one of the sequelae of rickets in childhood may be an ill-developed pelvis unable to respond to the strain of parturition. Incidentally, it cannot be too much emphasized that some of the deficiency due to lack of ultra-violet rays in the atmosphere can be made up by dietetic means, for, translated into terms of nutrition, deficiency of ultra-violet rays means deficiency of vitamin D—a vitamin found in milk and butter and in a high degree in cod (or halibut) liver oil. It is clear that, where there is a deficiency of this essential vitamin both in the diet and the atmosphere, very grave consequences must ensue, but at all events they can be mitigated and sometimes neutralized altogether through a proper balance in the dietary.

Since every beneficent tendency in social progress is almost invariably attended by exaggerated manifestations, it is only natural that with the realization of the therapeutic value of sunlight enthusiasts should adopt such extremes as herding them-

selves together in nudist camps, etc. While such a tendency may be harmless in itself, it opens the door to a great deal of misunderstanding and abuse, usually psychological rather than physical. Medical men are not concerned with this type of social abuse, if abuse it be, but are at pains only to stress the value to health of exposing the skin to a proper measure of sunlight and air. A warning note should be sounded on this point, for in another way enthusiasm may run away with discretion when Nature lovers seek to break away from the shackles of convention. When one speaks of the *therapeutic* effects of light and air one must also speak of dosage, for here is a powerful healing agent of which excessive doses may cause serious injury. Exposure to ultraviolet rays, whether they are the natural rays of the sun or artificially produced by a quartz mercury lamp, must be gradual and adapted to the needs of the individual. Especially in regard to artificial sunlight medical guidance should be sought to meet individual idiosyncrasies. On this point I shall have something further to say in a subsequent chapter, contenting myself for the moment with commending to those who have charge of the young and adolescent to study the subject of sunlight and apply it with discretion.

In regard to the question of exercise, there has been a good deal of foolish practice in the past, especially at public schools both for boys and girls. I do not underrate the value of exercise both in adolescent and in adult life, but where it is made a fetish, without regard to individual capacity, serious consequences are apt to ensue. Cross-country running for young boys and strenuous games for girls, irrespective of their physical condition at the time, especially are apt to predispose to serious conditions in later life. I agree that the problem is a very difficult one, but I cannot help feeling that in some way young people should only be required to play such games as awaken their real interest and enthusiasm. To force boys and girls into playing games against their inclination may impair their physique when their participation is required beyond the point of moderate exertion. Psychological as well as purely physical factors are then involved and nervous reactions may ensue which, in turn, are hampering to physical development. I frankly confess that I cannot see how that difficulty is to be overcome in practice without abandoning organized games altogether, but at all events there should be a more careful analysis and control of unsuitable children and a more intelligent provision for their needs.

It is odd how often it comes about that the obvious factors in the maintenance of health are missed by those whose duty it is to supervise the growth and development of children and young people. *Posture* is a notable case in point. There are many parents who are scrupulous in the attention they pay to the dietetic and bowel habits of their offspring, but who are blind to *faulty posturing*, and the effects produced thereby on the physique and the mental and physical welfare of the children. This is most regrettable, for such evil results, unless corrected early, will become permanent and remain a serious handicap to health and success throughout life. Realizing, therefore, that good posture is a necessary and most desirable possession, parents should conscientiously seek to foster this condition of health in their children from the earliest years.

Good posture implies that we are using the human body to the best possible mechanical advantage. Like the machine of steel, the body machine works best and lasts longest when it is not subjected to unnecessary stress and strain. Incorrect posture places the vital machinery at such a mechanical disadvantage that the wear and tear are excessive. All this may seem very elementary, yet it is surprising how

parents will complain that their children are dull, lethargic, 'difficult' or always ailing, and imagine that they are victims of some terrible disease, when the real cause—faulty posture—is staring them in the face. Then there are the parents more observant but equally unwise who, noticing the ill-balanced and awkward attitudes of their children, console themselves 'that they will grow out of it.' Unfortunately, this optimism is quite ill-founded. Faulty posture readily becomes a habit, and every one knows how difficult it is to change a bad habit into a good one.

To a large extent the customs of civilization are to blame for the prevalence of faulty posture amongst our children to-day. Postural abnormalities are never seen in communities living under aboriginal conditions. At a comparatively early age the modern child is sent to school and is frequently required to sit on an ill-designed seat for unnecessarily long periods. Free movement is discouraged and the cramping fixed attitude rapidly leads to fatigue of the muscles. Again, the modern child is often absurdly over-clothed, and a morbid fear of fresh air in the classroom leads to an oxygen starvation which increases the muscle weariness. After nine or ten years of such treatment can it be wondered at that so

many of the youth of both sexes have slouching and ungainly figures and are neither physically nor mentally alert or enterprising ? It is greatly to the credit of certain of the American colleges that they have instituted special courses in posture training. This is a practice which will have most beneficial effects upon the national physique and stamina, a practice which we should do well to adopt on this side of the Atlantic.

Let us investigate briefly the mechanics of posture. The human framework consists of series of bones jointed together by ligaments and elastic muscles. It is chiefly by the muscles that the bony framework is maintained in the proper alignment which enables the vital activities of the organs to be sustained without mechanical hindrance. These muscles are never in a state of complete relaxation. A constant elasticity is maintained which is called ' tone,' and it is this tone which normally should prevent the bones from adopting abnormal relationships to each other. Tone varies considerably according to the general health of the body. We all know how our muscles become slack after an illness which has confined us to bed or as a result of lack of exercise. In contrast, we know how our muscles feel taut and vigorous—' tone up '—under the influence of exercise in the fresh

air and sunlight combined with adequate nourishing food and sound sleep.

Clearly then, to maintain good posture or correct alignment of the bones of the body, it is essential to be possessed of well-toned muscles. In turn, the possession of such muscles depends upon the general vitality of the body, particularly of the nervous system. And for a healthy nervous system there are many requirements : adequate rest, a pure, well-oxygenated and plentiful blood supply, and a sufficiency of all the elements of nutrition. For muscle health, it is also imperative that all the muscles should be exercised in a *balanced way*. Excessive training of certain groups of muscles disturbs the muscle equilibrium and may lead to incorrect posture. Also, over-fatiguing of muscles especially in young children must be carefully avoided. Over-tired muscles relax excessively and so fail to act as braces or stays to the bony edifice of the body. The ensuring of muscle health is one of the most important aspects of the physical education of the child—an aspect which, as we have noted, is too often neglected, not only by parents but also by trained educationists.

How precisely does bad posture arise and become established ? The chief postural abnormality is a lateral curvature of the spine associated with some degree of posterior

curvature or kyphosis. Most frequently it is met with in young children and adolescents of both sexes (though more often in females than males) whose muscles are weak and ill-developed from debility, malnutrition and bad hygiene in general. The muscles of the trunk are unable to perform their share of the work entailed in maintaining the erect posture. In some cases nasal obstruction from adenoids may be a dominant factor. Given weak muscles, the habitual assumption of faulty attitudes, largely a consequence of fatigue and a feeling of tiredness in the back, leads to the establishment of the faulty posture.

Scoliosis, as this lateral curvature is termed, develops insidiously. The child finds difficulty in maintaining itself erect and complains of pains in the back and shoulders, and to relieve the muscles of the back ungainly attitudes are rendered necessary. The abnormal curve of the spine usually arises in the chest region with the convexity of the curve to the right. In consequence, the right shoulder-blade is projected backwards and the right shoulder seems higher than the left—often popularly described as 'growing out.'

Now, if this deformity from faulty posture is not corrected in the early stages comparatively serious consequences to health will

result. The bodies of the individual bones of the spinal column become distorted and the muscles and ligaments are altered in length in accordance with the shape and position of the bones. Changes also take place in the chest region producing a 'rib-hump.' The twisting of the spine causes the victim to lose in stature and most important are the evil effects upon the vital organs in the chest and abdomen. Breathing is rendered difficult and an extra strain is thrown upon the heart. This means that the blood cannot be oxygenated as adequately as it ought to be and this reacts badly upon the general health. In very advanced cases the pelvis tends to become contracted and, as has already been shown, in the case of the female this may lead to grave difficulty in connexion with childbirth.

Not only are the effects of bad posture grave from the physical point of view, they are equally harmful upon the mental development. The child with a bad posture is always tired. His energy is sapped and he becomes incapable of making normal progress with his educational studies. He is backward as compared with his fellows and is apt to develop an inferiority complex. Moreover, he will be poor at athletic games, which will contribute further to his sense of inadequacy. His parents and teachers will

be for ever urging him to ' hold himself up,' and altogether he will have an unhappy outlook on life.

What is to be done for the correction of faulty posture? In the first place, as with all other defects and diseases, prevention is better than cure. We have observed that muscle weakness is the immediate cause of the adoption of incorrect posture and therefore muscle culture should be a feature of the training of every child from its earliest years. This need not be of a formal nature. There are interesting and pleasing ways of developing a child's musculature by certain types of games and dancing in which *all* the muscles of the body are exercised. The importance of *muscle balance* has already been stressed. It is also essential to bear in mind never to allow a child to perform exercises or games to the extent of marked fatigue. It is when the muscles are tired that bad habits of posture develop. Next in significance is the attitude of the child when sitting, for example, at school. To begin with no child should be expected to sit in one position for any length of time. Then the seat should be such as to support the back, so that the natural body curves are just maintained without any muscular effort. While writing, the child should be encouraged to bend forward at the hip joints—not in the back itself—and

the weight of the upper limbs should be supported by resting the elbows on the table. In the schoolroom or nursery there should always be abundant fresh cool air, for lack of oxygen leads rapidly to weariness and the adoption of bad postures.

Once a faulty posture has definitely developed specific efforts must be made to remedy the defect and to prevent *permanent* consequences arising. Attention to the general health is naturally of fundamental importance. As already pointed out, the child should live, play and learn in the open air if possible. Tonic doses of ultra-violet ray will be very advantageous. A full, nutritious, highly vitaminized diet is essential and control should be kept over the bowel habits. Every precaution must be taken to avoid both physical and mental fatigue. A warm bath followed by a cold spray and a brisk rub down should be part of the daily routine. Clothing should always be light and free. When reading, writing or playing the piano, the child's attitude should be supervised according to the indications given above. The child should not be allowed to stand about much, as there is a tendency to throw the weight upon one leg. If there is any question of respiratory obstruction, such as adenoids or enlarged tonsils, expert advice should be sought right away. Similarly, if

the child is short-sighted, spectacles should be provided.

Where the posture abnormality is fairly well established, special remedial exercises will be necessary. These are best carried out under the direction of an expert—otherwise there is some danger that they may do more harm than good. It is important that these exercises should be made interesting or they will fail in their purpose. The system devised by Margaret Morris is particularly valuable, for it encourages the faculties of concentration and construction. Where the muscle tone is very poor massage will be found a useful adjunct to remedial exercises.

It may be said that good posture is an elementary necessity of good health of mind and body. Every parent and educator should be on the look out for the development of bad posture and should immediately take steps to prevent its establishment. Good posture depends on balance of all the body muscles which should be in good ' tone,' and the maintenance of muscles in good ' tone ' rests upon a correct hygiene of mind and body—proper rest, proper exercise, sound dieting, ample ventilation of the lungs, and adequate stimulation of the skin by cool fresh air, sunlight and water.

On the question of cleanliness, internal and external, much remains to be said. The

reader must be referred to other parts of this volume which deal with the various aspects of constipation. It is in infancy and childhood that the evil habits of later life are formed, and no dietetic measure should be left untried for securing the regular bowel actions without which health becomes impossible either in adolescence or in later life.

CHAPTER IV

ON GROWING OLD

It is impossible to fix an age at which the symptoms and signs of physical degeneration first manifest themselves. To some considerable extent, it depends on the hereditary factor, for longevity runs in families, but the actual circumstances of life are also important. Some men and women are old at fifty ; others may preserve the mental and physical vigour of maturity until they are sixty and even seventy. There is enormous variation in the time of onset of the decline in life, but, for practical purposes, we may say that when a person passes his sixtieth year, it behoves him to consider how far he is justified in pursuing the same occupation, the same sport or exercise, and the old habits of life to which he is accustomed. In fact, if he is wise, he will undertake a general stocktaking of his health in relation to his social and personal circumstances. It is the failure to appreciate the significance of this transition phase in life, from maturity to old age, which is responsible for the tragic and unnecessary deaths of many men and women.

Presuming that there is no inherited defect, and that the individual has not been subjected to any special strain or disease, the functions of the mind and body naturally tend to wane in intensity with the advance of years, but not to any morbid degree. The muscles lose their vigour and tone, the emotions their keenness and the intellect its creative power. In healthy old age there should gradually arise a diminution of the instinct for life and, with the feeling that the individual cycle of life has been fulfilled, there should arise an instinct for death. To the healthily aged, death should not loom ahead as a grim and terrifying ordeal, but should appear as the final realization of life and should be as welcome as sleep. Unfortunately, such a desirable ' shuffling off this mortal coil ' is comparatively rare.

Few people are born constitutionally perfect ; few are not subjected to stresses and strains which deteriorate the vitality of the body tissues ; few have not suffered from diseases which distort the harmony of bodily functioning. Constitutional weakness, degenerative diseases of the heart and blood vessels, and chronic poisoning from the kidneys, bowels or liver are the great and besetting dangers to healthy and normal old age. In contrast, a man or woman who has lived wisely, whose diet has comprised natural

uncontaminated and unrefined foods, who has avoided constipation, who has not indulged to excess in alcohol, who has not made too great a demand upon his brain, heart and blood-vessels by violent or prolonged physical or mental exertion, who has taken regular periods of rest and change—such a man or woman may feel justified in expecting to live out the full span of life, free from disease, and with an enjoyment of physical and mental power which though reduced is never morbid.

Let us briefly turn our attention to what is happening in the process of growing aged. There is, of course, a general lowering of tissue vitality, but the most important and far-reaching change is the gradual replacement of the delicate and specialized cells by fibrous tissue. This is most noticeable in the case of the heart and blood-vessels. In consequence, the heart loses its efficiency as a muscular pump, and the arteries lose their elasticity, so that the circulation of blood is impeded. The blood does not, therefore, receive its full quota of life-giving oxygen and the tissues are not adequately supplied with nutriment. Self-poisoning from any source, kidney disease, gout and alcoholism, hasten this heart and arterial degeneration and these factors are, indeed, the chief causes of premature and morbid old age.

Eventually, lime salts are deposited in the

walls of the arteries and they become brittle and liable to rupture—an accident which, if occuring in the brain, causes an ' apoplexy.' Painful cramps in the legs are apt to develop after slight exercise, owing to insufficient blood reaching the muscles during their activity. The small arteries in the kidneys share in the general deterioration and inevitably the kidney function is deranged. Poisons, normally excreted, are retained in the blood stream and cause further damage to the arteries. A ' vicious cycle ' is thus set up and every tissue and organ in the body suffers in consequence. The old adage that a man ' is as old as his arteries ' is thus fundamentally true.

Inevitably there arise certain mental changes. One of the first signs is a failure of the memory, particularly for recent events. There is also a loss of originative or creative power and sustained work becomes impossible. The will is weakened and distorted, resulting in a certain petulant obstinacy. The feelings are to some extent blunted, but they are less under control and there is, therefore, a degree of irritability of temper. At any time, these symptoms may become exaggerated and assume the nature of a mental illness which may require hospital treatment. The mental decay of morbid old age is perhaps the most tragic aspect of the declining years of human life.

How, then, can we ensure for ourselves a

healthy and happy old age, free from those gross deteriorations already described, and still able to serve a relatively useful purpose in the scheme of things? If we emerge safely from middle age into the sixties there is no reason why, with a little care, we should not anticipate and achieve many healthy years of life. But it is just this middle-age period which is the difficulty. This is the time of life when our sins against hygiene find us out and, unless we studiously take ourselves in hand, irreparable damage may be done. For the purpose of this article let us presume that we have negotiated the middle-age hurdle with comparative success. How are we to proceed to safeguard our old age?

In the first place there is the question of retirement from active work or business. This is a difficult point, for it is of necessity complicated by economic problems. After sixty a man should slow down at his work and at sixty-five should definitely consider his retirement. Exceptions there are and must be to this rule, still, its general applicability is sound. *But*—it is dangerous for a man to plunge from activity into relative idleness. Are we not all familiar with cases of men who retire and fade out and die almost immediately afterwards? A wise man must prepare himself for his retirement. The idea that a man on retirement must

necessarily live an arm-chair existence in a state of intermittent somnolence is highly pernicious. Men are never too old to live a more or less active life and the man who contemplates retiring should have planned a series of activities which will sustain his interest in life and preserve his mental and physical fitness. Much useful social work can be done by a man at this time of life, for his mature experience and judgment render him invaluable to the State or the municipality. Hobbies and artistic recreations should also be cultivated—years before retirement, for it is not easy to engage in new interests when one is well on in years. In contrast, this age in women is not beset with the problems of retirement, with its dangers and anxieties. The majority of elderly women, though incapable of severe exertions, can maintain, in a modified form and according to economic circumstances, the working routine of their lives. Women are thus unlikely to indulge in the luxury of idleness or to fall victims to the boredom of wasting time.

Elderly people will derive immense benefit from a careful study of their dietary. Bearing in mind that intestinal intoxication from constipation is the chief enemy to a healthy old age, the diet should contain a minimum of flesh and concentrated protein food and a maximum of natural foods—

dairy produce, and particularly *milk*. The perfect food for the very young is also the perfect food for the very old ; it is easily digested, nourishing and non-stimulating. The occurrence of constipation calls for active treatment. Purgatives should only constitute a last resort ; even then it will be found that elderly people do not respond promptly to drugs and that such considerable quantities are required as to be a menace to health. Dieting, suitable exercises and abdominal massage are the methods to be adopted for the removal of constipation.

On the subject of alcohol, there is a divergence of opinion. No doubt for most people alcohol in all forms is best avoided in old age, but there are people who do appear to benefit from *small* quantities of spirits. A small glass of diluted whisky at night produces a feeling of well-being which is comforting to old people and often ensures them a good night's sleep. Extreme moderation, however, must be the rule for the use of alcohol in any form in old age.

The value of regular exercises in old age cannot be over-emphasized. As a preventive and curative measure in constipation, we have already noted their use. Exercises which bring into action the abdominal muscles are particularly beneficial. Regular *daily* exercises are an essential feature of the

hygiene of the elderly and it may be pointed out that such exercises can be carried out with a minimum expenditure of nerve and muscle energy in the morning bath, the body being partly supported by water. Violent sports are taboo, but golf and even tennis if played leisurely are permissible. In this connexion, the dangers of exposure to inclement weather must be remembered. No matter the enthusiasm, it is highly unwise to indulge in a game of golf on a wet, cold day with a driving wind. Resistance to chill is much diminished in the declining years, and a chill at this time is always a grave matter, for it may resolve into pneumonia.

Elderly people too should give consideration to their clothing. There is no need for them to muffle themselves up with an absurd number of garments, but they should wear such clothes as will always keep them warm. In particular, they should keep their feet warm and avoid damp at all costs.

Change is just as necessary for old people as for the young. The holiday habit should not be given up on retirement, for the psychological benefits of holiday change are exceedingly great. One of the most health-giving types of holiday is a sea voyage. The life on board ship affords a mental and physical activity plus an abundance of fresh air which will produce an extremely fine recuperative effect.

Yet another important feature of the hygiene of old age is the enjoyment of sound, refreshing sleep. 'Nature's self nurse,' sleep, is the great restorer of body energy, and the elderly should pay great attention to the means available for promoting health-giving sleep. It is essential that all the muscles should be completely relaxed. The body should be warm before retiring—cold feet are a common cause of sleeplessness. The bed-clothes should be light, but sufficient to maintain the heat of the body. Mental excitement or over tiredness must be avoided and every endeavour made to ensure that unusual noises or lights will not disturb the early hours of rest. Elderly people need more sleep than they required in their earlier years and they should spare no trouble to satisfy this want.

Lastly, there is the psychological aspect. The development of a philosophic attitude to life during the years of maturity is an investment against the possible discontents of old age. Interest in life should be maintained by pleasing recreations of mind and body—preferably of a socially useful kind. Loneliness must be avoided ; it arouses moodiness and selfishness. Pleasant company does much to preserve mental health and happiness. Let the elderly study the hygiene of old age and their lives will neither be tedious nor marred by ill health.

PART II

SOME COMMON AILMENTS

CHAPTER I

CONSTIPATION: THE DISEASE OF DISEASES

It may seem a paradox that civilization, which is a refinement of social and individual life, should be productive of a vast amount of ill health and sickness, yet it is unfortunately true beyond question. There has arisen, as a direct consequence of modern social habits, a host of diseases to which primitive peoples living under natural conditions are immune. I do not wish to imply that uncivilized races exist in a paradise where disease is unknown. This would be far from accurate, for we know that they are constantly ravaged by infectious diseases such as malaria, sleeping sickness, plague and cholera. I do not wish to perpetuate the myth of the noble 100-per-cent healthy savage, but I do wish to emphasize that peoples who live close to Nature are on the average of finer physique and constitution and enjoy more robust health and freedom from disease than is the case with their civilized brethren of to-day.

In general, civilization has accorded us greater security from the specific germ diseases which were the chief menace to the health of primitive man, but it has also accorded us the doubtful liberty of playing havoc with our personal health through the misuse of our digestive organs. It is indubitable that it is this factor above all others—*misuse of our digestive organs*—which is the fundamental point of difference between life in civilization and life in Nature—so far as health is concerned. The diseases of civilization are the diseases of the gastro-intestinal tract and its closely related organs. These diseases have their origin in the pernicious dietetic customs of civilization, and in the failure to observe the natural habit of bowel evacuation. In a word, these diseases are primarily related to what we call constipation or intestinal stasis, the universal malady of modern times.

Primitive peoples may and do have many dangers and inconveniences to circumvent in their everyday life, but they do not suffer the major health danger of constipation and the diseases which arise therefrom. Enlightenment on this subject is afforded by Colonel Sir Robert McCarrison, one of the foremost experts in dietetics, who has been employed by the Indian Government to study food in relation to health and disease.

He writes as follows :

' For nine years of my professional life my duties lay in a remote part of the Himalayas, among isolated races, far removed from civilization. Certain of these races are of magnificent physique, preserving until late in life the characters of youth ; they are usually fertile and long-lived, and endowed with nervous systems of notable stability. During the period of my association with these people I never saw a case of asthenic dyspepsia, of gastric or duodenal ulcer, of mucous colitis, or of cancer, although my operating list averaged over four hundred operations a year.'

Further evidence is provided by Dr. E. H. Tipper of the West African Medical Service. It is contained in a book written by him, entitled *The Cradle of the World and Cancer, A Disease of Civilization.* In this book it is clearly shown that such diseases so prevalent among us to-day—appendicitis and cancer—do not exist among virgin communities who eat natural foods and who practise natural habits of bowel evacuation. ' The Equator is the cradle of the world, and among the race of which I write, when conventionalism is absent and food perfectly natural and abundant, where the natives have never lost

touch with the first principles of feeding, *and there is no such thing as constipation, there is no cancer.* At the first dawn of civilization among them, this disease makes its appearance ; where civilization is advanced, it is rife.'

Much more testimony might be given to justify the contention that constipation is the root cause of the diseases of civilization, but in the present chapter I propose to illustrate my contention by considering in detail one of the most prevalent of these diseases, namely, colitis. A great deal of chronic ill health and debility owe their origin to colitis. In contrast to duodenal or gastric ulcer, appendicitis and cholecystitis, which present acute symptoms, this disease (colitis) manifests itself in a vague and indeterminate way, and consequently it is apt to exist for some considerable time before efforts are made to control it. Of course, I am referring to chronic catarrhal colitis. There is a condition of *acute colitis* which is generally part of a general gastro-enteritis, and which is caused by dietetic or alcohol indiscretions or by germ poisons. It is true that a chronic colitis may follow an acute attack of this disease, but in the great majority of cases the chronic variety is *primarily due to the irritation of retained faeces in sufferers from habitual constipation.* The coincident abuse of

irritant purgative drugs is an additional causal factor of considerable importance.

It will be illuminating if we study briefly how constipation may lead to the development of colitis. In a state of Nature, animals and men evacuate the bowels after every meal. This is also observed in the case of the young human baby. The significance of this lies in the fact that the lower end of the large bowel (rectum) is designed to accommodate an amount of waste material which bears a certain relation to the input of food into the stomach. The single daily evacuation which is habitual among civilized people entails that the results of twenty-four hours' digestion shall stagnate in this section of the bowel. Inevitably, in consequence, this portion of the bowel becomes lengthened, and becoming crowded in the pelvis, an obstacle is formed to the free passage of its contents. Now, in order to overcome the mechanical defects of this elongation, bands or membranes form to suspend the bowel, but in time these defeat their purpose and by *kinking* the bowel further impede the progress of material through it.

As time goes on, and if the diet and habits generally are such as to conduce to constipation, the obstruction in the end of the big bowel becomes more marked. The impact of the stagnating, decomposing and

sometimes hardened faecal matter on the wall of the narrowed segment of bowel, sets up an infective or inflammatory process which is accompanied by a muscle spasm. In this way the aperture of this segment is still further reduced, while the infection of its lining membrane spreads upwards along the length of the big bowel, constituting the condition which we call *colitis*.

Apart from the effects of this mechanical irritation, another factor has to be considered. The stagnation of faecal matter in the large bowel for an excessive period of time allows the micro-organisms which normally inhabit this portion of the bowel to increase in number and to assume a more virulent form. These micro-organisms also irritate and inflame the bowel and the infection is very liable to spread to the upper end of the large bowel and involve the appendix —giving rise to *appendicitis*. Also, the germs escape into the small intestine from which their poisons are absorbed into the general circulation of the blood and thence to every cell of the body. We thus see that colitis is but a phase in the disease of intestinal stasis.

As already indicated, colitis does not manifest itself very clearly in the early stages. There may be an uneasy feeling in the lower abdomen accompanied by occasional colicky pains. The abdomen may

feel tender on pressure and there may be a good deal of flatulence. There is generally considerable difficulty in evacuating the bowels, the faeces being ejected in small hard lumps. A most characteristic symptom is the feeling of weariness and low spirits and a profound lack of energy. As the condition becomes more established there are intermittent attacks of diarrhoea, often associated with the passage of mucus and a little blood. The abdominal pain becomes more severe, appetite is quite lost, and there is a most unpleasant taste in the mouth. The sufferer is then apt to become irritable, depressed and querulous, and has great difficulty in carrying out his work and duties. The general nutrition is adversely affected, the victim becoming thin and anaemic.

Now, the treatment of the established condition of colitis is far from being an easy problem, but in the early stages much can be done to alleviate and remedy the affection by simple common-sense measures. It is obvious that the primary constipation must first be overcome. This does not mean a recourse to purgative drugs. These depend for their evacuant action upon *irritating* the bowel membrane and so powerfully stimulating the already weakened bowel muscle. Clearly, to irritate further an already irritated bowel is a very bad principle of treatment.

In chronic constipation, these drugs may have some slight transient beneficial effect, but the ultimate result is to create a worse state of affairs than previously existed. The bowel will completely lose its tone, and larger and larger doses of the purgative will be necessary, causing more and more irritation of the lining of the bowel. In these circumstances it is hardly surprising that any catarrhal inflammation of the bowel, i.e. colitis, will be greatly aggravated.

Undoubtedly, the best method of defeating the constipation which causes colitis is by some process of colon lavage. It is surely absurd to irritate twenty-four feet of bowel with drugs when the faecal matter is within reach of a little water. For the principle of colon lavage is simply the introduction of water, plain or medicated with some mild antiseptic, into the bowel by means of a simple enema apparatus. In this way stagnating faecal matter can be removed easily and the mucous membrane cleaned up. Congestion is relieved, the intestinal glands made to work more efficiently and the muscular tissue re-toned. Colon lavage is really an internal bath and it will relieve the pain and spasm which accompany colitis and will help the bowel to regain its normal state of functional activity.

Dietetic management is also of fundamental importance. If the state of colitis is severe and diarrhoea is present, the diet should be of the lightest kind. About 6 oz. of milk, with some mineral water, every two hours is all that is necessary. Later, when the diarrhoea is checked, the dietary can then be carefully increased by the addition of starchy foods, light broths, weak tea, butter and a fine wholemeal bread. Until practically all the severe symptoms have disappeared, it is inadvisable to eat foods which contain much roughage, i.e. indigestible matter, but once recovery is established a diet containing generous amounts of raw fruit, green vegetables and coarse wholemeal products should be adopted and persisted in. It is only by the adoption of such a dietary that constipation can be kept at bay, and those who are prone to colitis should never lose sight of their basic need to *prevent* this evil. Let them relax their vigilance in this matter and inevitably another disabling attack of colitis will result.

Several other points require attention. Local germ infection, in the teeth, gums or nasal passages or sinuses tends to perpetuate the inflammatory state of the bowel. Therefore, a visit to the dentist or nose specialist is advisable in order to be rid of this possible source of trouble. Also, it will be found

that special abdominal exercises and abdominal massage are helpful to recovery from colitis as soon as the more severe symptoms have subsided. Lastly, it is always to be borne in mind that colitis is not a trivial illness to be ignored or neglected. Apart from its immediate devitalizing effect upon the body health as a whole, it may easily pave the way for grave local disease of the bowel. The control of colitis requires patient and persistent effort before the condition will yield, but sensibly directed effort as indicated in this chapter will prove satisfactory in the majority of cases and all possible evil consequences from this peculiar disease of civilization will be prevented.

CHAPTER II

'BILIOUS' ATTACKS

DURING middle age there is no organ of the human body which is subject to more abuse than the liver. How often do we hear our well-fed, middle-aged friends proclaim against the iniquities of this organ, and how often are we treated to a vehement discourse on the havoc which it is inflicting on their health and happiness! 'Liverishness' would appear to be the bane of middle life, and there can be no question that it is remarkably prevalent. In evidence of this we have only to bear in mind the amazing variety of patent nostrums advertised to cure an erring liver. This subject is therefore one of some importance from the health point of view and deserves our close attention.

First, we must decide whether the liver is genuinely entitled to all the blame that is thrust upon it, whether, in fact, 'liverishness' and 'bilious' attacks are fundamentally dependent upon the peccant ways of this organ. This immediately leads us to a

consideration of the functions of the liver. During the processes of digestion, various substances are formed in the intestine which are harmful to the body cells and must, therefore, be got rid of by the excretory organs, chiefly the kidneys, as soon as possible. Now it is part of the work of the liver cells to transform these deleterious products in such a way that they can be safely excreted. But the liver has a limited capacity as a waste destroyer. Should there be an excessive amount of harmful substances, a certain quantity eludes the beneficent action of the liver and escapes unchanged into the general blood circulation.

In consequence, the most sensitive cells of the body, those of the brain, express their annoyance at the poison floating in the blood stream by producing a feeling of irritability and depression, while the other functions of the liver are also deranged and digestive symptoms of varying severity, which are popularly included in the category of ' liverishness,' arise. As it is the intestines which are the source of the poisons which disorganize the liver, it is not this organ which is primarily to blame. The liver does its best and carries the extra responsibilities so often thrust upon it for surprisingly long periods, but naturally there is a limit to its powers of endurance, and this limit is most

frequently reached during middle age. We must, therefore, look for the real cause of the trouble in the intestines, and we find that chronic constipation, coupled with unwise dietetic habits, are the root cause of this most prevalent form of liver disturbance.

It may seem to some that, in constantly indicting constipation as the fount of most of the ills to which human beings are subject, I stretch the point. Admitted that with certain diseases, the causal relationships are by no means simple, but in the case of the liver disorders we are discussing, it requires but little knowledge of physiology to appreciate how the poisons produced during constipation, if in excess, must inevitably cripple the organ designed to destroy them. Of course, there are other factors. We have seen that such functional disorders of the liver are most prevalent during middle age. First, because, as already indicated, it is at this time of life that the devitalizing effects of chronic constipation upon the liver cells are sufficiently pronounced to disturb the function of that organ, and, secondly, because there is the temptation, which middle-age prosperity often brings, to relax from the discipline of keeping fit. It is notorious that the middle-aged of both sexes do tend to be unwisely indulgent in matters of diet and drink. Many a man or woman who

has toiled industriously and followed the laws of health conscientiously through the strenuous period of their lives lapses badly when emerging into the fifties. He decides to have a good time, to taste the fleshpots before the keenness of his appetite has waned; to let himself go, just for a year or two, of course. He will put the brake on later, but meanwhile he will eat, drink and be merry.

This is the way of middle-age 'liverishness' and 'biliousness.' The habitual eating of rich, sweet, and greasy foods, with the consumption of alcoholic liquors (especially should they be combined with sugar), inevitably impose a strain upon the liver already disorganized by the associated constipation. This takes place all the more readily if the blood is insufficiently oxygenated from confinement in a hot, ill-ventilated room and from deficient open-air exercise. In consequence, the secretion of bile, a fluid essential for the digestion of fats, is disturbed : stomach and intestinal digestion is upset, and the net result is what is popularly called a 'bilious' attack. The chronically 'liverish' person presents unmistakable symptoms. To begin with he has no appetite in the mornings. Breakfast has no interest for him, but he is inclined to make up for this later by eating a large rich meal.

Naturally, for some time afterwards he feels sleepy, disinclined for effort, and suffers some degree of gastric discomfort. During the working day there is nearly always a certain irritability of temper and depression of spirits, which makes the liverish person very difficult to live with. Headaches, palpitations and attacks of giddiness are frequently complained of. The tongue is more or less permanently coated and the bowels are costive. Often the eyes exhibit a slightly yellowish tinge.

Such a chronic state of ill health may persist indefinitely, but nearly always it is punctuated by acute 'bilious' attacks. These may be precipitated by a chill, or exposure to cold after the body has been heated, but the more usual cause is what we may euphemistically call a dietetic indiscretion. By this I mean too free indulgence in an elaborate dinner of many courses or in alcohol. There is no difficulty in recognizing the post-prandial 'bilious' attack. The morning after the victim is seized with a feeling of weight and uneasiness in the region of his liver. He has a headache, the tongue feels dry and rough, a bitter taste is experienced in the mouth, and there is a sensation of nausea, which culminates in vomiting, the vomit being bilious in character. The attack varies in duration from one to three

days, and there is generally a subsequent feeling of languor and depression which may last for some considerable time.

Now, it is highly unfortunate that the sufferers from this type of 'bilious' attack are apt to take their malady lightly. They come to regard it as one of the inevitable penalties of their age and consider that the pleasures to be derived from food and drink more than compensate for the subsequent ill-effects. They are sure to consult their physician and demand a remedy for their 'liver.' They are annoyed if certain restrictions in their ways of life are suggested: they demand a bottle of medicine, a pill or a powder, and too often the doctor is compelled to yield to their entreaties. They obtain a certain temporary relief, but, continuing their indiscretions, the 'bilious' attacks recommence and become more intense. Meanwhile the liver cells are being slowly and surely disorganized. Poisons are accumulating in the blood stream. The kidneys are being damaged in their efforts to rid the body of them. The delicate muscle tissue of the heart and blood-vessels is degenerating and being replaced with fibrous tissue. The efficiency of the whole circulatory system is depreciated and the possibilities of heart failure and apoplexy loom not far distant.

Such a regrettable state of affairs may readily bring disaster to middle age. We all know of breakdowns at this period of life, seemingly sudden and inexplicable, in persons we always believed to be robust and healthy. Chronic constipation and bad habits of food and drink have been insidiously deteriorating the vital organs, and the man or woman is stricken just when he or she should be settling down to enjoy the fruits of the years of toil. It will be admitted that certain people by temperament or constitution appear to be prone to 'bilious' attacks. Nervous, highly strung people may readily succumb to a 'bilious' attack through purely emotional causes. In nervous, unstable children such attacks are fairly frequent and are associated with acidosis, a condition in which the normal alkalinity of the blood is diminished. In this condition the immediate administration of glucose in some form, together with bicarbonate of soda, will generally relieve attacks. There is also a form of biliousness which arises in certain people by eating foods for which they have an idiosyncrasy. Eggs, shellfish and some fruits are well known to produce severe 'bilious' attacks in sensitive persons, and the obvious remedy is to avoid the offending article of diet.

Then, there are the 'bilious' attacks which

arise in connexion with migraine or sick headache. In this affection, peculiar eye symptoms usually precede the headache, which is intense, usually limited to one side of the head, and culminating in bilious vomiting. The exact cause of migraine is still obscure, but it seems certain that the liver disturbance is not the cause but only a symptom. Recently, an attempt has been made to treat migraine with bile salts, a method which appears to be homoeopathic in principle, and fairly satisfactory results have been obtained. Eye-strain appears to be related to liver disturbance in some curious way, and people who suffer from seemingly inexplicable attacks of bilious vomiting should have their eyes tested for astigmatism and other errors of refraction. Some surprising results have been obtained by the correcting of some visual error. It is also to be borne in mind that the symptom of biliousness is nearly always present in sufferers from gall-stones, while malarial subjects appear unduly liable to liver disorders.

Let us now briefly go into the subject of preventing ' bilious ' attacks. For those who have any tendency to be ' liverish,' diet is all important. Generally speaking, all fatty or greasy foods should be eliminated. Hot buttered toast or tea-cakes, pork, goose and

salmon, are naturally taboo. Meat should never be taken more than once a day and red 'butcher's' meat is best avoided. An occasional fast from all meaty foods is advisable. White fish, chicken, egg dishes, milk puddings, wholemeal bread with little butter, green and root vegetables carefully prepared, and fresh fruit should form the chief constituents of the dietary. Pickles, sauces and other condiments should never be taken and alcohol in particular is to be avoided. Water is the best beverage, and it should be drunk abundantly every day. A glass of Hunyadi or Carlsbad water first thing in the morning is very beneficial. Weak tea or coffee in moderation is also permissible. Unquestionably, an occasional small dose of calomel is stimulating to the bowel and liver function, and a dose of magnesium sulphate or Epsom salts every morning for a period will improve elimination. During a severe bout of 'liverishness,' liquid nourishment only is indicated. Milk and soda, light chicken broth, and fruit juices should be taken, with later the addition of lightly cooked eggs, white fish and weak tea. The management of an acute 'bilious' attack is obviously to a great extent dependent upon the cause, but there are certain general measures which can be adopted in most cases. Rest in a dark room

is necessary while the sickness or vomiting persists and an alkaline effervescing drink will help to soothe the discomfort. As soon as possible a brisk purge by calomel, followed in a few hours by a Seidlitz powder should be given, or an enema to wash out the bowel. If there is a headache, it is permissible to take an aspirin or phenacetin tablet, repeated in three hours if necessary. No food other than barley or albumen water should be taken during the acute phase, in fact until the appetite returns, when a light diet should be persisted with for a week or two subsequently. No alcohol of any kind is to be drunk for a considerable time afterwards.

Let me emphasize, in conclusion, that 'liverishness' and 'bilious' attacks are essentially preventable, not by drugs or other similar methods of treatment, but by correct habits of diet and bowel functioning. The proper usage of fresh air, sunlight and exercise is equally essential, and this last remark I bring specially to the notice of sedentary workers, for they are peculiarly susceptible to the liver disorders under discussion.

CHAPTER III

NASAL COLDS AND CATARRH

It is during winter and early spring that the plague of the nasal or 'common' cold descends upon us, and claims its victims by the million. Every year without exception the peoples of Europe and America are ravaged by epidemics by which all the resources of modern medicine appear to be set at naught.

There is, unfortunately, much truth in the ironic comment that the doctor takes two weeks to cure a 'cold' in the head, and Nature fourteen days! In consequence, the public are hardly to be blamed if they reproach the profession with its inability to conquer what seems at first sight to be the simplest and most trivial of ailments. Actually, as I shall show, the nasal cold is neither trivial nor simple, and I can assure readers that it has been a subject of extensive research on both sides of the Atlantic, the results of which, though they do not provide us with a solution to the cure, at least suggest

how we may be enabled, with a fair degree of certainty, to avoid its occurrence.

Before proceeding to discuss the complex nature of the nasal cold, and the means available for its prevention, I would like to point out the reasons why we must *fight*, and not lie down under this scourge. In the first place there is the immediate economic loss caused by absenteeism in industry, and by the impaired efficiency, leading to lowered productivity, which results from the physical and mental slackness associated with a 'cold.'

In the second place, and this is relatively more important, 'colds' are the direct precursors of a vast amount of ill health. Children who contract recurrent 'colds' are liable to suffer from middle-ear suppuration, owing to spread of infection from the nose passages, and this may lead to a very intractable form of deafness. There is also a risk of the development of adenoids and of polypi.

In the case of adults, there is a danger of a 'focal' infection being set up in the accessory air cells of the nose, and this may act as the direct exciting cause of asthma, chronic bronchitis, stomachic and intestinal troubles, and of some forms of rheumatism. Moreover, the poisons absorbed during the course of repeated 'colds' lower the general vitality, and *any* weak points in the system

may be attacked by disease germs with disastrous consequences. It is also a well-established observation that there is a marked increase in the deaths from pneumonia after an epidemic of ' colds.'

Under no circumstances then are we justified in regarding a ' cold ' as a malady not worth bothering about—to be put up with as we put up with the other inconveniences of the winter months. Such a fatalistic attitude—unfortunately very prevalent—is decidedly unwise ; it paves the way for future disease, and it hinders the ultimate control of this scourge.

The first point to grasp, in connexion with the causation of nasal colds, is that they are primarily and *always* due to germs. It used to be thought that a ' cold ' was the result of exposure to cold (hence the misleading name), but we now know that this factor is *not* a direct cause. A fall in the temperature is certainly *associated* with outbreaks of ' colds,' but the reason is simply that the cold weather induces people to coddle themselves in excessive clothing, to avoid fresh air and exercise, and to live in stuffy, overheated rooms and offices.

In the average healthy person, exposure to moderate cold is not harmful. Evidence of this is afforded by the good health and freedom from respiratory diseases of children

who attend open-air schools, and similarly in the case of Alpinists, and even Arctic explorers. It is possible, however, that the sudden exposure to cold of a person in a depressed state of health may result in a 'chilling' which may open the defences to the ubiquitous 'cold' germ. This liability to chilling arises mainly through lack of responsiveness on the part of the skin (inability to adapt quickly to alterations in temperature), and is a sequel to faulty hygiene.

With our minds clear on the precise part played by cold weather in the genesis of 'colds,' let us now briefly consider the infective agent. It seems beyond dispute that a number of germs can set up a 'cold in the head,' some of these germs already being present in the lining membrane of the nose or mouth, but kept in check by the resisting powers of the blood, and some being imported from an actual sufferer. No single kind of germ has been identified as the sole cause, though during an epidemic one particular variety may predominate. Quite recently, some American investigators have shown that, in many cases, an ultramicroscopic germ is at work. However, all the germs act in the same way, provided they find a congenial soil in which to multiply, and such a soil is the delicate

membrane of the interior of the nose under certain conditions.

Naturally, the obvious way to avoid nasal colds would be to avoid the germs, but, although we can do a certain amount in this direction, it is well-nigh impossible to exclude with certainty the chances of infection, and therefore we must take precautions to ensure that the soil is inhospitable or, in other words, that the nose is rendered invulnerable to germ invasion.

Of all the factors which render the nose subject to 'colds' and catarrhs, structural defect of that organ, either inherited, or from accident, is the most significant. Deformity of the septum (the partition within the nose) is the commonest of all, and it may consist of a ridge or spur which projects into the nose cavity, interfering with breathing and proper drainage, with the result that the secretions are retained and constitute a continual source of irritation. The vitality of the membrane of the nose is thus lowered, and its liability to catarrhal inflammation greatly increased. Any one, therefore, who is continually 'catching colds,' in spite of strict adherence to the laws of hygiene, should consult his physician, and have the interior of his nose examined. The comparatively easy rectifying of a nasal deformity may very well free the sufferer from

his annoying complaint. In children the presence of adenoids is peculiarly apt to make them susceptible to 'colds.' Removal by operation is the remedy, and the results are exceedingly good.

Excessive cigarette smoking may produce an irritation of the nose passage, and predispose to 'colds,' and, similarly, living and working in rooms which are dusty, especially if they are ill-ventilated and hot and damp.

A useful hint may be given at this point. Around the nostrils are fine hairs, which entangle and filter from the air dirt and germs, but should these hairs be absent, or scanty, as in some people, this protective function is lost. To overcome this defect it is possible to encourage the growth of hair by daily inunctions of vaseline containing a little menthol.

The factor of the general health has considerable bearing on our susceptibility to 'colds.' If we allow ourselves to get 'run down,' we lay ourselves open to the possibility of a succession of 'colds,' for the germicidal powers of our blood become greatly reduced.

It is unfortunate that the inclemencies of winter weather tempt us into unhealthy ways of living, which lead to slackness of mind and unfitness of body. Admittedly, it demands courage and determination—not to

mention enthusiasm—to brave the elements, and obtain the fresh air and exercise necessary to maintain our vitality, but a valiant effort in this direction will go a long way to keep us free from ' colds.'

A sedentary, fireside existence in winter may be comfortable, but it is also enervating ; it causes the muscles to lack tone, and the intestinal function to become deranged. There are many people who suffer from seasonal constipation in this way, and all authorities are agreed that this is one of the most important factors predisposing to ' colds.'

It will now be profitable if I offer some specific advice on how to avoid ' colds ' and catarrhs. To maintain the state of nutrition at a high level must be our first consideration. During the winter this is not such an easy matter, for a number of our foodstuffs, such as butter and milk, have not the same nutritive value as they have in the summer. Also, many people do not eat nearly enough fruit and green vegetables at this time of year—some people, for example, being so misguided as to imagine that fresh fruit and green vegetable salads are purely summer dishes.

Unless we provide our bodies with adequate nutriment, the germ-fighting powers of the blood will not be maintained, and, as

there is considerable evidence that the vitamins are essential for this purpose (especially vitamin A) we must endeavour to eat foods rich in these essential factors. Therefore, milk and butter from grass-fed cows, eggs, liver, green vegetables and fruits, should be well represented in the dietary. For children, the addition of cod liver oil is very beneficial, while adults could not do better than drink a glass of orangeade, made from fresh oranges, every morning. This will stimulate the bowel function, and help to prevent constipation—a condition which it is imperative to correct if freedom from ' colds ' is to be achieved.

Every one should try very hard to get as much fresh air as possible—indoors as well as outdoors. Workrooms should be kept thoroughly ventilated, for movement of air stimulates the circulation of blood in the skin, and helps to make it responsive to changes in temperature. Skin coddling is one of the most important exciting causes of ' cold,' particularly in children, and, therefore, with the object of bracing up the skin, it is a wise plan to have a warm bath every morning, followed by a tepid, or cold, shower, and a brisk rub down with a coarse towel.

Clothing should be loose, porous, and *moderate* in quantity, for excessive clothing

also tends to reduce the vitality of the skin. Neck wraps, and heavy overcoats, are best avoided, except under exceptional weather conditions. The old saying about keeping the feet warm and the head cool, is particularly relevant in any discussion on the means of guarding against a 'cold.' It should be kept in mind, however, that it is taking risks to rest in a cold place, or in a draught, on coming from a hot room, or after severe exercise. Ultra-violet rays have considerable value in creating resistance to 'colds,' and any who are peculiarly susceptible to this ailment should obtain a course of treatment under the direction of a doctor.

If 'colds' are prevalent, endeavour to escape infection by avoiding all crowded places of amusement, and keep well out of range of the coughs, sneezes, and expirations of obvious sufferers. Gargling the throat with lukewarm water, containing some mild disinfectant, every morning and evening, is often a good preventive measure. It is not advisable to syringe the nose, for infection may be conveyed to the air cells, or the ear, with harmful results. Breathing through the nose is at all times imperative. 'Unless you have something to say, or to swallow, the mouth should be kept shut,' is a good piece of advice, and cannot be too often emphasized when 'colds' are epidemic.

Should a ' cold ' threaten, it may be cut short if the following simple advice is followed. Take a warm bath, and a hot lemon drink, and a quinine, or Dover's powder, and go to bed in blankets. When you have settled down, take a small dose of calomel, and then go to sleep. In the morning take a saline aperient, and if the ' cold ' appears to be aborted, you may get up, but *not* otherwise. In any case, be sparing with your diet—in fact a fast is advisable—for if you *stuff* a cold, you will have to starve a fever. However, drink plenty of water or fruit juices. Cinnamon has a reputation for cutting short ' colds,' and certainly, if taken during the first twenty-four hours, it will often prove effective. Finally, if you have a ' cold ' hanging about, be considerate of other people, and take all possible precautions to avoid spread of infection.

CHAPTER IV

RHEUMATISM

Occurring at all ages and in both sexes, rheumatism, in its various forms, is one of the most prevalent of all the maladies of civilization. It is a tragic disease—rightly feared by all—for it both kills and cripples. How often we hear of a bright and happy child whose promising life has been stricken by the fell onslaught of rheumatism, and how often have we seen a man or woman in their prime racked and incapacitated by this same disease?

The ravages of rheumatism exact an enormous toll in human suffering and in human wealth. Workers laid low by rheumatism are a heavy charge on industry and a serious drain on the financial resources of a nation. In England it has been estimated that, in one way and another, rheumatism costs the colossal sum of £17,000,000 per annum. Clearly, here is a social problem, the magnitude and urgency of which should claim the instant attention of all who are concerned

with national welfare—both material and physical.

Economic and health conditions are mutually dependent. That is one of the lessons which industrial medicine has taught the business world. Trade prosperity is based on efficient production and this cannot be achieved unless workers are physically fit and mentally satisfied. It is of the utmost importance, therefore, to employer and employee alike, that the greatest endeavours should be made to control, and if possible to eradicate, this scourge of rheumatism.

Can this highly desirable object be achieved or is it beyond the possibilities of medical science? The answers to these questions will be revealed in the course of this chapter. At the moment let us consider certain facts concerning the nature of rheumatism. In this matter let me be candid and say at once that, although we doctors know a great deal about the manifestations and methods of treatment of this disease, we are still in the dark on the subject of its final causes. This does not mean, of course, that we are ignorant of contributory causal factors—factors in the absence of which we have every reason to believe that the disease would not occur. If we were so ignorant then all treatment would be empirical or directed to the relief

of symptoms and no rational methods of prevention would be available. Fortunately this is not the case. We know, for example, that rheumatism tends to occur in the ill-nourished and in those who have an infection hidden in some corner of their bodies, and there is an accumulation of evidence which points definitely to the fact that rheumatism is essentially a preventable disease and that, within the scope of our present knowledge, it can be prevented.

Now rheumatism is a very complex disease entity. By scientific consent it has come to include a number of related conditions which have certain features in common. For convenience, however, we may divide rheumatism into the *acute* variety as it affects children and young adults and the *chronic* variety more or less confined to those who have reached maturity. But before describing these in detail, the important question of predisposition to rheumatism must be mentioned. Every one knows that this complaint 'runs in families,' in other words, that a rheumatic parent is liable to have a rheumatic child. This is an established scientific fact though the explanation is shrouded in mystery. Still it has a significant practical bearing for surely, if we know that certain children are born with a susceptibility to rheumatism, we

should be able to adopt timely measures of protection and defence. Herein lies the chief possibility for the prevention of rheumatism and I will dwell on this aspect of the problem later.

Some children would appear to be doomed to rheumatism from their birth. They are not difficult as a rule to detect. Coming from a ' rheumatic stock,' they exhibit what can best be described as an instability of mind and body. Fair-haired and with a delicate complexion, they are generally intelligent and imaginative, possessed of a capricious temperament, excitable, tiring quickly and recovering slowly while subject to emotional outbursts, night terrors, twitchings, grimacing, stuttering speech and general unrest. They are liable to be troubled with cold feet and hands, chilblains and ' dead ' fingers. Sore throats, attacks of asthma, vomiting and diarrhoea are often present and such children have generally considerable difficulty in meeting sudden weather changes. This symptom complex is almost certain evidence of what is technically called the ' rheumatic diathesis ' and experience has shown that a child exhibiting this ' complex ' is practically a certain candidate for a rheumatic affection *unless* a very special and rigorous hygiene is adopted.

In most cases, the rheumatism invades

the child's system stealthily. It is a treacherous disease, and often irreparable damage is done to the child's heart before the parent is aware that the child is ill, for heart disease is the all-too-common legacy of rheumatism in childhood. Vague wandering pains, felt more sharply in damp weather as well as stiffness in the neck muscles and 'stitches' in the side are generally the first signs of a rheumatic invasion. Such pains have the misleading name of 'growing pains'—this misnomer unfortunately often leading to their neglect by parents. It cannot be too strongly emphasized that the muscular aches and pains of a child must *never* be ignored. Put such a child to bed and call in the physician immediately.

In older children, rheumatism may show itself in St. Vitus's dance (chorea) which is simply a form of brain rheumatism, or by an attack of acute rheumatic fever. In this latter condition, the large joints (knee, ankle, elbow and wrist) become enlarged, tender and painful and the inflammation has a tendency to flit from joint to joint day by day. There is much fever, which is accompanied by profuse sweating.

Now the danger of acute rheumatism—even in its least obtrusive forms—is a variety of valvular heart disease which cripples the child in after life or leads to an early death.

Unfortunately the heart disease of rheumatism—serious as it is—is frequently insidious and painless in its onset. Parents are deceived, and it may not be till signs of incipient heart failure arise that they realize that the early rheumatism has left its scar upon the heart. The future of these heart invalids is a sad one. They are condemned to an existence of very restricted physical and mental activity—fortunate if they survive to years of maturity.

Once more I utter this warning to parents. *Never make light of rheumatism in your children no matter how apparently trivial the symptoms may appear to be.* Keep such children under constant medical supervision, remembering that a heart injury may not reveal itself till months after the initial illness. The doctor can do a great deal if he sees these cases in the early stages, but he is powerless to help later on : at the most he can then only retard the weakening of the heart.

Into the category of chronic rheumatism come joint diseases such as rheumatoid and osteo-arthritis, the different kinds of muscular rheumatism such as lumbago or myalgia, and certain inflammations of the nerves as in sciatica and other forms of neuritis. Malnutrition is a common precursor of this form of rheumatism but 'focal infection,' by which is meant a localized microbic

infection distributing poisons into the blood, plays an important part in its production. Chief among the sites of focal infections are the gums and teeth, but the intestine, the tonsils and nasal cavities and genito-urinary organs may also be indicted in this respect. Evidence of an infective cause in chronic rheumatism is also to be found in other signs of self-poisoning such as bloodlessness, debility, liver disorders, stomach or duodenal ulcers and chronic appendicitis. Occupational injuries and strains and habitual exposure to damp and draughty atmospheres act as aggravating factors in predisposed individuals, but chronic rheumatism is best regarded as a manifestation of chronic self-poisoning.

In rheumatic joint affections there are usually some *warning* signs in the form of muscular cramps, weakness, wasting and neuralgias, and it is imperative that such signs should not be neglected. Once the joint disease is established it tends to make rapid progress and hence early diagnosis and prompt and sustained treatment are absolutely essential if the distressing deformities and crippling—which so commonly ensue—are to be prevented.

One type of chronic rheumatism in women deserves special mention. Very often at the change of life, women find themselves

suffering from stiffness and swelling of the knee-joints. Occasionally, the knees seem to 'give way' and there are generally pains, as a rule most troublesome at nights. If these women are observant, they will notice certain changes in their appearance. Their figures tend to get stout and ungainly, their hair becomes thin and lacks lustre and their skin develops a harsh dry appearance. Such women are suffering from a degree of thyroid gland deficiency, in which condition there appears to be a peculiar liability to the development of osteo-arthritis. Early treatment by means of thyroid gland extract, *under the supervision of the physician*, together with strict attention to the personal hygiene is highly beneficial in such cases, often leading to a complete arrest of the morbid process.

I think I have made it clear that we have sufficient evidence of the causes of rheumatism to enable us with almost complete certainty to prevent the disease. How is this to be accomplished? As we know there is an inherited predisposition to rheumatism we must start with the child. Children of rheumatic parents—especially those who exhibit the characteristics already described—should receive special health training from their earliest years. Every effort must be made to harden or

desensitize the child, who as far as possible should live an open-air life exposed to sun and air. All 'coddling' is taboo. The skin should be strengthened by a daily warm bath followed by *cold* douching and then by brisk friction with a rough towel.

Physical exercises under supervision are important but the dangers of fatigue are to be avoided. In this connexion, remember that mental fatigue is just as harmful as bodily fatigue. Therefore such children should go slowly at school—and on no account be pushed or overworked. Also make sure that their sleep at night is adequate. As these pre-rheumatic children (as they are called) are emotionally 'difficult,' restraint on the part of the parents is very necessary. Bullying the child into good behaviour cannot be too strongly condemned. Diet requires watching. It should consist of foodstuffs rich in vitamins—especially vitamin B and in mineral salts, notably iodine and lime. Strict attention to the state of the teeth, the tonsils and the adenoids is necessary, and periodic medical examination is advisable.

If a healthy constitution is thus gained in early life, there is every likelihood of an immunity of rheumatism in later life resulting, provided certain precautions are adopted. Of extreme importance is the

avoidance of ' focal infection.' This necessitates careful attention to the teeth and gums with periodic visits to the dentist. If any doubt about the soundness of a tooth exists an X-ray photograph should be taken, for an abscess in the apex of a tooth may only be detected in this way. Sufferers from frequent colds and recurrent sore throats should seek expert medical advice. Regular functioning of the bowels is very essential and this is best attained by correct dieting and exercising. Every effort must be made to keep the state of nutrition at a high level. Fruit, vegetables, wholemeal cereals and dairy produce should be the staple foodstuffs while meat should be taken in extreme moderation.

Industrial workers exposed to damp and wet should wear suitable clothing; should change damp garments as soon as convenient and follow this with a warm bath and a thorough rubbing down. Employers, in their own interests as well as those of their workers, would be well advised to grant facilities for the changing of clothes and for bathing. Sunlight has considerable value in the prevention as well as the treatment of chronic rheumatism and full use should be made of this health-giving influence. The installation of artificial sunlight lamps in factories and workshops under

the direction of a doctor would be a great boon to the health of the industrial worker and would undoubtedly help to diminish the ravages of chronic rheumatism. In conclusion, I warn all who come of rheumatic stock to be fully cognizant of the possible dangers that loom ahead and to forearm themselves with a knowledge of the preventive measures which present-day medical science has to offer.

CHAPTER V

NEURITIS

THE greater our understanding of the human body in health and disease becomes, the greater the importance we attach to *diet* as a fundamental factor in our lives. This statement is indubitable : it is borne out by distinguished research workers in all parts of the world. In the past decade, dietetic science has advanced by leaps and bounds, and discoveries, revolutionary in their significance, have been made. I need only mention the vitamins. We now know that by altering the vitamin content of the diet we can completely change the human constitution. Solely by tampering with the foods we eat we can produce crippling and deadly diseases.

It is no exaggeration to say that there is no single factor which plays a more vital part in human destinies than diet, or the quantity or quality of our food. Even the history of the world has been subject to its influence. To exemplify this, I quote from Sir Thomas Clouston, a distinguished British psychiatrist : ' It was not ideas only that caused the French Revolution. The starvation and the

bodily miseries of the common people contributed to it and affected its character.'

There is still a woeful ignorance on the part of the public of the nutritional needs of the body, and much preventable ill health exists in consequence. Apathy is the chief obstacle to the dietetic reform which is so urgently required in most civilized countries, and to overcome this apathy and to bring the applications of practical dietetic science into the daily lives of the people is one of the greatest problems confronting Europe and America at the present time.

To give meaning and force to these far-reaching considerations, it will be profitable to study the origin, manifestations and prevention of one of the most prevalent and one of the most painful diseases which afflicts mankind, namely, neuritis. If I can prove that this disease is causally related to faulty and inadequate dietary, I shall have given substantial corroboration to my preliminary statements, which were made with the object of arousing a popular desire for enlightenment in the new science of nutrition.

Neuritis is the medical term which denotes an inflammation of a part of the nerve structure—either the sheath or the delicate filaments which transmit the nervous impulses. In the early stages, this inflammation is generally revealed by pain in the course of

the affected nerve, the pain being variously described as shooting, darting, burning, or merely as a tingling sensation, which is usually worst at night and is accentuated by warmth. The pain varies in degree, but sometimes it may be excruciating. In most cases, after the acute symptoms subside, a feeling of numbness is left behind.

Should the inflammation be very severe and prolonged, destructive changes occur in the nerve and this leads to impairment of the functions controlled by this nerve. For example, if the muscle-supplying nerves of the arm are degenerated from prolonged inflammation, the arm muscles become partly paralysed and waste, causing wrist-drop. Or, should a sensory nerve of the arm be involved in this way, the skin of the fingers becomes smooth, glossy and without feeling, while the nails become brittle and cracked. Almost any of the nerves in the body may be affected, but the disease has a predilection for those of the arms and legs.

At this point I should like to sound a warning note. Neuritis is a popular term and it is a popular failing to label all kinds of sharp limb pains as ' neuritis.' Now, this condition is generally regarded lightly, as it does not as a rule seriously incapacitate the sufferers and, as the pain may *actually* be produced by some grave internal disease,

there is a danger of that disease going undetected. Two examples will suffice to make this clear. Gnawing pain in the back of the thigh may be due to a true neuritis of the sciatic nerve, but it might also be caused by a growth at the lower end of the large bowel pressing on that nerve. Again, darting pains in the legs may be of neuritic origin, but a disease of the spinal cord, known as locomotor ataxy, might also be responsible. It is never wise to believe you are suffering from neuritis, unless this diagnosis has been made by your physician.

Concerning the cause of neuritis, there is not much divergence of medical opinion. It may be summed up by saying that *inflamed* nerves are firstly *ill-nourished* nerves and secondly *poisoned* nerves. Occasionally, however, there is some divergence of opinion on the *source* of the poison.

We may make our own poisons within our bodies or we may imbibe already manufactured poisons from without. As examples of the second group, mention may be made of the commonest, namely, alcohol, lead, arsenic and mercury. Alcoholic neuritis is prevalent in excessive drinkers of all classes and co-existing malnutrition predisposes to it. In this form, both the nerves of sensation and of movement are involved and some degree of mental disturbance is often associated

Arsenical and mercurial neuritis sometimes arise when these substances are used in the medicinal treatment of disease, while lead neuritis may affect workers in the painting, plumbing and pottery trades who are also suffering from poor nutrition.

However, the majority of cases of neuritis in adults owe their origin to what is best described as *self*-poisoning, and immediately we are up against our ubiquitous foe—constipation and intestinal stasis. In the first place, constipation is evidence of faulty dieting. There is no doubt on this point. If we eat foods from which the mineral salts, vitamins and roughage are removed, we not only fail to provide adequate and suitable nutriment for our body cells, but we also fail to give our intestines a chance to operate in a satisfactory manner. In consequence the undigested food remains accumulate, stagnating and putrefying, allowing the intestinal germs to multiply and flourish, and so generating poisons which have a peculiarly damaging effect on the delicate nerve tissue. Headaches are one of the most constant accompaniments of constipation, and they are simply warnings that the sensitive brain cells are being poisoned. In much the same fashion, aching nerves are evidence of *poisoned* nerve fibres and the nerves are most susceptible to these intestinal poisons when

they are exhausted from overwork and from *lack of pure nourishment.*

This brings us to the fundamental factor of *malnutrition.* Before these various poisons can produce their dire effects, the nerves must be unhealthy through lack of proper nourishment. As I have already emphasized, the faulty dietary which causes constipation also causes a lowering of the vitality of all the tissues in the body. In particular, there is impoverishment of the quality of the blood, with the result that the nerves are starved of their vital requirements and are readily affected by circulating poisons which otherwise might have little or no effect upon them. This accounts for the frequency with which neuritis occurs in anæmia and in other bloodless states associated with wasting diseases.

There is one dietetic fault of which special note must be made in this connexion. Absence or deficiency of vitamin B in the diet has a specific action in causing neuritis. Complete omission of this vitamin from the dietary leads to the most dangerous form of neuritis, which is a symptom of the disease called beri-beri. This affection as such is fairly rare, but lesser degrees of vitamin starvation are common and account for a great many cases of neuritis. When we bear in mind that vitamin B is removed along with the greater part of the roughage

and mineral salts in the modern practice of refining cereals and that refined white bread is still the staple food of millions, it is easy to understand the prevalence of neuritis and to realzie how justly it is classified amongst the *dietetic diseases of civilization.*

Some other forms of self-poisoning remain to be mentioned. The so-called 'focal infections' are sources of poisoning and are important causes of neuritis in people whose nutrition is undermined. By a focal infection is meant a localized area of the body that has become infected with disease germs. Poisons are manufactured and poured into the blood stream to be circulated to susceptible tissues, which are thus damaged. The corners of the body where such foci of infection are commonly found include the teeth, gums, tonsils, air cells in relation to the nose, and the genito-urinary tract.

Now an unfortunate feature of focal infections is that they are apt to be overlooked because they are mostly *painless.* A dead tooth with a painless abscess at the root may be a cause of neuritic pains, and such a source of nerve poisoning is very liable to be ignored, the sufferer seeking to allay the pain with drugs of the aspirin class. In this, the sufferer may have some measure of success; the pains are drugged away, but as the process is still operative, only a

temporary relief is gained at the expense of the future health of the nerves. The habit of resorting to narcotic medicines to kill pains without any attempt being made to seek out the *cause* is at all times pernicious.

During the course of diseases such as diabetes and gout, where chemical poisons are circulating in the blood, neuritis may arise as a complication, and it may also occur in the debilitated states engendered by tuberculosis, malaria, and typhoid. In children, the diphtheritic poison is the most frequent cause of neuritis, the nerves supplying the muscles being chiefly affected, leading to paralysis.

To prevent neuritis it is obvious that sound and adequate dieting, in so far as it prevents intestinal stasis and malnutrition, is of paramount importance. The diet should contain an ample quota of all the vitamins, and in particular vitamin B, for the reasons already indicated. This can be ensured by eating *unspoilt* cereals, for such foods are the best and most economical sources of vitamin B. Certain fruits, notably the tomato, the grapefruit, and the orange, contain this vitamin and should figure largely in the dietary. Raw vegetables should be eaten with the object of preventing constipation. If milk can be tolerated, it should be taken freely, especially if the malnutrition is severe, while daily doses of cod liver oil and

malt may prove helpful. Should premonitory signs of neuritis arise, such as a sensation of pins and needles, or darting pains in the limbs, some concentrated vitamin B preparation should be taken regularly and over a prolonged period, for it takes some time for the depleted reserves of vitamin B in the system to be replaced.

Anaemia or bloodlessness must be corrected by obtaining as much fresh air and sunshine as possible. Exposures to ultra-violet rays are very useful in this respect. With regard to focal infections, while occasionally they may be obvious, frequently they require all the diagnostic skill of the doctor to elucidate their whereabouts. Once detected, it is imperative that they should be eradicated and the body rid of their ill-effects.

Nourish the nerves and fortify the body against the lodgement of poison germs by sound dieting and strict internal cleanliness, and this troublesome and dangerous complaint, neuritis, will be avoided and conquered. This conclusion is surely a justification for the remarks made in the preliminary paragraphs of this article. In the interests of health, happiness and longevity, it is to be hoped that the great public will be stimulated to learn about diet and nutrition and to apply their knowledge in a practical manner.

CHAPTER VI

HEADACHES

Of all the painful ailments to which mankind is subject none can be more disabling, or more distressing, than headache. Few people can truthfully say that they have gone through life without knowing the suffering entailed from this cause, for headaches are almost a universal experience in our modern civilization. The pain of headache varies from a dull ache to agonizing paroxysms so severe as to drive the sufferer almost frantic, and there are many people whose lives are made almost unbearable through recurrences of this disorder. The importance of headache from the health point of view is, therefore, very considerable.

Now the first point to be grasped concerning headache is that it is *not* a disease entity in itself. Headache is a symptom, or in other words, the outward sign of some derangement of health, which may be trivial, as in the vast majority of cases, or occasionally grave. Therefore, in any study of headache it is first essential to determine the possible

causes, for it is these *causes* which must be prevented, or treated, and not merely the pain. Of course, it is a simple matter to take medicines or drugs to relieve the pain and discomfort, but that is an unscientific way of dealing with a headache, and in any case will be unsuccessful, for if the fundamental causes are still at work, the headache will recur as soon as the effects of the drug wear off. The practice of indiscriminately taking drugs to relieve headaches also has its dangers. There are many people who, on experiencing a headache, immediately dose themselves with some aspirin compound, which frequently gives relief, but only temporarily, so that repeated doses become necessary. In these circumstances it is easy to understand how a drug habit arises, a habit which may be disastrous to life and health.

To ascertain the true nature of the headache must, therefore, be the first endeavour of the sufferer, and I will now consider in some detail the commonest, and most important, types of this complaint. Nowadays, the headache arising from eye-strain is exceedingly prevalent. When we remember the amount of work the eyes of the average city dweller have to perform, this fact is hardly surprising. Our eyes, like our ears, are among the hardest worked of all our

organs and, as they are very delicate structures, their mechanism is easily upset.

Now it is slight defects of vision which are responsible chiefly for headaches, and for this simple reason : there is little or no appreciable difficulty in seeing, for the muscles of accommodation within the eye can correct the optical defect but, naturally, a strain is imposed, and these muscles are quickly fatigued and give rise to headache. The sufferer as a rule does not associate his headache with his eyes, because there is apparently no visual handicap, and so neglects to have his eyes tested, and the slight defect remedied by glasses. The pain in eye-strain is generally dull, situated over or at the back of the eyes, and comes on after reading, sewing, or at the end of the day's work. It is worst if an attempt is made to use the eyes in poor illumination. In some few cases, the eyes may smart, and the lids become inflamed, and then, of course, the recognition of the source of the trouble is relatively easy. Resting the eyes in a shaded room, and a cup of hot tea, will generally relieve the headache, but there is only one way to prevent recurrences, and that is the correction of the optical defect by glasses.

Closely associated with the headache of eye-strain (which is more fully dealt with in the next chapter) is the headache caused

through fatigue. City life, with its noise, bustle and vibration, imposes a strain on our nervous systems, to which even the most robust of us are not entirely immune. Consequently city workers are prone to have their reserves of energy depleted, especially if, after the day's toil, exciting recreations are too freely indulged in. Headaches are often the first signs of incipient mental exhaustion, usually appear towards the middle of the day, and tend to grow more severe as the day advances. They are generally accompanied by a feeling of lassitude, and a sense of irritability and restlessness, which render all mental effort very difficult. In cases of actual neurasthenia, the pain assumes a peculiar nature. It is often described by sufferers as a painful sensation of weight pressing on the top of the head, or as a tight band around the forehead. Neurasthenics with more vivid imaginations may explain that their pain resembles the sensation of a nail being driven into the head. The prevention of fatigue headaches is simple. Working activities must be reduced, and the leisure spent in peaceful recreations, preferably in the fresh air. A full night's sound sleep is a vital necessity and the state of the nutrition should be maintained at the highest possible level.

Of extreme importance is the headache associated with constipation and self-poisoning. Indeed, this cause, with eye-strain, is undoubtedly responsible for by far the great majority of headaches. In many people, a single omission from the regular habit ot bowel evacuation is sufficient to cause a dull aching in the head. In others headaches may only be the penalty of long-continued irregularity in the performance of this function. The headache of constipation is, of course, evidence of the flooding of the blood with the absorbed products of putrefaction within the bowel which poison the delicate and sensitive nerve cells of the brain. If this poisoning is long continued the vitality of all the nerve cells is lowered, and their working capabilities are greatly reduced. Every one who has been constipated knows the listless feeling, the distaste for work, the lack of appetite, and the depression which accompany this most prevalent malady of civilization. Intemperance, or at least lack of wisdom, in the matters of food, and especially of drink, are causes of headaches of which most of us have had some experience. Provided they are occasional, little harm is likely to result. Again, the method of prevention of this self-poisoning headache is obvious. I do not advocate recourse to irritant purgative medicines (though a

calomel purge may be necessary in severe cases of constipation), but advise careful regulation of the diet to ensure adequate amounts of vitamins and roughage, plenty of exercise and, in stubborn cases, abdominal massage.

Once more I take the opportunity to stress the grave dangers arising from constipation and intestinal stasis. Headache is but one of the outward signs and flourishes in this fell condition. The vitality of all the body cells is lowered from this cause, predisposing to all kinds of germ diseases, while structural changes are induced in the bowel which lay the foundations for such diseases as appendicitis, gastric ulcer, and even the dreaded cancer.

Another fairly common type of headache is that which is associated with rheumatism, particularly when the muscles at the back of the neck are involved. The pain is generally made worse by any movements of the head, and the muscles are tender to touch and may exhibit sensitive little nodules. A feeling of tiredness and malaise accompanies the headache in most cases. Strict dieting is necessary in this form of rheumatism, a period of relative starvation often being remarkably beneficial. When the acute pain subsides massage will generally relieve the aching sensation which remains, and hastens recovery.

There are a number of other causes of headache which I will now briefly mention. In any feverish condition, such as influenza, sore throat, &c., headache is often an early symptom, being evidence of the flooding of the blood with poisons. Throbbing headaches above the eyes often complicate nasal catarrh, when the inflammation has extended from the nose to the accessory air cells. In elderly people headaches often result from high blood pressure, especially when it is associated with hardening of the arteries, or with kidney disease or gout. Such headaches tend to get worse in the evening. After head injuries, particularly if concussion has ensued, headaches are very liable to follow, and this type is frequently very intractable to treatment. Headaches may also be a symptom of grave brain disease, such as tumour or abscess, but these headaches are accompanied by other symptoms, which cause the sufferer to seek medical advice.

I now come to a variety of headache which is of special interest. The sick headache, or migrainous attack, is one of the most disabling and exhausting of all headaches. Tending to recur at more or less regular intervals, the paroxysms handicap the sufferer socially and occupationally. They most usually affect the sensitive, highly

strung, studious type of person, and the attacks are precipitated by worry, overwork, or digestive disorder. A characteristic feature of this headache is the peculiar disturbances of vision which herald the onset. Coloured lights, spots or zigzag figures float before the eyes, or there may be a mistiness of the sight. The pain is generally very intense, and is usually limited to one side of the head. It is accompanied by a feeling of sickness, and severe prostration, which incapacitates the victim for a considerable space of time.

Prevention of the sick headache is admittedly one of the most difficult problems of medical practice. Attention to the general health is fundamental. Sufferers should closely investigate their mode of life, and determine if they are committing any breaches of the laws of health. Plenty of fresh air and sunshine are essential. The diet should be mainly vegetarian but bulky meals are to be avoided. Bowel function should be carried out with perfect regularity —at least two motions per day being obtained. Alcohol in any form is best excluded. Every effort should be made to cultivate a peaceful mental disposition, and to avoid worries and anxieties. The dangers of over-fatigue must be guarded against.

Sufferers from sick headache should be

thoroughly overhauled by their doctor in order to make sure that the eyes, ears, nose and throat are in a perfectly healthy state. Expert advice should be obtained if any doubt is entertained. In spite of all these measures, however, certain cases fail to respond, and the victims develop a pessimistic outlook on life. This is unfortunate, for, although there is justification, it is a state of mind which predisposes to further attacks. Such people should remember that bright company, and an atmosphere of optimism, will promote a state of mental well-being which undoubtedly keeps the enemy at bay. Also, they should bear in mind that attacks of migraine tend to get less frequent as the years go on, and that they are rare after fifty years of age. In some cases a change of climate may prove beneficial.

Should an attack of migraine be preceded by a warning, rest in a quiet, darkened room may prevent, or at least alleviate, the paroxysm. In most cases some sedative drug is necessary to relieve the intense pain and, needless to say, this drug should always be prescribed by the doctor. Reckless self-drugging for the treatment of any kind of headache is always to be strongly condemned. In this connexion I may mention, however, that when drugs are prescribed by the doctor, it is important that they should

be administered properly, else their efficacy will be diminished. The drug should preferably be taken on an empty stomach and, if it is in tablet form, it should be crushed with the teeth in order to hasten its absorption. Then a little water should be drunk to wash it down—and followed by a cup of tea or black coffee. Finally, the sufferer should retire to a quiet, darkened room for about an hour.

CHAPTER VII

EYE-STRAIN

To be possessed of a pair of sound and healthy eyes is an asset of immense value to every human being to-day. Victims of defective vision suffer a serious handicap in life's struggles. There are innumerable people whose intelligence and ability would have carried them far on the road of success but who remain undistinguished among the throng because of impairment of their optical apparatus. In modern life our eyes, as has been made clear in the previous chapter, are perpetually overworked. Certainly they are constantly subjected to strains which cannot have been intended by Nature. Consider the busy city man or woman. There is hardly a moment of the waking hours when it is possible for the eyes to relax. Reading, writing, typing, all call for concentrated eye-work. In the streets of a big city the eyes are for ever on the alert. Motoring calls for sustained and accurate ocular effort. Even in leisure hours, the eyes are used for enjoyment under

unnatural conditions at the cinema or theatre.

Under these circumstances, care of the eyes becomes a vital problem to every man and woman who has any ambition to make a reasonable success of life. This may seem an obvious statement but it is amazing how countless people labour under the strain of eye defects, having failed to appreciate in the first place that many of these eye defects are preventable, and, in the second place, that nearly all of them are remediable at the hands of the expert oculist. Also, it is not universally known that abnormalities of the eye have profound repercussions upon the general health of the body, as conversely, disease of the body is nearly always mirrored in the eyes sometimes in striking and sometimes in subtle fashion. Numberless cases of nervous breakdown and nerve diseases, from migraine to asthma, have been cured by the adoption of accurately prescribed spectacles, but it must be realized that the eye-strain associated with optical defects can lead to a tremendous leakage of nervous energy, a leakage which in time exhausts the resources of health and opens the way to the influences of disease.

I will now review the periods of life at which eye-strain is peculiarly liable to arise and endeavour to show how this incapacita-

ting disorder may be prevented. As might be expected, prevention of eye-strain should commence in the nursery. There are some simple rules which, if kept in mind, will go a long way towards maintaining the eyes in a healthy state. Beds or cots should not face the window and the sun should always be prevented from shining directly into the eyes. All young children's toys should be large and threading beads should not be permitted until the child is at least five or six. Parents and nurses should never hold objects near the child's eyes and no attempt should be made to teach a child under five to read. This is especially important in the case of the child whose parents are short-sighted, for the extremely soft eyes of the young child are easily lengthened when they converge for near vision. Therefore insist upon the child keeping the picture book a good distance from the eyes. If the child has definitely inherited short sight, as sometimes happens, then at the age of six or seven the child should be investigated by an expert and glasses should be permanently worn which give full correction. In this way the progress of the short sight can be stayed.

In early school life, teachers and parents should be on the look out for signs of eye-strain. Rubbing of the eyes, frequent blinking, red eyelids, conjunctivitis, headache,

listlessness and lassitude, are all signs which suggest that the eyes require to be investigated thoroughly. The defect of the optical apparatus may be very slight indeed, and, if corrected in time, the removal of the eye-strain allows the eye to develop normally, so that in a few years it may be possible to discard the glasses. In general, care should be taken to prevent children bringing their heads too near their work, which in no circumstances should be carried out for prolonged periods or by artificial light. In the school-room the seats and desks should be arranged to obtain correct lighting—the windows never being in front, but preferably on the left. The periodic testing of school-children's eyes, if it is carried out thoroughly, is most valuable, for the earlier an optical defect is detected, and measures adopted to overcome it, the greater are the chances of preventing serious and incapacitating eye trouble in adult life. It is generally noticeable that the child with ' bad eyes,' uncorrected, is an ailing and ' difficult ' child, but as soon as the defect is remedied a transformation for the better takes place in the child's health and disposition.

The next phase of life when the state of the eyes has an important bearing upon the general health is about the age of nineteen or twenty, particularly in the case of the young

man or woman who is studying hard for examinations upon which his or her career may depend. It is common knowledge that 'nervous breakdowns' are not infrequent at this time and the cause is generally attributed to overwork. In many of these cases examination by a skilled physician reveals that there is a small optical defect which has led to a great wastage of nervous energy. The trouble is that with a *small* eye defect the eye mechanism reflexly corrects this defect, but in so doing there is a constant strain which exhausts the vital powers and debilitates the whole system. Most remarkable are the results of correction of these small optical errors by means of appropriate glasses. The nervous exhaustion is stopped and there is an immediate regeneration of mind, spirit and body.

While on this subject of small optical errors, some mention must be made of eye-strain in the case of motor-drivers. It is again surprising how these small visual defects can produce great fatigue while motoring, and this fatigue may have serious consequences in so far as it impairs judgment and may lead to serious accidents. I am convinced that many of the so-called 'accident-prone' motorists are the victims of optical defects of which they are unaware. Driving a car nowadays entails a con-

siderable strain for the best of eyes, and any one who gets an undue sense of fatigue or headaches after motoring should have the eyes carefully examined. The optical correction must be *exact* if beneficial results are to be achieved. Glasses or spectacles which are *almost* correct may be worse than no glasses at all. Many motorists will also benefit from wearing glasses which prevent the penetration of the ultra-violet rays. It was Sir William Crookes who discovered a glass that cuts out these rays, which are irritating to the very delicate retina of the eye. These glasses are available in different strengths and will be found very soothing and comforting to motorists, especially when subjected to sun glare. Incidentally they are also valuable when the eyes are exposed to the glare of electric light.

From about twenty-five to thirty-five years is another phase of life when eye-strain may manifest itself as a danger to general health. Most often it is observed in women, especially if they are engaged in occupations which demand the use of the eyes for near work such as typing or sewing. Not infrequently eye-strain may arise after childbirth when the mother has been breast-feeding the child. In such cases, the eye-strain as such may not be suspected as the cause of the symptoms, which include ab-

normal fatiguability, lassitude, depression, sleeplessness, irritability of mood, and headache. Victims of this form of eye-strain are frequently labelled as neurasthenics and regarded as rather hopeless cases. Actually, the outlook is most favourable, for, once the eye defect is detected and corrected, a speedy return to good health takes place.

Round about middle age is yet another significant period of life when the dangers of eye-strain have to be kept in mind. Most normal people tend to develop some degree of presbyopia at the age of fifty or so and find the need to wear glasses for near work. The presbyopic can see quite well at a distance, but when reading, for example, the print must be held an abnormally long distance from the eyes. It is common, however, for some other optical defect which has been latent to become manifest about middle age and impair also the distant vision. Together these defects are likely to result in considerable eye-strain which for a man or woman at a relatively critical period of life may have serious consequences. No one can afford needlessly to waste energy during middle age—a time when responsibilities are generally high and when the balance of health is easily disturbed. It is often thought, notably among women, that ' taking to glasses ' is a

sign of old age, and they suffer the discomforts and disabilities of eye-strain rather than consult the optician. This is most unwise and many a serious breakdown in general health could have been avoided through the timely correction of eye-strain by the use of glasses. A very great boon to those who suffer a combined optical defect is the bi-focal lens. Where near and distant vision are affected it is possible to combine the different corrections in one glass. This does away with the inconvenience of changing the glasses according to the needs of the eyes.

The following quotation from the writings of a distinguished English oculist is worth noting :

'The reader may be surprised to learn that the number of cases of impending "nervous breakdown" that I have seen averted by putting the patient into bi-focal glasses is very large. I look upon this treatment, properly prescribed, as one of the most beneficent in preventive medicine. Many a case of chronic invalidism and premature death has been prevented by removing eye-strain at this period of life. Extreme depression, sleeplessness, irritability, easily induced fatigue and tendency to suicide may be removed and the patient cured and turned into a new

man or woman by meticulous care in the examination of the eyes and a right deduction in arriving at the requisite treatment.'

Finally, we have also to bear in mind that eye-strain is not only a cause of a general disturbance and lowering of the systemic health, but that it may also predispose the eyes to actual disease.

Recurrent attacks of iritis are nearly always associated with errors of refraction and correction by glasses will often prevent further attacks. Similarly, in glaucoma where the pressure with the eyeball is increased, it may be possible to relieve the sufferer by the constant use of corrective glasses. Even cataract can be held in check in this way. In children, the value of glasses is frequently revealed most vividly in the cure of blepharitis or inflammation of the eyelids, as also in the cure of conjunctivitis and ulcer of the cornea.

To sum up, it may be stated that eye-strain can be a cause of much general ill health as well as local disease of the eyes. It is to be noted that it is most often the small errors of vision which are responsible for eye-strain for, as is rightly said, ' large errors take care of themselves.' These seriously impair vision and obviously call for correction while the small errors, interfering little with vision,

remain as a rule unsuspected. Therefore, the existence of any degree of nervous exhaustion, as has been indicated in the course of this chapter, should call for immediate expert investigation. Eye-strain must never be regarded as a trivial symptom.

CHAPTER VIII

DISEASED TONSILS AND ADENOIDS

OPERATIONS for the removal of tonsils take place on a wholesale scale nowadays in all civilized countries. So much is this the case that there are many parents who accept this operation as one of the natural events in the lives of their progeny. That this is a most fallacious and pernicious belief is beyond question to all who understand the true meaning and significance of health. Extirpation of tissues or organs is undoubtedly necessary in certain circumstances, but it should always be a last resort, otherwise the remedy may be worse than the disease. No doubt many children have had their tonsils removed without complete justification, for there was a time when 'tonsilectomy,' as the operation is called, was fashionable : nevertheless, by far the greater percentage of children (and adults too for that matter) operated on for diseased tonsils have required this drastic measure.

We may gather from this that severe affections of the tonsils are exceedingly prevalent

to-day and if we question why, we shall find the answer in one word—*malnutrition.* We know that such conditions are practically unknown among natives leading normal lives in natural surroundings, while, on the other hand, we know that they occur with an appalling frequency among the ill-nourished children of all sections of the community whose diet and habits have ceased to resemble those of the native and whose general vitality has depreciated in a corresponding degree. The best informed opinion of to-day holds that the unhealthy enlargement of the lymphoid tissue of the tonsils (and also of the adenoid glands for they nearly always are associated) is due to deficiences in feeding. It is impossible to build up a strong vigorous body with a vitality able to resist germ infection on poor materials, yet multitudes of parents, through ignorance or want, are attempting to accomplish this in the case of their children.

It is a great pity that most parents do not appreciate this close connexion between diet and morbid enlargement of the tonsils and adenoids. Even more to be regretted is the popular tendency to treat enlarged tonsils as a trivial ailment—to be cured at the hands of the surgeon by an extirpatory operation. It is difficult at all times to get people to act up to the principle that prevention is better

than cure—and never more so than in the case of enlarged tonsils, which are apparently so easy to get rid of. I will deal later with the problem of prevention in greater detail but let us first turn our attention to the nature and morbid effects of disease of the tonsils.

The tonsils are two bean-shaped masses of lymphoid tissue situated between the soft palate and the tongue at the back of the mouth. In children they are generally more prominent than in adults and are easily visible when the mouth is opened widely and the exclamation ' ah ' is made. The tonsils have a similar structure to that of the adenoid gland and their function is protective against infection of the respiratory organs—clearly, a very good reason why every one should endeavour to retain their tonsils intact and healthy, if possible.

Inflammation of the tonsils occurs, as already indicated, in children debilitated through ill-nourishment, or as a sequel to some infectious disease, such as measles, scarlet fever or diphtheria. The inflammation may be acute in the first instance, but very frequently it is chronic ; that is to say, there is a progressive enlargement of the tonsils accompanied by a mild suppurative process in the crypts on the surface of the glands. It is this chronic tonsilitis which is the great menace to the health of the child

(or the adult), and which brings into being a train of morbid changes with grave repercussions on the general health. Bad teeth, adenoids or septic conditions of the nose often constitute the source of infection from which the disease germs pass to the devitalized tonsils.

Enlargement of the tonsils, especially when associated with a similar change in the adenoid glands, gives rise to a characteristic and easily recognized group of symptoms in the case of the child. The mouth is open, with lips thickened and the lower one protruding. The nose is small, with small nostrils which do not dilate during inspiration, while the bridge is broad and flattened. The upper jaw tends to become narrowed, causing the incisor teeth to become prominent and the bony palate acutely arched. As a consequence of this the permanent teeth become crowded, owing to the deficient development of the jaw-bones. Some deafness may arise from infection and catarrh of the eustachian tubes (leading from throat to ear). The breath is foul, owing to decomposing matter in the crypts of the tonsils, which may be seen as yellowish patches. Cough may occur at night. The voice becomes nasal in tone and difficulty is experienced in pronouncing the letters ' m ' and ' n.'

A child presenting these symptoms is generally referred to as 'adenoidal,' but it should be remembered that tonsilar enlargement contributes considerably to their origin. If the disease process is allowed to continue, grave permanent effects are produced. Owing to the obstructed breathing, the chest becomes deformed; either flat-chested or hollow or pigeon-chested. The spine becomes rounded and the shoulder-blades protrude. Incidentally, the mental development as well as the physical is stunted and retarded. On top of this, such a child is prone to super-added infections—getting frequent sore throats, 'colds,' bronchitis, and even more grave diseases of the respiratory organs, such as tuberculosis.

From this recital of ill effects, it is apparent that enlarged and chronically inflamed tonsils in childhood are a serious menace to health and call for immediate and urgent treatment. Are they to be removed by surgical operation? If the tonsils are chronically diseased, it is generally recognized that the only satisfactory way of dealing with them is to remove them completely, including the tonsilar capsule. Unfortunately, it is not easy to decide just what is a *chronically diseased tonsil*. Mere enlargement *alone* is not a sufficient indicator, unless the increase in size is very great and

does not disappear after sources of germ infection, such as bad teeth, have been dealt with, and other hygienic measures have been adopted. It is only when the tonsils have completely lost their protective function, and on account of their septic enlarged condition have become a menace instead of being a safeguard, that they should be eradicated. The tendency to remove the tonsils from every child who shows the slightest tonsilar enlargement is most definitely to be deprecated. It is a quite unjustifiable mutilation and is robbing the child of one of the most valuable germ barriers of the body.

Parents of children who frequently suffer from throat 'colds' often agitate and force their physician's hand in demanding that the children should 'have their tonsils out.' It is so easy and convenient to blame the tonsils —instead of carefully studying the mode of life of the child and rectifying the errors in hygiene which are certain to exist. A minor operation, such as tonsilectomy, is so much less bother and trouble than, say, a complete revolution in the dietetic habits of the child. Such a temptation must be sedulously avoided by all parents who really value their children's health and future welfare. They should never forget that there are no short cuts to health; at least, not without subsequent retribution.

At the same time, all physicians recognize that in children, in certain circumstances, removal of chronically unhealthy tonsils is an operation which gives very beneficial results. If the mechanical effects of enlargement seem likely to induce the projecting teeth, open mouth, pinched nostrils, poorly developed chest and other structural deformities, or if the infection is generally poisoning the body system, then an operation is clearly indicated. These changes must be avoided at all costs—even at the cost of the loss of the protecting function of the tonsils. Such operations are performed every day, usually in association with the removal of adenoids, for such conditions as difficulty in breathing, chronic naso-pharyngeal catarrh, accompanied by deafness, anæmia, enlarged glands in the neck and other results of infection and obstruction.

In the case of adults, the grounds for removal of the tonsils are somewhat different. Here the mechanical obstructive effects are of less significance, while the dangers of self-poisoning are greater. Owing to the peculiar structure of the tonsils (the presence of deep crypts opening from the surface), disease germs may locate there and produce poisons which are absorbed into the blood stream and produce harmful effects in distant parts of the body. The tonsils are acting like little

poison factories. In technical language they are described as sources of ' focal infection.' One of the most common symptoms produced is an ' always tired ' feeling, and when this is suffered from, it is always advisable to have the tonsils carefully examined by a throat specialist. It is more than probable that the tonsils will *not* be enlarged, but, if they are pressed, there may be some exudation of matter and, if a swab is taken and examined bacteriologically, there will frequently be found a variety of disease germs. Quite a number of serious illnesses are associated with infected tonsils, notably chronic rheumatism (arthritis, neuritis, sciatica, lumbago), recurrent eye inflammations, severe anæmia, and eczema. Removal of the tonsils in such cases, provided it is carried out sufficiently early, frequently has a beneficial action on the course of the disease and may actually lead to its cure.

This chapter would be incomplete without again emphasizing the need for the *prevention* of unhealthy tonsils. I indicated at the commencement that this serious complaint is related to deficiencies in the diet of the child, or even in the diet of the mother *before* the birth of the child. Enlargement of the lymphoid tissue of the throat, with the long list of disabilities which follow in its train, is closely associated with rickets, and we now

know that that disease is definitely a disease of dietetic origin due to deficiency of vitamin D. Though enlarged tonsils and adenoids are appallingly prevalent in the poorer classes, they are also common among the more prosperous. For example, in New Zealand, with its well-to-do middle-class population, the infantile mortality is the lowest recorded and the children are well cared for, yet the occurrence of adenoids and tonsilar enlargement is very common. How is this to be explained ? The reason is to be found in the excessive consumption of unnatural starchy foods which so often form the foundation of the children's dietary.

To conclude : enlargement and infection of these lymphoid tissues represent a lowered vitality on the part of the child arising from ill-nourishment, lack of sunshine and fresh air. Prevention demands a revolution in the popular conception of the dietetic needs of the child. Highly concentrated sugar foods must be replaced by an abundance of raw fruit and vegetables and fresh milk. Let parents realize these simple facts and they can spare their children much suffering and unhappiness in the present and in the future.

CHAPTER IX

ASTHMA

THERE are few ailments more distressing both to sufferer and onlooker than asthma. The appearance of a person in the grip of an asthmatic paroxysm is unforgettable. With shoulders raised, an anxious, frightened look in the eyes, the face slightly blue, the victim gasps and pants for breath and clutches a near object for support. The onset and manifestations of an asthmatic attack are indeed painfully dramatic and, in the case of a young child, quite terrifying. This mysterious disease has long baffled medical science. To-day, however, as a consequence of long-sustained research, we are getting near the ultimate cause, and it can be safely asserted that the outlook for asthmatic sufferers at present is very much better than it was ten or twenty years ago.

Asthma is a most interesting disease from the medical standpoint. To begin with there is frequently a family history of this affection or there exist members of the family who suffer from migraine (sick headache) or skin

rashes following the consumption of foods such as strawberries or shell-fish. Very often there is a family history of ' nerves,' and an excessive sensitiveness of the nervous system appears to be a fundamental factor in the disease. There are other features peculiar to the asthmatic condition. The attacks are essentially periodic, with intervals which are frequently quite free from any disturbance of health. Then the symptoms most often arise during the night or they are most intense at this time. The age of onset is most commonly during childhood or adolescence and there are definite seasonal variations.

A remarkable fact about asthma is that undoubtedly the influences which precipitate attacks are numerous and diverse. It was an age-long supposition that the paroxysms must have one common cause and that there should be one form of treatment applicable to all of them. This was definitely an erroneous conception. There is certainly a primary hyper-excitability of a certain portion of the nervous system (called the parasympathetic), which is probably inherited, but the exciting factors are very varied. The asthmatic type responds abnormally to foreign substances which may be eaten, inhaled, or may merely come in contact with the skin. These substances act as poisons—nowadays they are termed ' allergens '—and

they appear to have a 'trigger-pulling' effect in producing asthmatic paroxysms.

The allergic provocatives of asthma include a vast array of substances. Grass pollens, which excite attacks of hay-fever, frequently also excite asthmatic attacks. Similarly, wood dust and the chief ingredient of face powder—orris root—may act as spasm producers. Moulds or fungi in the dust of rooms have been identified as allergens, and this is in harmony with the well-recognized fact that asthmatics may suffer nightly torture in their own homes and yet be immune from attacks in other houses. Some asthmatics are sensitive to the feathers with which the pillows are stuffed, while animal emanations are powerful poisons to others. The mere presence of an animal, such as a cat or dog, in the room may be sufficient to excite a paroxysm, and it is recorded that contact with riding-breeches which had been out of use for many years induced a seizure in a 'horse asthmatic.'

Many foods may act as asthmatic provocatives. Food asthma most often develops in childhood. Almost any article of diet may offend, but the most common are eggs, milk, fish, nuts, and some fruits. Many peculiarities in this respect are observable. For example, a person may be overcome by a paroxysm following the eating of a dish in

the preparation of which a hen's egg has been used, yet is able to eat with impunity a similar dish made with ducks' eggs.

Again, there are poisons which may be met with during special employments. Gardeners may be susceptible to certain flowers ; a miller or baker will get attacks only when he is using a certain grain. The widespread use of chemical compounds such as dyes has led to an increased number of cases among those who come in contact with them.

Finally, there are poisons capable of provoking asthmatic paroxysms which have been generated within the body, notably in the intestine, associated with constipation, and in septic air cells of the nose, tonsils and adenoids.

The allergic causes of asthmatic attacks are thus exceedingly prevalent and, while in most cases of asthma some allergy is present, there are other provocative causes to be considered. Irritation in the stomach or intestines is a most important contributory factor. This is through the medium of what is called ' reflex irritation.' An over-loaded bowel or a distended stomach disturbs the nerve balance in sensitive people and an attack of asthma may be the sequel. It is a common observation that many asthmatics are prone to paroxysms if they eat too liberally and especially if they take a meal of

any size after the early hours of the afternoon. It is probable also that the asthmatic attacks which in women are associated with the menstrual function are due to reflex nerve disturbance.

And last but not least is what may be called the psychological factor. There is no question that mental associations are often formed between objects or places and asthmatic paroxysms. The reaction becomes a 'conditioned reflex.' A sufferer, for example, who is sensitive to a particular object such as a dog, may be seized by a paroxysm merely in the imagined belief that the animal is in the vicinity. There seems no doubt that in some the asthmatic attack is a true neurotic symptom and that it can be provoked by purely emotional causes. Even excessive joy or mirth associated with hearty laughing may be a cause of a paroxysm.

I have dealt in some detail with the many causes of asthma with a view to showing the progress made in solving the essential problems of this disease and also with a view to indicating how this distressing ailment can be fought. It is obviously of first importance to investigate the possible cause. This involves a careful scrutiny of the family and personal life history. Infantile asthma is most often due to one of the common foods acting as an allergen or poison. In later life,

it is more often due to animal or vegetable emanations or to germs. Then the periodicity of the attacks may provide a clue. Summer asthma is frequently due to pollens or seasonal fruits, while winter asthma may be related to germ infections of the respiratory tract. Night paroxysms are associated with the quantity and quality of food taken during the day or with the presence of allergens in the bedding. 'Week-end asthma' is a well recognized form. On Saturdays or Sundays, children may be permitted to stay up late and have a late meal and adults may behave similarly, with a resultant asthmatic paroxysm on Monday morning.

Locality of residence of the sufferer must also be kept in mind. For some, a stay in the country may immediately provoke an attack, and in such cases a tree or grass pollen may be suspected. For others, damp and foggy city weather may induce attacks, and here it is often found that there is some underlying germ infection of the air passages, including the air cells of the nose. The nature of the occupation requires consideration, especially if the asthma only commenced after the person entered the trade or profession.

Recently certain tests have been instituted by which it is sometimes possible to determine with fair exactitude the offending

poison which provokes the asthmatic seizures. The principle is that the introduction into the skin of a minute quantity of the foreign substance, such as egg or milk protein or a grass pollen, will produce a raised red weal if the person is sensitive to that substance. In essence, it is a very simple test, but in practice, owing to the vast number of substances for which it may be necessary to test, its value at present is rather debatable. Nevertheless, it seems an investigation in the right direction and it holds promise for the future both from the diagnostic and curative standpoints.

Owing to the fact that a variety of causes may be operative in any single asthmatic subject, the care and management must take due note of all possible factors. Apart from specific technical treatments, there are a number of hygienic rules which, if carefully followed, will unquestionably diminish the frequency of the paroxysms if not entirely prevent them. Diet is all important. In general, the amount of food eaten should be the *minimum* compatible with sound nutrition. The asthmatic can never afford to overeat. No big meals—no late meals is the rule. Dinner should be taken in the middle of the day and about 5 p.m. the *last* meal should be taken, consisting of weak tea, wholemeal bread and butter and fruit. A fast day once

a week will be found highly beneficial. Generally, it is necessary to reduce the protein intake and meat should be abstained from except for one or two days per week. If the sufferer is definitely sensitive to any special food such as milk or egg, great care must be taken to exclude it *entirely* from the dietary ; even in minute quantities, when used in the preparation of composite articles of diet such as cake, it may produce a paroxysm.

Attention to the state of the bowels is imperative. Constipation is best dealt with by suitable dieting rather than by the use of purgatives. Abundance of fruit, fruit juices, green vegetables, wholemeal bread are indicated, along with copious water drinking. Abdominal massage is also helpful to overcome habitual difficulty with elimination. With children, care must be taken to avoid their eating rich foods and an excessive amount of concentrated sugary foods. The asthmatic child is liable to dyspepsia and this in turn readily provokes paroxysms. Sparse dieting along with thorough evacuation of the lower bowel will often work marvels in sufferers from asthma.

Physical exercises and massage are also valuable adjuncts to the treatment of the asthmatic sufferer. By these practices it is possible to restore free mobility to the chest,

to teach the patient how to relax the muscles, and to guide the respiratory movements with a view to regaining a normal respiratory rhythm. The necessity for different exercises naturally varies, but, as a general rule, one minute should be devoted to deep-breathing exercises, one minute to full flexion and extension of the limbs and eight minutes to the abdomen. This routine should be carried out every morning. The art of complete muscular relaxation takes a considerable time to achieve, to begin with requiring much mental concentration, but its cultivation is highly beneficial to asthmatics for at the first warning of a paroxysm they may be able so to relax muscularly that the attack can be prevented.

As ' reflex irritation ' may be a cause of asthmatic paroxysms, the presence of any septic area in the nose or throat calls for treatment. Similarly, the occurrence of repeated ' colds ' or attacks of bronchitis should be prevented if possible. In such cases ultra-violet ray exposures often prove beneficial. The psychological aspect must not be forgotten. Much can be done by simple investigation to determine if there are specific emotional factors at work and, if these are discovered, it is generally possible to prevent their acting as precipitants of paroxysms. If the asthmatic recognizes the

mental cause of the attack when it arises he is able not infrequently to cut it short.

There are certain technical methods for the treatment of asthma such as 'desensitiation' and the use of drugs such as adrenalin and ephedrine, but these are beyond the scope of this chapter. Such methods require the close supervision of the physician. In conclusion, it may again be emphasized that the outlook for asthmatics has greatly improved and sufferers should realize that, fundamental to all forms of treatment, is the code of hygiene outlined above. If this code is carefully followed, the likelihood of a person's life being ruined by asthma will be remote.

CHAPTER X

BRONCHITIS

DESPITE the absence of the outward signs and flourishes habitually associated with winter —snow, icy north-easters and frost—the prevalence of coughs and catarrhs is often just as marked. To the thoughtful this suggests two ideas ; first that *severe* weather conditions are not so important causally as is generally imagined ; and, secondly, that there must be a large proportion of the population *predisposed* to chest complaints and liable to suffer even though the season be but slightly inclement.

Now winter coughs should never be treated lightly. They impose a severe strain upon the heart and lungs, leading to a state of semi-invalidism during a considerable part of the year, and undoubtedly shortening life. Unfortunately many sufferers become resigned to their affliction. Instead of putting up a fight and trying to prevent its recurrence they place their trust in much-advertised cough elixirs, in optimistic anticipation of a 'cure.' This is the surest way to the

establishment of a permanent winter cough habit.

Let us now consider the origin of this trying malady, or, more accurately, of bronchitis, so that we may gain an insight into the available methods of its prevention. To begin with, we know that some people are born with weak chests. They inherit a delicate bronchial membrane and a delicate skin which makes them peculiarly liable to catch a 'bronchial cold,' should their health be debilitated in the slightest way. This susceptibility is too often cultivated by injudicious physical education in childhood, with the result that tolerance of any but the milder kinds of atmosphere is greatly diminished.

Then, a constitutional predisposition may be acquired through under-nutrition, intemperance in alcohol, and chronic illnesses, such as gout, diabetes and Bright's disease. In children, rickets is very important in this respect. The impure air of large cities also disposes to bronchitis, and in fog we see the maximum offence wrought by this influence. Consisting of suspended droplets of moisture loaded with acid products of combustion, fog is highly irritating to the respiratory passages, and excites an inflammation in delicate persons. If our legislators would only realise the loss in national health and

efficiency which results from smoke contamination of our atmosphere, their efforts to abolish this evil would surely be more radical than they are at present.

The immediate cause of an attack of bronchitis is generally ascribed to a ' chill.' This means that the skin has been exposed to a sudden change in temperature to which it has been unable to make the appropriate responses, a failure of adaptability, usually the result of long hours in hot, impure air and excessive and unsuitable clothing. Experiment has proved this intimate relationship of the skin with the respiratory function, and has shown that a faulty reaction of the skin to cold is followed by congestion of the vessels in the air passages and by an increased flow of mucus—a set of conditions ideal for the growth of germs and consequently for the production of inflammation. As few of us have educated our skins to the responsibility of guardian to the breathing apparatus, it is not surprising that exposure to cold draughts, wearing wet clothing or standing about in wet feet, are apt to lead to bronchitis through the agency of cutaneous chill. This likelihood is very greatly increased if the additional factors of fatigue, under-nutrition, self-poisoning or pre-existing disease come into play. I shall recur to this question of the skin when the measures of

prevention are discussed. Let me now mention some other causes of bronchitis. In children, inflammation of the bronchial passages is commonly associated with measles : indeed, it is really a part of that disease, rendering it dangerous to future health by creating a susceptibility to ' colds in the chest,' if not to the more serious complication of tuberculosis. The same holds true of whooping-cough. In adults, bronchitis is frequently part of the aftermath of influenza : an irritating cough with expectoration may persist for weeks or even months after the acute symptoms have subsided and, unless vigorous attempts are made to brace up the accompanying depressed state of health, *chronic* bronchitis may be the sequel. Inhalation of dust, occurring in the course of certain occupations, such as cereal grinding, wool carding and knife grinding, mechanically irritates the air passages and leads to a most intractable type of bronchitis.

Now there are few of us who are fortunate enough to go through life without getting a ' cold in the chest ' at some time or another ; but, provided that we are otherwise healthy, and that we persist in the treatment prescribed by the doctor—*till the cough disappears*—there need arise no fear for the future. On the other hand, if radical treatment is neglected, the cough hangs on for

weeks and, though it ultimately clears up, the chest is rendered more susceptible to chill than before. Winter comes, and there is another attack of bronchitis, lasting longer than the previous one, and more difficult to shake off. And so it goes on until the time arrives when the cough is troublesome during *all* the winter months, and even in the summer there is still some 'wheeziness.' The stage of chronic bronchitis has now been reached and, although a great deal can be done to lessen the severity of individual attacks, the structural changes which have been produced in the lungs render radical methods of cure and prevention ineffectual. Victims of chronic bronchitis are thus compelled to lead very restricted and carefully ordered lives if they wish to enjoy a ripe old age.

Measures for the prevention of bronchitis fall into two groups—those applicable in early cases of bronchial weakness, and those applicable for the established bronchial subject. Needless to say, if prophylactic success were achieved in childhood, special precautions in adult life would be unnecessary. Therefore, with the children of delicate, asthmatic or gouty parents, who inherit a liability to bronchitis, a plan of 'hardening,' carried out with vigilance and discretion, should be adopted from the earliest years.

Such infants and children must be trained

to live in the open air as much as possible during the day, and to sleep in a freely-ventilated room at night. The full measure of fresh-air treatment is best attained by degrees, but it must be persistently pursued. Active means must be adopted to promote a vigorous, responsive skin. An excessive amount of clothing, either by day or by night, excludes the beneficial oscillations of temperature which stimulate the skin surface. Moreover, the constant moist heat so maintained tends to keep the skin delicate and to depress its reactive powers. For the same reason the use of flannel underwear, although probably necessary in severe weather, should not be made a habit. Cold sponging or douching is very helpful in the systematic training of the skin, and, if there is any difficulty in obtaining the glow of a good skin reaction afterwards, brisk friction with a rough towel will accomplish this in most cases. Lastly, the state of nutrition must be maintained at a high level, and the use of cod liver oil is beneficial.

In the case of adults who are already victims of bronchitis, the risks of sudden temperature changes, of marked variations in the amount and thickness of the clothing, and of dusty atmospheres or occupations, must be carefully avoided. Any tendency to liver congestion must be corrected by atten-

tion to the bowels and the diet. A systematic course of massage and baths, if continued with perseverance, is tonic to the skin and very helpful to the respiratory function. Graduated chest exercises, by encouraging deep breathing, tend to strengthen the lung tissue and to relieve the local congestion. For those who can afford the expense, retirement to a moderately bracing climate in the summer, whereby it is possible to develop a certain degree of protection, and to a warm, equable climate in the winter, is the best and easiest way to longevity.

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by OLAF STAPLEDON

The *Evening Standard* Book of the Month for October, 1935. Recommended by the Book Society

Mr. Stapledon, who is the author of *Last and First Men*, and its companion *Last Men in London*, now gives us a full-length study of a Super-man, born into our present era, possessed of great wisdom and oppressed by his contacts with more ordinary mortals. The story of John is traced from his precocious infancy, through "Scandalous Adolescence" and his "Ordeal in the Wilderness," to mental maturity. The chapters dealing with John's telepathic search for his own kind—Homines Superiores—is particularly effective. He finds them in strange and unexpected places—in lunatic asylums, in the Paris underworld, in China, in Egypt. With this heterogeneous collection of individuals John forms a colony where the occupants concern themselves with philosophic thought on their own elevated plane. But they do not long remain undisturbed. Conventional humans, unable to comprehend their purposes, attack them, and the Superhumans, led by John, finally adopt the supreme defence of blowing up their island and themselves.

This most original and intensely interesting story is related by John's best friend, the only normal human, outside his parents, whom he could tolerate.

HOLY DEADLOCK *by* A. P. HERBERT

Author of *The Water Gipsies*

The *Evening Standard* Book of the Month for April, 1934. Recommended by the Book Society and the Book Guild. *Over* 31,000 *copies sold.*

Two pleasant young people make a misfit marriage, do their best, but after seven years have to confess failure. This is the lively but serious story of their efforts to obtain an honourable freedom —a prolonged battle with the laws and customs of England. Few will read without sympathy of the shifts and troubles into which the shy John Adam is driven, or of the struggles of his truth-loving wife to tell nothing but the truth. It is much more than the story of a divorce case, but the substance and procedure of this branch of the law have never been so thoroughly treated in a work of fiction.

A HOUSE DIVIDED *by* PEARL S. BUCK

Author of *The Good Earth*

This is the final volume of a trilogy recounting the history of the Wang family from its early struggles on the land (in *The Good Earth*), its rise to comparative affluence (in *Sons*), to its contacts with Revolution and the West. The new novel gives a picture of the confusing aspect of a China divided between the old ways and the new; still instinct with the religious fervour and social customs of untold ages, but like the Sleeping Beauty of the fairy tale, opening not drowsy but eager eyes for the coming of the Prince from the West.

THE ROYAL WAY *by* ANDRÉ MALRAUX

Entirely different in theme and treatment from his colossal *Storm in Shanghai*, which won for Malraux the Goncourt Prize, *The Royal Way* does not touch politics. A mighty tale of adventure, its essence is the deep-cut and unforgettable portrait of its protagonist, Perken —a tragic figure of heroic mould.

The scene of the story is the jungle of Siam. Pierced in ancient times by the great road—the " royal way "—from Angkor to the Menam river basin, it has long since reclaimed its own. But ruined temples along the road still bear on their stone sides half-buried carvings of fabulous value. It is to secure these treasures that Perken and his companion penetrate into the jungle. Danger hovers, and Perken is wounded by a poisoned spike. How he presses on, despite his agony, is an epic of human fortitude and spiritual triumph.

THE MAKER OF HEAVENLY TROUSERS

by DANIELE VARÈ

To think of China at the present time is to think of violence—violence, revolution and war. This charming novel points the contrast—the utter peace of that corner in the Tartar City in Peking where lived the foreign scholar—the Maker of Heavenly Trousers. The story is concerned with his love for Kuniang, a little waif whom he befriended; with the doings of the family of the Five Virtues; with the dramatic arrival of a beautiful Russian who strangely exchanged personalities with Kuniang in hypnotic dreams. Mr. Varè has long been known in Italy as author of many charming Chinese stories. This is his first full-length novel written in English.

REMEMBER DAVID *by* MAUD FLANNERY

The writer has an original and sensitive mind, and this book is not only the life of the great priest-king of Israel—the "sweet singer" and "man of blood"—but also the study of a soul in the throes of a great vocation. From the moment the boy David dedicates himself before the Baal stone, till the last chapter when the old king dies in the arms of the Shunamite maiden, the sense of this struggle of the man to adjust himself to God's demands is intensely felt.

The characters move against a vast panorama with impressive reality. Maacah, the princess of Geshur, who first introduces into the sober Israelitish court the taint of an older civilization; Ahithophel, the king's minister, who, betrayed by the cunning of his own mind, hangs himself—these will not easily be forgotten. But it is the elusive quest of the soul for God that throughout permeates and ennobles this human story.

THE VIENNESE HAT *by* CECILIE LESLIE

This is a romance which touches upon a problem as old as love itself—fidelity. Sally Masters and Mike Donovan are in love, but show little sense in managing their *affaire*. Sally tries to demand complete faithfulness from Mike, who rebels. But this is no unhappy tale of "blighted love." The author, whose first novel it is, has a sense of fun which has produced a light-hearted romance with plenty of incident.

It may shock you a little, it will undoubtedly make you think, but above all it will amuse you.

MEN OF THE SEA *by* EDOUARD PEISSON

Another drama of the sea by the author of *Outward Bound from Liverpool.* The rivalry between two Mercantile Marine officers is described in tense, precise, yet inspiring words, and the climax comes when the forces of the ocean enter into the struggle. The ship's cargo shifts in a storm, and in spite of the young captain's heroic efforts to save his beloved vessel, it sinks. He is rescued by the man he hates, whose gestures of friendship he has previously repelled. The two men are contrasting types, the one serious and immersed in his job, the other the adventurer, the gambler; both brave but differing fundamentally in the sources of their courage.

THE CRIMSON CRESCENT

by AUGUSTUS MUIR

The *Daily Telegraph* styles Augustus Muir as "master of his medium." In his new adventure story, the scene is laid in a busy Piccadilly department store, ruled over by Sir George Wentworth, a mysterious figure nicknamed "The Hermit of Piccadilly."

THE RIVERSIDE MYSTERY

by JOHN G. BRANDON

John G. Brandon made a name for himself with the beefy, monocled Arthur S. Pennington, aristocrat among sleuths. Here is another adventure in which A. S. P., with fists and brain, crashes his way to a solution.

THE CAT SCREAMS *by* TODD DOWNING

Every thrill-seeker will find engrossing entertainment in this haunting story of a cat whose screams presaged death. A *pension* in Taxco, a popular Mexican village resort, is quarantined, a wave of suicides sweeps the place—and then Mura, the *pension's* Siamese cat, screams . . . and murder is committed. The plot is logical, the investigator is a new and effective type, and the author cleverly creates an atmosphere of suspense and horror.

It is a tribute to the book that it has been selected by that discriminating body, The Crime Club of America.

VULNERABLE *by* BARONESS MADARASSY

The story of a good-bad girl's retreat from herself. Enervated and disillusioned after a disastrous marriage, Kathleen retires from a hectic life in Paris. She seeks refuge on a Mediterranean island, but the calm she desires will not be wooed. An affair develops with Donald Stuart, a polo player, and months of devastating happiness follow, enhanced by the fear of loss on her part, since her lover has a wife and child who may arrive at any time. The feared arrival spells *finis* to the one real love of her life. Borne down by debts, she is engaged by an hotel as a paid hostess.

Escape is made possible once more through a man, but Kathleen is reluctant—she has before refused to compromise. The story ends on a note of uncertainty.

Vulnerable was a best seller when first published in Hungary.

RED CLARK OF THE ARROWHEAD

by GORDON RAY YOUNG

Author of *Red Clark of Tulluco*

As Red Clark wanted to settle down, he headed for the Arrowhead ranch, scene of his boyhood. But instead of quiet there, he found a hot feud in full progress, into which he threw himself with vigour; and his escapades form as joyously hair-raising a yarn as any of his career.

MILLICENT'S CORNER

by GEORGE A. BIRMINGHAM

Author of *Spanish Gold*

This is a story of a great charity whose funds, through no fault of its promoters, get mixed up with some shady financial dealings in the City. The chief characters are an amiable peer whose life is devoted to well-advertised public charities, a guileless though vigorous retired General and an astute financier whose life's ambition is to obtain a knighthood. The financier, although more than a match for the peer and the General, is himself mere wax in the hands of an able but quite unscrupulous woman, who desires revenge and uses as her unwitting instruments the peer, the General, a saintly priest and her own not wholly innocent half-brother.

Mr. Birmingham's character-drawing has always been a delight, and the foregoing brief description of the chief characters in this book will indicate to the reader that here is another feast of humour which must not be missed.

LADY GEORGY'S HOUSE

by CECILY HALLACK

Lady Georgy's house was in Cornwall. It was very old. Yet it was modern enough, with Sir Richard's discoveries and the profession Grayll chose, and "Long" Wiloughby's hangar and the cocktails he "created." The Lorbinska, being an artist, saw it as an inn where one could put up on a dark night. . . . The story tells of the comings and goings of an assortment of people. All who came felt the spell of the house, but none had a better explanation than the Lorbinska's. Yet perhaps only Lady Georgy understood what they really felt.

PALESTINE CARAVAN: Short Stories

by MOSHE SMILANSKY

Mr. Moshe Smilansky has long been well known as a writer of short stories (in Hebrew) on Palestinian life. Himself an ardent land worker, he excels in depicting the various types of the "sons of the soil" in Palestine—the Bedawi Arab, the Fellah of the villages, and the Jew of the colonies, for all of whom he has the same understanding and sympathy. A passionate lover of the Palestine countryside, he reproduces its atmosphere with great vividness, and brings home to the reader the charm of its scenery and climate.

THE STOLEN BOAT-TRAIN

by DOUGLAS G. BROWNE

Douglas G. Browne, who showed in *Plan XVI* and *The Looking-Glass Murders* his flair for unusual plots, here tells the story of an important express train that disappeared completely off the face of the earth.

MOUNTAIN WATERS

by E. M. WARD

Miss Ward again sets her story in the Alps, which formed the background of her recent success, *Alpine Rose*. In Switzerland a thirteenth member is added to Dr. Finn's Travelling Group (almost a Cruise on land)—and then adventures begin. The unconventional behaviour of the beautiful Miss Cust and the infatuation of Julian Herries make the young Penelope behave very oddly. Moreover, the Alpine weather has unexpected effects on the mad innkeeper in the Dolomites and on the stability of the Villars Hotel. Indeed, before the Group returns home all its members find themselves involved in complications which are described with the gaiety which has made *Alpine Rose* so popular.

EVOLUTION OF JAMES

by CHERRY VEHEYNE

The integrity of James Dyce was not, as his rebellious son supposed, the frozen core of one who had not dared to live. It was the finished man, evolved from slum childhood through varied stages to a career of suave crime, satisfying and successful until full growth impinged upon it. After twenty years he has to choose between that proud integrity and public disgrace. The closing scene shows his last tortuous fight and the simplicity of his triumph.

DANGER AT CLIFF HOUSE

by CECIL FREEMAN GREGG

Cecil Freeman Gregg, of "Inspector Higgins" fame, introduced his readers to a new crook, Henry Prince, in his book, *The Ten Black Pearls*. Both these characters are ingeniously brought together in his new book.

DEATH RUNS ON SKIS *by* HETTY RITCHIE

Here is a modern thriller with many of the full-blooded ingredients of an honest old-fashioned adventure story. The spirited heroine—who tells the story—her airman lover, and a sinister French villain, are all engaged on an exciting treasure-hunt, first in Scotland and later in the Swiss Alps near Mürren. The climax of the chase, which takes place on skis, is something new in this kind of story. Miss Ritchie, who is herself a ski-ing expert, knows well both the district and the sport of which she writes.

DEATH TURNS TRAITOR

by WALTER S. MASTERMAN

Author of *The Perjured Alibi*

Mr. Masterman's latest thriller concerns a gigantic plot by a secret society known as the DUA to overthrow a treaty of world peace which is to be ratified on a certain date in a certain place by representatives of the leading nations. On the eve of his departure for the event, the British Foreign Secretary, Lord Fairmont, is murdered in Downing Street, but after many exciting adventures the treaty is eventually ratified and the efforts of the DUA are foiled.

A NEW HALF-CROWN LIBRARY

MESSRS. METHUEN & Co., who have long been known for their GATEWAY LIBRARY of the best and most varied modern literature at 3/6, have now brought out the first ten volumes of a new venture, THE FOUNTAIN LIBRARY, at 2/6.

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