become manifest: the doctor should be immediately sent for and meanwhile the child should be kept warm in bed and be given hot drinks, containing carbohydrate, if possible with saline, and an increased dose of insulin.

The discovery of insulin has entirely changed the prognosis of diabetes in childhood. Whereas in pre-insulin days the outlook was almost hopeless, the patient seldom lived longer than two years, the prognosis now appears to be very favourable. Growth is perfectly normal as are physical and mental activity, and there does not appear to be any increased susceptibility to infections although the onset of an infective process makes the treatment temporarily more difficult and anxious. Growth and mental development proceed quite normally. Some of Joslin's diabetic patients have become mothers and all lead perfectly normal lives apart from the necessity of diet regulation and insulin administration. The secret seems to be the education of parents, and of the children when old enough, in the principles and details of treatment. In addition, the importance of supervision by the family doctor or in a properly constituted diabetic clinic cannot be over-emphasized since this goes far to prevent the occurrence of the serious complications and ensures the correct adjustment of insulin dosage and diet to the increasing needs of the growing child.

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THE HIPPOCRATIC TRADITION.

By MATTHEW B. RAY, D.S.O., M.D.(Edin.)

The Hippocratic Writings.—continued.

4.—Epidemics.

This book was probably a note-book and not intended for publication in its present form. The few extracts given below are excellent examples of concise note-taking because not a word is wasted and the descriptions are always to the point. It is divided into a description of certain "constitutions" or climatic conditions of a marked type which distinguish a definite period of time. The word also applies to a fixed type of disease prevalent at any particular period, while the general accounts of the epidemics seem to bear some relationship to the weather conditions that precede them, the case histories have apparently nothing whatever to do with the "constitutions". As an example, the first part of the first "constitution" is given:—

"In Thasos during autumn, about the time of the equinox to near the setting of the Pleiades, there were many rains, gently continuous, with southerly winds. Winter, southerly winds, light north winds, droughts, on the whole the winter was like a spring. Spring southerly winds and chilly, slight showers. Summer in general cloudy. No rain, Etesian winds few, light and irregular.

"The whole weather proved southerly with droughts but early in the spring, as the previous constitution had proved the opposite and northerly, a few patients suffered from ardent fevers and these very mild, causing hæmorrhage in few cases and no deaths.

"Many had swellings beside one ear, or both ears, in most cases unattended with fever, so that confinement to bed was unnecessary. In some cases there was slight heat, but in all, the swellings subsided without causing harm; in no case was there suppuration such as attends swellings of other origin. This was the character of them: flabby, big, spreading with neither inflammation nor pain; in every case they disappeared without a sign. The sufferers were youths, young men and men in their prime, usually those who frequented the wrestling school and gymnasium. Few women were attacked. Many had dry coughs which brought up nothing when they coughed, but their voices were hoarse. Soon after, though in some cases after some time, painful inflammations occurred in one testicle or in both, sometimes accompanied with fever, in other cases, not. Usually they caused much suffering."

[This is a perfect description of mumps.]

In other respects the people had no ailments requiring medical assistance.

CASE I.

Philiscus lived by the wall. He took to his bed with acute fever on the first day and sweating; night uncomfortable.

Second day. General exacerbation, later a small clyster moved the bowels well. A restful night.

Third day. Early and until mid-day he appeared to have lost the fever; but towards evening acute fever with sweating, thirst; dry tongue; black urine. An uncomfortable night; without sleep; completely out of his mind.

Fourth day. All symptoms exacerbated; black urine; a more comfortable night, and urine of a better colour.

Fifth day. About mid-day slight epistaxis of unmixed blood. Urine varied with scattered round particles suspended in it resembling semen; they did not settle.

On the application of a suppository the patient passed, with flatulence, scanty excreta.

A distressing night, snatches of sleep, irrational talk; extremities everywhere cold, and would not get warm again; black urine; snatches of sleep before dawn, speechless; cold sweat; extremities livid.

About mid-day on the *sixth day* the patient died.

The breathing throughout, as though he were recollecting to do it, was rare and large.*

Spleen raised in a round swelling; cold sweats all the time.

The exacerbations on even days.

[The case would seem to be one of blackwater fever.]

*Probably Cheyne-Stokes breathing.

CASE IV.

Philistes in Thasos, had for a long time pain in the head and at last fell into a state of stupor and took to his bed. Heavy drinking having caused continuous fevers the pain grew worse. At night he grew hot at the first.

First day. Vomited bilious matters, scanty, at first yellow, afterwards increasing and of the colour of verdigris; solid motions from the bowels; an uncomfortable night.

Second day. Deafness, acute fever; tension of the right hypochondrium, which fell inwards.

Urine thin transparent, with a small quantity of substance like semen floating in it.

About mid-day became raving.

Third day. Uncomfortable.

Fourth day. Convulsions; exacerbation.

Fifth day. Died early in the morning.

[Possibly an example of a ruptured appendix abscess.]

5.—Prognostic.

The importance of being able to foretell the course and eventual termination of disease is admirably stated by Hippocrates in the beginning of his treatise on "*Prognostic*". He holds that it is an excellent thing for the physician to practise forecasting. By discovering unaided by the patient's side, the present, the past and the future and fill in the gaps in the account given by the sick, he will be the more believed to understand the cases so that men will confidently entrust themselves to him for treatment. Later on he states that the longer time you plan to meet each emergency the greater your power to save those who have a chance of recovery, while you will be blameless if you learn and declare beforehand those who will die and those who will get better.

He then goes on to describe the "*facies Hippocratica*" which is even to-day recognised as a most valuable prognostic sign. "A comparison must be drawn between the faces of healthy people and those who are ill. The greatest unlikeness is the most dangerous sign." His description is as follows:—"Nose sharp, eyes hollow, temples shrunken, ears cold and contracted with their lobes turned outwards, the skin about the face hard and tense and parched, the colour of the face as a whole being yellow or dark. If on enquiry it is found that the patient has been sleepless, or if he has suffered from diarrhoea, the danger may be less. If, however, after a day and a night through these causes no recovery takes place, know that it is a sign of death. You must also examine the partial appearance of the eyes in sleep. If a part of the white appear when the lids are closed, should the cause be not diarrhoea or should the patient be not in the habit of so sleeping it is an unfavourable, in fact a very deadly symptom. If in addition, eyelid, lip, or nose be livid, death is close at hand. It is also a deadly sign when the lips are loose, hanging, cold and very white.

"The majority of men when in health lie in bed on the right or left side with the arms, neck and legs slightly bent. For a patient to lie on the back with the arms

and legs stretched out is less good and, if the patient should actually bend forwards and sink foot-wards away from the bed, the posture should arouse more fear than the last. If the patient is found with his feet bare and not hot, and with legs and arms flung anyhow and bare, it is a bad sign for it signifies distress.

"It is a bad sign in all acute diseases but worst in pneumonia for a patient to wish to sit up when the disease is at its height.

"As to the motions of the arms, I observe the following facts: In acute fevers, pneumonia, phrenitis and delirium, if they move before the face, hunt in the empty air, pluck nap from the bedclothes, pick up bits and snatch chaff from the walls—all these signs are bad, in fact, deadly."

He then deals with various abdominal conditions among which he points out that "a swelling in the hypochondrium that is hard and painful is the worst, if it extend all over this part; should it be on one side only it is less dangerous on the left. Such swellings at the commencement indicate that soon there will be a danger of death, but should the fever continue for more than twenty days without the swelling subsiding it turns to suppuration." This reference to appendicitis and the formation of an appendix abscess is interesting as being probably the first mention of the condition in Greek literature.

He then goes on to speak of dropsy and deals with the character of the various excretions of the body, describing the healthy and unhealthy appearances in each case.

He has a good deal to say about empyema and gives the following account of the symptoms by which the condition may be distinguished: "In the first place the fever never stops, being slight during the day but more severe at night; copious sweats occur; the patient has a desire to cough, without bringing up any sputum worth speaking of; the eyes become sunken; the cheeks are flushed; the finger-nails are bent and the fingers grow hot especially at the tips; the feet swell up; blisters rise about the body, and the appetite fails. Before the gathering breaks there must occur pain, difficulty of breathing and expectoration. Those chiefly recover who lose the fever on the same day after the gathering breaks, quickly regain their appetite and are rid of thirst."

Later in the book he speaks of "acute pain in the ear with continuous high fever as being dangerous for the patient is likely to become delirious and die. Since this type of illness is treacherous, the doctor must pay sharp attention to all other symptoms, also from the very first day. Younger patients die from this disease on the seventh day or even earlier. When white pus flows from the ear you may hope that a young man may recover, if besides he show some other favourable symptom." Of course the condition he is referring to is a mastoid abscess.

6.—Nature of Man.

Nature of Man and *Regimen in Health* formed one work in ancient times. W. H. S. Jones thinks the two works are a chance collection of fragments varying in size and completeness and perhaps put together by a librarian or book-dealer. A printed book goes through a fixed routine, which fact makes one forget that a papyrus roll may well have been a chance collection of unconnected fragments.

This work, like "*Ancient Medicine*", was probably written by Hippocrates himself. He begins by disagreeing with those philosophers who say that "What is, is a unity, and that this is both unity and the all. One asserts that this one and the all is air, another calls it fire, another, water and another, earth. While adopting the same idea, they do not give the same account But in my opinion such men by their lack of understanding overthrow themselves in the words of their very discussions."

Now he says he has said enough about these men and turns to the physicians. "Some of them say that man is blood, others that he is bile, a few that he is phlegm. Like the metaphysicians, all add the same appendix by saying that a man is a unity giving it the name that severally they wish to give it. This changes its form and its power (*i.e.*, the sum total of a thing's characteristics or qualities), being constrained by the hot and the cold and becomes sweet, bitter, white, black and so on. If a man were a unity he would never feel pain as there would be nothing from which a unity could suffer pain. Even if he suffer, the cure would have to be one. As a matter of fact, cures are many. For in the body are many constituents, which by heating, by cooling, by drying or by wetting one another contrary to nature engender diseases; so that both the forms of diseases are many and the healing of them manifold.

"All things are born in a like way and all things die in a like way. Each component of the body must return to its own nature when a man dies, moist to moist, dry to dry, hot to hot and cold to cold. Such, too, is the nature of animals and of all other things.

"The body of a man has in itself blood, phlegm, yellow bile and black bile; these make up the nature of his body and through these he feels pain or enjoys health. He enjoys the most perfect health when these elements are duly proportioned to one another in respect of compounding power and bulk, and when they are perfectly mingled. Pain is felt when one of these elements is in defect or in excess or is isolated in the body without being compounded with all the others. When an element is isolated and stands by itself, not only must the place which it left become diseased, but the place where it stands in a flood must, because of the excess, cause pain and distress. In fact, when more of an element flows out of the body than is necessary, to get rid of superfluity the emptying causes pain. If it be to an inward part to which the emptying takes place, the shifting and the separation from other elements, the man certainly must suffer a double pain, one in the place left and the other in the place flooded.

"The constituents of the body—blood, phlegm, yellow bile and black bile, remain always the same according to both convention and nature. Phlegm is quite unlike blood, blood being quite unlike bile, bile being quite unlike phlegm. How could they be like one another when their colours appear not alike to the sight nor does their touch seem alike to the hand? For they are not equally warm, nor cold, nor dry, nor moist. If you give a man a medicine which withdraws phlegm, he will vomit you phlegm; if you give him one which withdraws bile, he will vomit you bile. Similarly, black bile is purged away if you give a medicine which withdraws black bile. And if you wound a man's body so as to cause a wound, blood will flow from him. And you will find all these things happen on any day and on any night, both in winter and in summer, so long as the man can draw breath in and then breathe it out again, or until he is deprived of one of the elements congenital with him.

“ When a drug enters the body, it first withdraws that constituent of the body most akin to itself and then it draws and purges the other constituents. Take those who drink drugs which withdraw phlegm. First they vomit phlegm, then yellow bile, then black and finally pure blood whereupon they die.

“ Phlegm, increases in a man in winter, for phlegm being the coldest constituent of the body is closest akin to winter. If you touch phlegm, bile and blood, you will find phlegm the coldest. Winter fills the body with phlegm, since at that season of the year the sputum and nasal discharge are fullest of phlegm. In winter most swellings become white and diseases generally phlegmatic. In spring, too, the phlegm still remains strong in the body while the blood increases. For the cold relaxes, and the rains come on while the blood accordingly increases through the showers and hot days. These conditions of the year are more akin to the nature of blood, spring being moist and warm. It is chiefly in the spring and summer that men are attacked by dysentery and hæmorrhage from the nose and they are then hottest and red. In the summer blood is still strong and bile rises in the body and extends until autumn. In autumn blood becomes small in quantity as autumn is opposed to its nature, while bile prevails in the body during the summer season and the autumn. During this season, men vomit bile without an emetic and when they take purges the discharges are most bilious. When winter comes on, bile being chilled, becomes small in quantity and phlegm increases again because of the abundance of rain and the length of the nights.

“ All these elements then are always comprised in the body of a man, but as the year goes round they become now greater and now less, each in turn and according to its nature.

“ In the year sometimes the winter is most powerful, sometimes the summer, sometimes the spring and sometimes the autumn. So, too, in man sometimes phlegm is powerful, sometimes blood, sometimes bile, first yellow and then what is called black bile.

“ Such diseases as increase in the winter ought to cease in the summer. Such as increase in the summer ought to cease in the winter. When a disease passes these limits you may know it will last a year.

“ The physician, too, must treat diseases with the conviction that each of them is powerful in the body according to the season which is most conformable to it.”

The rest of the book is taken up with instructions about diet, regimen. Some anatomical details are added together with some notes on the examination of urine as well as a short description of fevers.

7.—The Sacred Disease.—(Epilepsy).

“ The disease called sacred is not any more divine or more sacred than other diseases, but has a natural cause, and its supposed divine origin is due to men's inexperience and to their wonder at its peculiar character. If it is to be considered divine because it is wonderful, there will not be one sacred disease but many.” He claims to be able to show that “ other diseases are no less wonderful and portentous and yet nobody considers them sacred. For instance, quotidian fevers, tertians and quartans, seem to me to be no less sacred and god-sent than this disease but nobody wonders at them . . . ” His own view is that “ those who

first attributed a sacred character to this malady were like the magicians, purifiers, charlatans and quacks of his own day, men who claim great piety and superior knowledge. Being at a loss and having no treatment which would help, they concealed and sheltered themselves behind superstition and called this illness sacred in order that their utter ignorance might not be manifest."

If, as he says later on, "they profess to know how to bring down the moon to eclipse the sun, to make storm and sunshine, rain or drought, the sea impassable and the earth barren and all such wonders, whether it be by rites or by some cunning or practice that can be effected, in any case he is sure it is impious and that the gods would resist such extreme actions." He suggests that "men in need of a livelihood contrive and devise fictions of all sorts about this disease, putting the blame for each form of the affection upon a particular god. If the patient roar or be convulsed on the right side, they say the *Mother of Gods* is to blame. If he utter a loud and piercing cry they liken him to a horse and blame *Poseidon*. If he foam at the mouth and kick, *Ares* has the blame. When fears and terrors occur at night with delirium they say *Hecate* is attacking." In the course of his arguments against this he says, "a man's body is not defiled by a god, the one being utterly corrupt and the other perfectly holy At least it is godhead that purifies, sanctifies and cleanses us from the greatest and most impious of our sins. We ourselves fix boundaries to the sanctuaries and precincts of the gods, so that nobody may cross them unless he be pure; and when we enter we sprinkle ourselves, not defiling ourselves thereby, but to wash away any pollution we may have contracted." Such is his opinion about purifications.

Towards the end of the book he refers to the brain and says, "from it only arise our pleasures, joys, laughter and jests as well as sorrows, pains, griefs and tears. Through it in particular we think, see, hear and distinguish the ugly from the beautiful, the bad from the good, the pleasant from the unpleasant. It is the same thing that makes us mad, delirious, inspires us with dread and fear, whether by night or by day, brings sleeplessness, inopportune mistakes, aimless anxieties, absent-mindedness and acts that are contrary to habit. To consciousness the brain is the messenger. For when a man draws breath into himself, the air first reaches the brain and so is dispersed through the rest of the body, though it leaves in the brain its quintessence and all that it has of intelligence and sense." Wherefore he asserts "the brain is the interpreter of consciousness. The diaphragm has a name due merely to chance and custom" and he "does not know what power the diaphragm has for thought and intelligence. It can only be said that if a man be unexpectedly over-joyed or grieved, the diaphragm jumps and causes him to start. It perceives nothing before the other parts do, but is idly named as though it were the cause of perception; just like the parts by the heart called the ears though they contribute nothing to hearing. Some people say that the heart is the organ by which we think and that it feels pain and anxiety, but it is not so; it merely is convulsed, as is the diaphragm, only more so" for reasons that he gives "Neither has the heart any share of intelligence, but it is the brain which is the cause of all the things he mentioned."

He concludes the book by saying that:—

"Whoever knows how to cause in men by regimen moist or dry, hot or cold, he can cure this disease also, if he distinguish the seasons for useful treatment, without having recourse to purifications and magic."