

*History of Medicine*

*Optimal Reading* *Part 1*

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**HIPPOCRATIC WRITINGS**  
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PENGUIN BOOKS

prevent an exact calculation of the dates Hippocrates intended. The chief of these mentioned in the text, together with their approximate equivalents, are:

The rising of Arcturus	10 September
The rising of the Pleiads	10 May
The setting of the Pleiads	11 November
The rising of the Dog Star	17 July

## THE OATH

I SWEAR by Apollo the healer, by Aesculapius, by Health and all the powers of healing, and call to witness all the gods and goddesses that I may keep this Oath and Promise to the best of my ability and judgement.

I will pay the same respect to my master in the Science as to my parents and share my life with him and pay all my debts to him. I will regard his sons as my brothers and teach them the Science, if they desire to learn it, without fee or contract. I will hand on precepts, lectures and all other learning to my sons, to those of my master and to those pupils duly apprenticed and sworn, and to none other.

I will use my power to help the sick to the best of my ability and judgement; I will abstain from harming or wronging any man by it.

I will not give a fatal draught to anyone if I am asked, nor will I suggest any such thing. Neither will I give a woman means to procure an abortion.

I will be chaste and religious in my life and in my practice. I will not cut, even for the stone, but I will leave such procedures to the practitioners of that craft.

Whenever I go into a house, I will go to help the sick and never with the intention of doing harm or injury. I will not abuse my position to indulge in sexual contacts with the bodies of women or of men, whether they be freemen or slaves.

Whatever I see or hear, professionally or privately, which ought not to be divulged, I will keep secret and tell no one.

If, therefore, I observe this Oath and do not violate it, may I prosper both in my life and in my profession, earning good repute among all men for all time. If I transgress and forswear this Oath, may my lot be otherwise.

## THE NATURE OF MAN

*A popular lecture on physiology*

1. This lecture is not intended for those who are accustomed to hear discourses which inquire more deeply into the human constitution than is profitable for medical study. I am not going to assert that man is all air, or fire, or water, or earth, or in fact anything but what manifestly composes his body; let those who like discuss such matters. Nevertheless, when these things are discussed I perceive a certain discrepancy in the analyses for, although the same theory is employed, the conclusions do not agree. They all, theorizing, draw the same deduction, asserting that there is one basic substance which is unique and the basis of everything; but they call it by different names, one insisting that it is air, another that it is fire, another water, another earth. Each adds arguments and proofs to support his contention, all of which mean nothing. Now, whenever people arguing on the same theory do not reach the same conclusion, you may be sure that they do not know what they are talking about. A good illustration of this is provided by attending their disputations when the same disputants are present and the same audience; the same man never wins the argument three times running, it is first one and then the other and sometimes the one who happens to have the glibbest tongue. Yet it would be expected that the man who asserts that he can provide the correct explanation of the subject, if, that is, he really knows what he is talking about and demonstrates it correctly, should always win the argument. I am of the opinion that these people wreck their own theories on the problem of the terms they use for the One because they fail to understand the issue. Thus they serve, rather, to establish the theory of Melissus.\*

\* Flourished about 440 B.C.; like Parmenides, he denied plurality and change and held that what is is one and unchanging.

## THE NATURE OF MAN

2. I need say no more about these theorists. But when we come to physicians, we find that some assert that man is composed of blood, others of bile and some of phlegm. But these, too, all make the same point, asserting that there is a basic unity of substance, although they each give it a different name and so change its appearance and properties under stress of heat and cold, becoming sweet or bitter, white or black, and so forth. Now I do not agree with these people either, although the majority will declare that this, or something very similar, is the case. I hold that if man were basically of one substance, he would never feel pain, since, being one, there would be nothing to hurt. Moreover, if he should feel pain, the remedy likewise would have to be single. But in fact there are many remedies because there are many things in the body which when abnormally heated, cooled, dried or moistened by interaction, engender disease. As a result, disease has a plurality of forms and a plurality of cures.

I challenge the man who asserts that blood is the sole constituent of the human body, to show, not that it undergoes changes into all sorts of forms, but that there is a time of year or of human life when blood is obviously the sole constituent of the body. It is reasonable to suppose, were this theory true, that there is one period at which it appears in its proper form. The same applies to those who make the body of phlegm or bile.

I propose to show that the substances I believe compose the body are, both nominally and essentially, always the same and unchanging; in youth as well as in age, in cold weather as well as in warm. I shall produce proofs and demonstrate the causes both of the growth and decline of each of the constituents of the body.

3. In the first place, generation cannot arise from a single substance. For how could one thing generate another unless it copulated with some other? Secondly, unless the things which copulated were of the same species and had the same generative capabilities, we should not get these results. Again, generation would be impossible unless the hot stood in a fair and reasonable proportion to the cold, and likewise the dry to

the wet; if, for instance, one preponderated over the other, one being much stronger and the other much weaker. Is it likely, then, that anything should be generated from one thing, seeing that not even a number of things suffice unless they are combined in the right proportions? It follows, then, such being the nature of the human body and of everything else, that man is not a unity but each of the elements contributing to his formation preserves in the body the power which it contributed. It also follows that each of the elements must return to its original nature when the body dies: the wet to the wet, the dry to the dry, the hot to the hot and the cold to the cold. The constitution of animals is similar and of everything else too. All things have a similar generation and a similar dissolution, for all are formed of the substances mentioned and are finally resolved in the same constituents as produced them; that too is how they disappear.

4. The human body contains blood, phlegm, yellow bile and black bile. These are the things that make up its constitution and cause its pains and health. Health is primarily that state in which these constituent substances are in the correct proportion to each other, both in strength and quantity, and are well mixed. Pain occurs when one of the substances presents either a deficiency or an excess, or is separated in the body and not mixed with the others. It is inevitable that when one of these is separated from the rest and stands by itself, not only the part from which it has come, but also that where it collects and is present in excess, should become diseased, and because it contains too much of the particular substance, cause pain and distress. Whenever there is more than slight discharge of one of these humours outside the body, then its loss is accompanied by pain. If, however, the loss, change or separation from the other humours is internal, then it inevitably causes twice as much pain, as I have said, for pain is produced both in the part whence it is derived and in the part where it accumulates.

5. Now I said that I would demonstrate that my proposed constituents of the human body were always constant, both nominally and essentially. I hold that these constituents are

blood, phlegm and yellow and black bile. Common usage has assigned to them specific and different names because there are essential differences in their appearance. Phlegm is not like blood, nor is blood like bile, nor bile like phlegm. Indeed, how could they be alike when there is no similarity in appearance and when they are different to the sense of touch? They are dissimilar in their qualities of heat, cold, dryness and moisture. It follows then that substances so unlike in appearance and characteristics cannot basically be identical, at least if fire and water are not identical. As evidence of the fact that they are dissimilar, each possessing its own qualities and nature, consider the following case. If you give a man medicine which brings up phlegm, you will find his vomit is phlegm; if you give him one which brings up bile, he will vomit bile. Similarly, black bile can be eliminated by administering a medicine which brings it up, or, if you cut the body so as to form an open wound, it bleeds. These things will take place just the same every day and every night, winter and summer, so long as the subject can draw breath and expel it again, or until he is deprived of any of these congenital elements. For they must be congenital, firstly because it is obvious that they are present at every age so long as life is present and, secondly, because they were procreated by a human being who had them all and mothered in a human being similarly endowed with all the elements which I have indicated and demonstrated.

6. Those who assert that the human body is a single substance seem to have reasoned along the following lines. Having observed that when men died from excessive purgation following the administration of drugs, some vomited bile and some phlegm, they concluded from this that whatever was the nature of the material voided at death, this was indeed the fundamental constituent of man. Those who insist that blood is the basic substance use a similar argument; because they see blood flowing from the body in the fatally wounded, they conclude that blood constitutes the soul. They all use similar arguments to support their theories. But, to begin with, no one ever yet died from excessive purgation and brought up only bile; taking medicine which causes the bringing up

of bile, produces first the vomiting of bile, but subsequently, the vomiting of phlegm as well. This is followed by the vomiting of black bile in spite of themselves and they end up by vomiting pure blood and that is how they die. The same effects result from taking a drug which brings up phlegm; the vomiting of phlegm is followed by yellow bile, then black bile, then pure blood, and so death ensues. When a drug is ingested, it first causes the evacuation of whatever in the body is naturally suited to it, but afterwards, it causes the voiding of other substances too. It is similar in the case of plants and seeds; when these are put into the ground, they first absorb the things which naturally suit them; they may be acid, bitter, sweet, salty and so forth. But although at first the plant takes what is naturally suited to it, afterwards it absorbs other things as well. The action of drugs in the body is similar; those which cause the bringing up of bile at first bring it up undiluted, but later on it is voided mixed with other substances; the same is true of drugs which bring up phlegm. In the case of men who have been fatally wounded the blood at first runs very warm and red, but subsequently it becomes more like phlegm and bile.

7. Now the quantity of phlegm in the body increases in winter because it is that bodily substance most in keeping with the winter, seeing that it is the coldest. You can verify its coldness by touching phlegm, bile and blood; you will find that the phlegm is the coldest. It is however the most viscous and is brought up with greater force than any other substance with the exception of black bile. Although those things which are forcibly expelled become warmer owing to the force to which they are subjected, nevertheless phlegm remains the coldest substance, and obviously so, owing to its natural characteristics. The following signs show that winter fills the body with phlegm: people spit and blow from their noses the most phlegmatic mucus in winter; swellings become white especially at that season and other diseases show phlegmatic signs.

During the spring, although the phlegm remains strong in the body, the quantity of blood increases. Then, as the cold becomes less intense and the rainy season comes on, the wet

and warm days increase further the quantity of blood. This part of the year is most in keeping with blood because it is wet and hot. That this is so, you can judge by these signs: it is in spring and summer that people are particularly liable to dysentery and to epistaxis, and these are the seasons too at which people are warmest and their complexions are ruddiest. During the summer, the blood is still strong but the bile gradually increases, and this change continues into the autumn when the blood decreases since the autumn is contrary to it. The bile rules the body during the summer and the autumn. As proof of this, it is during this season that people vomit bile spontaneously, or, if they take drugs, they void the most bilious sort of matter. It is plain too from the nature of fevers and from people's complexions in that season. During the summer, the phlegm is at its weakest since this season, on account of its dryness and heat, is most contrary to that substance.

The blood in the body reaches its lowest level in autumn, because this is a dry season and the body is already beginning to cool. Black bile is strongest and preponderates in the autumn. When winter sets in the bile is cooled and decreases while the phlegm increases again owing to the amount of rain and the length of the nights.

All these substances, then, are all always present in the body but vary in their relative quantities, each preponderating in turn according to its natural characteristics. The year has its share of all the elements: heat, cold, dryness and wetness. None of these could exist alone for a moment, while, on the other hand, were they missing, all would disappear, for they are all mutually interdependent. In the same way, if any of these primary bodily substances were absent from man, life would cease. And just as the year is governed at one time by winter, then by spring, then by summer and then by autumn; so at one time in the body phlegm preponderates, at another time blood, at another time yellow bile and this is followed by the preponderance of black bile. A very clear proof of this can be obtained by giving the same man the same emetic at four different times in the year; his vomit will be most phlegmatic

in winter, most wet in spring, most bilious in summer and darkest in autumn.

8. In these circumstances it follows that the diseases which increase in winter should decrease in summer and vice versa. Those which come to an end in a given number of days are exceptions and I will discuss periodicity later on. You may expect diseases which begin in spring to end in the autumn; likewise autumnal diseases will disappear in the spring. Any disease which exceeds these limits must be put down as belonging to a whole year. In applying his remedies, the physician must bear in mind that each disease is most prominent during the season most in keeping with its nature.

9. In addition to these considerations, certain further points should be known. Diseases caused by over-eating are cured by fasting; those caused by starvation are cured by feeding up. Diseases caused by exertion are cured by rest; those caused by indolence are cured by exertion. To put it briefly: the physician should treat disease by the principle of opposition to the cause of the disease according to its form, its seasonal and age incidence, countering tenseness by relaxation and vice versa. This will bring the patient most relief and seems to me to be the principle of healing.

Some diseases are produced by the manner of life that is followed; others by the life-giving air we breathe. That there are these two types may be demonstrated in the following way. When a large number of people all catch the same disease at the same time, the cause must be ascribed to something common to all and which they all use; in other words to what they all breathe. In such a disease, it is obvious that individual bodily habits cannot be responsible because the malady attacks one after another, young and old, men and women alike, those who drink their wine neat and those who drink only water; those who eat barley-cake as well as those who live on bread, those who take a lot of exercise and those who take but little. The régime cannot therefore be responsible where people who live very different lives catch the same disease.

However, when many different diseases appear at the same time, it is plain that the regimen is responsible in individual

cases. Treatment then should aim at opposing the cause of the disease as I have said elsewhere; that is, treatment should involve a change in regimen. For, in such a case, it is obvious that all, most, or at least one of the factors in the regimen does not agree with the patient; such must be sought out and changed having regard to the constitution of the patient, his age and appearance, the season of the year and the nature of the disease. The treatment prescribed should vary accordingly by lessening this or increasing that, and the regimen and drugs should be appropriately adapted to the various factors already mentioned.

When an epidemic of one particular disease is established, it is evident that it is not the regimen but the air breathed which is responsible. Plainly, the air must be harmful because of some morbid secretion which it contains. Your advice to patients at such a time should be not to alter the regimen since this is not to blame, but they should gradually reduce the quantity of food and drink taken so that the body is as little loaded and as weak as possible. A sudden change of regimen involves the risk of starting a fresh complaint, so you should deal with the regimen in this way when it is clearly not the cause of the patient's illness. Care should be taken that the amount of air breathed should be as small as possible and as unfamiliar as possible. These points may be dealt with by making the body thin so that the patient will avoid large and frequent breaths, and, wherever practicable, by a change of station from the infected area.

10. The most serious diseases are those which arise from the strongest part of the body, since if a disease remains in the place where it begins, it is inevitable that the whole body should sicken if its strongest part does. Alternatively, if the disease passes from the stronger part to a weaker part, it proves difficult to dispel. Those which pass from a weak part to a stronger are more easily cured because the in-flowing humours are easily spent by the strength of the part.

11. The blood-vessels of largest calibre, of which there are four pairs in the body, are arranged in the following way: one pair runs from the back of the head, through the neck, and,

weaving its way externally along the spine, passes into the legs, traverses the calves and the outer aspect of the ankle, and reaches the feet. Venesection for pains in the back and loins should therefore be practised in the hollow of the knee or externally at the ankle.

The second pair of blood-vessels runs from the head near the ears through the neck, where they are known as the jugular veins. Thence they continue deeply close to the spine on either side. They pass close to the muscles of the loins, entering the testicles and the thighs. Thence they traverse the popliteal fossa on the medial side and passing through the calves lie on the inner aspect of the ankles and the feet. Venesection for pain in the loin and in the testicles should therefore be done in the popliteal area or at the inner side of the ankle.

The third pair of blood-vessels runs from the temples, through the neck and under the shoulder-blades. They then come together in the lungs; the right-hand one crossing to the left, the left-hand one crossing to the right. The right-hand one proceeds from the lungs, passes under the breast and enters the spleen and the kidneys. The left-hand one proceeds to the right on leaving the lungs, passes under the breast and enters the liver and the kidneys. Both vessels terminate in the anus.

The fourth pair runs from the front of the head and the eyes, down the neck and under the clavicles. They then course on the upper surface of the arms as far as the elbows, through the forearms into the wrists and so into the fingers. They then return from the fingers running through the ball of the thumb and the forearms to the elbows where they course along the inferior surface of the arms to the axillae. Thence they pass superficially down the sides, one reaching the spleen and its fellow the liver. Thence they course over the belly and terminate in the pudendal area.

Apart from the larger vessels which are thus accounted for, there are a large number of vessels of all sizes running from the belly to all parts of the body; these carry foodstuffs to the body. They also form connections between the large main vessels which run to the belly and the rest of the body. In

addition they join up with each other and form connections between the deep and superficial vessels.

The following are therefore rules for venesection. Care should be taken that the cuts are as close as possible to the determined source of the pain and the place where the blood collects. By doing this a sudden, violent change is avoided but at the same time the customary site of collection of blood will be changed.

12. If a patient over the age of thirty-five expectorates much without showing fever, passes urine exhibiting a large quantity of sediment painlessly, or suffers continuously from bloody stools as in cases of dysentery, his complaint will arise from the following single cause. He must, when a young man, have been hard-working, fond of physical exertion and work and then, on dropping the exercises, have run to soft flesh very different from that which he had before. There must be a sharp distinction between his previous and his present bodily physique so that the two do not agree. If a person so constituted contracts some disease, he escapes for the time being but, after the illness, the body wastes. Fluid matter then flows through the blood-vessels wherever the widest way offers. If it makes its way to the lower bowel it is passed in the stools in much the same form as it was in the body; as its course is downwards it does not stay long in the intestines. If it flows into the chest, suppuration results because, owing to the upward tread of its path, it spends a long time in the chest and there rots and forms pus. Should the fluid matter, however, be expelled into the bladder, it becomes warm and white owing to the warmth of that region. It becomes separated in the urine; the lighter elements float and form a scum on the surface while the heavier constituents fall to the bottom forming pus.

Children suffer from stones owing to the warmth of the whole body and of the region about the bladder in particular. Adult men do not suffer from stone because the body is cool; it should be thoroughly appreciated that a person is warmest the day he is born and coldest the day he dies. So long as the body is growing and advancing towards strength it is necessarily warm; but when it begins to wither and to fade away to

feebleness, it cools down. From this principle it follows that a person is warmest the day he is born because he grows most on that day; he is coldest the day he dies because on that day he withers most.

People of the constitution mentioned above, that is athletic people who have got soft, generally recover of their own accord within forty-five days of the wasting beginning. If such a period be exceeded, natural recovery takes a year so long as no other malady intervenes.

13. Prognosis is safest to foretell in those diseases which develop quickly and those whose causes are apparent. They should be cured by opposing whatever is the cause of the disease, of which the body will thus be rid.

14. The presence of a sandy sediment or of stones in the urine means that originally tumours grew in relation to the aorta and suppurated. Then, because the tumour did not burst rapidly, stones were formed from the pus and these were squeezed out through the blood-vessels together with urine into the bladder. When the urine is only blood-stained, the blood-vessels have been attacked. Sometimes the urine is thick and small hair-like pieces of flesh are voided with it which, it must be realized, come from the kidneys and the joints. When in an otherwise clear urine, a substance like bran is present in it, the bladder is inflamed.

15. Most fevers are caused by bile. Apart from those arising from local injury, they are of four types. These are called continued, quotidian, tertian and quartan.

Continued fever is produced by large quantities of the most concentrated bile and the crisis is reached in the shortest time; as the body enjoys no periods of coolness, the great heat it endures results in rapid wasting.

Quotidian fever is caused by a large quantity of bile, but less than that which causes continued fever. This is quicker than the others to depart although it lasts longer than a continued fever by as much as there is less bile causing it, and because the body has some respite from the fever whereas continued fever allows none.

Tertian fever lasts longer than quotidian fever and is caused

by less bile. A tertian fever is longer in proportion to the longer respites from fever allowed to the body compared with quotidian fevers.

Quartans behave similarly to the tertians but last longer, as they arise from still less of the heat-producing bile and because they give the body longer respites in which to cool down. A secondary reason for their chronic character and difficult resolution is that they are caused by black bile; this is the most viscous of the humours in the body and remains the longest. As evidence of this note the association of quartan fevers with melancholy. Quartan fever has its highest incidence in the autumn and in those between the ages of twenty-five and forty-five. This is the time of life when the body is most subject to black bile, and the autumn is the corresponding season of the year. If a quartan fever occurs at any other time of the year, or at any other age, you may be sure that it will not be chronic unless some other malady be present.