AVICENNA—HIS LIFE AND TIMES*

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WILL you allow me to preface what I have to say this evening by acknowledging the honour you do me by your invitation to address your Society, and then by warning you that there is very little which is medical about me except what I have acquired by marriage? What I have to say lays no claim to original research, though a knowledge of Arabic has been of help. For scientific literature that language was the lingua franca of the learned world from India to Morocco and Spain once Islam had established itself there, and scholars whose mother-tongue might have been Arabic, Persian, Turkish, Spanish or any other used it when writing their books. It was the language into which translations were made—through the intermediary of Syriac or Hebrew—when the Caliphs wished to delve into the mysteries of Greek philosophy and medicine. Hence, we speak of Arabian science or Arabian medicine, although it was rarely that a native of Arabia concerned himself with such subjects.

To turn now to Avicenna, which is a mutilated version of the name Abu 'Alī ibn Sīnā. Two years or so ago, the Iranian Government celebrated the thousandth anniversary of the birth of this great figure of the Islamic world, where he is known as 'Al-Shaikh, al-Ra'is' (the Shaikh, the Chief), or as 'Al-Mu'allim al-Thāni' (the Second Doctor—Aristotle having been the First). According to Western reckoning the celebration was premature, the birth having occurred in A.D. 980. But the Muhammadan year consists of twelve lunar months, which amount only to 354 days, whereas the year of our era is the solar one of 365 days, with 366 in leap years. However, the authorities explained, since Avicenna was a Muslim it was fitting that his millennium should be reckoned according to the Muslim era, and, whatever the reckoning, the time had come for a celebration. The Arabs and Turks had had theirs, for Avicenna was claimed by Arabs as having been a figure in Arabian science, and by the Turks as having been born in Central Asia. *Now* the Persians wished to do honour to one who had originated in Persian territory and was buried in Persian soil.

We happen to know more about Avicenna than about most of the pioneers of medicine, because he dictated a record of the first twenty-one

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years of his life to his friend and pupil Juzjāni. This autobiographical material ceased at the time of his father's death, which seems to have brought about a sudden release from his older ways and habits and to have set him off on a more adventurous career. The whole story is to be found in various dictionaries of biography in Arabic and Persian, from which this present account is taken. From it we learn that Avicenna was born in A.D. 980, though some put the year as 985, near Bukhara, the capital of Transoxiana, in a village where his father held a government appointment of some importance, probably as tax gatherer. The capital city itself had long been well endowed with schools, mosques and places of higher learning, and after a time the father moved there, possibly to give his family a good education. By the age of ten, Avicenna had the Koran by heart, and knew so much about Arabic and Persian literature that, as he says himself, 'it was accounted a marvel'.

While Avicenna was still a child the father had come under the influence of missionaries of the Isma'ili sect, who at times made use of hashish as an instrument in the propagation of their doctrines and had hence become known to the Arabs as *Hashashin*, or 'Hashish-givers', i.e. the *Assassins*, well known from Marco Polo. They formed a secret religio-political sect, strongly in conflict with orthodoxy and even with the Imamate doctrines prevalent in Persia, and seem to have been much concerned with the subjects of man's soul and mind, about which their missionaries had endless discussions with Avicenna's father and brother. To all of their arguments the precocious boy listened carefully, so that, when a certain philosopher called Nātili came to live in Bukhara and was given a lodging in the house of Avicenna's father, the ground was prepared for the boy to acquire a training in philosophy.

Side by side with this and other pursuits Avicenna studied Islamic jurisprudence, thus gaining a taste for legal subtleties and a facility for propounding legal conundrums which were of use to him in argument with his philosophy teacher, to whom he proved himself something of a nuisance, for we read that the master complained to the boy's father that he was wasting time on matters remote from true science. 'The fact was,' says Avicenna, 'that Nātili knew only the externals of philosophy. Of its inwardness he knew nothing.'

Of his own rapid advance in mathematics Avicenna says that he read with a master only the first five propositions of Euclid and was then able to work out all the rest for himself. He was even capable of explaining some of them to the master, who had himself been puzzled by the difficulty of the proofs. It is obvious that we are here dealing with a prodigy, and one who was by no means unconscious of his own powers. But I have often remarked in such parts of the East as I have visited that there is not that reticence about personal accomplishments to which we are accustomed here normally.

Formal modesty is there regarded as an affectation, and may in fact well be so. Clearly Avicenna did not suffer from it.

After acquiring a good knowledge of the various branches of philosophy, he decided to study medicine and began reading the extant manuals of physic.

Medicine [he comments] is not a difficult subject, and in a short space of time, of course, I excelled in it, so that the masters of physic came to read with me, and I began to visit the sick. Consequently there were opened to me the doors to various kinds of treatment which I learnt by experience (or experiment). I was then about sixteen years of age. During the period of hard practice and study which then ensued, I never once slept the whole night through. If a problem was too difficult for me, I repaired to the mosque and prayed, invoking the Creator of all things, until the gate that had been closed to me was opened and what had been complex became simple. Always, as night fell, I returned to my house, set the lamp before me and busied myself with reading and writing. If sleep overcame me or I felt the flesh growing weak, I had recourse to a beaker of wine, so that my energies were restored.

There the narrative of that part of his life described by Avicenna himself ends, as I have said, when he was twenty-one years of age, with the death of his father. The story is taken up by his pupil Juzjāni, who gives details of the very strange and eventful life led by the Shaikh in the years following. Even at the outset of this period Avicenna's fame had spread abroad. While he was stationed at the court of the Khwarazmshah, the ruler of Khiva, south of the Aral Sea, a message came from the famous warrior Mahmūd of Ghazna demanding the presence of a number of scientists and men of learning, amongst whom was Avicenna. He refused the too-pressing invitation, but only at the risk of his life, which his patron helped him to preserve by providing him with a means of escape to Gurgan, on the shores of the Caspian Sea.

In succeeding years he held a number of political posts, all the time keeping his hold on philosophy and medicine. While serving as vizier to the Amir of Hamadan, he somehow aroused the hostility of the army, possibly on theological grounds; the resurrection of the body being denied by astrologers and physicians. The troops attacked and plundered his house and urged the amir to kill him, so that he found it advisable to go into hiding in a friend's house. There he remained working at his great *Canon* of medicine until, one day, the amir was stricken with colic. Avicenna was summoned from his hiding place, effected a cure and was restored to favour and office. By now also he had begun to compose and dictate the opening chapters of his *Shifa*, a vast and comprehensive work on the general principles of philosophy, metaphysics and logic. Each night there was a gathering of students at his house and to them was read over the material composed during the day, alternated by passages from the *Canon*. When the seminar was over, singers

and musicians arrived—the wine not being forgotten—for the entertainment of the company and their learned host.

When this amir who had been Avicenna's employer died, the Shaikh had once again to make a hurried departure to prevent himself being forced into the service of the new ruler. This time he fled to Isfahan, travelling across the desert with a few friends in the disguise of dervishes. Once arrived at his destination, however, he was sumptuously lodged and was able to continue with his various labours, including that on the *Canon*. Since it is on this enormous work that his reputation mainly rests, a word or two may perhaps be said about it here. Some doubt has been cast upon its ever having been used as a text-book of medicine, the suspicion being that it was rather a literary than a scientific effort. Certainly it does seem to contain all the medical learning that had ever been transmitted from Hippocrates onwards. Each Fenn, or Book, is endlessly divided and subdivided under headings, apparently for easy memorizing, and that alone would have made for popularity in the schools both of the East and the West. Moreover, it is full of detail and is said to contain some useful clinical descriptions, especially of diseases of the skin and nerves, all very common in the East. Occasionally there is a piece of original observation, as for example, of an experiment he performed on himself. One day, when he was suffering from hemicrania—which is, of course, migraine—he diagnosed as the cause a materies about to descend into what the text calls the 'veil' or 'partition' of the skull. He thereupon called for crushed ice, which he applied to his head in a cloth. This, he says, strengthened the weak spot in such manner as to enable it to withstand the descending materies and thus led to a cure.

From our point of view, the defects of the *Canon*—apart from its length and general unwieldiness—are its dogmatism and reliance on traditionally accepted theories. Anything not in conformity with them is denounced as empiricism, for which another name is quackery. In illustration of what is meant by traditionalism of this kind I should like to quote a passage from *The Paradise of Wisdom*, a work dating from about a century earlier than the *Canon*, but belonging to the same school. It repeats Hippocrates on the principles of medical treatment, and says:

> The physician must not proceed to treatment until he understands the nature of the disease. When he does that, he must go by opposites. If the disease originates from heat, it must be treated with cold, if from moisture then with dryness, and so forth. If the cause is fear or grief, then the physician must induce tranquillity and confidence in his patient. But first the aetiology of the disease must be understood; only then is it possible to begin treatment.

One of Avicenna's methods of work when confronted with a problem or working at a new section of one of his numerous compositions, was to call for

two secretaries and a supply of wine. He would then dictate until the secretaries—and the wine—were exhausted, although he himself remained as full of energy as ever. He never kept copies of his works, so that at his death his books had to be collected from a number of scattered places. Ordinary toil seems not to have affected his tremendous energies. What *did* damage his health was his excessive indulgence in sexual pleasures, which led ultimately to his death. In spite of the busy political and professional existence which he led, he had found time for dissipation, his end probably being hastened by his insistence on treating his ailments according to his own methods. However that may be, he died on his way from Isfahan to Hamadan in A.D. 1037, when he was about fifty-seven years old. It is not certain at which of the two places he was buried, the more generally accepted tradition being that it was Hamadan. At all events, for some centuries there has been a tomb there to which his name has been attached and was until recently something of a place of pilgrimage. When I visited it in 1919, the guardians of the tomb were mullas or learned men, who used it as a place of study and contemplation and clearly regarded it as having a reputation for sanctity. My arrival happened to take place on what was a holy day in the Muhammadan calendar, and I was not therefore greeted with enthusiasm. When I came next day, however, when the ceremonies were over, all was well.

Alongside the Shaikh's grave and under the same roof was that of Abu Sa'id Daqdāq, the friend who had given him refuge on the occasion of his having aroused the enmity of the amir's army. Several of the mullas there present when I entered pointed out a small circular trough cut in this gravestone, and they assured me that by virtue of Avicenna's proximity it had magical healing properties. They declared that if I drank water which had been poured into the trough, I should be immediately cured of any fever I might be suffering from. I regretted that at the moment my health happened to be remarkably good, and that I therefore was unable to take advantage of the opportunity or to put the matter to a scientific test. However, to compensate for their obvious disappointment, I dropped a couple of coins into the trough and was astounded to see the holy men immediately make a most unholy scramble for them. I took advantage of the confusion to make my exit.

The reason for my having gone there at all was a letter from Sir Wm. Osler, then Regius Professor of Medicine at Oxford, suggesting that when I went to Persia I might report to him on the condition of the tomb. He had heard that it was in a state of dilapidation, and had received a *firman* from the Shah to have it put into good repair. Actually, as far as I could make out, the building was in tolerably good condition, having been partly reconstructed by a pious and noble lady towards the end of the nineteenth century. It was quite a modest little building of no architectural merit, and so in 1954,

in time for the celebrations, it was replaced by a more imposing structure, consisting of a fine tomb-chamber and library, topped by a tall open-work tower designed on traditional lines and so situated as to be visible for miles.

What I have said about Avicenna's personal character shows him to have been a man of extraordinary powers, both mental and physical, with a rare capacity for driving himself and probably others also, and hence making enemies. He seems to have aroused the suspicions of the religious authorities of the day as a sceptic in matters of faith, but he also got a tremendous reputation as a doctor, able to perform almost magical cures. In the Middle Ages in fact, at least in Turkey, he had magical powers ascribed to him, more particularly as a kind of Pied Piper, able to destroy rats and mice. But in the Middle Ages it was enough to have acquired fame of any kind to be accounted a wizard. Even Vergil was declared to have the power of performing miracles.

What Avicenna's status is in the history of scientific progress is difficult to assess. Primarily he was a philosopher, and like others of his kind, took all learning for his province, with medicine as one of its parishes. He was reared under the shadow that Galen had thrown across the centuries and he relied in his practice upon ancient and long accepted dogma, namely the theories formulated in ages long past. Galen's shadow was not greatly lightened by Avicenna, but he appears to have made it easier for his colleagues to make their way about in the gloom. The *Canon* classified and systematized all the Greek medical knowledge that survived, so that part of it at any rate came to be required reading for every medical student in the Islamic world and, in a Latin translation, in Europe too. In its Latin garb, full of strange mutilations of the Arabic original, it was one of the earliest works produced once the European printers began to work.

Avicenna's training was conducted, as I have said, in a climate of ideas about the universe which had not changed since Galen or even earlier, and, at the risk of covering familiar ground, I must say something about it. The fundamental concept of the physical world, including the human body, was that all matter was composed of four elements: earth, air, fire and water. But there were also four cardinal qualities of nature, namely, heat, cold, dryness and wetness, and each element bears one of these qualities and also possibly one compatible with it, so that an element may be hot, cold, dry or moist; or it can be hot and dry, hot and moist, cold and dry, or cold and moist. Everything in the world, inanimate or animate, is an admixture of the four elements; man himself being composed of them and so also everything which he consumes. As Milton puts it in *Paradise Lost*:

> *Air, and ye Elements, the eldest birth*
> *Of Nature's womb, that in quaternion run*
> *Perpetual circle, multiform and mix*
> *And nourish all things.*

In course of time it became apparent that in between the four elements and the human body as it is, there must exist an intermediate stage, and as early as Galen—late second century A.D.—the theory of the humours was evolved. This declared that from the four elements there were formed four humours, out of which in turn the various parts of the body were composed. These humours were Black Bile, Blood, Choler or Yellow Bile, and Phlegm, each of which more especially represents one of the elements in nature. Thus Black Bile represents Earth, Blood represents Air, Choler represents Fire, and Phlegm, Water. Each humour except Phlegm also has its natural location in the body: Black Bile in the spleen, Blood in the liver, Yellow Bile in the gall-bladder, while Phlegm has no special location, being a by-product of the first 'coction' or digestion of food.

These four humours exist in the body in a temperament or complexion, which is a mixture of them all in proper proportions. The word *mizāj*, or mixture, is to this day the word used in Persian and Turkish, as well as sometimes in Arabic, to denote 'health'. 'How is your noble *mizāj*?' you ask of your friends. Perfect equilibrium of the humours is, however, extremely rare. There is nearly always a preponderance of one or other of the humours, and a man has a special complexion or temperament according to which humour it is. Thus a man with an excess of Black Bile is atrabilious or melancholic by nature; and the signs of it are that he grows black hair on his chest and has a gloomy outlook on life. If Blood preponderates, he is sanguine, fair-haired and lively in disposition; if the gall-bladder is too active and produces too much Choler, then the man is fiery and quick-tempered; whereas an over-abundance of Phlegm, which is cold and wet, makes him phlegmatic, slow and ponderous.

What now is a humour, and how is it created? According to the *Khwarazmiam Treasury*, a Persian medical encyclopaedia dating from about A.D. 1100, it is a moisture circulating in the body. 'Its natural location is in the veins and the hollow organs such as the stomach, the liver, the spleen and gall-bladder, and it is produced from the food. Some of the humours are good and some not. Those which are good replace the moistures in the body which are evacuated; the others are useless for this purpose and must be purged out of the body by means of drugs.'

The food undergoes a first coction or digestion in the stomach, whereby the more nutritious part of it is converted into chyle, the rest being partly rejected and partly going to form phlegm. The chyle, or chyme, which is the juice extracted from food by digestion, is conveyed to the liver by the portal vein, to which the veins of the stomach and mesentery are tributary, and there, in the liver, it receives a second coction. This separates it into three: a scum or froth which is the Yellow Bile, a sediment which is the Black Bile, and the Blood, which contains the choicest ingredients of the food. The

Blood passes on by the Superior Vena Cava to the heart, the more aqueous parts being dismissed to the kidneys for excretion. From the heart it goes for distribution to the arteries, in which there is a third digestion, and so to the various organs, where there is a final coction. Thus the body is built up.

That then is the story of man's framework. But it is not the whole story, for man is also the microscosm, an epitome of the great universe—the macrocosm, and hence he is under the influence of the planets. If born under Mars, he is martial in temperament; if under Mercury, he is mercurial; under Jupiter, he is jovial; if under Saturn, saturnine. For some reason, if it is Venus which happens to be in the ascendant, he is not labelled by the cognate adjective but by something less pointed and derogatory.

The humoral philosophy is by no means outmoded in the Middle East today, and that the stars will have their influence, even in England in the atomic age, is perfectly obvious to anyone who picks up a daily or weekly paper of the more popular kind. In Chaucer's time such ideas were universally prevalent, as you may gather from the Prologue to the *Canterbury Tales*, which contains a delicious thumb-nail sketch of the physician. I should like to read you Nevill Coghill's translation of it.

> *A Doctor too emerged as we proceeded;*
> *No one alive could talk as well as he did*
> *On points of medicine and of surgery,*
> *For, being grounded in astronomy,*
> *He watched his patient's favourable star, etc.*

You will notice the string of authorities enumerated by Chaucer, for the doctor's qualifications were largely a matter of bookwork and theory. Just a little earlier than Chaucer there was published in Egypt a work called *Sign-posts to the Approach to God* or, in other words, *Guides to Piety*. This title, like most others following the Islamic style, gives little indication of the contents of the work, which was intended for the guidance of an officer called the Muhtasib. The title is usually represented by 'Censor', but he was in fact an official appointed by the Caliph to superintend public morality and to ensure that the interests of the people were protected. His duties ranged from seeing that wayfarers were not drenched by overflowing gutter-spouts to ensuring that the sick were attended by properly qualified physicians. The book has a longish chapter devoted to medicine, which, it says, is both a science and an art. It is permitted by the canon laws of the faith because its function is to conserve the health of the body and protect the noble structure of man's frame from disease. The physician, therefore, must be acquainted with the composition of the body and the temperaments of the organs, with the diseases that occur in them, their causes, characteristics and symptoms, with the medicaments which are of

value for them and with the ways in which these medicaments are produced. He must also know how to treat diseases in such a way as to bring about a balance between the disease and the remedy, opposing the qualities of the one with those of the other. No person lacking such knowledge is qualified to treat patients, and it is unlawful for any person at all to apply any treatment involving a patient in risk.

From all practitioners the Muhtasib had to exact the Hippocratic oath, making them swear never to administer a noxious medicament or to compound a poison for anyone or to prescribe a drug to bring about abortion or to prevent conception. Doctors must turn their glances away from the women's quarters when visiting a patient, must not reveal a confidence, must never tear aside a veil or venture upon any course forbidden to them. This oath was, of course, a private contract between the members of the medical guild or fraternity, and was not legally binding. Since there was no official system of granting degrees after examination, there could be no conditions imposed before the doctor could practise, except that if called upon by the Muhtasib he had to satisfy that officer. All that was demanded by way of preliminary qualification was apprenticeship to someone already in the business, and that did not necessarily amount to anything very exacting. There is the story of a blind doctor in Baghdad who employed a man to lead him about, inspect urine bottles and generally assist in the practice. Unfortunately the doctor died two months after engaging this assistant, who thereupon immediately opened an office for the treatment of the sick on his own account.

The procedure laid down in this manual for the doctor when actually called in to visit the sick is instructive. He first had to inquire of the patient what it was that brought on the illness, and the nature of any pain he was suffering. In accordance with the answers he received he had to write a prescription, giving a copy to the relatives. The next day he had to pay a second visit, in order to inquire how the illness was progressing, to examine the urine and question the patient with the object of discovering if he was better or worse. Again he had to prescribe in accordance with what he found, giving the relatives a copy of the new prescription. This process continued until the patient recovered, or else died. If all had gone well, the physician received his fee and an honorarium. If, on the other hand, the patient died, the relatives were told to present themselves before the chief physician officially appointed in each city and lay before him the prescriptions which the doctor had written for the patient. If it was the chief physician's opinion that the treatment prescribed was in accordance with the requirements of science and the art of medicine, with no sign of fault or negligence on the doctor's part, it was his duty to declare that the man's life was ended by the termination of his allotted span. If he was of a different

opinion he had to say: 'Exact the blood-money for your kinsman from this doctor. He slew him through negligence and lack of skill.' 'In this excellent way,' says the author, 'they took their precautions that no one should practice medicine being unqualified and that no qualified doctor should be negligent.'

The same work has much to say about occulists and their strict supervision by the Muhtasib. In countries where eye diseases were—and are—so prevalent, his duties were likely to be onerous, if he took them seriously. One of his tasks was to examine practitioners on their knowledge of Hunain ibn Ishāq's work called *Ten Discourses on the Eye*, which dealt with such matters as the structure of the layers of the eye, the number of its humours, the nature of eye diseases and the remedies for them. Apparently there was also a practical examination, in which the persons subjected to it had to show competence in the handling of their instruments, such as a hook for the removal of growths within the conjunctiva, lancets for bleeding, kuhl (antimony) pencils and other fearsome-sounding tools. Only if the Muhtasib was satisfied could the oculist continue in practice. One class of persons who were on no account to be licensed were the travelling oculists, who, says the author, 'go about from place to place attacking men's eyes with their lancets and applying worthless ointments. There is no honesty in them.'

Similarly, bone-setters had to be put through their paces and their knowledge of the human frame examined. The size and shape of every bone had to be known, the number being put at 248, so that if one is broken or dislocated it can be restored to its original state. Surgeons too were subject to tests from the Muhtasib. They had to be familiar with Galen's manual on wounds and dressings, and with the anatomy of the human frame, more particularly the muscles, blood-vessels and ligaments, so that these could be avoided when abscesses were opened or haemorrhoids cut out. Each surgeon had to possess a set of instruments, which contained a number of lancets, some with rounded blades, some with square ones and some with the edge at an angle. A variety of knives also had to be included, together with a frontal hatchet, an amputating saw, an ear-piercer, a number of leeches, a packet of dressings and 'the olibanum medicament used for stanching blood'.

The author of the book has a warning about fraudulent surgeons who secretly insert a bone into a wound and then, when a crowd gathers, extract it with a flourish as a token of their skill in surgery.

A whole chapter is devoted to phlebotomists and cuppers, who must have a reliable knowledge of all the blood-vessels and muscles. Those wishing to qualify in phlebotomy had to practise on beetroot leaves, or rather on the veins of those leaves. No slave could be bled without his master's permission, nor a minor without permission of his guardian; and the operation was

forbidden for women in certain conditions. Bleeding had to be performed only in public, for obvious reasons (? murder); and with a sharp instrument, and only when the operator was in a state of mental calm. A list is given of the veins which may be bled in the head, hands, body and feet, the advantage to be derived in each case being specified. Cupping is declared to be less dangerous than phlebotomy—the test of the operator's skill being whether he inflicts pain when he makes his scarification.

The phlebotomist also undertook circumcisions, male and female, and carried the necessary instruments, consisting of a razor and a pair of scissors. The manual lays down the penalties incurred if the operation is badly performed and the patient suffers injury or dies.

To return to Avicenna and his methods of treatment. In his system of diagnosis, he lays great emphasis on the pulse and on the inspection of the urine. According to him, each pulsation consists of four factors: expansion, pause, contraction, pause. There are ten kinds of pulse, determined (1) by the extent of the expansion—short, long or intermediate; (2) by the quality of the impact on the fingers of the observer—strong, weak or intermediate; (3) by heat and cold, etc. etc.

As far as the urine was concerned, the chief points to be noted were the amount, colour, consistency and sediment.

Like his predecessor, the author of the *Paradise of Wisdom*, Avicenna was greatly concerned with the psychological factors in disease, and various tales are told of his skill in identifying the causes which have given rise to melancholia in various sufferers. But instructions to the physician in dealing with cases are clearest in the *Paradise of Wisdom* itself. This lays it down that when dealing with a patient many details must be ascertained about him, such as his temperament, age and habits, both when he is active and when he is at rest. If he is a craftsman, the circumstances of his employment must be known, as, for example, whether he works in heat or near water; and it is important to know where he was born, whether in mountainous country or on the plains, in the desert or in cultivated land. Also significant is the medical history of his parents. With regard to treatment, use is second nature, and those things are good for a man to which he is accustomed. 'Thus,' says the author, 'I have seen numbers of people from Bahrain and the marshes of Iraq who fell ill when they were entertained on wholesome food and sweet water, but recovered when they went back to a diet of fish and dates and had fetid water to drink.'

The same author has a chapter on Fatness and Leanness, in which he discusses their causes. Fatness, he says, may be due to eating coarse food, to lack of exercise, to sleeping on a soft bed, to infrequent sexual congress, to failure to visit the hot baths often enough and to stay there long enough, to sleep after meals and to the practice of vomiting before meals. This last

works by emptying the stomach and stimulating it to more active hunger. 'But I have observed,' he remarks, 'that the most potent causes of fatness are ease and comfort, wealth and social importance.'

That observation throws a good deal of light on the economic value of a good position in society. 'As for those things which emaciate the body,' the author continues, 'they are hot, dry foods which cause desiccation, excessive toil and sleep before meals. But I have observed that the most powerful causes of emaciation are heavy labour, sleeplessness, grief and poverty.'

So far as remedies were concerned, there was as a rule, as I have said already, a routine application of the law of opposites; a hot disease demanded a cold remedy, and vice versa. To make sure, however, most medicines were of the blunderbuss variety, filled with all sorts of ingredients of which one or other would hit the target. In any event, treatment was applied on trust and a prescription usually ended with the formula: 'And this will prove beneficial, if Allah will.' Obviously, of course, each country and place had—and has—its own traditional remedies for local afflictions. Thus Sir John Chardin, the famous seventeenth-century traveller in Persia, advised anyone going there who wished to ward off or cure spring colds to eat plenty of melons of the variety known as *garmek*, or 'little hot' ones. He says the Persians in the spring ate a matter of ten or twelve pounds a day of it, looking upon it as 'a great refresher and cooler of the blood, and if a man be emaciated, it will restore him again and make him grow fat'.

To support his recommendation, Chardin tells the story of two Arabian physicians who came to Isfahan just at the melon season and, seeing the bazaar full of this kind of fruit, said to each other, 'Let us go farther on; don't let us stay here. There's nothing for us to do in this place. These people have a remedy for all distempers.'

I should like to end this talk with the advice given to a prospective physician by a prince who was about contemporary with Avicenna and with whose family he had had contacts. This gentleman was anxious to provide his son with guidance in every emergency which might arise in the unsettled times in which they lived, and in his book, the *Qabus-nama*, a kind of 'Mirror for Princes', he imagined the possibility of the young man's being reduced to earn his livelihood by the practice of medicine.

'There is no living to be made out of it, my son,' he says, 'without some manipulation, quackery or bolus-mongering, in the same way that there is no money to be got from astrology, fortune-telling or the interpreting of omens, so long as these professions are without the accompaniment of some embroidery, whether solemn or farcical.' All the same, once you embark on a career as a physician, if you wish to gain experience and a reputation, you must experiment freely. But you had better not choose people of high rank or political importance for your subjects. To gain competence, you must see a

great deal of service in hospitals, where cases of all sorts should pass under your hands, and where you should actually see for yourself what you have read about in the text-books. With such training, no disease, however rare, will present you with any difficulty, and diseases of the internal organs will be no mystery to you.

When you visit a patient in his house, you must be clean in person and dress and agreeably perfumed. The expression of your countenance should be pleasant and you should go only when you are untroubled in spirit. The physician's encouraging words increase the potency of the warmth inherent in a man's natural temperament. Never try to cover your failures by charging the patient with not having obeyed your instructions, and never exact a promise of obedience, for, to take an instance, the glutton will never agree to have his diet restricted. In short, the exhortation to the physician is to take responsibility himself.

I have ranged rather freely under cover of the title of this lecture, in which I have gone back to the dark ages of medicine. It is only in those shadows that a layman like myself dare venture, but I hope I have thrown a faint ray of light on one famous figure who lies there.