1

Early notions of disease

It has always been common knowledge that a person can fall ill after sustaining an injury in battle or through accident, fire, poison, and the like. Whenever this happens, there is no doubt about the reason for the disease of that person. But people – as well as animals and plants – can also develop a disease without any readily discernible reason. Such unaccountable misfortunes have always caused bewilderment and unease. People want to know, for their own comfort and peace of mind, why and how troubles come to pass so that they can hope to find suitable measures of prevention and alleviation.

The most acceptable explanations of disease or of any other misfortune have always been in terms of causes. Ideas of causality are firmly rooted in our minds. They may spring from our constant experience that we ourselves can function as the causes of events. We can will a movement and execute it, thus setting in train a whole series of effects. Notions of causality form very early in the minds of infants. Piaget (1955) found evidence of their occurrence as early as eighteen months after birth. Explanations based on concepts of causality therefore come easily to us and they must have come more easily still to pre-scientific generations who viewed the world as being governed by supernatural powers, usually endowed with human mentality, even when they were given monstrous and frightening shapes.

When the causes of disease are not obvious, they may be

thought of as invisible agents which affect our bodies by stealth. As Berghoff (1947), for instance, has pointed out, such causes are often pictured in primitive societies as sins against divine commandments or social taboos. It was also a habit of primitive thought to reify its ideas and thus consider them as akin to concrete objects which, though imperceptible, have an independent existence of their own and an independent power of transforming a healthy person into a disease-ridden patient. Before such patients could be helped, the kind of sin responsible had to be diagnosed. This was a job for experts, such as priests, soothsayers, and medicine men. Their expertise was supposed to include also the knowledge of how to get rid of the diagnosed sin. In their *materia medica*, they had available such dispensations as sacrificial offerings and rites of expiation and purification.

When sins are reified, they can be viewed as freely roaming the world so that they can be acquired by a malefactor and perhaps even those around him. Beliefs in the sinfulness of disease are so deeply ingrained in our culture that they are still with us. They have merely adopted new theoretical guises and hidden their identity behind pseudonyms. Towards the end of the nineteenth century, for instance, there was a kind of sin that was known as degeneracy. It could be acquired through reckless indulgence in too much alcohol, sex, or loose and perverted living; it could be passed on to offspring, as though to fulfil the ancient prophecy that the sins of fathers are visited upon their children. The notion of degeneracy was thus tinged with moral disparagement and regarded as beyond medical competence. In the less moralistic climate of today, the sin of degeneracy has disappeared from our diagnostic

vocabulary, though not from our aetiological considerations. It has merely found refuge in more mundane theories.

What is still with us is the idea that patients are to blame for some of their diseases, especially those which originate in some gratifying pleasure, such as smoking, over-eating, drunkenness, drug abuse, lack of physical exercise (the ancient sin of sloth), and the like. Only masturbation has recently been removed from the list of pathogenic activities. What is also still with us is the idea that patients can be the innocent victims of faults that lie elsewhere. Blame has been attached to parental stock, family life, and social conditions. It has been attached to parental stock when genetic sources have been shown to be the chief matrix of a disease; it has been attached to early family life by Freud and his followers in the case of neurotic and psychopathic diseases; and it has been attached to social conditions by the zeal of social reformers and the studies of sociologists. The notion of sin has thus been converted into concepts that have a more pragmatic basis.

The sins of ancient times were, however, not always regarded as being pathogenic agents in their own right. They were often pictured as merely having the function of rousing the wrath of deities who had it in their power to punish culprits and their communities, unless they saved themselves by timely penitence and self-imposed suffering. Among their punishments was the infliction of disease.

It would be an oversimplification, however, to maintain that all causes of disease were thought of as related to sins. It was also believed that other noxious agents were about in the world which could afflict persons who happened to be around. Many of these agents were assumed to be tied to

particular places, to flourish in particular climates, or to make their appearance at particular seasons of the year.

To the question of how noxious agents, whether they were sins or not, were related to the disease symptoms which patients exhibited, two answers could be given, though they were not mutually contradictory. According to one kind of answer, the symptoms were for the most part attributes of the noxious agent as it developed in the body of the patient. This view gave rise to theories of disease which were called 'ontological'. The alternative answer was that the symptoms were mainly bodily reactions evoked by the noxious agent. This view gave rise to what may be called the 'reactive' theories of disease.

2

Ontological theories of disease

Ontological theories concern themselves with the question of what exists as entities in some realm. Philosophers have wrangled with these theories and have arrived at the most diverse solutions. Their disagreements are still reflected in the variety of meanings that can be given to the term 'entity'. Among the definitions of the term given by Webster's *Third New International Dictionary of the English Language* (1971) are the following: 'something that has independent or separate existence, . . . something that has a unitary and self-contained character'. Concrete objects and events can therefore be regarded as entities as long as their independent or separate individuality and unity lasts. The term can also be used in an abstract sense. It then signifies 'an abstraction, ideal conception, object of thought' which is viewed as a singularity, even though it may be of complex composition.

The noxious disease agents of ancient beliefs could be concrete natural entities, such as miasmata, effluvia, and malodorous emanations of various sorts; they could be concrete supernatural entities, such as demons, furies, spirits, and the like; or they could be reified abstract entities, such as sins, curses, or spells. The model for these entities was plant seeds which could be minute and invisible. Yet in the right kind of soil and under suitable conditions plant seeds could grow into very noticeable organisms with characteristic attributes. In the same way, it was thought, could a

disease entity grow in the body of a patient and develop characteristic attributes which could be noticed as symptoms. Disease entities were thus credited with having an almost independent existence. They could even leave a patient's body again in order to affect and plague other people.

The myths and legends of mankind freely postulated the presence in the world of such independent disease entities. We find references to them in the Bible, for example, when the Lord was said to have sent out the disease entities of boils, plagues, and other pestilences in order to punish Pharaoh. Another instance is the Greek story of Pandora, the first woman. Zeus created her to penalize mankind for accepting the gift of divine fire which Prometheus had stolen from Olympus. Pandora was given a box containing the forbears of all diseases, of 'all the Spites that might plague mankind: such as Old Age, Labour, Sickness, Insanity, Vice, and Passion' (Graves, 1955, Vol. 1, p. 145).

This age-old ontological interpretation of disease has become so deeply embedded in our language that we readily use idioms with ontological implications that are conveniently overlooked, at least in everyday speech. Usually, we do not give it a second thought, when we talk of 'catching' a disease, of being 'attacked' by it, 'struck' by it ('stroke', 'apoplexy'), 'seized' by it ('seizure', 'epilepsy'). We speak of disease 'carriers' who are not ill themselves, of diseases which are 'transmitted' from person to person or parent to child, which move as 'epidemics' from place to place or lurk as 'endemic' dangers waiting for the unimmunized traveller.

The ontological theory of disease was most clearly enunciated by Thomas Sydenham in the seventeenth century (cf.

Dewhurst, 1966). His views carried great weight with medical men because they admired him for his clinical astuteness and his introduction of the method of nosography. It was a method which emphasized the paramount importance of carrying out careful and detailed clinical observations in order to distinguish between different disease entities. It contributed greatly to the advance of medicine in the two centuries that followed. It has been only in recent times that the method has lost some of its lustre and significance because we can today amplify our diagnostic acumen by calling on the skills of specialists in laboratory procedures and the use of sophisticated machinery.

Sydenham did not apply the ontological theory to all diseases. As has been pointed out by Entralgo (1955, pp. 113ff), he distinguished between chronic and acute diseases. Chronic diseases, in his view, had their origin in unhealthy ways of living, eating, and drinking. Acute diseases, on the other hand, were due to the invasion of a person's body by atmospheric miasmata. These miasmata were Sydenham's disease entities. They developed in the fluid 'humours' of a body to reach their mature forms. To use Sydenham's words (1676) in their English translation from the Latin by Latham (1848, p. 19): 'The said humours become exalted into a substantial form or species'. This statement may sound quaint and perhaps even nebulous to modern readers. It is expressed in terms which reflect thoughts and theories that are alien to us. The term 'exalted' has its origin in the alchemical notion that substances can be raised to a higher status of maturation and refinement through arcane forces. The expression 'substantial form or species' may also be puzzling. Sydenham often compared a disease entity to a botanical species and therefore spoke of

'specific' diseases. He and his contemporaries understood by 'species' a 'substantial form or essence' which had been created by God and existed, as it were, in a Platonic realm that was of higher reality, permanence, and perfection than our physical world of the senses in which the ideal forms of species manifested themselves in imperfect and transient objects. Sydenham saw nothing wrong in remarking: 'Plant is a species'. Indeed this kind of remark was regarded as legitimate by many logicians of his time. To them, the word 'plant' in the remark quoted functioned as a so-called 'simple supposition'. In modern logic, such simple suppositions and their confusing implications have disappeared. Today, the remark would be phrased in strict logical idiom: 'A plant belongs to (is a member of) a species'.

Taking note of these peculiarities in the theoretical background of Sydenham's remarks, there should be no difficulty in appreciating the sense of further quotations which will clarify the tenor of his thought and teaching. 'Every specific disease is a disorder that originates from this or that exaltation. . . . Each juice has its exaltations as soon as it has broken out into a species. Of this we have a clear, visible, and daily proof in the different species of excrescences, which tree and fruit exhibit in the shape of moss, and mistletoe, and fungi, and the like. . . . These excrescences are, each and all, *essences or species wholly distinct and different from the parent stock*, whether tree or shrub.' (Latham, 1848, pp. 18f. Italics mine.)

It did not escape Sydenham that the diseases which developed in the bodies of patients did not, like other entities, have separate and independent existences. He admitted: 'I cannot deny that whereas all species, both of plants and animals, with the exception of a very few, subsist

by themselves, the species of disease depend upon the humours that engender them' (Latham, 1848, p. 20). As Sydenham believed that disease entities were like plant species, he was convinced that they had a natural history, that they appeared at certain seasons of the year, grew to maturity and faded away again. Malaria, for example, had the following natural history: 'It begins almost always in autumn; it keeps to a regular course of succession; it preserves a definite type; its periodical revolutions, occurring on the fourth day, if undisturbed by external influences, are as regular as those of a watch or any other piece of machinery; it sets in with shivers and a notable feeling of cold, which are succeeded by an equally decided sensation of heat, and it is terminated by a most profuse perspiration. Whoever is attacked must bear with his complaint till the vernal equinox, there or thereabouts. Now putting all this together, we find reasons for believing that this disease is a species equally cogent with those that we have for believing a plant to be a species. The plant springs from the earth; the plant blooms; the plant dies; the plant does all this with equal regularity' (p. 19). We no longer believe today that diseases are like plants, yet we still speak of their 'natural history'.

For Sydenham, the diagnostic task of doctors consisted in distinguishing the various disease species which belong to the same disease genus and therefore have some characteristics in common, though they are different in essence. He remarked: 'It happens, at present, that many diseases, although included in the same genus, mentioned with a common nomenclature, and resembling one another in several symptoms, are, notwithstanding, different in their natures, and require different medical treatment' (p. 13). In

other words, doctors used the same generic name for different disease species because they had not yet learned to differentiate them. It was like using the same word 'rose' for the great variety of wild and cultivated species in the genus *Rosa*. Sydenham insisted that 'in the first place, it is necessary that all diseases be reduced to definite and certain species, and that with the same care which we see exhibited by botanists in their phytologies' (p. 13). To achieve this, he recommended: 'In writing the history of a disease, every philosophical hypothesis whatsoever that had previously occupied the mind of the author, should lie in abeyance. This being done, the clear and natural phenomena of the disease should be noted accurately, and in all their minuteness. It is necessary, in describing any disease, to enumerate the peculiar and constant phenomena apart from the accidental and adventitious ones; these last-named being those that arise from the age or temperament of the patient, and from the different forms of medical treatment' (p. 14).

Once having isolated a disease species, there was a chance of finding remedies that were successful in its treatment because they were 'specifics' for that species. Quinine in the cinchona bark which Jesuits had brought back from Peru in Sydenham's time was such a specific in treating the disease species of malaria.

The enthusiasm with which the medical world welcomed Sydenham's recipe for unbiased and detailed clinical nosography was partly due to its iconoclastic merits. It propounded the importance of letting observed facts reign supreme over reliance on the dicta and doctrines of past medical authorities. It encouraged medical men to shake off the shackles of outdated text-book teaching and to embark on an independent search for new clinical data. It certainly