

CHAPTER TWO

# THE DEVELOPMENT OF WESTERN MEDICAL SCIENCE

## THE WEST'S CONTRIBUTION TO HEALING



ABOVE The invention of the microscope in the early seventeenth century opened up a new world of study to the medical scientist.

**W**ESTERN MEDICAL SCIENCE *is the medicine that has developed and been practised both generally and officially during the last two hundred years in those industrial nations that are collectively known as 'the West'. Scientific medicine developed against a background of changes in society in the nineteenth century, when new influences in society and religion affected*

*attitudes towards both medicine and the medical profession. These included progressive secularization with the loss of Christian faith, changing beliefs about death, new doubts about the afterlife and greater involvement of doctors, who were increasingly expected to make a diagnosis of the illness based on demonstrable pathology. There was also greater expectation on the part of the patient of treatment or cure of an illness, or at least of alleviation of symptoms and distress.*



ABOVE A simple monocular microscope dating from the late seventeenth century.

**M**odern Western medicine, sometimes known as scientific medicine or biomedicine, is based upon whatever its practitioners and patients regard as scientific knowledge, method or practice. The scientific is usually defined as that which is objective, demonstrable, measurable, self-evident and, increasingly, the result of personal observation or high-tech practice. The concept of what is scientific changes over time and varies between individuals and institutions. Scientific medicine values accurate observation and, still more, accurate measurement. It has a single-minded, materialistic approach that, basically, reduces all bodily function and dysfunction to material causes, mechanical mechanisms and



ABOVE Western scientific medicine is often criticized for ignoring the patient in its overriding concentration on the disease.

structural flaws that can be thought of and studied in isolation from those who suffer from them.

Medical practitioners have often emphasized (particularly in recent years) that patients are *people* and should be treated as such, but at the same time many modern doctors make it clear that they are more interested in the disease than in the people who have the diseases. Patients complain of feeling valued only as walking stomachs, blood sugars, heart valves or whatever is the seat of their 'disease'. The great physician William Osler (1849–1919) was considered to be one of the best scientific doctors. He became Professor of Medicine at Johns Hopkins University, Baltimore and later Professor of Medicine at Oxford. Yet he

A painting entitled 'The Alchemist' by the seventeenth-century artist R. Brackenburgh. The scientific disciplines that underpinned the practice of alchemy foreshadowed the importance that chemistry was later to assume in the Western medical curriculum.



emphasized, 'It is much more important to know what sort of patient has the disease than to know what sort of disease the patient has!' This is not the way most Western medicine is regarded and practised. The emphasis on the 'lesion' (the anatomical abnormality) and the disease has become more conspicuous as investigation and treatment has become more objective and scientific. This depersonalization of the patient is an important reason why so many people are turning to other forms of medicine to seek relief of their symptoms.

This scientific attitude has many advantages and disadvantages. As long as the patient's illness can be successfully accommodated within the boundaries of scientific medicine, it has a good chance of cure or at least alleviation. If it does not, scientific medicine has little to offer and may do harm.



ABOVE Herbalism is currently enjoying a renaissance in the West as many people are turning to alternative therapies for help.

Scientific medicine rejects all concepts of 'vitalism', the belief in immaterial spiritual or vital forces to explain natural phenomena. It has no place for 'life forces' or vital principles distinct from physical and chemical processes. In this it differs from other major medical systems, particularly those of the East.

Scientific medicine is a product of the capitalist society it serves. Strongly geared to 'progress', it proclaims and markets spectacular advances in knowledge and practice in specific areas with dramatic 'discoveries' and 'cures'. Sometimes these save people from death or greatly improve the lives of sufferers, but they can also

have adverse side-effects that may damage patients.

For instance, the life of anyone who has an abdominal catastrophe, such as acute appendicitis or peritonitis, is more likely to be saved by modern surgery than by any other kind of medicine, and some cases would undoubtedly die without modern surgery. But not every surgical intervention is successful and every operation carries a risk of complications and death.

### THE PROS AND CONS OF SURGERY

Responsible surgeons are aware that the history of their subject reveals that many operations, once considered valuable and vital, turned out to be useless or harmful. Another problem relates to the number of operations that are performed on people who are then found not to need them; for instance, those who *might* have acute appendicitis but turn out to have normal appendices. Having undergone an unnecessary operation or having been dismissed as not needing one, patients often find that scientific medicine cannot help them, though they still suffer from the pain.

There are many other examples. Anyone who develops 'heart block' (a failure of the electric circuitry in the heart) is, if untreated, likely to be disabled and in constant danger of sudden death. He or she will gain benefit and probably life from the insertion of a modern cardiac pacemaker, a triumph of medical engineering. But someone whose aberrant heart rhythm reflects anxiety or inner conflict may find no relief from the application of modern science, and may be dismissed with the problem unsolved. What is really troubling them goes undetected, and may manifest itself in other areas of the body.

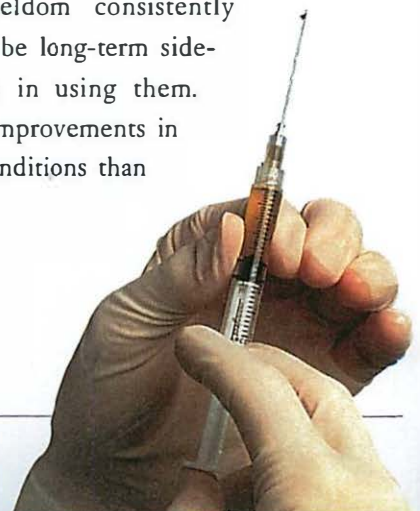
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### THE PARADOX OF SCIENTIFIC ADVANCE

Scientific medicine has many means of saving and improving life and these are constantly increasing in number and efficiency. No other system of medicine can perform such feats, but sometimes the treatments are not successful or there are serious obstacles or side-effects. Moreover, those who practise Western medicine find it difficult to accept the fact that, even when the methods they employ are successful in general, they do not always succeed in individual cases.

What are characterized as miracle cures or wonder drugs may save or transform the lives of individuals, but their effect on mortality rates is seldom consistently impressive and there may be long-term side-effects and disadvantages in using them. More lives are saved by improvements in diet, hygiene and living conditions than by one-off miracle drugs.

RIGHT Modern scientific medicine can achieve remarkable results, but there are attendant risks also.



The advantages and disadvantages of scientific medicine can be clearly seen in the different remedial demands of acute disease and chronic illness. (In medical terms, an *acute* illness is one that begins rapidly, reaches a peak and resolves rapidly. Examples include pneumonia, acute appendicitis and measles and of course medical emergencies such as wounds, fractures, burns and poisoning. A chronic illness comes on slowly, proceeds slowly and resolves slowly, if at all. Examples include osteoarthritis and diabetes (especially diabetes of mature onset). Scientific medicine is, on the whole, more efficient in dealing with acute illness. It is no good telling someone who has had a heart attack or who suffers from an acute abdominal catastrophe that diet, hygiene and living conditions save more lives than scientific medicine.

Many chronic illnesses such as kidney failure, thyroid disorder, pituitary insufficiency, allergy etc., can benefit initially from drugs or surgical intervention, but scientific medicine does not have all the answers. Long-term management of chronic illness needs to address the whole of the patient's life. Nutrition, exercise, family circumstances and financial status are all significant factors and none of these are considered to be in the province of scientific medicine.



ABOVE 'Prevention is better than cure.' A healthy diet may save as many lives as medical intervention.

### THE PROFIT MOTIVE

In capitalist societies medicine is linked with a profit-based pharmaceutical industry. Pharmaceutical companies invest in and develop drugs that are increasingly specific and powerful and save many lives, but they may also extol the benefits of such drugs, often without acknowledging any potentially harmful side-effects. Some doctors go along with this and hand out drugs freely with little indication of potential hazards. Many patients in hospital are there because they have been damaged by 'scientific' treatment. A recent study in a large hospital in the United States found that errors (euphemistically called 'adverse events') occurred in the care of more than 45 per cent of patients. More than one in six of these patients suffered serious consequences, ranging from temporary disability to death.

### PREVENTATIVE MEDICINE

An area in which Western medicine has been outstandingly successful is in the prevention of disease, particularly those of an infectious and nutritional nature, and also cancerous and degenerative ones. Sometimes the understanding of the correct treatment is theoretical only, but even when the procedures are not carried out, science has at least shown the way. Outstanding examples of this are vaccines for diseases such as smallpox (now effectively eliminated from the world) poliomyelitis (which could now be eliminated), diphtheria and many others. Other 'triumphs', at least in theory, are the treatments for cholera and tetanus. It is not possible to 'cure' these diseases, but Western medicine has shown how and why they spread and how they could be prevented.

It has also devised ways of keeping sufferers alive until the acute phase of the disease is over. This can be done cheaply in cholera cases through rehydration, and more expensively in tetanus through continuous anaesthesia; similar techniques have recently been devised for meningitis. The discovery of vitamins (*in 1912*) made many deficiency diseases treatable and preventable, often simply and cheaply. These included scurvy, rickets, pellagra, beri-beri, kwashiorkor and many anaemias. Since then an industry in the marketing of vitamins has grown up and many people in the West who have adequate diets are convinced that they require extra vitamins in order to be healthy. The pharmaceutical industry benefits greatly by such beliefs.

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Pharmaceutical companies have developed drugs that are capable of effective onslaught on many common and fatal diseases, but regrettably they tend to concentrate on those diseases that are common in rich countries and to ignore those that are common in poor countries where a little 'scientific medicine', applied very cheaply, could save millions of people from lifelong infirmity and death.

Western medicine prides itself on being 'scientific', but is necessarily based on the medical judgment and interventionist skills of the doctor as well as pure 'scientific' evidence. This creates a number of paradoxes. Can personal and clinical 'experience' be 'scientific'? Is the doctor-patient relationship 'scientific' and how does it influence the 'science'? What is the relationship between 'medicine' and 'science' and how has it been influenced by the way in which it developed?