

we find the nation to be obsessed by the idea that it should lighten its pocket whenever it sees contained water. At Bridlington more than £35 was found, placed for no valid reason, in the pool of the Illuminated Gardens. At Kingswear in Devonshire the Parish Council collects almost £100 a year from a local wishing well. In Hull, when an ornamental fountain was erected at the corner of Jameson Street and King Edward Street in May, 1956, £67 was found in the fountain before the end of June, and in 1959 it was reported that coins were being thrown in at the rate of £8 a week. To-day churches and charities foster the cult by making pools where no pools were before, to their own pecuniary advantage. It might be argued that people to-day do not throw coins into water out of superstitious belief. But why is it that they are more willing to throw their money into water than to place it in an offertory plate? Is not the answer that if they throw coins into a pool of water they feel they are getting something in return for their money—they are purchasing 'luck'?

One of the causes of malnutrition in Bantu homes is that women of child-bearing age are usually forbidden to drink milk, because it is believed to cause sterility in females. Are we ourselves less haunted by fear of sterility? Belief that sterility will follow certain courses of action has been found associated with the women's services, factory workers, parachutists, and air hostesses. Many of the secret 'facts' which pass by word of mouth behind closed doors about, for instance, conception, contraception, menstruation, and sex-determination turn out to be traditional, and sometimes to have antecedents that go back to the time of Pliny. The fall of man occurs, day after day, when he gives way to his desire to believe in the mysterious and the far-fetched.

In 1962, in a debate in the House of Lords on pest poisons, a peer asked why vermin needed to be poisoned, when his mother-in-law had cleared her chicken-run of rats simply by asking them to leave. Far from being new, this method of disinfestation was practised in Scotland a century ago. It was well known to the Elizabethans, including Shakespeare and Ben Jonson, and was described in classical antiquity. But whereas the writer eighteen hundred years ago had been sceptical, the Under-Secretary of State replying to the debate in the House of Lords had declared that he firmly believed that there was "something in these extraordinary powers" which some people possessed.

It is possible that the extent of man's supernatural and superstitious credulities remains constant, and that the beliefs merely take on more sophisticated forms. There does not seem to have been any slackening in man's desire to believe the unbelievable. Individually we cradle ourselves in comfortable thoughts of sudden fortune, the inevitableness of destiny, the possibilities of re-incarnation, or the compensations of an after-life. The human mind has been equipped with a wonderful capacity for accepting evidence which agrees with its preconceptions. We are transfixed not so much by what we do not know, as by what we think we already know.

THE CONTRIBUTION OF CLINICAL MEDICINE TO PHYSIOLOGY

THE "Contribution of Clinical Medicine to Physiology" is described by Prof. J. McMichael in his presidential address to Section I (Physiology and Biochemistry).

Physicians and physiologists work increasingly together in the analysis of reactions to disease. Sometimes the physiologist points the way to new discoveries of value in medicine, but equally frequently the clinician's observations give an answer to problems before the physiologist is able fully to comprehend the situation. The value of orange and lemon juice in scurvy was recognized by Lind 180 years before vitamin C was isolated. Muddled think-

ing lost this discovery in the nineteenth century with many disastrous consequences, including the loss of Scott's polar expedition. Endocrine and brain disorders are best studied in man, and the co-operation of an intelligent patient with an observant doctor has repeatedly clarified physiological functions and pointed the way to further investigations.

Clinical observation can proceed a certain distance but completion of the analysis may depend on animal experiment. A good example was the observation of fibrillation of the heart by McWilliam in Aberdeen in 1888. The recognition of fibrillary contraction of the auricles in man was completed by James Mackenzie in 1906.

The use of man for planned physiological experiments was started by J. S. Haldane, who found that the regulation of respiration could be best studied in co-operative human beings. These techniques for respiratory investigations have now been enormously elaborated and constitute the basis of measurement of function of the heart and lungs in human disease. One of the commonest disorders affecting the heart is narrowing (stenosis) of the mitral valve. This obstructs the flow between the left auricle and the left ventricle. Because of this narrow passage the pressure rises in the blood vessels of the lungs. The use of a short-life isotope of oxygen enables measurements to be made of the blood-flow through different parts of the lungs. In mitral stenosis most of the obstruction to flow results from thickening of the arteries in the lower parts of the lungs where blood-flow is retarded. This contrasts with the state of affairs in normal subjects where, owing to the influence of gravity, there is a higher blood-flow in the lower parts of the lungs and a diminished blood-flow in the upper part. These findings give some explanation of why tuberculosis (now a disappearing disease) develops at the apices of the lungs where blood-flow is poor. This disease was known to be rare in mitral stenosis where the blood-flow at the upper part of the lungs is now known to be high. The reason why the arteries of the lungs become thickened and narrowed at the bases may throw light on the mode of development of thickening of the arteries elsewhere in the body. Disease of the arteries is perhaps the major cause of death and studies which began for the purpose of illuminating the lung circulation may in fact have a much wider significance in relation to arterial disease in man.

The clinical observer is exposed all the time to an enormous experience of a multitude of disorders which exercise his complete range of biological knowledge. He must compare continuously his experience and knowledge of disease with the reactions observed in physiological experiment. Modern medicine is becoming increasingly scientific in its methods of study and the mutual efforts of clinicians and physiologists will illuminate innumerable problems on which future individual human welfare depends.

CEREBRAL LOCALIZATION OF PSYCHOLOGICAL FUNCTION

THE idea of cerebral localization of psychological function is discussed by Prof. O. L. Zangwill, president of Section J (Psychology). This idea goes back at least to Gall, whose reputation has suffered unduly on account of his allegiance to phrenology. Although Gall must take his share of blame for the absurdities of phrenology, his ideas have had a good deal of influence on the development of modern neurology, especially through Hughlings Jackson, who derived much of his evolutionary doctrine from Herbert Spencer, in early life a disciple of Gall. It is also noteworthy that Bouillaud, the first to localize aphasia to the frontal lobes, was a strong admirer of Gall.

The development of physiological work on the brain from Flourens to the present day is outlined. It is pointed out that early work on the motor cortex gave rise to the