

"History and Archaeology" for the subject of his presidential address to Section H (Anthropology).

Until the margin of error in scientific dating by carbon-14 or other methods becomes substantially less than at present, the traditional archaeological methods of dating by association will continue to form the basic element in establishing the chronology of later prehistoric ages. These methods rest ultimately on historical data, and their successful application demands an understanding of these data. For the same ages the written record provides isolated pieces of information, which, rightly used, enable the student to fill out and bring to life the picture built up by the scientific analysis of data afforded by archaeological investigation, which must continue to form the basis of any reconstruction. An example from British and Gaulish protohistory is provided by Cæsar's account of the equities. This dominant secular class in Gaulish society should certainly be associated with the rich *La Tène* burials of Britain and the Continent and probably with the great contemporary farmhouses of the Little Woodbury type. The fortunes of this class can be followed into the Roman period, when a connexion between these farmhouses and the villas is beginning to emerge.

In the later prehistoric and Roman ages the written record concerned with Britain consists of isolated references by distant writers, whose main interests lay elsewhere. With the coming of Christianity in the seventh century, the evidence of native writers and documents becomes increasingly available and historical studies gradually become dominant.

Instances where the written record of a particular site or building can be directly tested by archaeological methods are rare. Hexham, which might have become a text-book example, is rendered difficult by the obscurities of the texts and the inadequacy of the excavations. Winchester, where a large-scale investigation is in progress, may afford more useful results.

But real collaboration between historical and archaeological research must rest on a wider basis. The picture obtained by the analysis of the whole range of historical material must be tested by field research and by the excavation of key sites. These sites must be regarded as historical and sociological documents. In pre-Conquest England the towns—especially the late Saxon burghs—and the dwelling-houses provide suitable fields for investigation.

BIOCHEMISTRY OF THE ENDOCRINE SYSTEM

THE biochemistry of the endocrine system forms the subject of Prof. F. G. Young's presidential address to Section I (Physiology). Although the idea that certain glands may provide internal secretions, liberated directly into the blood stream, is sometimes ascribed to Claude Bernard, the belief that glands which do not possess a secretory duct may discharge useful material directly into the blood seems to have been generally current during the 1840's. The important observations of Thomas Addison about the effects of disease of the adrenal glands (1849, 1855), and of A. A. Berthold (1849) concerning the endocrine activity of the testes, may well have been influenced by general contemporary ideas about internal secretion before Bernard's observations concerning the secretion of glucose by the liver (1853).

Many hormones are concerned in the control of the movement of materials across barriers. In many instances endocrine glands are themselves derived from tissues which, at one stage in evolutionary and embryological development, constituted a part of a barrier tissue between the external and internal environments of an animal. This may be significant with respect to the evolutionary development of what are now called 'hormones'. Hormones may be metabolites to which responsive tissues concerned

with transport have been evolved and the production of which became largely, though not entirely, confined to one tissue.

In some instances two hormones may act on the same process in such a manner that under the influence of one hormone the process is intensified while under the influence of the other the process is depressed. Such an antagonism between the action of hormones can be of particular physiological significance, and is well illustrated by the actions of insulin and of pituitary growth hormone. Under the influence of growth hormone there is a tendency for the blood sugar to rise, and for the amount of albumin-bound fatty acid in the plasma to rise also. These two actions are the converse of those of insulin. The action of growth hormone probably prevents the development of post-prandial hypoglycaemia and an excessive fall of plasma-free fatty acids, and conserves amino-acids, while insulin provides a means of preventing an excessive rise of these constituents of the blood after a mixed meal. In simple terms, insulin is the hormone of plethora while growth hormone is that of scarcity. Antagonism between their actions can provide for balanced metabolic control. Growth may result when the metabolic pattern normally associated with scarcity is imposed on conditions of plethora.

BIOLOGICAL BASIS OF CRIMINAL BEHAVIOUR

PROF. H. J. EYSENCK reminds us at the opening of his presidential address to Section J (Psychology) that constitutional views about the causation of crime were widely accepted at the turn of the century; they have been superseded by views stressing environmental causes. It would seem that the pendulum has swung too far over in this direction; man is a biological organism as well as a social one, and it would seem that the time has come for a re-awakening of interest in the biological causes of criminality. The facts certainly leave little doubt about the importance of constitutional factors; following the work of Lange, many other investigators have demonstrated that when criminals with identical sex brothers or sisters are singled out in prison the concordance rate of their twins is more than twice as much when they are

identical than when they are fraternal. Along similar lines it has been shown that the personality make-up of criminals combines high emotionality with a high degree of extraversion, as contrasted, for example, with neurotics who tend to combine high emotionality with high degrees of introversion. Both emotionality and extraversion/introversion have been shown in many different studies to be markedly influenced by hereditary factors. Most of these facts have been known for a long time; the main reason for disregarding them has usually been the difficulty of seeing how biological factors could influence conduct classified on ethical or social grounds. What is inherited can only be structure, not behaviour, and no clear theory existed relating the one to the other.