In recent years it has been suggested that there is a close relationship between extraversion/introversion on one hand, and cortical excitation as opposed to cortical inhibition on the other. These terms refer to facilitation or its opposite in relation to cortical activity, and it is likely that there is a close relation between excitation and the activating part of the reticular formation, and inhibition and the recruiting or synchronizing part. It may be deduced from this hypothesis that introverts form conditioned reflexes better than extraverts, and much evidence exists to show that this is indeed so. Given then that extraverts and introverts differ with respect to the ease with which conditioned reflexes are formed, we may here have the necessary link between structure and behaviour. More specifically, Prof. Eysenck suggests: (1) that neurotic reactions are conditioned autonomic reflexes, or the skeletal or hormonal reactions thereto; (2) that criminal activity is facilitated or brought about by the absence of conditioned autonomic responses to the contemplation and execution of socially undesirable actions which are subjectively experienced as 'conscience'. According to this theory, the new-born child's conduct is completely asocial or 'criminal'; in order to learn a socialized mode of behaviour, a lengthy process of conditioning is necessary in which certain types of activity labelled 'bad', 'naughty' or 'wicked' are immediately followed by some form of punishment. This punishment acts as the unconditioned stimulus, and by virtue of its contiguity becomes associated with the conditioned stimulus, that is, the contemplation or carrying out of the forbidden activity. Gradually the conditioned stimulus will acquire the power of producing the same response as the unconditioned stimulus, that is to say, sympathetic arousal, anxiety, fear, etc., thus acting as a deterrent from any asocial activity. The whole process is aided very much by the labelling of all such activities by parents, teachers and peers; in this way stimulus generalization occurs, and unifies and extends the whole field of forbidden activity.

It will be clear that in this process extraverts, who condition poorly, are handicapped and will acquire a well-established 'conscience' only with difficulty, whereas introverts will condition only too well and be plagued by guilt feelings, even where the average person would consider such guilt feeling inappropriate. These genetically determined factors interact with the environment, which provides the conditions of reinforcement, and variations in these prevent the correlation between conditioning and criminality from being perfect. It is suggested that from the point of view of prophylaxis and treatment, individual differences in rate of conditioning must be taken into account and that ways and means must be found to make use of the accumulated knowledge of psychologists regarding the establishment and extinction of conditioned responses. It is possible, for example, to increase the conditionability of a person by the administration of stimulant drugs; it is possible to prevent extinction to a large extent by partial reinforcement, and there are many other ways in which behaviour can be manipulated so as to avoid criminal behaviour or reclaim the criminal. All such activities to be successful must, however, rest on a proper scientific analysis of the problem and a recognition of the importance of innate individual differences, particularly in the rate of conditioning.

FUNGAL FRIENDS AND FOES

"FUNGAL FRIENDS AND FOES" is the title of Prof. C. G. C. Chesters's presidential address to Section K (Botany). Fungi are part of man's normal environment and are vital for the circulation of carbon, nitrogen and minerals in Nature. They become important in man's economy because they depend on organized sources of carbon for their own synthetic processes and energy supplies. Throughout time man has engaged in the monoculture of food crops and, in so doing, has provided phytopathogenic fungi with an assemblage of hosts which they have continually exploited. The ability of such pathogens to develop new strains and the wide distribution of mixed populations of pathogenic strains requires the continual vigilance of mankind, and a never-ceasing attempt to find more effective means of prevention and control.

Animals, as well as plants, represent food sources for fungi, and many of them cause serious diseases in animals. Some depend on animals for their dispersal and others are closely knit with the life-cycles of insects. This is a feature of ambrosia beetles. In certain insects, digestion of their food and perhaps their vitamin requirements depend on fungi and bacteria located in their digestive tracts.

While pathogenic fungi continually menace food crops, saprophytic fungi cause spoilage of many of the essentials of man's livelihood. Heart-rot of standing trees only differs in degree from moulding of stored food products and textiles. The natural versatility of fungi, their wide battery of enzymes, the profusion of spore production, and the efficiency of spore dispersal are factors which enhance their nuisance value.

However, these same characteristics make them useful to mankind when they are cultivated on sterile media. The vast array of syntheses of which they are capable and the ingenuity of the chemical engineer have placed at man's disposal not only antibiotics, but also a wide range of organic acids, enzymes, vitamins, proteins, amino-acids, and other carbon compounds. The exploitation of fungi is only limited by the costs of operations, but the combined skills of mycologists, chemists, and engineers should open wider fields of usefulness, particularly in a world facing the necessity of finding new sources of food materials.

Underlying all their destructive propensities, and their usefulness to mankind, lies one very simple feature: fungi lack chlorophyll and are entirely dependent on organized sources of carbon for their existence.

NEED FOR FORESTS IN AN INDUSTRIAL SOCIETY

EVER since early man began to develop a communal existence he has tended to slaughter his forests to make room for other land uses or to safeguard himself from enemies sheltering therein. In Britain this process had advanced far at the period when she began to take possession of overseas colonies, whereupon her rapid industrialization made tremendous calls on the newly discovered timber reserves overseas. Belatedly, skilled forest conservation has endeavoured to ensure the safety of future supplies.

To-day Western Europe as a whole is a gross importer of timber and timber products, and Britain is dependent on overseas supplies to the extent of 90 per cent of her needs. Only recently have most countries begun scientifically to look ahead to their long-term industrial, social and domestic planning; in doing so it begins to be possible