

implications both for the methods to be used in studying curiosity and also for the possible mechanism by which variety of early experience has its effect.

The last speaker, Dr. J. M. Cullen (University of Oxford), was a zoologist rather than a psychologist. Accordingly he gave more attention to the natural behaviour of animals than did the other members of the symposium. His particular interest was the possibility of separating different classes of behaviour as affected by one drug rather than another. By this means one might ultimately disentangle the mechanism by which drugs affect behaviour. The animal which he had studied was the stickleback, and the drug benactyzine.

The stickleback lives in schools in the winter, but in the breeding season each male defends a territory in which it builds a nest. It courts an approaching female, she lays her eggs in the nest, departs, and the male then looks after the eggs. When defending the territory, the male will attack other males close to his own nest, but flee from them at greater distances. The border-line between these two behaviours moves nearer to the nest under benactyzine, which suggests at first sight that fear is increased.

When the female appears, drugged males less frequently court her, and are more likely to attack her than undrugged males are. This is not altogether consistent with the effect on size of territory, but might perhaps be explained by supposing that sexual behaviour is even more sharply reduced than fear is.

On the other hand, kicking the tank in which the fish live causes them to cluster into a school, which suggests that schooling is a fear response: and the drug reduces schooling rather than increases it.

Feeding is reduced by frightening stimulation and also by the drug: but closer examination shows that the effects are rather different. In feeding, the stickleback orients towards the food, possibly several times, before each grasp at it. When frightened there are fewer grasps but also fewer orientations per grasp; whereas under benactyzine there are fewer grasps with a normal number of orientations per grasp. The latter type of behaviour also results simply from reduced hunger, so that the drug is in this respect apparently similar to a reduction in hunger.

The common factor in all these effects might perhaps be a reduced responsiveness to visual stimulation, and in fact sticklebacks placed in a situation where a striped wall rotates around them are less responsive to this stimulation. At the moment the most promising hypothesis is therefore that the drug reduces responsiveness rather than the strength of one category of behaviour; but the experiments remain an illustration of the way in which a knowledge of instinctive patterns may be used to analyse the operation of drugs.

It was clear from all four papers that work on animal behaviour is developing rapidly, and that important principles are beginning to emerge.

D. E. BROADBENT

NEWS and VIEWS

Pharmacology at St. Bartholomew's Hospital Medical College: Prof. J. P. Quilliam

DR. J. P. QUILLIAM, at present reader in pharmacology in the University of London at St. Bartholomew's Hospital Medical College, has been appointed to the newly created chair of pharmacology at that Medical College as from October 1. Dr. Quilliam graduated with honours (physiology) in the University of London, and took his M.Sc. in 1938, and his M.B., B.S. (London) in 1941. After a period of war service, in the Royal Air Force, he was appointed lecturer in pharmacology at King's College, London, and in 1946 he was appointed part-time lecturer in pharmacology at St. Bartholomew's Hospital Medical College to assist in the early development and expansion of that Department. In that early development he played a very active part and was appointed senior lecturer in charge of the Department and later reader in pharmacology in 1958. Dr. Quilliam has built up at St. Bartholomew's a very active Pharmacology Department with wide research interests and comprehensive teaching courses for medical, dental and science students. He has developed a department which is particularly well equipped for the use of electro-pharmacological techniques for research in pharmacology and for the teaching of that subject. He has built up a very strong and enthusiastic research team, with many postgraduate workers in his group, and he has attracted for his work important and valuable research grants from the United States. His research interests are manifold and his particular interests have centred on neuromuscular and ganglionic transmission and its modification by centrally-acting drugs. He has had wide experience of teaching methods, and he has spent a year as a Fellow in

residence at Johns Hopkins University, Baltimore. He has had much experience as an examiner in the University of London and other universities in Britain, and is the chairman of the Board of Studies in Pharmacology in the University of London. He is a member of the General Optical Council. He has carried out important editorial duties as an editor of the *British Journal of Pharmacology and Therapeutics*, and his own publications involve investigations on the pharmacological action of hypnotic drugs, fluorophosphonates and many other drugs.

New Zealand Department of Scientific and Industrial Research: Senior Research Fellowships

THE New Zealand Department of Scientific and Industrial Research has announced the award of the 1961 Senior Research Fellowships to Dr. B. H. Howard, principal scientific officer, Rowett Research Institute, Bucksburn, Aberdeen, Scotland, and to Dr. R. Melville, principal scientific officer, Royal Botanic Gardens, Kew, Richmond, Surrey, England. Dr. Howard's work has been concerned since 1954 with the study of the biochemistry of micro-organisms of the rumen, under Dr. D. P. Cuthbertson, director of the Rowett Research Institute. Prior to that he was studying biochemistry of micro-fungi, under Prof. H. Raistrick at the London School of Hygiene and Tropical Medicine. He has published several papers, and in his work under the Fellowship in New Zealand he hopes to apply techniques used in the United Kingdom to the different ruminal flora and fauna found in New Zealand ruminants. Dr. Melville is in charge of the Australasian Section of the Herbarium at Kew and is working mainly on Australian plants and to some extent on New Zealand plants, in