

colour deficiency which on the Young-Helmholtz theory would be attributed to the absence or inactivity of the red receptors in the retina. Reds appear very dark or black, and, as Dalton reported, the colours in the spectrum from the green right through to the long-wave end of the spectrum all appeared of the same hue.

It was his lack of red sensitivity that caused the pink geranium to look blue in daylight, although Dalton himself thought his defect was due to a blue coloration in the vitreous humour of his eye. This was clearly inadequate to explain his loss of hue discrimination in the spectrum, and post-mortem examination of his eyes definitely disproved this theory. Thomas Young in 1807 suggested that it was more probably due to "the absence or paralysis of those fibres of the retina which are calculated to perceive red", and this idea is certainly much nearer the truth.

Since Dalton's time, much detailed information has been reported on defective colour vision, but it is only through painstaking research into the minutiae of the biological processes that real progress in establishing the cause of Daltonism can be made. The recent use of the micro-spectrophotometer to measure the spectral absorption of individual cones has tended to confirm completely Young's concept of three types of colour receptor and may one day confirm that the protanope has only two, although we must be realistic about the difficulties of the technique. The electron microscope is revealing something of the internal structure of the receptors and the complex retinal network which may be involved in coding the colour information before it is transmitted along the optic nerve to the visual cortex. Recent recordings in the lateral geniculate nucleus seem to suggest that the cells there consist of two classes, one for the transmission of intensity information, the other for colour with some coupling in colour pairs reminiscent of Hering's opponent colour theory. The ultimate mystery of the nature of the colour sensations themselves is not in sight of solution.

Cloud Physics on the Move

THE Meteorological Office has arranged to transfer most of the sub-department of cloud physics at Imperial College, London, to the research laboratories of the Meteorological Office at Bracknell. This implies that the group of research workers and their equipment which Dr. B. J. Mason built up at Imperial College will now follow him to the Meteorological Office, where he was appointed Director with effect from the beginning of this year. The intention is that the move to Bracknell will be completed this week and that the new laboratories will be in full operation within a month. The new branch at Bracknell will include, as well as the nucleus of the Imperial College group, a team which will study structure and dynamics of cloud systems. At the same time the Radar Research Unit which is operated jointly by the Meteorological Office and the Royal Radar Establishment will become a part of the new branch, so that the new organization should be able to study clouds and precipitation in a thoroughly comprehensive manner. Because it will have access to the Meteorological Research Flight based at Farnborough, not to mention the *KDS 9* computer installed at the Meteorological Office, the new organization should be well placed to continue the distinguished work begun at Imperial College.

University News: Bradford Institute of Technology

DR. G. D. H. LEACH, at present senior lecturer in pharmacy at the Institute, has been appointed professor of pharmacology. Dr. F. Walker, formerly senior lecturer in the Department of Electrical Engineering in the University of Manchester Institute of Science and Technology, has been appointed professor of control engineering.

The City University

DR. C. F. CULLIS, at present reader in combustion chemistry at the Imperial College of Science and Technology, has been appointed to the second chair of chemistry.

Exeter

DR. F. J. LLEWELLYN has been appointed vice-chancellor in succession to Sir James Cook.

Hull

PROF. J. G. PHILLIPS, at present professor of zoology in the University of Hong Kong, has been appointed to the chair of zoology in succession to Prof. P. G. 'Espinasse.

London

PROF. A. L. CULLEN, professor of electrical engineering in the University of Sheffield, has been appointed to the Pender chair of electrical engineering, tenable at University College.

Massachusetts Institute of Technology

PROF. L. D. SMULLIN has been appointed head of the Department of Electrical Engineering, in succession to Prof. P. Elias.

Appointments

MR. F. D. PENNY has been appointed director of the Ministry of Technology's National Engineering Laboratory at East Kilbride, Glasgow, in succession to Dr. D. G. Sopwith. Mr. Penny, who is at present deputy director of the laboratory, takes up his new appointment on January 1.

DR. H. DAVID, head of the Office of Science Resources Planning of the National Science Foundation and former president of the New School for Social Research in New York City, has been appointed executive secretary of the Division of Behavioural Sciences of the U.S. National Research Council, in succession to P. B. Hammond. Dr. David takes up his appointment on December 1.

Announcements

CHURCHILL COLLEGE, Cambridge, is offering in 1967 at least two junior research fellowships in arts, mathematics, science or engineering. Applicants must be less than 30 on July 1, 1967, and have spent not more than 4 years in research work by that date. The fellowships are for an initial period of 3 years from October 1, 1967, and are of the value of £750 a year. For fellows not resident in college an accommodation allowance of £250 is also allowed. The college is also offering a Gulbenkian fellowship which is open to graduates of a university who are not citizens of the United Kingdom and who wish to carry out advanced work. It is of the same value as the junior research fellowships and the tenure is for 1 year from October 1, 1967, but may be extended. Further information about both these fellowships can be obtained from the Secretary, Fellowship Electors, Churchill College, Cambridge.

IN the second annual competition for the award sponsored jointly by the British Association for the Advancement of Science and Shell Chemicals U.K., Ltd.,