that for the previous hour. These differences, however, are not statistically significant, the probable errors of these differences (not here noted) being in many cases greater than the differences themselves.

The following conclusions can be drawn:

(1) Maximum dark adaptation may be maintained for at least as long as 6 hours. That no falling-off occurs is in accordance with the assumptions or findings (over shorter periods) of most experimenters¹.

(2) The almost complete adaptation previously² noted during stimulation with red light can also be maintained over this test period.

(3) Ordinary fatigue at the end of a normal day's sedentary work has no effect on the adaptation process, as measured by the maximum 'level' attained. Nor is the accuracy of observation, as shown by the dispersion of the readings during successive periods, affected. In fact, in the second of the sessions here described, variability became progressively less.

In short, results obtained with a single practised subject suggest that it is possible, at least for some individuals, to maintain accurate observation in the dark-adapted state during a protracted period of enforced wakefulness.

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¹ Nagel, W. A., *Z. Augenheilk.*, 17, 201-216 (1907).

² In an article to be published in the *Brit. J. Psychol.*

³ With a few exceptions, notably Kravkov and Semenovskaja, in "Visual Sensation and Perception" (State Psychol. Inst., Moscow, 138-152 (1935)).

Relation between Colour and Permeability of Insect Cuticles

THE same chemical process has been shown by Fraenkel and Rudall¹, Pryor², and others, to be responsible for the darkening and the hardening of insect cuticles. Hence the physical properties of the cuticle in light and dark varieties of the same species may be expected to differ. Yellow mutants of *Drosophila pseudo-obscura* and *subobscura*, and less markedly of *D. melanogaster* and *simulans*, lost weight in a dry atmosphere more rapidly than the wild type, whether they were alive or dead, and the dead yellow mutants regained weight more rapidly after drying. The yellow mutants died more rapidly in a dry atmosphere. Similarly the black and ebony mutants of *D. melanogaster* lost water more slowly than the wild type, and survived longer in a dry atmosphere.

The bearing of these results, which will be published in full elsewhere, on the selective advantage of melanism in insects, is obvious. In particular they may account for the surprising frequency, noted by Buxton³, of black insects in deserts.

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¹ *Proc. Roy. Soc.*, B, 128, 378-407 (1940).

² *Proc. Roy. Soc.*, B, 129, 1-35 (1940).

³ "Animal Life in Deserts", London (1923).

Early Exploration of Kent's Cavern

IN amplification of the biographical note on the Rev. J. MacEnery in *NATURE* of February 15, p. 202, it may be noted that a demy octavo edition of "Cavern Researches", etc., edited from the original manuscript notes by E. Vivian, was published in 1859. According to the preface to this issue, MacEnery was compelled, after a second appeal, to abandon the project of publishing his researches owing to lack of adequate financial support. Indeed, as MacEnery acknowledges the help he had received in his excavations from several clergymen, including the then Bishop of Bath and Wells, it is unlikely that fear of ecclesiastical censure had anything to do with his decision to refrain from publication.

At the sale of MacEnery's effects a Mr. Lear of Lawrence Place purchased a lot of sermon notes among which, after many years, the above manuscript was accidentally discovered by Vivian, who published extracts from it in the *Torquay Directory*. Afterwards the manuscript was bought by a Mr. W. Long who gave it to Vivian with a view to publication. The notes were in a very rough state but they were rearranged by their editor "as far as practicable in a connected series" without any additions; the notes on Berry Head cavern were missing.

A large paper edition is stated to have been published, illustrated by sixteen plates which had been previously executed at the expense of the Very Rev. Wm. Buckland, Dean of Westminster.

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THE large paper edition of "Cavern Researches", which is a quarto volume with seventeen plates, and the smaller demy octavo, are in the Library of the Torquay Natural History Society. The former volume has twenty-five pages of letterpress and the latter seventy-eight pages.

The larger volume was published by E. Vivian in 1859, who in the preface mentions that the profits of that edition would be placed at the disposal of the Society, and as the seventeen plates were all executed in his life-time it does not appear that Mr. MacEnery would have been put to much expense in having the work published. His patrons, the wealthy family of Cary of Tor Abbey, surely would have helped their chaplain of nineteen years service had they been sure of his ecclesiastical position if he had required merely their financial assistance, but it is not at all unlikely that as he was a Roman Catholic he would have found it difficult to secure an 'Imprimatur'.

Harford J. Lowe, honorary secretary of the Torquay Natural History Society, in vol. 3 of the Society's *Journal* writes: "Circumstances combined with the want of encouragement and help from the representatives and guardians of his science frustrated his design, while there was also, no doubt, some apprehension of the new facts seriously affecting some of the traditional foundations of the 'Faith'... He shrank from such responsibility which ill-health would make appear greater and more serious, and so his sense of duty to Science was outweighed by his doubts and fears respecting its public use and benefit".

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