It may be conceivable that most of the extra-galactic nebulæ so far examined spectroscopically are unusually large specimens (except perhaps the nearer ones, some of which show a small 'blue shift') so that this modification of Mr. Shneiderov's idea might be slightly more plausible.

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[1] *Nature*, **155**, 332 (1945).

THERE is a somewhat obvious objection to Mr. A. J. Shneiderov's suggestion[1] regarding the red shift in the light received from distant nebulæ.

If the frequency of light entering our galaxy is altered by its gravitational field, then it must be presumed that the frequency must also have been altered by the gravitational field of the galaxy in which the light originated, but in an opposite sense, so that the two effects would tend to neutralize each other. Also the shift would vary according to the part of the distant galaxy in which the light originated, which does not appear to be the case.

The choice of explanations of the red shift would appear to lie among the following: (i) An increase in distance with lapse of time (Doppler effect). (ii) An increase in the frequency of the atomic oscillators with lapse of time. (iii) A decrease in the velocity of light with lapse of time. (iv) A change in the frequency (wave-length) of the light in its passage through space.

Our choice is limited by our definitions of length and time, which serve to eliminate two of the four possible explanations, or which impose two conditions which the explanation must satisfy.

The first three explanations cover familiar ground, but the fourth is also perhaps deserving of consideration. Recent theory has tended to lay special emphasis on quantum effects, but there would seem to be the possibility that the absorption of light in intergalactic space containing molecules, atoms and electrons might be connected with a slight change of frequency.

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Cherbury, Booterstown,
Co. Dublin. March 23.

[1] *Nature*, **155**, 332 (1945).

Breeding of the Harvest Mouse in Captivity

THE harvest mouse, *Micromys minutus*, is easy to keep in captivity, this tiny beast flourishing in a roomy cage as many naturalists have proved. One of mine lived with me for nearly four years and died apparently of senile decay. But it has rarely been bred in confinement; indeed I believe that until quite recently the late Miss Phyllis Kelway's achievement of breeding a litter of harvest mice was unique. I say until "quite recently" because two females in my possession have just produced a litter each. The first family two thirds grown was out and running about on May 12 and the second litter came out, being but half-grown, on May 15. An accurate count was difficult for the small animals kept running in and out of the straw, hay, etc., in their quarters; but my provisional estimate was three in litter number one and four in litter number two. This may have to be modified.

This establishment consists of one old male and two old females. These, and eight other harvest mice domiciled in another cage, came to me last year through the kindness of Mr. W. B. Atlee from Romsey in Hants. Those in the more crowded cage have not shown any signs of breeding. I attribute the success of those in cage number one to roomy quarters and except for being fed and watered—they are most thirsty little animals—to being left undisturbed. They are fed on grain, occasional apple, bread dipped in milk and nuts. They also eat a considerable amount of green food, that is, grass, etc.

FRANCES PITT.

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May 16.

Regional International Universities

THE leading article[1] on Dr. Joseph Needham's article on "An International Science Co-operation Service" is opportune. We regret that Prof. G. W. Keeton's book, "The Case for an International University", is at present not available to us; but it is obvious that some such organization must be permanently established. We feel, however, that such a service should embrace activities much wider than the mere distribution and exchange of scientific information.

There should be a committee of the United Nations to deal with educational and scientific matters. One of its terms of reference should be the creation of regional international universities where teachers, research workers, postgraduates (and eventually undergraduates) of varying nationalities would work under a common roof. It should select the personnel and, what is most important, indicate the type of subjects to be studied. Subjects that have a universal application and interest should have prior consideration; for example, science, history, law, economics, preventive medicine; likewise, any new problem that appears to have international implications should be included.

Such international universities could supplement existing national universities, but should in no way interfere with their autonomy.

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[1] *Nature*, **154**, 497 (1944).

Kinematical Relativity and the Nebular Red-Shift

PROF. MILNE[1] has not met my objection. I have read his mathematics, and it does not explain how a real, objective effect (the red-shift) can be "due to recession" which, according to kinematical relativity, is a subjective cause which can be transformed away by an act of thought. Prof. Milne's claim that an absurdity must be accepted unless one can locate a flaw in the argument leading to it seems to me to call for further comment.

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[1] *Nature*, **155**, 511 (1945).

[We regret there is no space to continue this discussion. EDITORS.]