

was not deemed necessary to have control experiments other than those employed for the general culture work. It has been observed over and over again that an aquarium inoculated with food organisms only does not produce a population of *Amœba proteus*. In my prolonged work upon the life-history of *A. proteus* I have failed to find any evidence of the occurrence of syngamy in its life-history, and it is clear that the experiments now recorded greatly increase the probability that no such process occurs in the normal life-cycle of *Amœba proteus*.

MONICA TAYLOR.

Notre Dame,  
Dowanhill, Glasgow.

#### Total Intensity of Scattered X-radiation.

IN a report by Duane (Proc. Nat. Acad. Sci. 10, 378, 1924) mention is made of the intensity of scattered radiation inside a closed box containing an X-ray tube. He states that "the amount of this box radiation that passes out through the slits into the spectrometer appears to be sufficient to dominate more or less completely the spectrum obtained." He then cites a number of instances where remarkably intense scattered radiation has been observed.

We offer the following instance as additional evidence of the comparatively large intensity of the scattered radiation inside a closed room containing an X-ray tube.

A Coolidge tube with a molybdenum target, which was operated at about 5 ma. and 25 kv. peak, was placed in a room about 22 × 25 feet and 10 feet high. The tube was located about 2 feet from one side and equidistant from the ends of the room. The height of the tube above the floor was about 4 feet. We observed that a photographic film placed some 50 cm. from the tube and shielded from the direct rays by proper lead screens was almost completely blackened in three minutes. We also found it possible to observe the scattered radiation at distances so great as two metres from the tube by means of a fluoroscope, the direct radiation being cut out by a sheet of lead placed directly in front of and in contact with the fluoroscope. This indicates that the intensity of the scattered radiation inside the room is nearly of the same order as that of the direct radiation. However, in this experiment, as in the cases cited by Duane, the effect of the scattered radiation is integrated over a solid angle of  $2\pi$ . The solid angle in the case when the radiation proceeds through slits is much less than  $2\pi$ , and so the intensity is probably not sufficient to modify the scattered spectrum as Duane suggests.

O. K. DEFOE.  
W. W. NIPPER.

Washington University,  
Saint Louis, Missouri,  
February 12.

#### The Auroral Green Line.

DR. SHRUM and I have found that the line  $\lambda = 5577$ , which we think is identical with the auroral green line, can be obtained with a mixture of oxygen and helium (with the latter greatly in excess), just as intense at room temperatures with a suitable pressure as when the discharge tube is surrounded with liquid air. Moreover, the results of our experiments strongly indicate that this spectral line has its origin in oxygen.

J. C. McLENNAN.

The Physical Laboratory,  
University of Toronto,  
April 4.

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#### The Mortality of Plaice.

I KNOW of no facts in the natural history of male plaice which would render untenable the logically flawless hypothesis of Dr. Bidder (NATURE, April 4), to the effect that it is what he calls "parental death" which occurs in this sex. In females the question of parental death is still in doubt unless "as the fish grows larger" (I quote Dr. Bidder) "*k* diminishes, and reaches 1.0 at a constant ratio of ovary-weight to body-weight which allows the residual body to recover after spawning." In this connexion I can only state that one occasionally encounters greatly emaciated very old females (called by fishermen "slinks") which have all the appearance of not being "long for this world." This observation, however, merely suggests that in the largest fish "ovary-weight may bear a lethal ratio to body-weight," the possibility of which is admitted by Dr. Bidder.

Perhaps I may now be permitted to suggest to Dr. Bidder one possible implication of his hypothesis as to the non-liability of the females to either parental or senile death. One consequence on an unfished area might be that the area would tend to become monopolised by a comparatively few females of immemorial antiquity, prodigious size, and devastating activity (since the larger the size the greater the activity necessary to procure food to maintain it). In these circumstances the adolescent females and mature males, necessarily restricted in their diet to the smaller molluscs, etc., would not stand a chance against the voracity of the giant "methuselahs" with their capacity for ingesting and digesting both large and small organisms. I suggest that this competition *intra* species would prove fatal to its existence.

WILLIAM WALLACE.

Fisheries Laboratory,  
Lowestoft,  
April 7.

#### Robert Browning as an Exponent of Research.

IN "Robert Browning as an Exponent of Research" (NATURE, February 28, p. 298) why was it written?

"As still to its asymptote speedeth the curve."

The curve itself is full of exponents, but is it asymptotic? Is it continually *more slowly* approaching the right line? I prefer to interline and excerpt rather than expect pure science of good poets.

Browning wrote:

"But God has a few of us whom he whispers in the ear."

and

"He fixed thee 'mid this dance of plastic circumstance,

This Present, thou forsooth, wouldst fain arrest:  
Machinery just meant to give the soul its bent," etc.

and finally

"This man decided not to Live but Know.

Bury this man there? . . .

Leave him—still loftier than the world suspects,  
Living and dying."

W. R. WHITNEY.

Schenectady, N.Y., U.S.A.,  
March 15.