

of the 'compensatory hyperregeneration' of Hemipteran antennæ, are in progress.

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Lamprey Distribution in Streams and Rivers

It has long been known that there is a close relation between gradients of rivers and their living population¹⁻⁵. Many accounts have stressed the way in which these populations (especially fish) tend to move up or down a river, depending on its water-level and rate of flow. I have noticed that lampreys and their larvæ do not seem to do this. Apart from those instances where, during severe drought or drought followed by flooding, ammocoete beds dry out or are washed away, such beds and the ammocoetes in them usually remain where they are whatever the state of the river.

My own observations⁶ point to two conclusions. (1) The building up of an ammocoete bed is a function of the gradient of a river and, once made, the bed will withstand severe changes in water-level and flow providing it does not dry out. (2) The ammocoetes themselves, by living in the ammocoete bed, are in fact not in the ecological environment of the main stream but in a micro-environment of their own.

Lampreys, like fish, are very sensitive to increases in the temperature and carbon dioxide content of water. Changes of this sort are less likely to occur in reaches of a river where the gradient exceeds 10 ft. per mile^{6,7} and distribution records of the occurrence of lampreys, particularly the brook lamprey (*Lampetra planeri* Bloch), which I have collected over a number of years indicate a broad correlation between distribution of lampreys and gradients of stream of between 10 ft. per mile and 30 ft. per mile. In addition, however, I have found certain regular variations within these limits which require further investigation.

It is the purpose of this communication to seek the help of all those who know of stream or river localities in which lampreys occur, so as to increase the amount of information to a level where it can be analysed statistically.

The information sought is as follows: (1) Any evidence of the existence, or former existence, of lampreys or ammocoetes of any species in a particular stream or river. (2) Identification of the species, if possible. (3) An accurate description, preferably by map reference, of the locality. In Britain, 1-in. Ordnance Survey (and edition) is sufficient. (4) Date on which specimen was observed. (5) Any weather observation made at the time.

I shall be grateful to receive even single records. Such information from any part of the world will be of value as I have access to large-scale maps here

in London which will enable me to determine the general geographical features of any locality.

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June 3.

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Occurrence of *Elminius modestus* Darwin in Ireland

THE appearance, and subsequent spread, of the Australasian barnacle *Elminius modestus* Darwin in British and north European waters is well known¹; but, hitherto, it has not been recorded in Ireland.

On September 12, six small specimens of *E. modestus* were found at Tralispean and on September 15, four more were discovered on the east side of the Coosh, near Lough Ine in south-west County Cork². Both are sheltered localities. The specimens were found near low water, and the carino-rostral diameter of the largest specimen was 5 mm.

An immediate study of the general distribution of *E. modestus* in Ireland should establish its point of entry.

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Some Further Visual Phenomena associated with Regular Patterned Stimulation

IN a recent article¹ I described some striking effects of visual stimulation by regular patterns. The principal feature of these is the appearance of what may be called a 'complementary pattern' the main outlines of which run roughly at right-angles to those of the stimulus-pattern. A 'ray' pattern of radial lines, for example, produces an after-impression of wavy lines moving in concentric circles; a pattern of concentric circles produces an after-image of wavy radial streamers. These complementary patterns may also be evoked continuously in stroboscopic light, or in a background of visual 'noise' (on a television screen) viewed through a transparency of the stimulus pattern.

Since the article was written a number of related effects have been discovered, two of which appear to be of special interest. The first is observed when a source of visual 'noise' is presented after a ten-second viewing of the stimulus pattern in normal light. The spots of light on the screen, which normally suggest an incoherent 'Brownian motion', are for a few seconds organized into a vigorous scurry of apparent movement roughly along the lines of the