D by showing that microtubule proteins are still synthesized in parthenogenetically activated, nucleated half-eggs. Finally, the fact that microtubule synthesis occurs in eggs preincubated and fertilized in high doses of actinomycin D and ethidium bromide makes it very unlikely that the mRNAs are transcribed from mitochondrial DNA.

This additional evidence is very encouraging and leads one to hope that the identification of specific proteins coded for by maternal mRNA will make it easier to answer some of the other intriguing questions about "masked" messages — for example, whether, before fertilization, they are encapsulated in structural proteins or special membranes, or are protected from translation by the binding of specific repressors or by the presence of polynucleotide sequences that are later removed. There are also several alternative mechanisms for "unmasking" the mRNAs; they could be released at random after fertilization or there could be a programmed recruitment of the inactive mRNAs on to the ribosomes. Finally, it should be mentioned here that there is now quite good evidence against the completely different hypothesis that all the maternal mRNAs are, in fact, freely available for translation, but the ribosomes only gradually acquire the ability to load on to the messenger molecules after fertilization. This model predicts an increase in the size of functioning polyribosomes during the critical 2–3 hours after fertilization, when there is the largest increase in the number of polyribosomes and the rate of protein synthesis. But a detailed study (Humphries, *Dev. Biol.*, **26**, 201; 1971) failed to show any significant change in polyribosome size during this period, thus favouring the alternative hypothesis of the gradual release of "masked" messages, which are immediately fully loaded with ribosomes.—B. H.

PEAT

Erosion in the Pennines

from a Correspondent

VAST tracts of bleak peatlands deeply dissected by erosion gullies are a familiar sight to anybody who travels across the southern Pennines or in the uplands of mid-Wales. Yet in spite of the conspicuousness of upland peat erosion as well as its possible economic importance, especially in water catchment areas, very little work has been carried out on the mechanisms and consequences of the process of erosion. Early work by Bower, Conway and more recent researches by Crisp and Tallis leave a number of important questions unanswered. What are the agents which induce peat erosion? Is it a physical or a biological process? Does the rate of erosion vary from season to season and from year to year? How old are these erosion channels and could their development be associated with human activity, either directly by way of air pollution or indirectly through sheep grazing?

Answers to some of these questions were provided by Dr J. H. Tallis (University of Manchester) at a joint meeting of the Mires Research Group and the International Peat Society held at the Botany Department of King's College, London, on January 10. Dr Tallis presented some preliminary results of a detailed study which he has been making of a single erosion gully in Featherbed Moss in the South Pennines. By trapping and collecting suspended peat in the water passing down the gully, he has been able to determine rates of erosion at various times of the year and to correlate these with various climatic parameters.

The greatest erosion seems to occur during winter months especially when frost has broken up the surface of the peat and is followed by snow-melt resulting in excessive water run-off. It may be that the erosion which does occur in summer months is simply the residuum of the frost-shattered scree of peat which has accumulated during the winter. The alternative causative agent—drying of peat associated with wind erosion—was dismissed by Dr Tallis as being of little significance except possibly in late summer. Dr Tallis stressed the correlation of high erosion rates with high water flow rates in the gully, caused either by snow-melt or by storms. For the gully in question, flow rates of less than 40–50 litres per minute were associated with negligible losses of peat, whereas the high rates (up to 400 l./min) which he recorded were correlated with very high levels of suspended peat. The total peat lost from the gully in a year amounted to between 150 and 250 kg. By estimating the total volume of his gully Dr Tallis calculated that it must have taken 200–300 years to form, assuming a constant annual erosion rate.

Pollen analyses and radiocarbon dating determinations have also been carried out in erosion areas and these tend to confirm that the bulk of peat erosion in the southern Pennines is fairly recent in origin. There remains the problem of what initiates the instability which leads to frost shattering and gully erosion. Changes have presumably occurred in the surface crust of vegetation, but are these changes an inevitable climax to the biological succession involved in blanket peat formation, or have they been induced by extrinsic environmental change, be it climatic or anthropogenic? For the time being this question must remain unanswered.

MUSCLE

Innervation in Culture

from our Neurochemistry Correspondent

TISSUE culture, the classical technique of developmental biologists, presents certain advantages to students of the nervous system interested in the formation and specificity of neural connexions. By allowing the observation of homogeneous populations of cells in a controlled chemical environment it avoids the problems of complexity and relative inaccessibility which commonly obscure experimental approaches to the nervous system. A recent article by M. Kano and Y. Shimada, of Chiba University, Japan (*J. Cell Physiol.*, **78**, 233; 1971), demonstrates a relation between innervation of muscles in culture and restriction of their sensitivity to acetylcholine and suggests that this approach may be successful in examin-