Truskowska's observations. (*b*) Horticultural land near Auchincruive, Ayr, where roots with mycorrhiza were found in July. The soil was a loam of *p*H 7·7.

Many of the roots of *Pteridium aquilinum* in both these areas were quite unaffected; but those with mycorrhiza were rather fleshy and larger than the others. These features were by no means regular and were not an infallible guide to the presence of the fungus. It has not been seen in the roots of young plants, but such young roots as have been examined were those of cultivated plants.

The accompanying drawing shows the endotrophic mycorrhiza occurring irregularly in the cortical cells of the root. In some cases, the apices of the hyphæ showed small swellings which may be similar to the 'sporangioles' mentioned by McLennan[3]. The fungus was found in the middle cortex, and the thickened cells of the inner cortex showed little infection. It has been seen in several layers of cells and not confined to one cortical layer as described by Rayner for *Aspidium filix-mas*[3]. No special digestive zone could be distinguished.

It is probable that the presence of such an endotrophic mycorrhiza is more widely spread among bracken plants than is at present appreciated.

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Effect of Sulphanilamide and *p*-Aminobenzoic Acid on Mitosis

The action of sulphanilamide on plant growth shows many parallels to its action on bacterial growth. As Bonner[1], and more recently Audus and Quastel[2], have shown, sulphanilamide will completely abolish growth in length or wet-weight of roots. This inhibition, as in bacteria, is competitively reversed by addition of *p*-aminobenzoic acid to the nutrient solution. Audus and Quastel, however, are of the opinion that the competitive reversal is of a different nature in root growth from that in bacterial growth. Their evidence for this statement is based on the fact that, while in bacteria reversal is complete even with a *p*-aminobenzoic acid concentration 1/50 to 1/4,000 that of sulphanilamide, in roots reversal is complete only when the ratio of sulphanilamide to *p*-aminobenzoic acid is approximately unity.

Plant growth as measured in these experiments is, however, a rather more complex process than bacterial growth, in that the bulk of growth in length or wet-weight is the result of expansion of cells by uptake of water. The amount of 'growth' caused by cell division in the meristems is only a small fraction of the total increase in volume or wet-weight. It seems necessary to attempt a separation of these processes before discussing the mechanism.

The action of sulphanilamide on mitosis in plant cells has been studied by several investigators[3,4,5]. Sulphanilamide appears to have two actions: (1) At concentrations of 0·1–0·5 per cent it stops nuclei coming into prophase, so that there is a fall in number of dividing cells. From experiments on the lateral roots of onion, the number of mitoses is reduced to 0–15 per cent of the original number, after forty-eight hours. (2) In those cells which do begin to divide, the spindle mechanism is upset so that the anaphase movement rarely, if ever, occurs. As Peters[4] has shown, this leads to the formation of tetraploid cells, the arrested cells with scattered metaphase chromosomes without a spindle gradually lapsing back into a resting stage, thus simulating the action of colchicine.

During the last two years, I have been investigating sulphanilamide inhibition, in an attempt to find whether these effects are reversed by application of *p*-aminobenzoic acid. Both effects appear to be reversible. The accompanying table indicates the kind of result obtained in an experiment in which the *p*H of all solutions was about 4·0.

	Prophase	Metaphase	Anaphase Telophase	Total
Control	290	112	113	515
Sulphanilamide	29	9	1	39
Sulphanilamide/ *p*-Aminobenzoic acid	315	58	59	432

Results of different experiments have varied, and the reversal is not as a rule complete. The numbers for anaphase and telophase have always been less than in the controls, although the divisions which do occur seem to be normal.

In preliminary experiments on the effect of *p*H on reversal, it has been found that at *p*H 7·0 reversal is far less complete than at *p*H 4·0. Possibly this is simply due to ionization and permeability effects, and the different results obtained with bacteria and higher plants may be due to such relationships.

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Occurrence of *Acanthocephalus ranæ* Schrank in Great Britain

Recently, Dales[1] and Eales[2] recorded the occurrence of *Acanthocephalus ranæ* Schrank in Great Britain. Three specimens of this species were discovered during routine dissection of *Rana t. temporaria* L. this session, and a further eight specimens in the departmental collection have been examined. Of the latter, seven were taken from *Bufo b. bufo* (L.) and one from *R. t. temporaria*. A summary of the ten specimens is given in the accompanying table.

The numbers of rows of hooks and number of hooks per row were counted after making camera lucida drawings. As the proboscis was not fully extended in all the specimens, it was not always possible to be absolutely certain about the numbers.

In this Department, an average of twenty-four *R. temporaria* were carefully examined each year from 1927 until 1939 for metazoan parasites. During that time only one *A. ranæ* was found. Further, one of us (H. R. H.) examined the gut of several hundred *R. temporaria* of British origin (exact locality unknown) during the years 1922–24. No specimens of