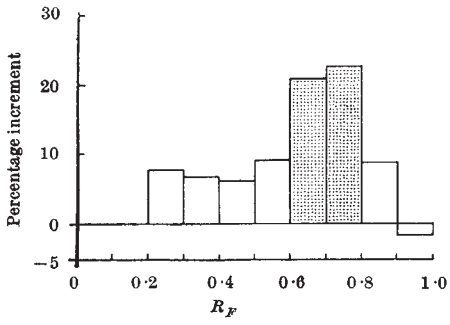

Fig. 2. Bioassay of extract of Telephone pea plants. Growth expressed as percentage increment. No assay from R_F 0·0 to R_F 0·2

that of gibberellic acid. The gibberellin-like activity of the extract of growing peas therefore cannot be attributed to any of these compounds. The activity cannot be attributed to adenine which has an R_F value in the system described above of 0·45. Also, adenine was found to have no effect at 4·2 μgm. per plant in the bioassay.

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Detection of Viable Air-borne Spores in Air

A simple method for trapping air-borne spores has recently proved useful for studying dispersal of the conifer pathogen *Fomes annosus*.

Pieces of muslin 20 cm. square are folded and placed in transparent 'self-sealing' envelopes: these are dry-sterilized at 100° C. and stored until required. To collect a sample of air spora, a muslin square is withdrawn from an envelope and attached to a wire frame, previously swabbed with 95 per cent alcohol, by means of a paper clip ('Bulldog' type) at each corner. The frame is fitted into a suitable holder so that the muslin faces squarely into the wind, supported behind by cross-wires. Static exposures are made in any open situation about 2 m. above ground, but exposures may also be made from a moving vehicle. The muslin is exposed for a period varying from a few minutes to several hours, depending on conditions, and is then folded and returned to the envelope, which is re-sealed. The catch is estimated by cutting a 10-cm. square from the centre of the muslin, transferring it to a screw-cap bottle and shaking with 20 ml. sterile water for 2 min. After compressing the material to remove excess water, the suspension and suitable ten-fold dilutions are plated with malt agar to estimate mould spores and are transferred to sections of freshly cut pine stem[1], to detect *F. annosus* and also *Peniophora gigantea*, an important competitor of the former in stumps.

By this method the two species have been detected at many localities in Great Britain. Of 50 exposures made well outside forest areas, 45 yielded *P. gigantea* and 33 *F. annosus*, showing that both are regular components of the air spora. When several exposures are made at one place the size of catch of these fungi depends to some extent on wind direction, presumably because spore production tends to be localized in conifer plantations. In certain circumstances, by making exposures some distance away, it has been possible to demonstrate the presence of *F. annosus* in forests from which it had not previously been reported. A successful exposure made about 30 miles from land on the Irish Sea first indicated that viable spores of this fungus may be carried considerable distances.

In its present form the method has certain disadvantages for quantitative work; for example, catch varies greatly with wind strength and probably with the degree of turbulence, and cannot be related to the volume of air sampled or to the total air spora. On the other hand, it is fortunate for the purpose of the present investigation that under a wide range of conditions there is good agreement between rate of catch and rate of spore deposition on a freshly cut, horizontal wood surface. If a similar relation exists with rate of spore deposition on leaves, for example, the method may be capable of wider application. Since under fairly uniform conditions the number of spores trapped is proportional to time of exposure, rate of catch may be expressed as viable spores/100 cm.^{2}/hr. With moulds, this rate often lies in the range 200–600 for inland exposures made in winter. *F. annosus* spores have been trapped at the following rates under roughly comparable conditions at various distances from the respective nearest sources (not necessarily of comparable magnitude): 30 at 1 mile; 3 at 5 miles and 0·3 at 80 miles.

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Silicification of Bulliform Cells in Grasses

Some of the opal phytoliths in the fine sand fractions of certain British soils have been traced to the grasses *Sieglingia decumbens* and *Molinia caerulea*[1] and it now appears that the largest of these arise in the bulliform cells of these species. As obtained from the soil or in residues prepared from the leaves, they appeared with fan-shaped outlines (Fig. 1), or with rectangular outlines, rather tabular but thinning to one edge, their surfaces often carrying one or two parallel ribs (Fig. 2). Using methods previously described[2], we have observed similar bodies *in situ* in the bulliform cells of *Chusquea culeou* (Figs. 3–6) and *Brachypodium pinnatum*. The arrangement of bulliform cells resembles in many ways the architecture of a long semicircular arch (Fig. 7), the upper blocks having the broadest and most fan-like section (*A*, *A'*). In the plant the units (that is, the cells) are unequal and the long ones may be pressed out as ribs at each junction between units in the next row