explanation; therefore, the following hypothesis is suggested: Chromatin diminution in *Ascaris megalocephala* is caused by the formation of 'diminisher', *D*, during the early cleavages of the egg. This 'diminisher' is produced from a cytoplasmic substance, *S*, which is more concentrated at the pole (which normally gives rise to somatic cells only), than at the anti-pole (which normally gives rise to both somatic and germinal cells). *S* changes to *D* slowly, but, before the concentration of *D* can become critical, the first cleavage usually occurs, thus segregating the greater portion of $S \rightarrow D$ into the polar cell (*AB*) which is destined to undergo chromatin diminution when it divides or at the next following division of its two daughter cells (*A* and *B*). The smaller portion of $S \rightarrow D$ is passed into the anti-polar cell (P_1), but, before the concentration of *D* becomes critical, the cell divides (into P_2 and *EMSt*), most of $S \rightarrow D$ going into one of the daughter cells (*EMSt*) which undergoes chromatin diminution, the other (P_2) remaining undiminished.

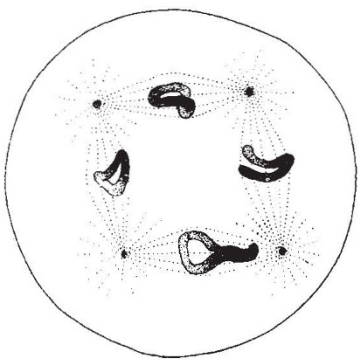

Fig. 1.

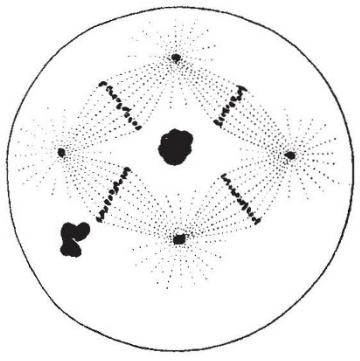

Fig. 2.

This differential partition of $S \rightarrow D$ is repeated until there is none, or at any rate, not enough, left in the primordial germ cell to cause chromatin diminution. Neither *S* nor *D* are to be identified as any visible inclusion in the cytoplasm. The process $S \rightarrow D$ is not disturbed by centrifuging, so that when the first cleavage has been suppressed by centrifuging, the concentration of *D* may become sufficient to cause diminution before the multipolar cleavage segregates the greater part of $S \rightarrow D$ into one (or more) cells. Even when such cleavage does take place, diminution usually follows in the four (or, less frequently, three) cells which result. If both the first and second cleavage are suppressed, diminution usually takes place in the uncleaved egg.

Diminution, then, is an example of chemo-differentiation; the rate of formation of the 'diminisher' depends upon the different concentration of the material producing it, in various regions of the cell. During cleavage, these regions are isolated by cell division, so that the process may occur in one daughter cell and not in the other.

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An Air-borne Plant Virus

IN a recent publication[1], an account is given of an unusual plant virus which is found in the roots of normal-looking plants of different species growing in the insect-proof glasshouse under conditions usually considered proof against virus infection. It is shown that this virus is water-borne to the soil, whence it reaches the roots of the plants.

The fact that the virus could still be detected in the roots of tobacco plants growing in autoclaved soil and watered only with boiled tap water, suggested that there was an alternative method of spread for the virus. Experiments were therefore planned to find out if the virus was also air-borne. Three types of suction apparatus were employed to test the air of the glasshouse. The first two were unsatisfactory, and gave negative results. The third type, designed by Mr. J. P. Doncaster, consisted of an electric pump connected by rubber tubing to six gas-washing bottles placed in different parts of the glasshouse. Each bottle contained a pad of moist cotton wool through which the air of the glasshouse was drawn. The cotton wool was tested for virus at 48-hour intervals by rubbing it on to the leaves of the French bean (*Phaseolus vulgaris*), which is an extremely sensitive test plant for the virus. This method was more successful, and, in three separate experiments, the virus was isolated from the cotton wool pads.

It is not perhaps surprising that such a minute virus (average particle diameter, 20–30 millimicrons), and one capable of withstanding complete desiccation, should be present in the air of the glasshouse. The interesting fact is rather that the virus should be able to spread by this means, without the aid of an insect vector or any apparent wound in the host plant. The smallest quantity of virus which reaches the soil seems eventually to enter the roots of a plant growing therein.

This discovery of an air-borne plant virus may possibly throw light on the mode of dissemination of other plant and animal viruses which are spread by some means at present unknown.

I have much pleasure in acknowledging the valuable assistance given me by Mrs. d'Oliveira in carrying out these experiments.

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Cultivation of *Histomonas meleagridis* from the Liver Lesions of a Hen

'BLACKHEAD' (entero-hepatitis), a widespread and generally fatal disease of turkeys, was attributed to a protozoon, *Amœba meleagridis*, by Theobald Smith[1]. Later, Tyzzer confirmed its presence in cæcal lesions and renamed it *Histomonas* (gen. nov.) *meleagridis* Smith[2]. Although there is no difficulty in infecting young chickens experimentally with *H. meleagridis* (Tyzzer[3]) the disease produced is not severe, and the