Fig. 1 (left hand) shows a photomicrograph (magnification 1 : 50) of droplets collected during a 10-minute exposure of glass slides in a dense fog, which occurred in Moscow on the night of November 2 (air temperature, 5° C.). The size of the droplets lay within the limits of about 0·006–0·030 mm. radius. In order to determine the real distribution of the sizes of droplets, the glass slides would have to be put at the bottom of a chamber filled with the fog. All the droplets contained in the chamber should then be allowed to settle on the bottom. This could not be done, as fogs are very rare in Moscow and this one happened quite unexpectedly. Fig. 1 (right hand) shows a photomicrograph taken of rain droplets (magnification 1 : 10).

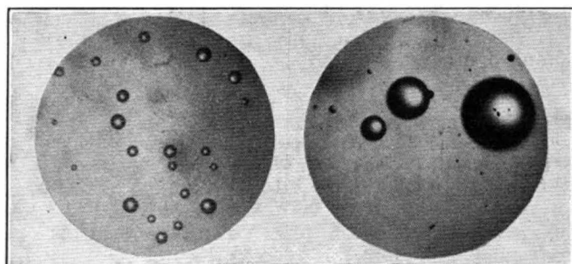

Fig. 1.
FOG PARTICLES (LEFT), × 50; AND RAIN DROPLETS (RIGHT), × 10

All the apparatus needed for the visual or photomicrographic measurements of droplets (an electric battery for illumination included) weighs about 12 lb. and the method can be readily used in the field, during balloon flights, etc. Measurements made from a balloon continuously kept in equilibrium with the surrounding air would give invaluable information about the kinetics of the formation and precipitation of clouds—processes about which very little is as yet known.

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[1] Findeisen, *Gerlands Beiträge*, **35**, 295 (1932).
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Preparation of a Highly Active Alcohol Apo-dehydrogenase from Yeast

IT is generally recognized that an active dehydrogenase system consists of three principal components : (1) an apo-dehydrogenase, the non-dializable and thermo-labile colloidal carrier, protein in nature ; (2) a co-enzyme, crystalloidal and comparatively thermostable ; and (3) a flavo-protein, capable of reversible oxidations and reductions. Euler and others have advanced the view that the specificity of dehydrogenases is intimately associated with the specific protein or proteins constituting the apo-dehydrogenase, the isolation of which in a state of integral purity and high activity is necessary for an elucidation of the groups responsible for the enzymic activity. With this end in view, we have commenced a study of the isolation and purification of the alcohol apo-dehydrogenase from bottom yeast.

Dried yeast (one part), macerated with toluenated water (3 parts) at 30° C. for three hours, yields an extract which contains about 70–75 per cent of the apo-dehydrogenase, and this extract has been used as the starting material for the isolation and purification of the active protein. The activity or the concentration of the apo-dehydrogenase is expressed as seconds per milligram of protein nitrogen, required to decolourize 0·2 c.c. of a standard solution of methylene blue (1 in 5,000), in presence of an excess of the other components of the dehydrogenase system, the substrate, the cozymase and the flavo-protein. Measured on this standard, the crude extract has an activity which corresponds to 808 seconds per milligram of protein nitrogen.

The maceration extract, when treated with ammonium sulphate to full saturation, yields a precipitate centrifugible with difficulty which, however, easily dissolves in water giving a clear yellow solution. When this solution is progressively saturated with ammonium sulphate, two distinct precipitates are obtained, one at half saturation and the other at full saturation. These precipitates, *A* and *B*, have activities respectively corresponding to 46 and 81 seconds per milligram of protein nitrogen, showing thereby that a purer preparation of the apo-dehydrogenase is obtained at half saturation. Preparation *B*, however, has been found to be comparatively free from the flavo-protein, as measured by its high response to the addition of the flavine enzyme.

Further purification of the preparation *A* is accomplished by re-dissolving the wet precipitate in water and carrying out an adsorption with zirconium hydroxide at *p*H 5. The active protein can be eluted from the adsorbate by Sørensen's *M*/15 phosphate buffer, *p*H 6·8, and a further purification can be effected by repeating the adsorption and elution under the same conditions. By adopting this procedure, it has been possible to obtain a preparation possessing an activity of 6 seconds per milligram of protein nitrogen and representing a 135-fold purification.

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Experimental Induction of Ovulation with Progesterone

THE injection of pregnancy urine extract or of anterior pituitary extract causes ovulation in *Xenopus lævis*, the South African clawed frog. Ovulation is accompanied by swelling and hyperæmia of the anal labia. In an attempt to analyse the hormonal control of the labial reaction, œstradiol (Progynon B oleosum forte) and progesterone (Proluton) were injected separately and together into a number of female frogs. Injection of both hormones together elicited the full labial reaction and in addition induced ovulation. Ovulation occurred on injection of progesterone alone but not with œstradiol alone. Progesterone also caused ovulation in hypophysectomized animals. Ovulation had previously been obtained only with pregnancy urine and anterior pituitary extracts. The results of this preliminary investigation were communicated to the Royal Society of South Africa in October, 1936. The following is an account of a more extensive investigation undertaken since then.

Large numbers of frogs were hypophysectomized. In some the whole pituitary (anterior and posterior lobes) was removed, in others the anterior lobe alone

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