

a comparatively few feathers exactly like those of the male in full breeding plumage, the majority resembling, rather, those of the male in summer plumage.

In each of these cases, then, removal of the ovary has been followed by a greater or less assumption of male characters.

Further light on the subject may be expected in due course from the birds on which ovariectomy has been performed this season, several already having feathers like those of a normal male.

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NOTE ON A METHOD OF MIMICKING AMOEBOID  
MOTION AND PROTOPLASMIC STREAMING  
IN THE SAME MODEL<sup>1</sup>

THE following method of mimicking amoeboid motion and protoplasmic streaming has been employed by me for class-demonstrations during the past five years. As it is extremely simple and yields results which are very striking and instructive, it appears advisable to communicate it to a wider public.

It is well known that if particles of camphor be dropped upon the surface of clean water they display energetic movements which are attributed to large and unequally distributed alterations in the superficial tension of the air-water surface at points of contact with the camphor.<sup>2</sup> It occurred to me, therefore, that if camphor could be incorporated into a fluid immiscible with water, drops of the mixture placed upon water might be expected to display surface deformations resembling those occurring in the formation of pseudopodia. This anticipation proved correct.

I prepare a ten-per-cent. solution of camphor-gum in benzol and then, since drops of this water-white liquid are difficult to observe upon the surface of water, I color it deeply by the addition of Sudan III or Scharlach R.

<sup>1</sup>From the Rudolph Spreckels Physiological Laboratory of the University of California.

<sup>2</sup>Van der Mensbrugghe, cited after Rayleigh, *Proc. Roy. Soc. London*, 47, 1890, p. 64.

If a drop of this mixture be placed upon the surface of water, violent and extremely rapid deformations of surface are observed. Lengthy and irregular "pseudopodia" are rapidly thrown out and withdrawn. The whole drop exhibits a veritable ecstasy of motion which shortly ceases when a fine incrustation of precipitated camphor has spread over the water.

By successive additions of some viscous liquid such as olive oil to the mixture the motions of the drops can be rendered slower and slower and more readily followed in detail by the eye. When at length a mixture is formed of equal volumes of olive oil and the camphor-benzol solution the formation of "pseudopodia" is no longer observed; instead, we observe a prolonged and energetic streaming movement within the drop which mimics in the closest manner imaginable the phenomenon of protoplasmic streaming.

In this way the modifying influence of viscosity upon the reaction of fluid masses to local changes in superficial tension can be shown in any desired gradation; it appears probable that a superficial semi-solid pellicle must restrain the movement of the fluid in much the same way as internal friction. Hence, the phenomena of protoplasmic streaming and amoeboid motion are readily traced to the same origin.

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THE DUNDEE MEETING OF THE BRITISH  
ASSOCIATION FOR THE ADVANCE-  
MENT OF SCIENCE<sup>1</sup>

THE meeting of the British Association at Dundee which has just come to an end will be remembered as one of the pleasantest and most successful in the annals of the association. It was thought to be impossible to surpass the number of members and associates who attended the last Dundee meeting, just 45 years ago; indeed, it was not expected that so high a figure would be reached. But the number this year—2,504—is considerably in excess of the total in 1867, and the support accorded to the association by every one in Dundee, from Lord Provost Urquhart to the humblest citizen, has been most gratifying.

<sup>1</sup>From the *London Times*.