Memorial Laboratory and transplants were made in mice 7–8 months old. The age of the transplants used ranged from 14 to 17 days.

There was no stimulation of respiration of the tumour tissue noted when this *RSF* was added in a concentration of 13·9 mgm./c.c. to the Ringer-glucose-phosphate (0·02 per cent glucose) solution in which the tumour tissue was suspended. The average Q_{O_2} for a series of fourteen determinations was 5·2 (limits, 4·1–6·8) with *RSF* and 5·3 (limits, 4·0–7·4) without *RSF*. Certain other cell-free tissue extracts which stimulate the respiration of normal tissues have failed to stimulate tumour respiration. For example, a cell-free extract prepared from tumour increased the oxygen uptake of liver but not of tumour. Spleen extract was the only one used in our laboratory which stimulated the respiration of tumorous tissue, which confirms the earlier observation of Büngeler[5].

This difference in response of normal and tumour tissue to the *RSF* preparation under investigation might be interpreted as indicating a qualitative difference between normal and tumour metabolism. At present there is insufficient evidence to show whether this is true; indeed, the bulk of previous evidence has led to the belief, in Boyland's words[6], that "in the mechanism of tumour respiration there is no known qualitative difference between normal and tumour tissue". This work does affirm that there is damage to the oxidative mechanism in malignant tissue as has been found by Dickens[7] from measurements of the respiratory quotient.

The crude *RSF* has been fractionated by different methods, and experiments are now being conducted to test the effect of these fractions on normal and tumour tissue. It is not impossible that prolonged application of *RSF* to tumour tissue, either *in vitro* in tissue culture or by injection, will have a favourable effect. These possibilities, together with the use of further autogenous preparations, are being studied. The effects of *RSF* on other phases of normal and tumour metabolism are under investigation.

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Nutritive Spheres in *Amœba proteus* Y

THE impetus given to the investigation of cytoplasmic inclusions by the ultra- and electric-centrifuge technique used in the recent work of Brontë Gatenby and his pupils has raised once more the controversy concerning the exact nature of the nutritive spheres in *Amœba proteus* Y.

Dr. Singh[1] confirms the findings of Sister Carmela Hayes[2] that the nutritive spheres contain glycogen. I would direct attention to one significant remark at the end of Sister Carmela's paper which indicates the possible explanation of discrepancies in descriptions of the reactions of living organisms to various reagents, namely, her conclusion that the exact chemical composition of the nutritive sphere depends upon its physiological condition at the time of the experiment.

Dr. Singh does not wholly agree with those who maintain that I confused nutritive spheres with agametes. I hope to publish elsewhere my renewed investigations on the life-history of *A. proteus* Y. My purpose in writing this note is to direct attention to a method of demonstrating the presence of glycogen and of making very instructive permanent preparations of *A. proteus* Y, which may be useful for busy teachers.

The amœbæ after being allowed to 'expand' are fixed in Bouin's fluid, washed in alcohol, stained in a 1 per cent solution of chlorazol black[3] in alcohol, dehydrated in 'Cellosolve'[4], cleared in xylol and mounted in Canada balsam.

The glycogen can easily be detected around the nutritive spheres by its red colour[5]. The interior of the sphere stains a pale green.

Since 90 per cent alcohol can be used as a fixative for *A. proteus* Y, the amœbæ can be fixed and stained simultaneously by treatment with a 90 per cent alcoholic solution of chlorazol black, thus limiting the remaining operations to dehydration in 'Cellosolve' and making permanent 'in Euparal'.

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Sea Island Cotton and the Lamarckian Theory

PROF. MACBRIDE[1] cites Sea Island cotton as an example of a strain evolved in response to a particular environment (in this case the sea islands of South Carolina) which only retains its distinctive characteristics under those particular conditions. He has, unfortunately, been misinformed. The perennial ancestors of Sea Island cotton were introduced from the West Indies into Carolina in the latter half of the eighteenth century and there selected for the annual habit. The annual types were sent to the West Indies about thirty-five years ago and have retained unchanged the annual habit and very high quality characteristic of the Carolina type. A Barbados stock has been cultivated on a small scale in Fiji for fifteen years and has maintained not only the general Sea Island characteristics, but also the distinctive superfine quality of the Barbados strain. In the U.S.S.R. and in Sind also American stocks have been grown for a number of years without reversion.

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