liminary results and intend to examine the application of these concepts to related compounds.

A more detailed description of the present work will be published elsewhere.

D. W. Adamson
P. A. Barrett
J. W. Billinghurst
A. F. Green
T. S. G. Jones

Wellcome Research Laboratories,
Beckenham, Kent.
March 29.

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Oxygen Uptake of Nucleated and Non-nucleated Halves of *Amœba proteus*

The removal of the nucleus causes a slow decrease of the ribonucleic acid content of the cytoplasm of *Amœba proteus*[1]. This indicates that the ribonucleoprotein particles (microsomes) subsist in the cytoplasm only in the presence of the nucleus. However, this nuclear control is not immediate, for the ribonucleic acid content of non-nucleated fragments drops significantly only after the fourth day following enucleation.

It appeared of interest to find out whether the oxygen uptake is under nuclear control; a rapid decrease of respiration after enucleation, as stated by Clark[2], might mean that respiratory enzymes, known to be predominantly bound to mitochondria, are dependent on the nucleus for the maintenance of their activity.

Measurements were made on nucleated and non-nucleated fragments of *Amœba proteus*, cut into two approximately equal parts with the aid of a glass needle, and kept fasting; a cylindrical Cartesian diver (gas volume approximately 7 c.mm.) was used. Preliminary experiments indicated that oxygen uptake is proportional to the number of amœbæ when 10–30 amœbæ per diver are studied. We found an average value of $0{\cdot}3 \times 10^{-3}$ c.mm./hr./whole amœba; this figure is almost one-fifth of that given by Clark[2] ($1{\cdot}4 \times 10^{-3}$ c.mm.).

Sixty-nine measurements were performed, using 50–100 nucleated and non-nucleated halves; the time interval after enucleation varied from 1 to 10 days and respiration was studied during 4–5 hr. Duplicate experiments gave consistent results within ± 10 per cent.

As Holter and Zeuthen[3] have shown for intact amœbæ (*Chaos chaos*), the oxygen uptake decreases progressively during fasting and a similar phenomenon was found in the present experiments. But, as is shown in Table 1, the ratio between oxygen uptake of nucleated and non-nucleated fragments remains constant for at least nine days, and the uptake of the enucleated fragments 35–45 per cent that of the total.

In order to check if the oxygen uptake is proportional to the protein content of the two fragments, we determined their tyrosine content according to the principle adopted by Andresen and Holter[4]; we followed detailed instructions kindly sent to us by Dr. Holter. The equal intensity of the Millon reaction in both types of fragments[1] justifies the choice of this amino-acid. As is shown in Table 2, results of these determinations expressed as the ratio between both fragments are reasonably of the same order as those found for oxygen uptake.

It can thus be concluded from the results that: (1) the oxygen uptake due to the nucleus of the amœba must be proportionally small; (2) the absence of nucleus does not prevent the prolonged maintenance of a normal level of oxidation. It then seems probable that the respiratory enzymes bound to mitochondria are largely independent of the nucleus for the maintenance of their activity.

It has recently been shown by Mazia and Hirshfield[5] that phosphorus-32 uptake by amœbæ is strongly dependent on the presence of the nucleus: after twenty-four hours, enucleation results in the ratios nucleated : enucleated varying from 3·1 to 6·5.

Table 1

Day after sectioning	1	2	4	5	6	7	8	9	10
Ratio between respiration of nucleated and of non-nucleated fragments (*N*/*E*)	1·36 1·26	1·49 1·49	1·48 1·63	1·26	1·47	1·42	1·35 1·22	1·32	1·86 1·71
Oxygen uptake of enucleated fragments as per cent of total	41 44	40 40	43 38	44	40	41	42·5 45	45	35 40

Table 2

Day after sectioning	1	2	3	8	10
Ratio between tyrosine content of nucleated halves and of non-nucleated halves (*N*/*E*)	1·12 1·22	1·29 1·50	1·42	1·78 1·44	1·84

One is therefore led to believe that enucleation leads to a break in the normal coupling between oxidations and phosphorylations: the non-nucleated amœba would thus behave like cells treated with dinitrophenol, which interrupts synthesis by blocking the coupling between oxidation and phosphorylation. Work is now in progress to find out if the nucleus, and in particular the nucleolus, takes any part in the synthesis of the coenzymes necessary for this coupling. Our results, added to those of Mazia and Hirshfield, give us a better understanding of the 'control' of syntheses by the nucleus.

J. Brachet

Laboratoire de Morphologie animale,
Université libre de Bruxelles. March 22.

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Ergothioneine in the Seminal Vesicle Secretion

Protein-free extracts from the secretory fluid of the seminal vesicles exhibit a marked reducing property towards potassium permanganate and Folin's phosphotungstic reagent in the cold, and towards 2,6-dichlorophenol-indophenol in acid solution. Boar vesicular secretion, which is available in large quantities, was chosen as a convenient source for the isolation of the reducing material. In the course of purification, it was found that the reducing power went parallel with two other chemical properties of the boar vesicular secretion, namely, a strongly