phoresis this sample consisted primarily of type *F*, with smaller amounts of type *A* and of another type similar to the variant in the mother. The *F* hæmoglobin value, by the method of alkali denaturation, was 38 per cent. In free electrophoresis, cacodylate buffer, *p*H 6·5, there was one peak only. This child was examined again at the age of four months, at which time his hæmoglobin pattern in paper electrophoresis was almost identical with that of the mother.

When 'MTu's' hæmoglobin was analysed in paper electrophoresis in a closed system (between glass plates) its pattern was indistinguishable from that of hæmoglobin *AS*. This was also the case in some analyses of less than eighteen hours duration in the present method of paper electrophoresis. This finding suggests the need for caution in interpreting the results of analyses by paper electrophoresis, particularly with respect to identification of hæmoglobin *D*, *L* and *G*, the variants most likely to be confused with the one present in 'MTu'.

It is suggested that the hæmoglobin variant in 'MTu' and her son 'HBTu' be tentatively designated the 'Galveston type'.

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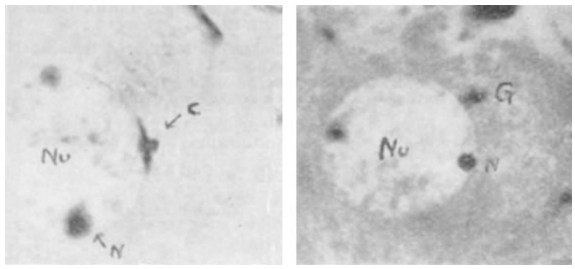
Mitochondrial Kinetics

VISIBLE local modification of the cellular nuclear membrane is usually considered a phenomenon associated with the discharge of nucleic acid from nucleus to cytoplasm. Barr and Bertram[1] have noted thin 'nuclear caps' in nerve cells concomitant with the reproduction of Nissl substance during recovery from antidromic stimulation. Such 'nuclear caps' appear as distinctive dense or thickened local areas of the nuclear membrane which stain with basic dyes, give positive histochemical reactions for nucleic acid, and absorb heavily at 2600 A. with ultra-violet light methods. Electron studies also indicate that the membrane may be thickened and modified during regeneration after axonic severance[2].

However, modification of the nuclear membrane interface may occur during intracellular processes seemingly unconnected with nucleic acid interchange. Earlier studies[3] have shown that cytoplasmic organellæ, the lipochondria, may enter into relationship with the nucleus, forming a zone of nuclear reaction morphologically indistinguishable from a 'nuclear cap'.

Striking examples of these 'caps' have recently been found in dorsal root ganglion cells of neonatal guinea pigs. The photomicrographs (Fig. 1) are from preparations fixed in Helly fluid, and post-chromed before staining with Altmann's mitochondrial stain. At one pole of the nucleus the membrane is thickened and contains some distinct granules (Fig. 1,*a*). The whole structure is strongly fuchsinophil and is



a *b*

Fig. 1. *a*, Dorsal root ganglion cell, neonatal guinea pig. A nuclear cap *C* contains two granules. *N*, nucleoli; *Nu*, nucleus. (× *c.* 19,000). *b*, A mass of fuchsinophil granules *G* lie close to the nuclear membrane. Less strongly stained mitochondria are present in the section but are not clearly visible in this plate. *N*, nucleoli. (× *c.* 19,000)

sharply differentiated from the rest of the nuclear membrane.

Frequently, masses of similar fuchsinophil granules lie in contact with, but outside of, the nucleus, and may or may not be associated with a 'nuclear cap'. These masses stain as do the mitochondria, but with greater intensity. Granules at the periphery of the mass merge with and become indistinguishable from the normal mitochondria (Fig. 1*b*). Both the 'nuclear caps' and their associated granules give a negative Feulgen reaction, and do not stain with pyronin in Brachet's method for ribonucleic acid.

Although nucleoli frequently approach and attach themselves to the nuclear membrane from the inner aspect they are not then similarly associated with the formation of a distinctive fuchsinophil cap (Fig. 1*b*).

The above phenomena suggest a possible mitochondrial kinesis involving the nucleus, similar to that already described for the lipochondria. A slide illustrating these phenomena will be sent to the International Depository of Cytological Slides, Institute Carnoy, Louvain, Belgium.

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A Cell Compressor for the Measurement of Mass and Concentration by Interference Microscopy

FOR a number of observations with the interference microscope on suspensions of living cells, it is desirable to be able to make the upper and lower surfaces of the cell flat and parallel without producing irreversible damage. A number of compressors are known (for example, Rousselet), but none provides quite the degree of control which is required. The compressor illustrated in Fig. 1 depends upon the bending of the slide S_2 and is therefore completely free from shear play and other uncontrollable movements, unlike compressors which depend upon sliding motion. In addition, the mounting of the cells on the small strip of glass *B*, which is sealed to the lower slide S_2 with 'Araldite', avoids any disturbances due to changes in capillary attraction. The curvature of the meniscus at *M* is little affected by small changes in the gap *G*. These two conditions enable quite reversible changes in the gap to be effected over distances