undermine the skin downwards as far as the orbital margin, advancing between skin and muscle. The palpebral part of the orbicularis as well as the lower portion of the muscle is thoroughly extirpated with fine forceps and scissors until tarsus and orbital fascia are clearly exposed.

Sutures are superfluous, for coaptation of the wound is faultless.

This little operation gives immediate and lasting result. The muscle being absent, no relapse is possible. There are two parts of the muscle that remain intact: the limbalis and the Riolani, sufficient to maintain normal position and function of the lid.

Over-correction, a delicate point of lid-operations, is not possible. It is well-known that operations for entropion if at all efficacious, easily produce an ectropion, chiefly if there was excision of skin. Removal of skin is in our operation never necessary and therefore absolutely forbidden. Sometimes at the end of the operation the skin appears to be redundant, as it applies itself to the line of the eyelashes in folds. We are not persuaded by this sign to excise the skin, as the consecutive fine cicatrization smoothes out the skin in a few days.

A NOTE ON THE PHYSIOLOGY OF THE AQUEOUS HUMOUR *

BY

E. BÁRÁNY *and* H. DAVSON

IN recent papers it has been shown (Bárány, 1947, *a*, *b*, *c*), that the rate of penetration of sodium into the aqueous humour is dependent to only a small extent on the blood pressure. The equilibrium concentration of sodium in the aqueous humour and the osmotic pressure of the aqueous are even less affected by a blood pressure reduction. These results have been discussed in relation to certain possibilities of the mode of entrance of sodium, namely:—

(*a*) Secretion in accordance with an equation based on certain assumptions (Kinsey and Grant, 1942).

(*b*) An ultra-filtration process involving an actual bulk movement of fluid.

The possibility of a simple diffusion mechanism as envisaged by Davson and Quilliam (1940), appeared to Bárány to be excluded by Kinsey and Grant's work. The conclusion was reached that bulk movement of fluid was a negligible factor in the penetration of sodium and in the formation of the aqueous humour generally and that the rate of flow of aqueous was only little affected by the intra-ocular pressure.

* Received for publication, September 24, 1947.

We should like to emphasize the dependence of these conclusions upon the validity of the interpretation by Kinsey and Grant of their own results, an interpretation not accepted by Duke-Elder and Davson. The papers by Bárány have been criticised recently by Davson (1947) in this light but there are a few corrections that must in fairness be made. The statement by Davson "The notion that a molecule or ion may not enter by simple diffusion but may enter by ultra-filtration has no physical meaning" is indeed ultimately true of any membrane system; nevertheless the conditions may be such that quantitatively the penetration of a substance by simple diffusion may be small in comparison with that entering by ultra-filtration. Thus, if salts could only penetrate the eye membranes in a strictly limited region and if, moreover, filtration from the blood took place only in this region, and consisted in a continuous flow into the eye, it could be stated that sodium entered predominantly or perhaps exclusively by a filtration process, simple diffusion being excluded by the impermeability of the major part of the membrane to this substance. Such a system was, in fact, envisaged by Bárány although this was not explicitly stated. Bárány's experiments actually exclude this mechanism since the rate of penetration of sodium was almost independent of pressure.

One other point should be mentioned. Davson objected to the use of a mean value not significantly different from unity. It is agreed that this value was not statistically different from unity but it should have been pointed out that exactly the smallness of this difference was in favour of the general argument.

In conclusion, perhaps it is worth devoting a few words to the general problem of whether salts are actually secreted into the eye or whether they may enter by simple diffusion. Kinsey and Grant's "secretion equation" is very similar in form to the simple diffusion equation of Davson and Quilliam; it is not impossible that their data would fit a correct dialysis equation equally well as they actually fit their "secretion equation." The "dialysis equation" of Kinsey and Grant must be unrealistic, as pointed out by Duke-Elder and Davson (1943)[†] and therefore it is not surprising that it does not fit their data.

The problem of the secretion of salts into the eye is thus still in a state of flux; it would appear that a mere mathematical analysis of the data already to hand is not sufficient for a decision.

REFERENCES

- BÁRÁNY (1947a).—*Acta Physiol. Scand.*, Vol. XIII, p. 55.
 — (1947b).—*Acta Physiol. Scand.*, Vol. XIII, p. 81.
 — (1947c).—*Brit. Jl. Ophthalm.*, Vol. XXXI, p. 160.
 DAVSON (1947).—*Ophthalmic Literature*, Vol. I, pp. 28-29.
 DAVSON and QUILLIAM (1940).—*Jl. Physiol.*, XCVIII, p. 141.
 DUKE-ELDER and DAVSON (1943).—*Brit. Jl. Ophthalm.*, Vol. XXVII, p. 431.
 KINSEY and GRANT (1942).—*Jl. Gen. Physiol.*, Vol. XXVI, p. 131.

[†] According to a personal communication to Davson, Friedenwald is of the same opinion.