salts as exert equal osmotic pressures. The amount added to one liter of Locke's solution was 11.3 gm. for NaCl, 14.0 gm. for KCl. 30.4 gm. for $BaCl_2$, 14.4 gm. for $CaCl_2$, 7.3 gm. for LiCl, and 25.7 gm. for $MgCl_2.6H_2O$.

Both NaCl and $BaCl_2$ in these dilutions give definite increases in the transudation rate. KCl, on the other hand, causes a definite decrease. The results for $MgCl_2$ and LiCl are variable. $CaCl_2$ causes slight changes in transudation rate varying from a slight increase to a slight decrease.

V. GLUCOSE. Glucose in concentration of 68.7 gm. per liter of Locke's solution brings about no significant change.

The rate of transudation for the first minute is always very high and as transudation is continued the rate gradually decreases. (Fig. 1.) Several experiments were carried out in which transudation was stopped and recommenced after an interval. After a "rest" from transudation the subsequent flow was higher than would have resulted had the flow been allowed to continue.

Although the results are not very striking, they are sufficient to indicate that certain substances (*e. g.,* haemolysins) which increase the permeability of red cell membranes, decrease the transudation flow through mesentery. It is to be borne in mind, of course, that permeability and transudation are not measured in exactly comparable terms. Salts and alcohols affect transudation in various ways and to different extents, and do not seem to fall into any series or relation to be expected on the basis of present theories of permeability.

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A Reply to Bishop and Heinbecker's "Fiber Distribution in Optic and Saphenous Nerves."

E. A. BLAIR AND JOSEPH ERLANGER.

From the Physiological Department, Washington University School of Medicine, St. Louis.

In a paper by Bishop and Heinbecker[1] there occurs a serious misinterpretation of a statement published by us.[2] They quote from

[1] Bishop, G. H., and Heinbecker, P., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 1312.

[2] Blair, E. A., and Erlanger, J., PROC. SOC. EXP. BIOL. AND MED., 1933, **30**, 728.

our paper as follows, "The results therefore fail to support the view (of Bishop and Heinbecker), that there are fiber types distinguishable by time to maximum, conduction rate, irritability and refractory period. . . . . Since it is possible to recognize differences in the physiological responses of individual axons, it is no longer incumbent upon physiologists to adhere to the doctrine of specific nerve energies."

These two passages they gratuitously take to mean "that the *same fiber* mediated (mediates) different sensations by means of *impulses* of *different character*" (italics theirs) and then proceed to attack, with facetiousness as their weapon, the windmill they have erected. As a matter of fact, we had no intention of conveying any such meaning and presented no evidence in support of such a point of view. The misinterpretation presumably was caused by reading as 'responses of an individual axon' the words "responses of individual axons". In so far as the doctrine of specific nerve energies is concerned, the point we wished to make, and would have made in as many words had there been space in an abstract, was that since it is possible to distinguish in the fibers of a nerve a very wide and apparently continuous range in the characters of their responses the possibility exists of a transmission of impulses along paths in the central nervous system adapted to impulses of specific configurations. This is an elaboration, based on more definite information, of a point of view previously presented by Erlanger, Gasser and Bishop[3] and since by Adrian.[4]

The differences between their and our *results,* to which they refer more briefly, will be considered in a paper to be published elsewhere.

[3] Erlanger, J., Gasser, H. S., and Bishop, G. H., *Am. J. Physiol.*, 1924, **70**, 665.

[4] Adrian, E. D., "The Mechanism of Nervous Action," 1932, 56 *et seq.*