lowers the end on which it strikes and raises the other end. The instant the end is raised a second electric circuit is broken. Thus, without any intermediate interruption, the ball controls the two breaks of the electric current, one at the beginning and one at the end of the fall.

The apparatus was tested for various heights to ascertain whether the times marked off by the two broken contacts agreed with the time theoretically demanded. Plates are given showing comparisons of the apparatus with a standardized fork. The results show that the error is well within a single sigma.

Details are given showing various series of connections which make it possible to utilize two breaks in making records or in testing the Hipp chronoscope.

W. M. STEELE.

YALE UNIVERSITY.

Minor Investigations in Sense Perception. R. MACDOUGALL. *Am. Journ. Psychol.*, Vol. XIII., No. 4.

These are certain minor investigations undertaken in connection with the problem 'concerning the subjective determination of the primary point of regard,' reported in the 'Harvard Psychological Studies' (Monograph Suppl. *PSY. REV.*, No. 17).

The first (I.), 'On Determinations of the Subjective Horizon by Motor Coördination,' is an attempt 'to ascertain the relation of the subjective horizon of the eye as determined by raising the index finger, to its position when determined visually, and the influence upon such location of changes in the orientation of the head and eyes.' The displacement is much less in the case of the downward movement of the eyes and head than with the upward movements. "The upward rotation of the eyes in their sockets develops a relatively intense strain experience, while in rotations of equal magnitude downward from the primary position of the eyes these muscular tensions are practically lacking. This difference arises from the biological relations of the organism to its environment, which call forth constant exploring movements of the eyes within the lower half of the field of vision, while very few are made above the horizon in the expanse of the sky." That is, 'these forms of spatial orientation are related to oculo-motor conditions, and the direction of the characteristic errors which they present are dependent upon the coördination of eye and hand in the perception reactions of ordinary practical life.'

The second (II.) is on 'The Relation of Saturation in Homogeneous Colors to the Area over which the Color is Spread.' "When the

whole hand is plunged into warm water, for instance, it feels hotter than when only the tip of the finger is immersed." The same is true of taste solutions. "It is a natural inference from the connection which is found in these instances that the number of elements of the sensitive surface stimulated and the intensity of the resulting sensation stand always in such a relation of functional dependence that the subjective estimation of the intensity of a sensorial stimulus cannot be considered apart from the magnitude of the area excited." "In the case of certain senses it has been noted further that this summation effect is independent of continuity in the surface to which the stimulus is applied; intensive reinforcement takes place when the sensitive elements affected are not contiguous but form a discrete series." Thus in color vision 'there is least difference in saturation between small and large areas of red, of all the colors observed, and most difference in the case of green,' with blue, yellow, violet, orange in order between. "Therefore, the influence of the number of elements stimulated upon the intensity of the color sensation is greatest in the case of green, least in that of red."

The third investigation (III.) is a brief examination of the 'Quantitative Relations of Stimulation Area and Color Threshold in Discrete as Compared with Continuous Extents.'

H. HEATH BAWDEN.

VASSAR COLLEGE.

Ueber Hemmung gleichzeitiger Reizwirkungen. PAUL RANSCHBURG. Zeit. f. Physiologie u. Psychologie d. Sinnesorgane, Band XXX.; Heft 1 u. 2.

This is an experimental contribution to the theory of the conditions of attention. The work was devoted to the determination of the nature and explanations of certain errors that had appeared in some previous investigations upon the correctness of the capacity for comprehension (*Sicherheit der Auffassungsfähigkeit*). The test was made of the capacity to reproduce correctly all the digits in a six-place number when they were passed before a slit in a card on a revolving drum. An exposure of one third of a second was allowed. The analysis of the results showed that the false reading of a number appeared proportionately more frequent in these numbers where, in the four places at the right hand, particularly in the third to the fifth place, two identical or two similar figures next to one another or separated by one or two figures were found, whereby the identity as well as the similarity of the several elements appeared considerably more impor-