"all they are worth to the community." He even goes so far as to assert that few of these "audible books," as he calls them, benefit the community so much as the average clerk, because "their efforts are not directed and coordinated" as are those of the clerks.

Without disparagement of merchant or clerk, it is to be remembered that it is largely by the guidance of those who perform such service as that of Professor Blank that we progress toward the true state of Nirvana on earth. If the real value of these teachers and researchers were estimated by what America would conceivably be without their intangible, spiritual contributions, not to mention what their discoveries have added to life's comfort, convenience, length and strength, their wages would be incalculably augmented. If for "Professor Blank" were written, for example, "Professor Joseph Henry," is there any salary that would be quite adequate to pay civilization's debt to this Albany schoolmaster and Princeton professor? The tinkle of the tiny bell that he first rang by electricity is soon to be heard by radio around the world. But the influence of many a professor is felt as widely. His merchandise is "better than silver." His "minervals," as his wisdom fees were called in ancient times, should, however, be sufficient to permit him to remain where he can give the highest service to the community.—*The New York Times.*

SCIENTIFIC BOOKS

Labyrinth and Equilibrium. Monographs on Experimental Biology. By S. S. MAXWELL. 163 pp., Philadelphia and London: Lippincott, 1923.

IT should be sufficient, for the purposes of most reviews, to be able to say that the book had been written by one who had actually worked at the problems discussed and who had contributed many illuminating facts in a subject which has been obscure since the first pioneer entered the field. I can say this of the volume now under discussion. The author's own work, so lucidly described in the pages of this book, has given us a clearer idea than we have had of the mechanism of stimulation of the afferent nerve endings in the non-auditory portion of the internal ear.

Goltz stated the general problem of the function of the non-auditory or vestibular portion of the internal ear nearly two generations ago. Three things are necessary: (a) The peripheral receptor and the afferent nerve; (b) the central nervous system, and, (c) the efferent nerves, together with their effectors—the skeletal and various other muscles in the case of the present mechanism. The book deals, for the most part, (a) with the relation of the labyrinth to forced or abnormal positions of the organism, and to the compensatory positions which follow the displacement of the animal from its normal position and, (b) with the general mechanism of stimulation of the vestibular endings. These phases of the subject are handled with all the clearness which our present knowledge of the subject permits.

The final chapter is on nystagmus, the pecular ocular movements resulting from vestibular stimulation; the slow movement in one direction, say to the right, and a quick movement in the opposite direction. Nystagmus is due to some mechanism or mechanisms in the central nervous system—the second part of the problem as Goltz formulated it—and it should not be considered as a reflection upon the book to say that here the author's hand is a little less sure. Nor is it to be taken as a sign that the author is wrong when I say that he does not wholly accept some of the opinions of the reviewer. The problem of the functional organization of the nervous system is one of the most complicated and perplexing which the biologist has to face, and no one has yet given a clear and intelligible statement of the organization of the whole mechanism for the performance of any single function, nystagmus included. This should be a sufficient apology for any lack of certainty of conclusions in the author's final chapter.

Although it is not my purpose to review it here, I wish to mention another recent volume on the vestibule, written by a psychologist.[1] Maxwell's volume deals principally with the purely objective side of vestibular stimulation. Griffith deals with the subjective or psychological side of some common vestibular effects. In addition to giving the most complete bibliography of the subject of which I am aware, he has some remarks upon some common opinions of vestibular phenomena upon which neither fact nor argument has as yet made much impression.

F. H. PIKE
COLUMBIA UNIVERSITY

SPECIAL ARTICLES

A NEW PHOTO-ELECTRIC EFFECT

REFLECTION OF ELECTRONS INDUCED BY LIGHT

A STUDY of some vacuum tubes containing caesium vapor has shown a peculiar photo-electric effect. The action of white light on an adsorbed film of caesium on nickel seems to cause this surface to reflect elastically electrons which are made to impinge on it. The number of electrons that can be thus reflected is proportional to the intensity of the light.

Two nickel cylinders, B and C, open at the ends, were mounted end to end along the same axis, being but slightly separated from one another. Inside of

1 Griffith, Coleman R.: "An historical survey of vestibular equilibration," pp. 178. University of Illinois Bulletin, XX, No. 5, 1922.