revolving discs, after the method of Plateau. The relative position of the red and blue bands varies with the direction of rotation. Splitting of light also appears when a triangular faced mirror is made to rotate in the path of the light.

Separation of the incident light varies with the source. A wide degree of separation has been observed when a light divider, consisting of a disc 60 cm in diameter, perforated at the periphery with 60 narrow radia slits, is rotated at a constant speed. Under these conditions "blue" light from the lamp appears to be broken up into a comparatively wide pale blue band and a narrow dark band either dark brown or maroon. Light from the "green" lamp is divided into yellow-green and pale blue bands of nearly equal width. Light from the "daylight" lamp is clearly divisible into orange red and greenish-blue bands, which spread further into merging bands discernible as purple-blue-green-yellow-orange and red.

There are several conceivable explanations for the apparent separation of light into its component parts. These possibilities include accounts based either upon subjective or psychological factors or upon objective physical phenomena. In the former instance the apparent splitting might be attributed to a variation in the threshold of stimulation of the end organs of the eye by alternating light as in Benham top wherein alternate black and white stimuli give rise to the sensation of color. Obviously this possibility might be tested by color photography. Since a color pattern comparable to the one described has been reproduced on a Dufa film by exposure for 30 minutes to light reflected from the rotating wheel of an electric clock the phenomena can not be explained upon a subjective basis and it is necessary to consider objective physical factors.

These chromogenic phenomena do not appear when moving objects are illuminated by light from ordinary incandescent lamps or in sunlight.

This leaves the nature of the light produced by the fluorescent lamps as a possible basis for the phenomena. The mechanism of operation of the lamp suggests the possibility that there are differences in the time intervals of emission of light of various wave-lengths. It may be assumed that the mercury discharge appears first, and this in turn stimulates or activates the fluorescent coating. Characteristic wave-lengths of the latter are then emitted. This cycle of color emission is repeated for each electrical cycle. Moving objects merely provide an optical means of separating these alternate flashes. Under ordinary conditions the rapidity of the flashes obscures the presence of the rapidly alternating production of colors. High-speed color photography synchronized to the various parts of the cycle could definitely determine the correctness or incorrectness of this view. In the absence of facilities for making this direct test an alternative trial mimicing the postulated conditions was carried out. A disc with alternate red and blue segments was rotated while illuminated by light from an incandescent lamp. When viewed through a slit in a second stationary disc a composite of the red and blue appeared. When the "analyzing" disc was rotated alternate flashes of red and blue were evident. While lacking a crucial test, the foregoing considerations make it appear that alternate flashes of light of various wave-lengths is the most probable explanation for the apparent splitting of the light of fluorescent lamps into component colors by moving objects.

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BIOGRAPHY OF DR. WILLIAM H. PARK

I AM at work upon a biography of Dr. William Hallock Park, the late director of the New York City Board of Health Laboratories. Any assistance rendered, in the form of the loan of letters, anecdotes or other memorabilia, will be gratefully received, and due acknowledgment given. Reasonably prompt return of letters, etc., is insured.

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QUOTATIONS

THE END OF "DISCOVERY"

WITH this issue *Discovery* has to end. It began at the end of the last war, and endured with some vicissitudes until April, 1938, when it was renovated by the Syndics of the Cambridge University Press. Now, after two years in its new form and six months of another war, they have reluctantly decided that it must end.

It seems a pity. To any of us who have been concerned with the editorial side of *Discovery*, it is a personal loss to see it go; and we believe that will be true of a good many readers. But it is no use repining. Perhaps, after this war, *Discovery* will be started again, or something like it will. The only service which we can perform, while the end of *Discovery* is fresh in our minds, is to put down one or two reflections for the benefit of our possible successors.

Their first task will be to capture a larger public than *Discovery* has ever had. If it had been a sound financial proposition, it would not have stopped now; it struggled all through its existence, and though in its new form it gained twice as many readers and four times as many subscribers, it was still a long way from paying for itself.

Now that means something: it means something, even if one thinks that good books should be published, irrespective of the money they make or lose. It means either that the public interested in the movement of science is actually rather small or else that it has not yet been properly provided for.

It is hard to believe that the public anxious to read the news of science is really quite small. Perhaps one exaggerates its potential size because of the zest and enthusiasm of so many of its members. It was one of the most pleasant experiences in editing *Discovery* to read letter after letter from readers, full of fresh, original interest. To them, science was something alive, part of the world's vital culture; it is difficult to believe that they form only a small fraction of intelligent people in the world to-day.

If they do not, then the others have not been reached. If that is so, a share of the responsibility rests on the editors who have tried to reach them. Where have we failed?

One gets a good many opinions. They are usually strong, because editing is a job upon which a surprising number of people hold unexpectedly violent views. The two most frequently represented to *Discovery* exactly contradict each other. The first is, that the general level of difficulty has been set much too low. One such critic suggested that all the articles ought to approximate to the standard of "Notes of the Month," *i.e.,* the journal should be made a medium by which professional scientists might keep in touch with fields other than their own. Some critics wanted the journal mainly given over to completely detailed articles suitable for students working for their degrees. And a sort of off-shoot of this view (with a pronounced tinge of dialectical materialism) required articles of that standard, but chosen in order to stress the relation between science and technology.

These critics may be right. But they would have to convince another band, which maintained with equal certainty that the level of difficulty was kept much too high and that the proper work of such a journal was to provide articles of the kind of our "Invitations to Knowledge."

It was our view that both these opposing schools of thought were much too doctrinaire, and that the journal could, and should, contain some articles to interest professional scientists, and others which could be read easily by a child at school. The journal, in fact, was popular among serious scientists, and we were proud of that popularity. Perhaps we leaned too much that way. At any rate, this can be said: If *Discovery* had continued, its general level would have become gradually easier rather than harder. That seemed, on balance, to fit it better for its proper purpose.

Its proper purpose would also have had to be limited. It has been called "a popular journal of knowledge"; regretfully we admit that that is asking too much for any journal in this heterogeneous world. Not many people are now interested in the world entire, and perhaps *Discovery* suffered through attempting to be too broad (although, of course, it was also criticized for being too narrow). If it had continued, we should have concentrated more on the fundamental sciences.

So, in short, our experience would have led us to make *Discovery* narrower in scope: simpler in manner (though finding writers who can simplify science truly is getting no easier).

All we hope now is that before long the same job will be tried again and carried farther.

The Editor of Discovery in the issue for March, 1940

SCIENTIFIC BOOKS

RECENT BOTANICAL BOOKS

Botany. By WILLIAM J. ROBBINS and HAROLD W. RICKETT. xii + 658 pp. 440 figs. Third edition. New York: D. Van Nostrand Company. 1939. $3.75.

IT is rather appropriate that Part I of this text should be entitled "The Living Plant," since, more than other somewhat similar books, this treatise emphasizes the physiological and hence the living aspects of plant life. Not departing very far from the traditional in its sequence of presentation, this volume is concerned first with the growth, structure, responses, reproduction and inheritance in the higher plants; in Part II the groups in the plant kingdom are considered in evolutionary sequence.

Both portions of the book do ample justice to the subject-matter. Forty pages and thirty-six figures are devoted, for example, to the structure and functions of stems. Other organs are treated with similar thoroughness. Likewise in the discussion of the plant groups there is attention to detail. In the angiosperms, for instance, we are introduced to sixteen different orders, starting with the Ranales.

In view of the large number of excellent texts in botany, the mere compilation and digestion of the general subject-matter of the science into book form can