Hololampra, Saussure, 1864, replaces the more familiar Aphlebia, Brunner, 1865.

But this catalogue should be received less with criticism than with gratitude to the painstaking author, and we hope the second volume will appear at an early date; it will doubtless include such omissions as have been unavoidable in the first volume, owing to the time necessary for publication.

M. B.

*Percentage Tables for Elementary Analysis.* By Leo F. Guttmann, Ph.D. Pp. 43. (London: Whittaker and Co., 1904.) Price 3*s.* net.

THIS book is only intended to facilitate the calculation of the results of an ordinary organic analysis, and its title, therefore, is somewhat misleading. It is stated that "the tables have been carefully calculated and checked, they are therefore absolutely accurate." After this statement, nothing is left to us but to see if they are likely to be useful. After careful consideration of this question we are compelled to give an unfavourable reply. If we have the analytical result that 0·1173 gr. of a substance gave 0·2869 gr. carbon dioxide, we can, in the ordinary course of things, by looking out the logarithm of 0·2869, adding the easily remembered logs. of 12/44 and of 100, and subtracting the log. of 0·1173, get the log. of the percentage. But according to the tables before us, we look out a number corresponding to 0·117 and 0·28. We then look again for a number corresponding to 0·118 and 0·28. We subtract the two numbers, multiply by 0·3 by means of another table, and subtract this result from the first number looked out. We next find a number corresponding to 0·117 and 0·69, divide by 100 and add this result, and thus, after four references to tables, two arithmetical operations in the head, one subtraction and one addition on paper, we get our percentage. Appeal to a chemist constantly engaged in organic analysis has only confirmed the view that these tables are unlikely to save time or to promote exactitude in the calculation of organic analyses.

A. S.

*How to Photograph with Roll and Cut Films.* "The Amateur Photographer" Library, No. 30. By John A. Hodges. Pp. xviii+120. (London: Hazell, Watson, and Viney, Ltd., 1904.) Price 1*s.* net.

THE ever increasing number of photographers and more especially amateurs, who work with either roll or cut films, will find in these pages all the necessary information for the production of pictures. The author does not pretend to have written a treatise on the whole art and science of photography, but he has given a straightforward account of the various operations that have to be completed to ensure good results. The treatment is well suited for amateurs, and the numerous well reproduced illustrations serve admirably to render many points clear.

*The Telescope.* By Thomas Nolan. (New York. D. Van Nostrand Company, 1904.) Price 50 cents.

THE first edition of this small treatise on the elementary principles of optics as applied to telescopes appeared in 1881. In the present issue the author has left this matter practically as it first appeared, with only one or two minor corrections, but has added a chapter describing in a brief manner the advances that have since been made. At the end is also given a bibliography relating to the telescope, which will be of service to those who wish to study more in detail different branches of the subject to which slight references only have been given. The book is published in the Van Nostrand Science Series, and should prove a useful addition.

## *LETTERS TO THE EDITOR.*

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

### The Infection of Laboratories by Radium.

IN a recent attempt in the physics building of McGill University to make electroscopes with a very small natural leak, repeated failures were encountered. The rate of discharge of several instruments, carefully made, was found to be about sixty to one hundred times as large as that obtained by Mr. H. L. Cooke two years earlier in the same building. At first it was supposed that the insulation of the sulphur bead was defective. But the natural leak was large and unaffected when the upper support of the sulphur bead was raised to a higher potential than the gold leaf system, so that the insulation was not at fault. Nor was the rate of discharge altered when the electroscope was entirely surrounded by lead one inch thick. Removal to another building produced no effect on the leak of the electroscope. It appeared probable that the trouble was due to the radio-activity of the materials from which the electroscope was made. A rude instrument, made in a private house with a tobacco tin, the amber mouthpiece of a pipe, and a cork, was found to give better results than the most carefully constructed instrument in the physics building. Some electroscopes were next made in the chemistry building, using materials which had never been into the physics building. Instruments with a very slow rate of discharge were now easily manufactured. These were used to test materials from various parts of the physics building, and it was found that all were infected with excited activity. Sheets of mica, lead foil, iron, zinc and tin were all active, even when taken from drawers or cupboards.

Of the substances tested, the only one which showed no activity was some thin Dutch metal leaf kept between tissue paper in a closed drawer About 90 per cent. of the excited activity could be removed from the metal sheets by strong hydrochloric acid, but the activity was transferred to the solution. It was also possible to volatilise a portion of the deposit by raising the metal sheet to a red-heat in a Bunsen flame. Both $\alpha$ and $\beta$ rays were detected, but it was difficult to measure their exact proportion. The natural leak of an electroscope was increased to a measurable extent when a mica window was replaced by one cut from a sheet of mica kept in the physics building.

The difficulty of conducting radio-active experiments in rooms where strong preparations of radium were present was early observed by Madame Curie, and later by Elster and Geitel, but the present experiments seem to show that the effect may be widely spread. The emanation from radium used in the large physics building has passed by convection and diffusion into various rooms. In a few days each fresh supply of emanation is transformed into the rapidly changing substances radium A, B, and C. The further changes of the products of radium have been investigated by Prof. Rutherford, and described by him in his Bakerian lecture (*Phil. Trans.*, vol. cciv., pp. 169–219), and in a recent letter to NATURE (February 12). In the former he has pointed out that bodies exposed to the air in the open will be covered with an invisible film of radio-active matter of very slow rate of change, and that the strong radio-activity observed in a room in which radium preparations have once been used is probably due to the deposit on the walls of the room of this slowly decaying matter from the emanation. In his letter to NATURE, he has shown that radium C gives rise to radium D, and that the further change to E is rayless in character and attains half value in forty years. The further change to F emits $\beta$ rays, and reaches half value in six days, whilst the change from F to the final product is accompanied with $\alpha$ rays, reaching half value in 150 days.

The $\alpha$ and $\beta$ rays emitted by the coating on the materials in the physics building are doubtless due to the changes above mentioned. If the supply of emanation were arrested at the present date, the activity already deposited would rise to a maximum in two or three years, and then gradu-