giving a fascinating nearness to animals, unconscious of your spying, the telescope is most serviceable in interesting young people.

HIRAM M. STANLEY.

LAKE FOREST, ILL., August 1, 1898.

SCIENTIFIC LITERATURE.

La certitude logique. Par G. MILHAUD. Paris, Felix Alcan. 1898. Pp. 204.

Those who know what expectations were encouraged by scholastic philosophy would hope for much from a book with the present title, whether it intended to defend or criticise the pretensions that have been associated with the study of logic. The scholastics thought that logic was the source of all certitude in knowledge. The present author's thesis is a denial of this claim. His assertion is that logic cannot give us any certitude beyond particular facts directly observed. This position is based upon the law of contradiction, and the distinction between that which is *given* and that which is *construed*. The author attempts to establish his thesis, first directly, and secondly by an appeal to the testimony of mathematics. In neither of his proofs do I think the author successful in maintaining his position. Not that it is false, but because he has tried to give certitude to a proposition by the very method which he says is incapable of doing it. It is in one aspect of the matter a mere truism that logic cannot give any certitude beyond the facts of individual experience, but is in another relation a very equivocal proposition. It implies that somebody has claimed, or does claim, logic is the source of *all* certitude. In the first place, no one since Descartes has claimed this view. In the second place, all first-class thinkers who have attached any value to logic as a means to certitude of any kind limit it to the proof of doubtful propositions, and do not try to supplant experience of simple facts by it. There is an error on the part of logicians and philosophers here which we had hopes that the author would correct. It is true that much of our psychological analysis and past philosophical speculation gives the impression that ratiocination is the most important and perhaps ultimate process in knowledge, assuming all the while that as a process it was different from the intuitive. But it is possible to show that ratiocination is only one form of intuition, simply that form which serves as a vehicle for the transmission of certitude from one proposition to another, but it is not the primary organ of rectitude. Here was an opportunity for some good discussion of logical processes, but there is no attempt at it. Practically the only reference to logical methods at all is the enunciation of the law of contradiction. The remainder of the work is occupied with discussion upon the application of mathematics to the sciences, and deals with results, not methods. J. H. HYSLOP.

Le rational. Par GASTON MILHAUD. Paris, Felix Alcan. 1898. Pp. 180.

This work is confessedly a supplement to the work on *La certitude logique.* It professes to discuss more fully the rational processes that are supposed to determine logical certitude, but is in most respects subject to the same strictures that we have applied to the former. The author is better acquainted with the material results of the sciences related to his problem than with the issues involved in logical speculation. Only one chapter looks like an approach to the real question, and even this does not exhibit any conception of what the subject demands. The reasoning of mathematics gave the author the intimation of his problem, but he has not studied the formal processes of logic sufficiently to see what they represent. His primary interest is really in the results of the special sciences, and not at all in methodology. The theme is a most important one at the present time, especially as it affords an opportunity to criticise the implications still remaining in general philosophy after the source of them, namely, the old faculty psychology, has passed away. The old distinction between the rational and the perceptive or immediate consciousness which gave rise to the author's problem no longer exists, and we can reconcile logical certitude with all others.

J. H. HYSLOP.

Flore Phanérogamique des Antilles Françaises, Guadeloupe et Martinique. Par le R. P. DUSS, Professeur au Collège de la Basse-Terre. Macon. 1897. 8vo. Pp. xxviii + 656.

The intention of the author has been to furnish a guide to the rich, tropical flora of the French islands, Guadeloupe and Martinique. He has succeeded well in making the work a manual of these insular floras. In addition to this, he has included a large amount of interesting and useful information upon the distribution, phenology, economic value and uses, folk-lore, etc., of the plants of the flora. This task has been accomplished in such a way as to greatly enhance the scientific value of the volume.

The most interesting part to botanists in general is the introduction, which contains a concise account of the phytogeography of the islands. This includes a sketch of the physiography of the islands, of their climate, with especial reference to humidity, and of the zonal distribution of the plants of the flora. The latter, though touched only in its gross features and treated entirely from the floristic instead of the ecologic aspect, is of importance, since it is the first attempt to portray the zonation of the floral covering of a large island. The author distinguishes five zones, or, as he terms them, regions; a use of the term which should be avoided. These zones may be characterized briefly as follows:

I. Maritime zone. This comprises a narrow strip of the sea, characterized by the presence of numerous algæ and by two aquatic monocotyledons, *Ruppia maritima* and *Thalassia testudinum*.

II. Lowland, or coastal zone. This zone begins at the sea level and stretches to the forests at a mean altitude of 500 meters. It is the cultivated zone, and includes four-fifths of the species of the flora. In it may be distinguished eight formations, viz.: (1) Beach; (2) Halophytic woodland; (3) Savannah; (4) Pond and marsh; (5) Rocky hills and slopes; (6) Calcareous hills; (7) Xerophytic coasts; (8) Cultures.

III. Median, or forest zone. A zone of primitive tropical forest extends from a mean elevation of 500 meters to about 800–1000 meters. The lower layers are characterized by the dominance of Aroideæ, terrestrial Orchidaceæ, and species of *Hymenophyllum*, *Trichomanes*, *Lindsaya*, *Asplenium*, *Pteris*, *Polypodium*, *Aspidium*, etc.

IV. Transition zone. This is a narrow stretch, characterized by thickets, marking the transition between the forests and the montane zone.

V. Montane zone. The mountain sides, summits and plateaux possess a floral covering of very sharp delimitation. The shrubs and trees of the two lower zones are replaced by a uniform vegetation of dwarf shrubs and herbs.

*

SCIENTIFIC JOURNALS.

WITH the recent appearance of the July number, the *Bulletin of the American Mathematical Society* completes its seventh annual volume. Founded in 1891 as the *Bulletin of the New York Mathematical Society*, it has long been recognized as the most thoroughly representative mathematical journal of the country. The period of its existence has been coincident with the great wave of mathematical productivity which is still sweeping with constantly increasing energy over America. In this movement the American Mathematical Society and with it the *Bulletin* have taken a conspicuous part. It is largely to the members, individually and collectively, of the Society that the movement is due, and its results have been reflected in their organ, the Society's journal. In its list of contributors are found the names of Simon Newcomb, G. W. Hill, Emory McClintock, E. H. Moore, Thomas Craig, B. O. Peirce, H. B. Fine, W. F. Osgood, M. Bôcher, J. Pierpont, H. S. White and nearly every other American mathematician of standing. The *Bulletin* distributes 450 copies of each number to members of the Society, exchanges and subscribers. The volume just completed, Vol. IV., second series, contains 577 pages.

The July number of the *Bulletin* contains, besides the usual 'Notes' and 'New Publications,' the 'Seventh Annual List of Papers Read before the Society and Subsequently Published,' and the index, the following articles and reviews: 'The Structure of the Hypoabelian Groups,' by Dr. L. E. Dickson; 'On the Hamilton Groups,' by Dr. G. A. Miller; 'Note on the Infinitesimal Projective Transformation,' by Professor E. O. Lovett; 'Infinitesimal Transformations of Concentric Conics,' by Professor