previously published and discussed in such a connected form, and are alone well worth the price of the book. Not less interesting and valuable are the portions devoted to antifouling paints, carriage and house painting and furniture varnishing.

Being a treatise on the industrial and artistic technology one scarcely expects to find much chemical information; there are, however, excellent chapters on the oils, particularly one on linseed oil by Dr. McIlhiney. It would have materially aided the chemist to have found an equally good and complete description of the gums used in varnish manufacture.

Throughout the entire work, one can not help being impressed with the wide practical experience of the author in the technology of paints and varnishes, and particularly with their applications.

The work should be in the hands of the architect, whether engaged in the erection of sky-scrapers or summer houses, of the civil engineer, having to do either with bridge or water works construction, of the naval constructor, and in fact of any one concerned with the preservation of wood or metal.

A. H. Gill.

GAUPP'S ANATOMY OF THE FROG.*

In preceding numbers of Science (Vol. VII., p. 463; X., p. 451; XV., p. 100) the earlier parts of this monumental work on the structure of the frog have received notice. The present part completes the whole, making a total of 1,738 pages, aside from preface, etc., entirely devoted to this one form. No other vertebrate, man excepted, has ever had such exhaustive treatment.

This concluding portion, 521 pages in all, is devoted solely to integument and sense organs, all treated in the same careful manner as the other systems, but, as would be expected, microscopic detail is emphasized here as in no other parts. Not only do we have a general account of the structure of the skin and its glands like that given in the first edition of the work (familiar in most laboratories in Hassal's translation), but we are given a good summary of the known facts, structural and physiological, of the color changes and details of the breeding-season changes in specific regions of the skin.

In treating of the sense organs each section is followed by a résumé of the development of each and an account of its functions. Thus in connection with the nose we have an account of the course of the air in the different parts of the nasal cavity, and the evidence to show that the frog is an 'air smeller' even when submerged. It is especially in the section pertaining to the ear that the largest proportion of new facts are given, since Dr. Gaupp has made certain parts of the otic region peculiarly its own.

In conclusion, we may say that the work is one which must be in every laboratory, and while we can hardly expect the whole to be translated we wish that at least certain portions, like that on the central nervous system, were more accessible to our students. Congratulations must be extended to the author on the completion of such a vast amount of work.

J. S. Kingsley.

* A. Ecker's und R. Wiedersheim's 'Anatomie des Frosches auf Grund eigener Untersuchungen durchaus' neu bearbeitet von Dr. Ernst Gaupp. IIIte Abtheilung, IIte Hälfte, pp. 441–961 + xi. Braunschweig, 1904.

SCIENTIFIC JOURNALS AND ARTICLES.

The opening (October) number of Volume 11, of the *Bulletin of the American Mathematical Society* contains the following articles: 'On Developable and Tubular Surfaces having Spherical Lines of Curvature,' by Professor Virgil Snyder; 'Addition to a Theorem due to Frobenius,' by Professor G. A. Miller; 'On Self-Dual Scrolls,' by Professor E. J. Wilczynski; 'The Opportunities for Mathematical Study in Italy,' by Dr. J. L. Coolidge; 'Vector Analysis' (Review of Henrici and Turner's Vectors and Rotors, of Kelland and Tait's (Knott) Introduction to Quaternions and of Fischer's Vectordifferentiation und Vectorintegration), by Dr. E. B. Wilson; 'The Mathematics of Insurance' (Review of Loewy's Versicherungsmathematik), by Dr. Saul Epsteen; Shorter Notices (Seliwanoff's 'Lehrbuch der Differenzenrech-