

Fabrics; (4) Wood of Dicotyledons and Gymnosperms, Monocotyledonous Stems, Subterranean Organs, Barks, and Practical Examples; (5) Leaves of Different Varieties of Sumach; (6) Pyrethrum or Insect Powder; (7) Technical Fruits and Seeds, Oil Cakes, Myrobalans, Ivory Nut; (8) True Bones, Teeth, Horn, Tortoise-shell and Whalebone; (9) Micro-chemical Analysis.

The reviewer is using both the work on "The Microscopy of Vegetable Foods" and on "The Microscopy of Technical Products" in the laboratory, and finds them very helpful. Pure botanists would do well to have these books in their laboratories where plant histology is considered, as there is no doubt but that much of the work on the anatomy of plants has been developed by the investigators in technical histology.

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Archiv für Optik; Internationales Organ für Experimentelle, Theoretische und Technische Optik. Erster Band; Erstes Heft, Oktober, 1907. Herausgegeben von Dr. ALEXANDER GLEICHEN, Kaiserl. Regierungsrat in Berlin, unter Mitwirkung von (some twenty astronomers, physicists and optical specialists). Verlag von Veit und Comp. in Leipzig, Preis des Bandes. 20 Mark.

The establishment of an international journal in any important field of scientific activity is nowadays a decided step toward that internationalism in science and that pure human cooperation which are earnestly desired by the best and brightest people of all lands. Astronomy has for two centuries led the way in this genuine internationalism, but many other sciences are now enlisting under the same standard.

As a general rule the journal of international scope should be published in the country which may naturally be expected to contribute most efficiently to its pages. A fine type of such a publication is the *Astrophysical Journal* published in America, where astrophysical science flourishes most luxuriantly. It has, however, received the hearty support of men of science in all lands. Its pages are

enriched by the world's best thought in the great field of astrophysics.

The *Archiv für Optik*, as an international organ, ought naturally to be published in Germany. In many respects German thought has led in theoretical optics, and the German hand executed some of the finest experimental and technical results in all optics. To-day no great general treatises in technical optics exist outside the German language. It is also peculiarly fitting that the same international cooperation should be given the *Archiv für Optik* that has in the collateral field been accorded the *Astrophysical Journal*.

Dr. Alexander Gleichen, if we may judge from the theoretical thoroughness and practical tone of his writings, is well equipped to guide so difficult and important an undertaking as a world-journal in general optics. His "Lehrbuch der Geometrischen Optik," Leipzig und Berlin, 1902, has an international reputation. His "Vorlesungen über Photographische Optik," Leipzig, 1905, is indispensable to technical students in optics, and his "Leitfaden der Practischen Optik," Leipzig, 1906, is an excellent introduction to the fundamental theory necessary in optical practice.

The first number of the *Archiv* contains "Tatsachen und Fiktionen in der Lehre von der Optischen Abbildung," by Allvar Gullstrand, of Upsala; "Über ein neue Verfahren der Körpervermessung," by C. Pulfrich, of Jena; and "Patentschutz für Optische Systeme," and "Zum Gedächtnis von Siefried Czapski," by Dr. Gleichen. Then follow trenchant reviews of eighteen current articles on physical optics; of two on astronomical and meteorological optics; of one on medical and biological optics; and of one on technical optics. Dr. Lummer's new volume on optics receives detailed notice; and a complete list of optical articles read before various scientific academies is presented. F. Plehn makes a valuable contribution to the history of optics by reviewing Kepler's "Paralipomena ad Vitellionem seu Astronomiae pars optica." Then follow interesting selections from scientific societies, namely, Max Wolf "On the

Milky Way," and Sigmund Exner on "Acuteness of Vision of Various Animals." The new German optical patents and instrumental designs are reviewed. The optical ateliers and their novelties receive a page of attention. Mention of new books and personal notices close the number.

The far-reaching significance of the appearance of this international journal on optics should be promptly appreciated. Glancing over the achievements of America's men of science in the field of optics during the last quarter of a century, and calling to mind the present manifold American activity in all kinds of optical enterprise, it seems that many interesting contributions ought to be made to this journal from the land of Alvan Clark, Henry Draper, J. Willard Gibbs, Henry A. Rowland, James Keeler, Samuel P. Langley and D. B. Brace.

The *Archiv für Optik* will, of necessity, be at the command of every American student and worker in optical fields. And the deeper interest in theoretical and practical optics to be awakened by this special journal will find concrete expression in more powerful optical instruments, largely of American design and manufacture, and in their manifold and ever-multiplying scientific uses.

M. B. S.

SCIENTIFIC JOURNALS AND ARTICLES

IN the December number of *The American Naturalist* the editor, Professor Frederic T. Lewis, of the Harvard Medical School, says: "*The American Naturalist* now completes its forty-first volume. With the development of the natural sciences in this country, in which it has had an important part, many technical journals have appeared; but these have not deprived the *Naturalist* of its special field. Although dispensing with its early subtitle—A Popular Illustrated Magazine of Natural History—it has always aimed to present in readable form an account of the progress of natural history, together with original articles on such animals, plants, and geological formations as are of general interest. In accomplishing this without the usual endowment or support of any scientific society, the journal

has depended upon its owners and the public for financial support, and upon the unpaid work of editors and contributors for its success. Messrs. Ginn & Company have decided to discontinue as publishers with the completion of this, their tenth volume. It is thought that to justify the work now being expended upon the journal, it should have a wider circulation and more generous support. The means of accomplishing this are being discussed, and the owners will be glad to receive practical suggestions from those interested." It has now been arranged that the *Naturalist* will in the future be published by The Science Press, and business communications should be addressed to Sub-station 84, New York City. Editorial communications should be addressed to the Editor of the *American Naturalist*, Garrison, N. Y.

The Museums Journal of Great Britain for December, 1907, contains a brief article by H. C. Bumpus, on "The New Museum at Frankfurt" which is commended, among other things, for the ample provision made for laboratories, and for a staff to use them. Huntly Carter tells "How to Promote the Use of Museums by an Institute of Museums." In spite of many good points this article strikes one as rather unpractical and to imply a willingness on the part of the public to study the workings and uses of museums that the same public is very far from possessing. Among other notes is an item to the effect that work has begun on a new wing for the National Gallery.

The Zoological Society Bulletin for January opens with an article by C. William Beebe on "New Rare Birds in the Zoological Park." Notable among these are the lammergeier, the hyacinthine macaw and the toura-cous. The park now contains 2,400 birds representing 520 species, perhaps the largest collection of living birds in the world. The principal article is by Elwin R. Sanborn on "The National Bison Herd," an account of the transportation of the herd of fifteen bison, presented by the Zoological Society to the national government, from New York to the Wichita range; the article is admirably illus-