to any more of the many valuable and important papers contained in this handsome volume.

The parliament of Roumania, upon the plea of poverty, has declined to extend an invitation to the congress to hold its next session the present year at Bucharest, which the leading members, under the initiative of the Baron de Baye, had selected as the place of meeting. We learn, however, that arrangements have been made for it to take place at Athens in 1886.

HARTLEBEN'S LIBRARY OF ELECTRICAL TECHNOLOGY (ELEKTROTECHNISCHE BIBLIOTHEK).

The admirable collection of treatises published under this title was originally announced to contain ten volumes; but the number issued has already reached twenty-six, and others are stated to be in preparation. Almost every subject relating to electricity receives attention, including telegraphy, telephony, electric lighting, and electroplating; while certain topics are very minutely discussed, as, for example, electrical conductors, electrical clocks, the medical uses of electricity, and its applications to military purposes. The various volumes, while necessarily somewhat unequal both in merit and in importance, are yet all of them of substantial value; and it is much to be desired that they may, in part at least, be translated into English for the benefit of that large class of readers who are desirous of securing information at once elementary and accurate. This has, indeed, already been done in the case of the initial volume of the series,—that on dynamo-electrical machinery, by Glaser-De Cew, which has been translated by Dr. Paget Higgs, and which, notwithstanding some minor slips, is by far the best treatise of its size upon the specific matters which it discusses. The treatise on instruments for electrical measurements, by Wilke, contains some interesting descriptions of special forms of galvanometers and electrometers; as, for example, the admirable dead-beat galvanometers with bell-shaped magnets made by Hartmann and other German makers, the special form of Thomson galvanometer made by Siemens & Halske, Kohlrausch's torsion electrometer, and Zöllner's bifilar electrometer. Zech's 'Elektrisches formelbuch' is of very high grade, and contains much information that is not easily found elsewhere in a collected form. Its topics are arranged alphabetically; and it contains, in an appendix, a brief electro-technical dictionary giving the equivalent electrical terms in German, French, and English. Its scope will best be indicated by a brief reference to a few titles selected almost at random. Under 'Bussole' we find a general discussion of the effect of a circular current on a magnetic needle, including the tangent, sine, and Helmholtz-Gaugain galvanometers, together with the cosine galvanometer of Professor Trowbridge; the latter assigned, however, to Obach and Denzler instead of to its real inventor. The article 'Dämpfung' gives a demonstration of the formulae for the damping of a magnet; and under 'Schwingung' there is given the derivation of the various formulae for vibrations, including vibration with damping and aperiodic motion. Another valuable work is that of Tumlirz on potential. Volume xx. of the library contains a bibliography of electricity from 1860 to 1883, with special reference to technical electricity. Among the more timely of the works relating especially to the industrial applications of electricity are those by Japing on the electrical transmission of power, and Krämer on electrical railways. The volume relating to multiple telegraphy not only contains the duplex and quadruplex systems, but also the multiple systems of Meyer, Granfeld, and Baudot are described at length. The American systems of Gray and Delany are not noticed, certainly a most unfortunate omission. The last volume issued, that on cable telegraphy, is the most comprehensive treatise on the subject that we know, and is particularly valuable, as works relating to it are so few.

RECENT GOVERNMENT REPORTS.

We regret that we are obliged to note a decided degeneration in the Bulletin of the fish-commission. What might and should properly be one of our most important government reports each year becomes less valuable. The present volume, although it contains several important scientific contributions, is in the main made up of unimportant letters, of value to very few people so far as we can judge. The first hundred and fifty pages are entirely occupied by lists and tables by the editor, not one of which is of importance to any class of people. What, for instance, can be the possible use of "A list of the blank forms and circulars of the U.S. fish-commission," which alone takes up twenty-one pages? Judging

Bulletin of the U.S. fish-commission, vol. iii. Washington, 1883.

Report of the U. S. fish-commission, part x. Washington, 1884.

Annual report of the Board of regents of the Smithsonian institution, for the year 1882. Washington, 1884.

Proceedings of the U. S. national museum, vol. vi. Washington, 1884.