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.

the volume as a whole, we are driven to one of two conclusions, — either that there is a lack of good editorial judgment in preparing the volume and accepting articles for publication, or else there must be a lack of good articles. That the latter is the case we cannot believe.

Of an altogether different type is the Report of the fish-commission. Its greatest fault lies in the fact that it is extremely bulky, being composed of over eleven hundred pages; but this fault is partly hidden by the value of some of the articles. Among the most valuable contributions contained in the appendices are those by Verrill and Smith upon deep-sea animals, and by Ryder upon the embryography of osseous fishes and upon the development of the oyster. There are other important articles by Collins, McDonald, and others. We notice that in many of these papers there is a decided tendency toward the use of more space than is necessary to set forth the ideas of the author. This tends only to swell to unwieldy proportions an already bulky volume. There are two articles — one by McDonald, the other by Smiley — the value of which we fail to see: they are simple lists of the people who have received carp from the commission. If these had been left out, together with the equally superfluous lists of lakes and rivers of the United States, the report would have been shortened by at least two hundred and fifty pages. The idea of separately paging the different articles, and furnishing them each with an index, is good.

In addition to the report of the secretary, a new and important feature, the report of the assistant director of the National museum, is introduced into the Annual report of the Smithsonian institution. The appendices, which have been introduced in the last three volumes under the title of 'Record of recent scientific progress,' are continued in this report. These are very good summaries, and are written by some of our most eminent scientific men; still we doubt if they are of any considerable value. The specialist in each branch treated must necessarily know as much as is contained in the article upon his own branch, and all are certainly too concise to be of popular interest. The idea, however, is excellent; and if the Smithsonian could each year publish separate bulletins, each one covering one of the branches of natural science, and if each one should be made to occupy several times as much space, and be written in a more popular style, we think that they would soon come to be recognized as the most important publications of the institution by all who are interested in the natural sciences.

The last volume of the Proceedings of the national museum shows a decided improvement over all the others. It is even richer in important articles than any previous one, such men as Smith, Bean, Jordan, Ryder, Gill, and Ridgeway, being among the chief contributors. A noticeable feature of this volume is, that among its list of contributors are the names of two women. This is a comparatively new feature in American science. The chief fault of the volume lies in the appendices, which are entirely out of keeping with the rest of the volume. Such articles as "Brief directions for removing and preserving the skins of mammals," although very valuable to young collectors, are out of place here. The volume for this year shows signs of careful editorial work; but the index could be improved by printing it in treble columns, to bring more under the eye at once.

NOTES AND NEWS.

MR. SIDNEY GILCHRIST THOMAS, whose name is connected with the Thomas-Gilchrist patent for the conversion of phosphoric pig-iron into steel, died in Paris on Sunday morning, Feb. 1. Mr. Thomas, says the *Athenaeum*, was educated at Dulwich college, and was intended for the medical profession; but on the death of his father he entered the civil service. He was excessively fond of chemistry, and devoted all his leisure to the study of that science. In 1878 he read before the Iron and steel institute a paper on the elimination of phosphorus, in which he announced the discovery which he and his relative, Mr. Gilchrist, had made. The dephosphorization or basic process, as it is usually termed, renders available for the production of steel the pig-iron smelted from spathic and less pure ores of England. This process was thought so highly of, that Mr. Thomas was presented by the Iron and steel institute with the Bessemer gold medal. The labors of Mr. Thomas in establishing the basic process in Germany, where it is most extensively employed, in France, and in England, told severely upon a constitution always inclined to be delicate. A voyage to Australia, and a residence for some time in Algeria, appeared to give hopes of his ultimate recovery; but on his return to Paris he became worse, and on Sunday morning (Feb. 1) he breathed his last, at the early age of thirty-six.

— The Académie d'aérostation météorologique of Paris held a celebration, on the 15th of January, of the centennial of the balloon-voyage of Blanchard and Jeffries across the English Channel. On account of an accident, the *fête*, which was held at the seat of W. de Fonvielle, was postponed from the 7th, the actual date of the transit. It is now proposed to hold a celebration in the forest of Guines on the 25th of May, on the spot where the balloon landed, and where a monument has been erected.