themselves; the physiologist does not expect to see function directly exhibited, but he does hope to find information about kymographs and constant-temperature apparatus, and he wants to see whether Kühne's artificial eye is so useful for teaching purposes that he ought to get one to illustrate his lectures.

"Medical museums are not, as a rule, freely open to the public, nor are they collected or arranged with reference to interesting or instructing non-professional persons. The Medical Museum at Washington is the chief exception to this rule; and it is so, because it was placed in Ford's Theatre, the scene of the assassination of President Lincoln. Many visitors to Washington, both men and women, wished to see this memorable spot, and, in doing so, necessarily went through the museum. This gradually led to the adjusting of the specimens exhibited with a view to the fact that they were to be seen by a number of non-professional persons of both sexes. Certain groups of specimens were put aside and not shown, except to persons known to be physicians, while other groups were given prominent places because they interested the public, although not of great professional or scientific value.

"I have time for only a very condensed statement of the wants of our National Medical Museum. In the first place, it needs the intelligent interest and friendship of the medical profession of this country. To a very considerable extent it has had this. Were it otherwise, it would not be what it is, nor where it is. But it needs more of it, and it can never have too much. Every medical man in this country should help a little, and provide for the perpetuation of his name as that of a physician interested in the progress of the profession, by sending at least one specimen to it. It is omnivorous in its demands for material, as will be seen by the circular which it has recently issued. But I will name as special wants, human embryos, especially those of a very early age; monstrosities and malformations of all kinds in man or in the lower animals; results of old injuries, such as fractures or dislocations, or of surgical operations, such as excisions, stumps, etc.; injuries and diseases of the eye, ear, and nose; new growths of all kinds; diseases of the brain and spinal cord; and specimens illustrating the condition of bones, joints, brain, larynx, and other organs, in extreme old age.

"In the second place, it needs a regular supply of funds from the general government. To form and keep in proper condition such a medical museum as this should be, is a more difficult and expensive matter than those not acquainted with such work would suppose; and the gifts of specimens from the profession must be supplemented by ample means for the preparation, preservation, and proper display of these specimens, and also for the purchase of apparatus and typical specimens of foreign work, in order that the museum may be always able to show the latest state of knowledge and the best ways of doing things.

"The annual appropriation for the museum at present is $5,000. This is sufficient, except that the printing of the catalogue, of which I shall speak presently, must be an extra charge; but the medical profession should see to it that the amount is not reduced in the rhythmic spasms of partial economy with which some of our statesmen are afflicted.

"The third need of the museum is a series of the right kind of descriptions of its specimens, given on labels and in a catalogue. Unaided by such descriptions, it has for each man that which he can see in it, and no more. One man will see nothing but an old piece of bone, a shapeless mass of tissue bleached by alcohol, a case of old dingy brass instruments. Another will see in the same things a rare joint atrophy, implying curious abnormal nerve-influence; a leprous nodule, whose history, if we knew it, would reach back through the lazar-houses of the middle ages to the far east, and whose bacilli may be the lineal descendants of those that vexed Naaman the Syrian; a case of microscopes illustrating the development of that instrument, from the first rough iron tube of the spectacle-maker of Nuremberg, to the delicate and complicated instrument through which we now peer curiously into that world which lies within the world of unassisted vision. By our labels and catalogues we must tell men what to see, but to do this we must first see ourselves. The aphorism that a first-class museum should consist of a series of satisfactory labels with specimens attached, means a good deal. Something has been done in this direction, as you will see on inspection of the cases; but I often wonder what sort of labels a man who has spent years in investigating the normal and abnormal structure and relations of one organ would write for our specimen of that organ. Such help as this we need, — kindly, truthful criticism, the pointing-out of errors and of new points of view for this mass of material.

"We also need a series of printed catalogues. One of these should be in the form of compact handbooks relating to particular sections of the collection, and intended partly for the use of visitors while in the museum, and partly as a ready means of letting distant friends know what material it most needs in different departments. It should also print a complete illustrated catalogue of the whole collection, for the use of the investigators and teachers of the profession. Congress has been requested to grant authority for the printing of such a catalogue by the government printer. The material for it is nearly ready, and it would make three volumes, each the size of one of the volumes of 'The Medical and Surgical History of the War of the Rebellion.'"

A BIBLIOGRAPHY OF METEOROLOGY.

As the literature of the several branches of science is increasing in volume, new scientific journals springing up every month, and valuable material being published in popular serials, bibliographical work comes to be an absolute necessity. This accounts for the numerous attempts at indexing the existing literature, and thus economizing the valuable time of scientists. A bibliography of any branch of science, once published, becomes the most fruitful source for further progress, as it is only thus that existing researches can be profitably made use of. Duplication of old work is avoided, and the compilation of the existing literature on a certain problem, which, without such an aid, is a source of indescribable annoyance and waste of time, is made easy. It is particularly in great scientific institutions, whose collaborators are numerous and frequently stationed in distant places, that, by the help of bibliographies of this kind, a large amount of labor and money is saved, the funds appropriated for their publication being thus well invested. The benefit to the advancement of science accruing from complete bibliographies is self-evident, and we need not dwell upon it.

The scientific bureaus of the United States Government have always been well aware of these facts. The great subject-catalogue of the Army Medical Museum, the bibliographies of the United States Geological Survey and of the Bureau of Ethnology, as well as those published by the Smithsonian Institution, testify to this; and their value is highly appreciated by all students, and has greatly aided the progress of science.

In this connection we may mention the 'Index to the Literature of the Spectroscope,' by Alfred Tuckerman, and that of the literature of columbium by Frank W. Traphagen, published among the Smithsonian miscellaneous collections. In an introduction to the former, Professor Langley well says, "With the rapid accumulation of scientific memoirs and discussions, published from year to year in numerous journals and society proceedings, a constantly larger expenditure of time and labor is required, by both the investigator and the student, to learn the sources of information and the condition of discovery in any given field. Hence is felt the growing need of classified indexes to the work done in the various fields of research, and hence the growing tendency of the age to supply such demand."

The great scientific societies consider these subjects among those calling for the most careful and immediate consideration; and thus the second of the bibliographies mentioned above sprung from the recommendations of the committee on indexing chemical literature, of the American Association for the Advancement of Science.

In meteorology the want of a bibliography is sorely felt. It is therefore with great gratification that we learn of the completion of the 'Signal Service Bibliography of Meteorology,' — a work anxiously looked for by all meteorologists and geographers. In its present form, it consists of a card-catalogue, which is in use in the bureau of the Signal Office. In his last annual report, General Greely, the chief signal-officer says, —

"The practical value of such a bibliography has been fully shown by its constant use in current office-work, and, in addition to the

official demands, almost daily calls for information have been received from parties not connected with the service. The result of this work is the collection of special bibliographies, which insures those consulting it a complete index of what has been accomplished in each special line of meteorology. As has been well said, the progress of meteorology is retarded, and labor therein wasted, owing to the impossibility of ascertaining what has been done in its various branches, — an experience which, as scientific men well know, is by no means confined to this science. The cost of time and labor to the government for the preparation of this work cannot be less than from twelve to fifteen thousand dollars; and the result of these labors has been the completion of a work which is of great value, both practically and scientifically, to the entire world. The catalogue in its present condition is valuable, and sufficient for the pressing needs of this service; but to view it in this light would evince a narrow and selfish disposition not in keeping with the scientific spirit of the age. At a cost of probably eight or ten thousand dollars, this work can be printed and distributed to the world as a monument and evidence of the growing scientific tendency of this nation. If such action is taken by Congress, the chief signal-officer has no doubt, from the willing spirit and hearty co-operation shown by leading scientists of other countries, that future international co-operation will secure by a system of rotation, from the various European governments, the publication of a series of supplements which will keep the world abreast of the steadily increasing volume of meteorological publications. A large number of American and foreign meteorologists and librarians have given largely of their time and energy in the compilation of this bibliography, as is shown by the fact that over one-half of the material has been contributed from foreign countries; so that the bibliography represents not only a large expenditure on the part of the United States, but also many years of additional gratuitous labor. The material could not be duplicated, and it would seem but a respectable reciprocity of exchange that the government should print the catalogue, so as to enable the voluntary contributors to avail themselves of the complete work. This fulfilment of obligations to contributors by a public catalogue is an act of justice; but, in addition, it should be considered that this bibliography will be of great practical value to the agricultural, commercial, engineering, and medical interests not only of the United States, but of the world."

The plan of this bibliography originated with Prof. Cleveland Abbe, who, in 1872, began a systematic collection of works bearing upon meteorology. Later on, he brought the matter to the attention of the leading European meteorologists; and at the meeting of the first meteorological congress, as well as at those of the international meteorological committee, it was indorsed, and steps were taken to carry out the plan. Dr. Hellmann and G. J. Symons were engaged in similar work; and at the Berne meeting of the international meteorological committee in August, 1880, letters of Dr. Hellmann were read, dated Jan. 20 and July 20, 1880, giving a detailed scheme for combining the various works and for the preparation of a catalogue, and embodying Mr. Abbe's proposal of August, 1879, as well as a similar one from Mr. G. J. Symons of London. The committee, however, resolved that each country be requested to furnish lists of observations, and that Messrs. Scott and Hellmann be a sub-committee to consider the means of carrying out Dr. Hellmann's scheme.

In the fall of 1881, Mr. Abbe wrote to Mr. Symons for more details as to his work. General Hazen, chief signal-officer, then decided to purchase the catalogues of both these gentlemen, with a view to their combination and completion by the Signal Office in case the international committee did not do this. In November, 1881, Mr. Symons was authorized to prepare, at the expense of the Signal Office, a copy of all meteorological titles in his collection; and in December, 1881, Mr. Abbe's cards were purchased.

Mr. Symons's catalogue was received in October, 1883; and on March 4, 1884, Mr. C. J. Sawyer, librarian of the Signal Office, was relieved from the care of the library, and, as bibliographer, ordered to devote his whole time to the completion of this work, which was then transferred from the library to the study-room division of the Signal Office.

At the second meeting of the international meteorological committee at Copenhagen, in August, 1882, Messrs. Scott and Hellmann reported that the Meteorological Office could not print the proposed catalogue, and that subscriptions were not practicable. They therefore recommended each meteorological service to publish a national bibliography, for which Hellmann's 'Repertorium der deutschen Meteorologie,' prepared in accordance with the ideas of the committee, and now just about to be published, should serve as a model. It need only be added that since 1882 the international meteorological committee have, with other meteorologists, acquiesced in the arrangement by which the Signal Service has undertaken to complete, and if possible publish, for its own and for general use, a general index to the literature of meteorology.

Up to April 12 of this year, Mr. Sawyer has been engaged on this bibliography, and his estimate of the number of independent titles, including the year 1881 (which date was adopted as the close of the bibliography), is fifty thousand. At that time he had finished the classification of these titles by subjects, and most of the subclassification, the author-index, etc.

Publications later than 1881 and prior to 1887 have been indexed, and will form a supplement, the work on which is almost completed.

So far, no provision has been made for the publication of this valuable work. The scientific as well as the practical value of the bibliography is so great, that its speedy publication is very desirable, even setting aside the danger of its being lost by accident to the building in which it is deposited. Once printed, it will result in a saving of time many times as great in value as the money required for its publication. Professor Abbe's endeavors have succeeded in making it a work of great magnitude, and one that will reflect the greatest credit upon the scientific and practical value of the work of our Signal Service.

SCIENTIFIC NEWS IN WASHINGTON.

Phenomenal Hot Wave and Mortality in Egypt. — Supplementary Reading in Public Schools. — The Annual Ring in Trees. — Temperance-Instruction in the United States.

Phenomenal Hot Wave and Mortality in Egypt.

THE United States consul-general at Cairo, in a despatch dated July 23, describes a condition of affairs, meteorologically, in Egypt this summer, that is really remarkable. He says, "On the night of the 15th of June a heat-wave spread itself over Egypt, and it has since remained continuously. In a residence of three summers here I have experienced nothing comparable to it. The days have given air like that from the blast of a fiery furnace, while the nights have been intolerable from heat. The death-rate throughout Egypt, which was already very high, suddenly mounted towards figures of decimation, and the destroyer has been reaping a great harvest of the dead. For the first week of this very hot weather the death-rate rose in Cairo from a little over 40 to 76.8. The next week it was 71.6; the next 79.1, succeeded for the fourth week by 77.7. These figures present the average. In Bodlac and Darb-el-Ahmar, two quarters of the city, the death-rate was respectively 103 and 86.5, in one case more than decimation, in the other very nearly decimation. Truly no Indian death-rate, except in periods of widespread and most fatal epidemics, reaches the present record in the Egyptian capital.

"For five years past the health of Cairo has been growing worse, and yet during these years a special detail of English sanitary experts has been supervising a khedival sanitary department, the main object of which has been to look after the health of the most crowded Egyptian communities. The sanitary administration costs the Egyptian Government annually about two hundred thousand dollars, not inclusive of publications and police service. The health of the large cities grows worse every year. The heavy summer death-rate begins earlier in Cairo than in Alexandria. Just now a decidedly increased mortality is prevalent in the latter, and, following precedent, it will be much greater in August. Last year the death-rate at one time in Alexandria was about equal to what it now is in Cairo. In some of the smaller cities the mortality has this year been greater even than the Cairo average, and about Damietta there has been typhus-fever of a very fatal character. The rise of the Nile produces great humidity, and during August,