usally large number of species, and are very abundant. Certainly the Pacific Coast botanists are to be congratulated upon having two such excellent stations for study and research.

MULTIPLICATION OF SPECIES IN BOTANY.

IT is never safe to 'call a halt' in any department of science, much less in a department in which one is not himself a specialist; yet such non-specialist may be permitted to give his impressions as an interested on-looker from another part of the field. And as it often happens that the soldier in a different part of the field of battle is able to see more clearly what is taking place than those in the thick of the mêlée, so it may be that botanists just a little outside of the work of descriptive systematic botany are able to measure the real value of some of the work now being done. One can hardly take up a botanical journal without finding that some of the common species of plants have been split into two or more forms called 'species' by their authors. That such work must be done is inevitable, but it is incredible that ten to twenty species should have been able to hide themselves in plants which had been critically studied by such masters as Gray, Torrey and Watson. As long as these leaders were found to have confused only two or three species in one the interested on-looker was ready enough to accept the dictum of present-day specialists in single genera, and to admit that the masters had blundered, but when we are asked to believe that Gray and Torrey were totally blind and incapable of seeing or defining the limits of species, it is evident that these later workers are dealing with something of which their predecessors either knew nothing or cared nothing when they were defining species. In 1878 there were catalogued for North America in Watson's Bibliographical Index 14 species and 10 varieties of hawthorns, of the genus *Cratægus*. In 1899 these numbers had risen to 34 species and 11 varieties. To-day we are asked by several botanists to add to this list 225 new species almost entirely from the eastern United States, where three years ago there were not *one tenth as many!*

Of course this brings up the old question of the limits of species. This can not be discussed in a short note, but this is certain, that in the case cited we are asked to give greater values than formerly to observable variations. This is carried to such an extreme that one is compelled to ask whether this change is warranted. Are not these new species merely local variations, or in some instances individual variations? The ornithologists have noticed similar minute variations in birds, although they have not regarded them as specific, but rather varietal, or sub-varietal. Yet there are ornithologists who question the wisdom of requiring that all members of a particular subvariety should have been taken 'under the same blackberry bush.' Are not the botanists who are making so many species open to a similar criticism? If in *Cratægus* we have species with such slight variations, what are we to do with the varieties of the common apple trees? We shudder at the thought of these species-multipliers getting into our orchards. There must be at least a thousand or so good 'species' hidden in *Pirus malus* of Linnæus!

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THE COLLECTED PHYSICAL PAPERS OF HENRY A. ROWLAND.

A VOLUME containing the physical papers of Professor Henry A. Rowland, for twenty-five years professor of physics in the Johns Hopkins University, is now in preparation. It will be issued under the editorial direction of a committee appointed for that purpose, consisting of President Remsen, Professor Welch and Professor Ames. The book will contain Professor Rowland's articles and memoirs on physical subjects, together with his popular writings and addresses, numbering sixty in all. These have been collected from over twenty different magazines and journals. The subjects treated in these papers cover a wide range. In heat there is the great memoir on the mechanical equivalent of heat, with several shorter articles on thermometers. In electricity and magnetism there are the fundamental researches on magnetization, on the magnetic effect of electrical convection, on the value of the ohm, on the theory and use of alterna-

ting currents, etc. In light there are the renowned discovery and theory of the concave grating and the long series of investigations made in the field of spectroscopy. List of wave-lengths will not be reprinted in this volume, as they are readily accessible elsewhere; and any subscriber to this volume may obtain by application to the Johns Hopkins Press, Baltimore, a copy of Rowland's 'Preliminary Table of Solar Wave-lengths.' There will be, further, a description of Rowland's ruling engine, used for the making of gratings, details of which have never before been published.

The Memorial Address of Professor Mendenhall; published in SCIENCE, and a portrait of Professor Rowland will also be included.

The volume will be printed in royal octavo, bound in cloth, and will contain between six and seven hundred pages. The price set is five dollars per copy for orders sent in advance of publication.

Orders may be sent to Professor Joseph S. Ames, Secretary of the Committee of Publication, Johns Hopkins University, Baltimore, Maryland.

*THE INTERNATIONAL CATALOGUE OF SCIENTIFIC LITERATURE.**

THE Third International Conference on this subject, held in London during June, 1900, after considering the questions left in abeyance by the two previous Conferences, decided to publish an annual book catalogue arranged according to both an author and a subject index of the following named sciences: Mathematics, Mechanics, Physics, Chemistry, Astronomy, Meteorology (including Terrestrial Magnetism), Mineralogy (including Petrology and Crystallography), Geology, Geography (Mathematical and Physical), Paleontology, General Biology, Botany, Zoology, Human Anatomy, Physical Anthropology, Physiology (including Experimental Psychology, Pharmacology and Experimental Pathology), and Bacteriology.

Government aid was offered by many of the countries represented by delegates. The catalogue was to consist of an index to all original contributions to science published after January 1, 1901. Regional bureaus were to be established in the several countries charged with the duty of furnishing to the Central Bureau an index of the scientific literature of their respective countries. The price of the catalogue was fixed at $85 per annum for the 17 annual volumes, subscriptions to be made for a period of five years. At the present time the affairs of the catalogue are as follows: The United States Government having as yet failed to contribute toward the support of a regional bureau, the Smithsonian Institution has temporarily undertaken the work.

The equivalent of over 71 complete sets, representing over thirty thousand dollars, have been subscribed for in the United States.

In February the Central Bureau reported that over fifty-one thousand catalogue slips had been received from the Regional Bureaus.

The first parts of Chemistry and Botany will be published during the present month, to be shortly followed by parts of Physics and Physiology. It was found necessary to publish these first volumes in two parts. The next publications will be the complete volumes of Mathematics, Astronomy, Meteorology and Bacteriology for 1901. Single volumes may be subscribed for at their proportional value. A provision has been made for those desiring a card index to print some of the sets on one side of the leaf only in order that the separate entries may be mounted on cards. The charge for the volumes so printed will be about one sixteenth in addition to the cost of the regular form.

* Abstract from a paper on the International Catalogue of Scientific Literature read before the American Philosophical Society, April 4, 1902, by Cyrus Adler, Ph.D. (For fuller history see SCIENCE, August 6, 1897, June 2 and 9, 1899. Also reports of the First, Second and Third International Conferences, published by the Royal Society, of London.)

SCIENTIFIC NOTES AND NEWS.

THE degree of LL.D. was conferred on Lord Kelvin by Yale University on May 5, this being the first time for over a hundred years that the University has held a special assembly for the conferring of an honorary degree. Lord Kelvin was presented for the degree by Professor R. H. Chittenden, director of the