tion. This simplifies greatly the business management of the venture, insures more rapid appearance of the abstracts, and should appeal strongly to the patriotism of all American chemists. It was feared at the outset that the project might not be a financial success, and that the necessary increase in the membership dues from five dollars to eight dollars would be followed by many resignations. This fear was apparently groundless. But few resignations have been received as the result of this increase in dues. On the contrary, the membership of the society is now increasing more rapidly than ever before.

The value to the profession of such a journal can scarcely be overestimated. It will not only bring before every American chemist a concise summary, in his own native tongue, of all important chemical investigations, thus enabling him to keep abreast of the progress of the science, stimulating and encouraging research, but, furthermore, as it covers all branches of the subject, it should prove a most potent factor in drawing together in bonds of closer cooperation all chemists in this country.

Its only rival at the present time is the *Chemisches Zentralblatt* of the German Chemical Society, which has had a monopoly of this field for many decades. It is much more expensive than *Chemical Abstracts,* and in some respects (notably on the technical side) is not so complete. On the other hand, the German publication is superior to ours in certain points—it appears weekly, instead of twice a month; diagrams and illustrations are more freely used; and the abstracts do not have to be condensed quite as much, not only because they have more space available, but also because of a much more extensive use of abbreviations.

In *Chemical Abstracts* the American Chemical Society has produced a most excellent journal, and all American chemists should rally to its support, to make it, as it should be, the best of its kind in the world. Those who are not already members can best assist by joining at once and urging others to do likewise.[1]

Marston Taylor Bogert

[1] The secretary of the society is Dr. W. A. Noyes, Bureau of Standards, Washington, D. C.

Societies and Academies

The American Physical Society

A regular meeting of the Physical Society was held in Fayerweather Hall, Columbia University, on March 2, 1907. In the absence of the president, Professor W. C. Sabine was made temporary chairman.

An address was delivered before the society by Professor O. Lummer, of the University of Breslau, on 'The Temperature of the Sun and Recent Solar Theories.'

The following papers were then presented:

E. F. Northrup: 'On the Forces on the Interior of a Conductor Carrying Current.'

C. W. Waidner and G. K. Burgess: 'The Radiation from, and the Melting Points of, Palladium and Platinum.'

F. M. Pederson: 'The Viscosity of Certain Isomeric Ether Compounds.'

J. G. Coffin: 'The Effect of Frequency upon the Capacity of Absolute Condensers.'

C. C. Trowbridge: 'The Physical Nature of Meteor Trains.'

C. C. Trowbridge: 'On Atmospheric Drifts above Fifty Miles from the Surface of the Earth.'

C. C. Perry: 'On the Current carried by Canal Rays in a Discharge Tube.'

Carl Barus: 'The Equations of the Fog Chamber.

W. G. Cady: 'Note on the Hissing Metallic Arc.'

F. L. Tufts: 'The Relation between Luminosity and Electrical Conductivity of Flames.'

Ernest Merritt,
Secretary

The Biological Society of Washington

The 425th meeting was held on February 9, 1907, with President Stejneger in the chair.

Dr. A. D. Hopkins read a paper, illustrated with lantern slides, on 'Some Results of Anatomical Investigations of the Thoracic Segment of Insects.' The substance of this paper will appear in a bulletin of the Bureau of Entomology.

Mr. T. H. Kearney spoke on 'The Date Palm in the Northern Sahara,' illustrating his subject with a large number of lantern slides. He described the oases of southern Tunis and especially the group known as the Djerid, where numerous fine varieties are grown. Methods of irrigating, cultivating, pollinating

and harvesting were discussed. Attention was called to the great number of varieties existing in this region and to the characters by which they are distinguished. A description was given of the Oued Souf oases in eastern Algeria and of the peculiar method of growing date palms there in 'sunken gardens' among high sand dunes. The efforts of the Department of Agriculture to establish date culture in the southwestern United States were also discussed.

THE 426th meeting was held on February 23, 1907, with President Stejneger in the chair.

Mr. C. V. Piper presented a paper extensively illustrated by lantern slides, on 'Some Features in the Distribution of Life in the Columbia Basin.' The Columbia Basin comprises practically all of Washington and Oregon east of the Cascade Mountains and the greater part of Idaho. This region is entirely covered with the Columbia lava of an average thickness of about 1,000 meters. The central portion of the basin is the lowest, ranging from 150 to 300 meters altitude, from which it gradually rises in all directions to the surrounding mountains. The Cascade Mountains on the west, the Bitter-Root and Rocky Mountains on the east as well as the Blue Mountains, are inhabited mainly by boreal plants and animals pushed southward during the glacial period. The lowest part of the basin is occupied by the upper Sonoran plants and animals and the intermediate region by arid transition forms.

In studying the inhabitants of this region statistically, it is found that, if plants of continental range be excluded amounting to about 30 per cent. of the whole, that the following proportions appear. Of upper Sonoran plants, 7 per cent. are of California origin, 64 per cent. of Great Basin origin and 29 per cent. are endemic. Of the arid transition plants 33 per cent. are of California origin, 26 per cent. of great basin and 31 per cent. endemic. It will be noticed, on comparing these figures, that Californian arid transition species have much freer access to the region than upper Sonoran species. Indeed, at the present time the arid transition area is still continuous from California into the Columbia Basin. This with the prevailing southwest winds is probably the reason why these plants dominate over those of Great Basin origin in the Columbia Basin, though the latter apparently have much easier access. In the Columbia Basin the upper Sonoran life area is practically coextensive with the area where the rainfall is 12 inches or less and the characteristic plant is the common sage brush.

A second point of interest in the distribution of plants in this region, is the relation which exists between the plants of the Blue Mountains, those of the northernmost part of the Cascade Mountains and those of the Siskiyou Mountains. These regions are composed largely of granitic mountains and in each of them there is a considerable number of peculiar species. It was suggested that the explanation of this was to be found in the fact that the greater portion of the Cascade Mountain region is volcanic in character and comparatively recent in origin. It is possible, therefore, that the plant species peculiar to the granitic regions either prefer granitic soils or else through volcanic conditions have disappeared from the greater portion of the Cascade Mountains. While neither of these explanations is entirely satisfactory the fact of the peculiar relations of their floras is very clear.

Another striking feature mentioned by the speaker was in regard to the islands in the northern part of Puget Sound. These islands, including the southwest extremity of the Vancouver Island, lie in the lee of the Olympic Mountains and have the lowest rainfall of any of the country west of the Cascade Mountains. The rainfall on these islands varies from 19 to 31 inches, practically paralleling the conditions of the arid transition area east of the Cascade Mountains. The Cascade Mountain form at the present time is a perfect barrier for arid transition and upper Sonoran plants. Nevertheless, in some way a considerable number of such species have found their way to this region of low rainfall in the northern part of Puget Sound. Among these are *Opuntia missouriensis, Juniperus scopulorum, Platyspermum scapigerum, Zygadenus paniculatus, Lupinus microcarpus* and

many others. The speaker stated that he was unable to give any satisfactory explanation as to how these arid land plants could have crossed the barrier of the Cascade Mountains.

In discussing this point, Mr. M. B. Waite suggested that seeds of these plants might have been carried by birds or possibly Indians. The speaker admitted that both of these explanations were possible, although he did not regard either of them as likely. Mr. Vernon Bailey called attention to the distribution of many mammals in the Columbia Basin which virtually coincide with that of the plants.

Dr. Leonard Stejneger presented the next paper on 'The Celtic Horse in Norway.' The Celtic horse (*Equus caballus celticus*) was briefly described by Professor Ewart in 1902 as a small pony from the Outer Hebrides, northwestern Ireland, Shetland, Færœs and Iceland, and more fully characterized in 1904 in a paper on the multiple origin of the horses in Scotland, in which he compares it with the 'Norse horse' (*E. caballus typicus*), the essential differences consisting in different proportions of forehead and snout and in the absence of callosities on the hind legs of the Celtic pony. The latter character at one time was supposed to be of generic value since these callosities are absent in the asses and zebras.

The speaker, during 1905, was able to verify his suspicions that the fjord-horse of western Norway is identical with the Celtic pony by examining a number of pure-bred west Norwegian horses which had no hind callosities and which in other respects also agreed with Ewart's description. The apparent discrepancy between the views of the speaker and that of Professor Ewart relative to the identity of the Norse horse was explained by the fact that there are two native races in Norway, the fjord-horse which is identical with the Celtic, and the valley-horse, or eastern Norwegian horse, which is the one to which Ewart has reference.

The important conclusion to be drawn from the identity of the Scotch and the west Norway pony is that it probably came to the latter country from Scotland simultaneously with and possibly domesticated by the West Norwegian brachycephalic population. This invasion may have occurred in late pleistocene or early post-glacial times, at the same period as a complex assemblage of plants and animals, known as the 'Atlantic' biota crossed from Scotland to west Norway over a continuous land bridge, a question more fully discussed in a paper now going through the press.

In the discussion following Dr. Stejneger, replying to a question, stated that no skeleton or part of skeleton of the Celtic horse is in any museum in this country, and that even in European museums, except that of the Landwirthschaftliche Hochschule in Berlin, but little effort has been made to collect series of the domesticated animals.

Dr. Gill suggested that anatomical characters derived from the laryngeal apparatus might furnish better ground for generic distinctions among the Equidæ than the hind callosities.

M. C. Marsh,
Recording Secretary

THE PHILOSOPHICAL SOCIETY OF WASHINGTON

The 630th meeting was held on the evening of March 2, 1907, President Hayford in the chair. Mr. W. P. White read a paper on 'Melting-point Determinations,' stating that melting points are usually determined at higher temperatures by heating the material steadily and noting the stationary temperature which occurs during melting. With perfectly pure substances, this method presents no difficulties or complications. With practically all substances, however, sufficient impurity is present to make the melting extend through a temperature interval. This effect is greater at high temperatures. The proper curve is then distorted from two causes: (1) The supply of heat from the furnace usually varies. This trouble may be corrected by regulating so as to keep the difference of temperature between the furnace and charge constant. The furnace is then held nearly stationary during the melting. (2) The interior of the charge lags behind the outside during melting; this effect becomes negligible if small charges are used. An ordinary platinum thermoelement can be put naked in a charge

of sodium chloride, melted silicate, etc., without perceptible error, and thus excels the electric thermometer for work with small charges, and even with fairly large ones. The best results have been obtained with about 1 c.c. of material. Error from conduction of heat along the thermoelement may exist, but is very small with bare elements directly immersed.

Mr. E. B. Rosa presented a paper on 'Preliminary Studies in a New Determination of the Ohm,' in which it was stated that various methods of measuring resistance in absolute units have been employed, and the results obtained by different investigators expressed in terms of the length of the column of mercury having a resistance of one ohm, range from 106.21 cm. to 106.34 cm., omitting some of the least accurate determinations. The value taken for the international ohm, 106.30 cm., is uncertain by several units in the last decimal place. If one were to attempt to fix the last figure, or in other words get a value that should not be in error by more than 1 part in 10,000, it would be necessary to use only the best methods and to calculate the mutual or self-inductances involved in the determinations at least to one in 25,000.

The best form of self-inductance to be computed from its dimensions is a single layer winding on an accurately ground cylinder. The formulæ heretofore used for this case are correct only for a current sheet, and the speaker has recently derived the formulæ for correcting this expression so as to make it possible to compute accurately the self-inductance of a winding of insulated round wire.

For the method of mutual inductance, the most favorable case is perhaps two equal coils of large radii, and square cross section, placed at a measured distance apart, and the speaker had recently corrected the formulæ of Weinstein and Stefan, so that the value of the mutual inductance can be calculated with high precision, even when the cross section of the winding is relatively large. He had also worked out a new formula for the method of Lorenz and investigated the magnitude of possible errors due to the thickness of the disc, imperfections of centering and errors in the dimensions. The uncertainty arising from variation in the speed of the disc will be very small, using the method of holding the speed steady which has been in use at the U. S. Bureau of Standards for some time.

A brief account was also given of the effect of moisture on the resistance of coils of wire covered with shellac, which causes the resistance to increase with the humidity, and hence to be greater in summer than in winter. This is prevented by sealing the coils air-tight or by covering them with paraffine.

R. L. FARIS,
Secretary

THE TORREY BOTANICAL CLUB

THE club met on March 12, 1907, at the American Museum of Natural History at 8:15 P.M., with President Rusby presiding. Ten persons were present.

The following scientific program was presented:

Remarks on Regeneration: Miss ELSIE M. KUPFER.

The various meanings which have been assigned to the word regeneration were first discussed. It was brought out that, while some writers would limit the term to the restoration of embryonic tissue in root and shoot, others would include within the scope of the process merely the development of buds present before injury. It seemed best to take the middle ground and consider as a regeneration an organ formed anew after injury or loss.

The different plant organs were used as cuttings and their behavior examined when buds were absent. On the roots which formed shoots it was found that these were not confined to the upper (basal) surface, but could appear from the apical as well, or from the middle of the root. The roots of less than half of the species used formed shoots, while all produced roots not always as true regenerations, but as outgrowths from the uninjured *cambium*. Bundleless stems proved able to root with ease, but were unable to replace the buds which had been cut out. Such parts continued growing for fifteen months without undergoing any tissue change, while a part on which a single bud was left established secondary vascular strands between the bud and

the new roots. The pseudobulb of an orchid proved able to regenerate roots and a shoot from the base, and in a conifer the apparent 'restoration' of a single root on the seedling and in an older stem-part was described. Of eighty-two species of leaves used in experimentation only two new ones were found which produced a shoot, though the large majority formed roots. Modified leaves of various types, phyllodes and bulb-scales, were also found to be able to root. Regeneration was likewise reported in the inflorescence of *Dudleya californica* and *Ruellia rosea*, in the fruits of *Phaseolus vulgaris* and *P. lunatus*, and finally in the 'head' of the alga *Penicillus capitatus*.

An extended discussion followed.

Owing to the lateness of the hour, Dr. Rusby did not present his paper on 'Field Observations of the Past Year,' but exhibited a few interesting plants collected at Oscoda, Mich.

Dr. Southwick exhibited several interesting specimens of the seeds of *Ricinus*.

C. Stuart Gager,
Secretary

Discussion and Correspondence

The Anthropological Exhibits at the American Museum of Natural History

To the Editor of Science: The March number of the *American Museum Journal* contains a brief description of 'A New Eskimo Exhibit.' In the first paragraph of this article is found the following: "the American Museum stands preeminent among all institutions along the lines of ethnological research amid Arctic peoples. The completeness of the material and data thus assembled has enabled the Museum to install a series of groups and cases which illustrate vividly the home and village life of the Central Eskimo, together with their utensils, implements and weapons and the methods of using them." Those who are familiar with the historical development of the department of anthropology of this institution realize the significance of this article. It seems to point to a change in policy which is so far-reaching and of such importance to all American anthropologists as to deserve consideration. I propose to consider, therefore, the question whether the old point of view is so entirely wrong and the new point of view is so entirely right as to warrant this change which blots out of existence the results of many years' work.

The activity of the department of anthropology in the American Museum of Natural History became very great ten or twelve years ago and continued with increasing strength until about two years ago, at which time there seems to have been a change in the administration. During the ten years above referred to, we find a systematic attempt on the part of those in charge to carry on investigations over an ever-increasing large area as fast as means would permit. As a result of this intelligently directed series of field operations there grew up in the American Museum one of the greatest departments of anthropology to be found in any museum in the world. The plan of exhibition was on the broadest and most liberal scale. One could for the first time in an American museum study in detail the essential and salient features of the culture of a very large number of tribes, especially those of North America and northeastern Asia; and it seemed it was only a question of time and the continuance of the same policy when all cultures, exclusive of that of Europe, would be found adequately represented. It seems doubtful if any institution ever acquired in the same period of time collections of such magnitude or ever accumulated material with such intelligence or exhibited it in an equally sound manner. Here one could really study the culture of tribes, one could study conditions as they exist; one felt that one was not looking at the illustrations of some elementary text-book, but that he had in front of him the data from which the history of the material culture of mankind might be written. One felt instantly in the halls of the department the spirit of investigation and it was everywhere apparent that this was prompted by the desire to advance science and not by the desire to find material which would fit into or harmonize with some ideal scheme of exhibition. One instinctively felt in the presence of these exhibits that one was in close contact with actual conditions and that one