to 5,000 metres will be higher than the temperature observed at the earth's surface.

Taking the average decrease of temperature with height found from the observations on Pike's Peak and Mount Washington, and using the temperature and pressure recorded at stations on the daily weather-chart, I have, by Köppen's method, calculated the pressure at the height of 5,000 metres above a large number of areas of high pressure, and drawn isobars for this height. These show that above the larger number of winter anticyclones on our Western plains the pressure is lower than on the same latitude farther east. Even if we make the extreme assumption that there is no decrease of temperature above these anticyclones up to 5,000 metres, some of the cases will still show a lower pressure at this height than on the same latitude on each side. In these cases there seems no escape from the conclusion that the pressure at the earth's surface is due chiefly or entirely to the low temperature of the air. But there are other cases of anticyclones over these plains in the summer-time, and of anticyclones on our seacoast in winter, in which the temperature is as high as, or higher than, near the earth's surface within the anticyclones as on the same latitude farther west. In these cases it is sometimes difficult to get a lower pressure in the upper air above them, even though we assume the adiabatic rate of cooling. Moreover, I know that these high pressures on rare occasions extend up even to the cirrus region, for I have observed cirrus-clouds moving out from them toward the west in their south-west quadrant as the surface wind does near the earth. I am hence led to believe that there are two classes of anticyclones,— one due chiefly or entirely to low temperature, and the other due chiefly or entirely to dynamic causes. It seems to me probable that the same is true of cyclones.

H. HELM CLAYTON.

Blue Hill Observatory, Jan. 22.

### Questions of Nomenclature.

PROFESSOR C. S. SARGENT, author of the "Silva of North America," says, in the first volume of that work, "I have adopted the method which imposes upon a plant the oldest generic name applied to it by Linnæus in the first edition of the 'Genera Plantarum,' published in 1737, or by any subsequent author, and the oldest specific name used by Linnæus in the first edition of 'Species Plantarum,' published in 1753, or by any subsequent author, without regard to the fact that such a specific name may have been associated at first with a generic name improperly employed."

To secure stability in nomenclature, it is obvious that the method adopted by Professor Sargent is the one which should universally be adopted by botanists. Other questions relating to botanical nomenclature are not so well settled as might be desired, and a few of these may be briefly stated, with the writer's present views concerning them.

The first in importance, perhaps, is the use of the names of forms at first described as varieties of other species, and later raised to specific rank, or *vice versa*. It would seem that the varietal name as first used should be adopted for the specific name when raised to specific rank, though many botanists have felt at liberty to rechristen them at pleasure. A varietal or subspecific name would, if this rule were followed, receive precedence over later names. Professor E. L. Greene, in "West American Oaks," has adopted the name *Quercus Palmeri* Engelm. in preference to *Q. Dunnii* Kell., although first published as a species under the latter name, *Q. Palmeri* having first been published as a subspecies by Dr. Engelmann, and later as a species. One is led to infer by Professor Greene's remarks, that, had *Q. Palmeri* been published as a variety instead of as a subspecies, he would have adopted Kellogg's name for the species, though why such a distinction is made is not very evident.

Bentham, in fact, held that the earliest published name, whether applied as a specific or varietal, belonged inalienably to that individual form, whether subsequently redescribed and raised to specific, or degraded to varietal rank.

"Once a synonyme always a synonyme," is a rule which I believe obtains among zoölogists in general, and should, if tenable with them, be adopted by botanists as well. This would necessitate some important changes if adopted; and as an instance may be noted the genus *Washingtonia*, now in use for our Californian fan-palms, a synonyme of *Sequoia*, having been unfortunately applied to our Californian giant before its application by Wendland to our palm.

If the facts permitted, some enterprising botanist might see fit to reinstate the coniferous genus, in which case the genus of palms would of necessity have to be renamed. Still, it seems like creating needless synonymy in this case to rechristen Wendland's genus, though strict adherence to the rule would render it imperative.

Uniformity in the method of citing the authors of species is another desideratum in botanical nomenclature. The most explicit custom is that adopted in general by zoölogists, — the enclosing in parentheses the name of the author of the species or variety, where originally given wrong rank, or referred to a genus incorrectly. While this is often cumbersome, yet it greatly facilitates subsequent work beyond question, and is preferable to the citing of the name of the author who has referred the plant in question to a different genus, or considered it as of different rank. The existing confusion in the manner of citations renders it impossible for a writer to do strict justice to the founders of species, unless he is favored with access to large botanical libraries, and blessed with abundant leisure for consulting original descriptions. The author of the species (or variety), it seems to the writer, is the one to be cited (if the system of double citation is discarded as inconvenient) in preference to the authority for its transferrence from one genus to another.

Another point upon which botanists are not fully agreed is the citation of names adopted in manuscripts or herbaria, and receiving earliest publication by others than their authors. It is the custom in America (and a sensible custom it is) to cite the real author's name, even when first described and published by another author (unless published by that author as of his own authorship). Thus, Nuttall is credited with the authorship of many genera and species first described by Torrey & Gray in the "Synoptical Flora," or by DeCandolle or others elsewhere.

It is now generally conceded that an author, after publishing a name, has no longer any right to substitute another name therefor in subsequent publications, even though the first name he finds to be a misnomer. This right, claimed by many of the older botanists of a past generation, is no longer contended for. It is also an open question as to how far published names may be changed or corrected by their own or subsequent authors.

A common Californian cactus is published by Prince Salm in "Cacteæ Horto Dyckensi," p. 91, as *Mamillaria Goodrichii* Scheer, named in honor of Mr. Goodrich. Professor Sereno Watson informs me that Seemann says in the "Botany of the 'Herald'" that it was a "Mr. J. Goodridge, surgeon," whom the plant was intended to commemorate in its name as its discoverer. The name, therefore, has been written *M. Goodridgii* by many subsequent authors. Gray (*Botanical Gazette*, ix. 53) inadvertently publishes *Antirrhinum Nivenianum*, and repeats this spelling on the following page. This was collected by Rev. J. C. Nevin, and it is obviously proper to write *A. Nevinanum*, as the former spelling was mere inadvertence or a typographical error. But in the instance of *Mamillaria Goodrichii*, as originally written there is less cause for change, since the man may not have been clear in his own mind as to the correct spelling of his name,— like Shakspeare, spelling it differently at different times.

C. R. ORCUTT.

San Diego, Cal., Jan. 20.

## BOOK-REVIEWS.

*Inorganic Chemistry.* By WILLIAM JAGO. London and New York, Longmans. 12°. $1.50.

THIS text-book is intended to meet certain conditions of science-teaching prevalent in Great Britain, due to the work going on under the auspices of the Science and Art Department. It is a more advanced book than the author's "Elementary Text-Book" on the same subject, issued some time ago. The supervision of

the English science-teaching by the Science and Art Department is to a considerable extent that of an examining board, so that the book before us appears to be written with the purpose of supplying a most condensed array of facts. As each substance is taken up, we are told of its occurrence, mode of preparation, properties, industrial applications, and composition. The author is evidently thoroughly practical by nature, and does not devote much space to the interesting theoretical discussions in chemistry, which would seem to give the study its chief disciplinary value, before he proceeds to the detailing of the facts. But let all teachers interested examine the book, that they may at least know the methods pursued by some of their co-workers abroad.

## AMONG THE PUBLISHERS.

THE contents of the *Magazine of American History* for February cover a wide field of subjects. The features of the geologist and geographer, Sir Roderick Impey Murchison, appear in the frontispiece, accompanied by a sketch of his career in scientific discovery. The contribution of Hon. John Jay, LL.D., entitled "The Demand for Education in American History," is the longest and most important article of the number. Mr. Jay says, "Our great authorities on history-teaching are agreed that rightly to understand, appreciate, and defend American institutions, the true plan is to know their origin and their history." The third paper, by Rev. D. F. Lamson, presents an account of the emigration from New England to New Brunswick in 1763. The fourth paper is an illustrated account of the antiquity of carriages, by Emanuel Spencer. The article which follows is also illustrated, being the story of Sir Walter Raleigh's settlements on Roanoke Island, called by its author, Dr. Stephen B. Weeks, "An Historical Survival." Rev. R. T. Cross writes of early explorations in Louisiana; H. E. Green contributes a description of "The Pickering Manuscripts" in Boston; and "The French Army in the Revolution," translated from the French by Miss Georgine Holmes, is concluded from the January number.

— Mr. Greenough White has issued through the press of Ginn & Co. a pamphlet on "The Philosophy of American Literature," in which he endeavors to show that our literature is a native growth, and not a mere offshoot of that of England. In our opinion, the attempt is a failure. Mr. White gives a brief but excellent sketch of American literature, exhibiting its chief characteristics in the various periods, as he conceives them, very clearly; but he fails entirely to discover any real originality, or any thing distinctively American in thought or sentiment. Students of the subject will doubtless like to read Mr. White's work; but we think it will make few converts to the author's view. For our part, we can find little in our native literature but a reflex of European ideas; and we doubt if there is now extant a single work by an American writer that will be read except for historical purposes in the twentieth century.

— Readers of "Robert Elsmere" will be glad to hear that the address delivered by Mrs. Humphry Ward at the opening of University Hall has been reprinted in pamphlet form by Macmillan & Co. The special religious aims of University Hall are set forth in the pamphlet, in which mention is also made of the beginning of class-teaching under the guidance of Dr. Martineau. The same firm announce for early publication "The Life of the Right Hon. Arthur McMurrough Kavanagh," who was remarkable, having been born without arms or legs, notwithstanding which he sat in Parliament for many years, and yachted, hunted, and shot, carrying on the ordinary pursuits of a country gentleman and landlord.

— In an article entitled "An American Kew," in *Lippincott's Magazine* for February, 1891, Julian Hawthorne advocates the establishment in America of botanical gardens akin to the Kew Gardens in England. "When American naturalists," says Mr. Hawthorne, "have been furnished with a place where they can


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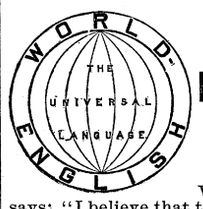


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