

ber of genera are common to both campo and forest, but often the species are not nearly related. In other cases the species resemble each other so closely that some botanists regard one as a variety of the others. The Brazilians have also noticed this in case of certain trees and designate one form as *do campo* and the other as *do mato*. Woody species are more common in the forest than on the campos, *i. e.*, 800 to 250. The number of herbaceous species on the campo and in the forest is about the same. Hygrometric conditions determine essentially the anatomy and the morphology of plants. This causes the difference in form and in thickness of bark of the trees of the campos and of the forest. In the campo plants there is a marked reduction of foliar surface to prevent excessive transpiration, and pilosity is most frequent in these species, although common in the forest, where it occurs most abundantly on the foliage of the trees and lianas, the glabrous plants of the forest being the lower and shaded species. A great many of the weeds are abundantly hairy. These grow principally in the clearings in narrow valleys exposed to a burning sun. Plants with lacquered leaves occur both on the campos and in the forest. Spiny plants are rare on the campos, more frequent in the forest, especially on the calcareous rocks, and most common in the clearings. Waxy leaved plants occur in various situations, but are not frequent. Coriaceous leaves occur on the woody plants of the campos and also frequently on the forest trees. They are not so common on the forest shrubs and are still rarer on the marsh plants. Many plants of the forest have large thin leaves, entirely unsuited for the campos. The fall of leaves is brought about by the increasing dryness of the air and soil rather than by any change of temperature. This is much more decided in the trees of the campos than in those of the forest and is most noticeable in the woody plants on the calcareous rocks.

Some trees shed their leaves in winter and remain bare for several months, but most of the leaves fall in the spring (August to October) simultaneously with the appearing of new leaves, so that the forest is always green and retains about the same coolness and depth of shade. The trees of the campos as well as of the forest show annual rings, and the author thinks that the same periodicity of growth takes place everywhere, even in the trees on the Amazon. Buds are not generally protected by bud-scales, although some of the woody plants of Lagoa Santa bear as characteristic buds and bud-scales as any forest trees in Denmark. The author's principal collections were made from the small area of 170 sq. kilometers, from which he obtained about 2,600 species of vascular plants.

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#### THE PROGRESS OF PARONYMY.

TEN years ago\* I urged the desirability of the general employment of technical anatomic terms consisting, so far as practicable, of one word each (mononyms), and derived directly or indirectly from the Latin, constituting *paronyms* of the originals. Such paronyms might be either identical with the original, *e. g.*, English *pons*, or changed in various ways in conformity with the custom of each language, *e. g.*, French *pont*, Italian *ponte*. The subject was further discussed in connection with Prof. S. H. Gage in 1886† and in 1889,‡ and the principle of

\* Paronymy *versus* heteronymy as neuronymic principles. Presidential address at the 11th annual meeting of the American Neurological Association, 1885. *Transactions of the Association*, pp. 21. Also *Journal of Nervous and Mental Disease*, Vol. XII.

† Anatomical technology: an introduction to human, veterinary and comparative anatomy. Second ed., 1886, O., pp. 600, 120 figs., 4 plates.

‡ Anatomical terminology. Reference Handbook of the medical sciences. A. H. Buck, editor, VIII., pp. 24. 1889.

paronymy was approved by the Committee on Biological Nomenclature in the Report adopted by the American Association for the Advancement of Science, August, 1892.

Naturally the application of the principle has been easier with the French and Italian than with the German. Yet nearly all recent works in this language contain paronyms either unchanged (excepting for capitalization), *e. g.*, *Dura*, or with slight changes, *e. g.*, *Hippokamp* for *hippocampus*.

The last example of Germanization to come under my notice is in Eisler's 'Das Gefäss- und periphere Nervensystem des Gorilla,' where the customary heteronym, *Herzbeutel*, is abandoned for the regular paronym of *pericardium*, *Perikard*. Curiously enough in English we have hitherto retained the useless termination, but analogy with *pericarp* (from *pericarpium*) not only warrants but demands the abbreviated form, *pericard*.

BURT G. WILDER.

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#### THE MARINE BIOLOGICAL LABORATORY.

THE annual announcement of the 'Marine Laboratory' for the eighth season, 1895, has recently appeared.

The officers are as follows: Dr. C. O. Whitman, Director, Head Professor of Zoology, University of Chicago, and editor of the *Journal of Morphology*; Dr. H. C. Bumpus, Assistant Director, Professor of Comparative Anatomy, Brown University.

#### ZOOLOGY.

A. Investigation. Howard Ayers, Professor of Biology, University of the State of Missouri; E. G. Conklin, Professor of Biology, Northwestern University; S. Watase, Assistant Professor of Zoology, University of Chicago; M. M. Metcalf, Professor of Biology, The Woman's College of Baltimore; C. M. Child, Fellow in Zoology, University of Chicago; F. R. Lillie, Instructor in Zoology, University of Michigan; O. S. Strong, Instructor in Zoology, Columbia College;

H. S. Brode, Fellow in Zoology, University of Chicago.

B. Instruction. W. M. Rankin, Instructor in Zoology, Princeton College; J. L. Kellogg, Professor of Biology, Olivet College; P. A. Fish, Instructor in Physiology and Anatomy, Cornell University; A. D. Mead, Fellow in Zoology, University of Chicago; H. E. Walter, Chicago.

#### BOTANY.

W. A. Setchell, Instructor in Botany, Yale University; W. J. V. Osterhout, Instructor in Botany, Brown University.

#### PHYSIOLOGY.

Jacques Loeb, Associate Professor of Physiology, University of Chicago; W. N. Norman, Professor of Biology, University of Texas.

The work of the laboratory is definitely organized with reference to the needs of three classes of workers, namely, (1) students, (2) teachers of science, and (3) investigators. There are regular courses of instruction, consisting of lectures and laboratory work under the supervision of the instructors, given in Zoology, Botany, Embryology and Physiology. In addition to these, there will be courses of lectures on special subjects as follows: Embryology, by the Director, Professor C. O. Whitman; on Botanical Museum Development, by J. M. McFarlane, and on Matter and Energy, by E. A. Dolbear.

There will also be evening lectures on biological subjects of general interest. Among those who contribute these lectures may be mentioned: G. F. Atkinson, E. G. Conklin, Northwestern University; J. M. Coulter, President Lake Forest University; A. E. Dolbear, Tuft's College; Simon Flexner, John Hopkins Hospital; E. O. Jordan, University of Chicago; William Libbey, Jr., Princeton College; F. S. Lee, Columbia College; W. A. Locy, Lake Forest University; J. M. MacFarlane, University of Pennsylvania; C. S. Minot, Harvard Medical School;