pursue a course which leads to the so-called general education, and the question naturally arises, what place has botany in such a scheme of equipment for life?

To the average college graduate few if any of the sciences can be said to be directly useful, they profit him largely in the breadth of view which they give, and the pleasure they are able to furnish in their contemplation or pursuit. In these latter respects one can scarcely conceive of a science which would rank higher than botany. There are certainly no phenomena which are met with more frequently by the non-professional than those which are found in the study of plants and plant life. Without becoming sentimental one may say with truth that to one who has an intimate knowledge of this field of nature the world around us takes on a new aspect, and new truths can be discovered and added daily to the fund already acquired. But it is on account of the peculiar adaptability of botany to teaching, that the science should appeal to the smaller institutions.

That science is best adapted to teaching which is able to present its material at first hand for investigation, and whose truths are within the ability of the student to discover.

The material for botanical study is abundant everywhere, and presents problems in a measure peculiar to each region. The early stages of investigation in the science are not difficult and do not require expensive apparatus. The live teacher who sends his students to the field and not to books, will find in botanical science in which enthusiasm can be aroused and made progress without an expensive outfit.

In the planning of our college courses in botany one must needs bear in mind two classes of students, those who are to go on with the science and those who pursue it as one of the elements of a general education. It is the former class who too frequently suffer in the average college.

The courses should be given in such a manner as to give the student who wishes to pursue the science in a university a foundation which does not need repeating because it is antiquated or abbreviated. In this way I believe the small colleges can be made centres of enthusiasm for botanical science, which will materially advance its teaching and its standing in this country.

It is to be hoped that botany will one day take its place in the curriculum of the small college as one of its most important constituents for the training of men.

SCIENCE.

AMONG THE PUBLISHERS.

"CAMP-FIRES of a Naturalist" is the title of a forthcoming book which sketches big-game hunting in the west from a fresh point of view. The author describes the actual adventures and experiences of a naturalist, Professor Dyche, of Kansas University, who has hunted from Mexico to the northern confines of British Columbia, pursuing grizzly bears, mountain sheep, elk, moose and other rare game. As an outdoor book of camping and hunting this promises to be a unique work and is certainly of merit.

The author has revised the entire work for the German edition and has made a series of changes and additions, which will render the translation practically a new edition. Among the changes is the making of a new chapter in the introduction, giving a complete account of the development and growth of the human embryo through all stages. References have also been added to important papers published since the original translation. The honor of a German translation has hitherto been accorded very rarely to American scientific works.

JULY 28, 1893]  

EXCHANGES.

[Free of charge to all, if of satisfactory character.  
Address N. D. C. Hodges, 844 Broadway, New York.]


For sale or exchange.—A complete set of the reports of the last Geological Survey of Wisconsin, T. C. Chamberlin, geologist. It consists of four large volumes, easily detached, and upwards of forty large maps and charts. Will sell for cash or exchange for a small library to Geo. Beck, Flatwells, Wis.

For sale or exchange for copper coins or rare postage stamps. Tryon's American Marine Conchology, containing hand colored figures of all the shells of the Atlantic coast of the United States, Presentation copy, autograph, etc. One rol., half maroon, 90, unused postal, $1,50. Botany of the Fortieth Parallel of the Hundredth Meridian of the Pacific B. B. Survey. Other Botanical works and works on Ethnology. F. A. Hauser, M.D., Santa Ana, Cal.

I have a fire-proof safe, weight 1,000 pounds, which I will sell cheap or exchange for a gasoline engine or some other thing of equal value. The safe is in perfect new, unused a short time. A. L. G. L. Lagerstrom, Cannon Falls, Minn., Box 827.

For exchange.—Hudson River fossils in good condition from the vicinity of Moore's Hill, Ind., also land and fresh water shells. Desire fossils and shells from other groves and localities. Address Geo. C. Hubbard, Moore's Hill, Ind.

For sale at low price.—A fine-first-fashioned photographic camera, rosewood box, one foot square, camera, four lenses, diaphragm, made by C. C. Barrissor. Plateholders, troughs, basins, etc. All in large wooden case, former house property of the late President Moore, of Columbia College. This is a fine example of an instrument, the best make for the old wet-process methods, and valuable to any institution or amateur interested in the history of photography in the U. S. Address M. S. Daniel, 592 4th St., New York.

I wish to exchange a collection of 7,000 shells, 100 species and varieties, American and European land, Bivalvia and marine, for a good microscope and accessories. Address, Lorenzo G. Yates, Santa Barbara, California.

WANTS.

WANTED—Assistant in National Alliance office, Navy Department. The Civil Service Commission now hold an examination August 16 to fill a vacancy in the position of assistant (reprinteur) in the National Alliance office, to pursue letter-writing, penmanship, trigonometry, rudiments, logarithms, theory and practice of computations, and astronomy. Each applicant must provide himself with a fine-piece logarithmic table. The examination will be held in Washington, and all applications are to be made in time. The appointment will be filled upon application to the Commission at Washington.

DRAFTSMEN WANTED.—The Civil Service Commission will hold examinations on August 15 to fill a vacancy for a draftsman in the War Department; one in the position of architect; draftsman, salary $1,600; the other in the position of assistant draftsman, draftsman,quarter master's general office, salary $1,200. The subjects of the architectural draftsman examination are letter-writing, designations of numbers and numeration, and knowledge of lettering. The assistant draftsman examination are letter-writing, tracing, topographic drawing and projections. The examination will be held in Washington, and the appointment will be filled in time. Applications are to be made in time. The appointment will be filled upon application to the Commission at Washington.

A YOUNG man who has been through the course in mathematics in Princeton University, wishes some tutoring this summer. Rates reasonable. Address P. J. Wentcott, Cramer's Hill, Camden Co., N. J.

PLANS OF AN AMERICAN POLYCHROME INSTITUTION and of a German university (Göttingen), both founded on the same principle, are now under consideration by the same Irish institution. Five years' experience in teaching chemistry, Address, Chemistry, 575 Cary St., Brookline, Mass.

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THE American Bell Telephone COMPANY.
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This Company owns the Letters-Patent No. 198,787, granted to Alexander Graham Bell, January 30th, 1877, the scope of which has been defined by the Supreme Court of the United States in the following terms:

"The patent itself is for the mechanical structure of an electric telephone to be used to produce the electrical action on which the first patent rests. The third claim is for the use in such instruments of a diaphragm, made of a plate of iron or steel, or other material capable of inductive action: the fifth, of a permanent magnet constructed as described; the seventh, of a speaking or hearing tube as described for conveying the sound; and the eighth, of a permanent magnet and plate combined. The claim is not for these several things in and of themselves, but for an electric telephone in the construction of which these things or any of them are used."

This Company also owns Letters-Patent No. 463,569, granted to Emile Berliner, November 17, 1891, for a combined Telegraph and Telephone, and controls Letters-Patent No. 474,231, granted to Thomas A. Edison, May 3, 1892, for a Speaking Telegraph, which cover fundamental inventions and embrace all forms of microphone transmitters and of carbon telephones.

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Can any reader of Science cite a case of lightning stroke in which the dissipation of a small conductor (one-sixteenth of an inch in diameter, say,) has failed to protect between two horizontal planes passing through its upper and lower ends respectively? Plenty of cases have been found which show that when the conductor is dissipated the building is not injured to the extent explained (for many of these see volumes of Philosophical Transactions at the time when lightning was attracting the attention of the Royal Society), but not an exception is yet known, although this query has been published far and wide among electricians.

First inserted June 19, 1891. No response to date.

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