

strong advocate of temperance, is opposed to prohibition and in favor of the Gothenburg system, educational methods and the creation of clean and wholesome amusements calculated to counteract the evil influence of saloons; we heartily endorse his general views on the alcohol question and his opposition to the pernicious system of treating. We regret that Dr. Knopf, an evident believer in home-making, did not emphasize the value of good wholesome food as a preventive factor in alcoholism, especially since the cold dinner pail and badly prepared food create an appetite for alcoholic beverages. In Chapter XII. the author discusses the prospects of the ultimate eradication of tuberculosis and quotes two encouraging sentences from the writings of Pasteur. Dr. Knopf has shown that tuberculosis is a preventable and curable disease—we firmly believe that if the measures recommended by him in his book, and which have been known to sanitarians for some time, were generally adopted, the great "white plague" which now carries off annually over 150,000 victims in the United States alone would be eradicated within one or two generations.

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#### SCIENTIFIC JOURNALS AND ARTICLES

*The Journal of Experimental Zoology*, Vol. VII., No. 1 (August, 1909), contains the following papers: "The Production of New Hydranths in Hydra by the Insertion of Small Grafts," by Ethel Nicholson Browne. A stock hydra may regenerate a new hydranth in region of graft if (1) a tentacle with peristome tissue at its base, or (2) just peristome tissue without the tentacle, or (3) regenerating head material, or (4) bud tissue, is grafted in any region except the tentacle region. In the foot region, the new hydranth pinches off as a minute hydra of about one tenth normal size. In and above the middle region, the new hydranth is of normal size. The origin of regenerating material and the fate of absorbed material is shown by grafts of normal green with artificial white hydras. "The Effect of the Destruction of Peripheral

Areas on the Differentiation of the Neuroblasts," by M. L. Shorey. The purpose of these experiments was to study the behavior of portions of the developing nervous system when it is itself left quite intact and with all its relations normal, but with the primordia of the organs which it should innervate extirpated before innervation. In every instance it was found that the neuroblasts do not differentiate except in the presence of their normal end organs, or of others of a similar character. "Factors of Form Regulation in *Harenactis attenuata*, II., Aboral Restitution, Heteromorphosis and Polarity," by C. M. Child. In the esophageal region of the actinian *Harenactis* tentacles form at both oral and aboral ends of isolated pieces, but at all levels proximal to the esophagus tentacles appear orally and a foot aborally. The two internal factors determining the polar phenomena are the constitution at the various levels of the body, and the physiological correlations between the parts composing the piece. "Some Effects of External Conditions upon the White Mouse," by Francis B. Sumner. The most important conclusions from these experiments are (1) that certain readily measurable structural modifications have been produced by changes of temperature, corresponding to some of the differences between northern and southern species or varieties of mammals; and (2) that there is a distinct tendency toward the reduction of these experimentally produced differences during subsequent growth, even when the conditions which gave rise to them remain unchanged. "Further Observations of the Behavior of Tubicolous Annelids," by Chas. W. Hargitt. The paper supplements earlier observations and experiments by the author on the behavior of this interesting group of annelids, tabulating in considerable detail the various reactions. It also emphasizes the importance of behavior under natural, as compared with artificial, conditions, and points out the important significance of the complex aspects of the tubes themselves as expressions of behavior. The results fail to show any evidence in support of the so-called tropism theory of behavior.

*The Journal of Biological Chemistry*, Vol. VI, No. 5, issued September 16, contains the following: "On the Decomposition of  $\beta$ -Oxybutyric Acid and Aceto-acetic Acid by Enzymes of the Liver," by A. J. Wakeman and H. D. Dakin. An enzyme, " $\beta$ -oxybutyrase," was detected in liver tissue which, in the presence of oxygen, converts  $\beta$ -oxybutyric into aceto-acetic acid. Another enzyme was detected which decomposes aceto-acetic acid. Conditions influencing their action were studied. "The Leucin Fraction of Proteins," by P. A. Levene and Donald D. Van Slyke. The substances l-leucin, d-isoleucin and d-valin, which make up the leucin fraction in the hydrolysis of protein, may be quantitatively separated from each other by transformation into the lead salts. "The Leucin Fraction in Casein and Edestin," by P. A. Levene and Donald D. Van Slyke. Quantitative estimations of l-leucin, d-isoleucin and d-valin resulting from the hydrolysis of casein and edestin. "The Nature of the Acid Soluble Phosphorus Compounds of Some Important Feeding Materials," by E. B. Hart and W. E. Tottingham. A study of the distribution of phytin and inorganic phosphorus in corn, oats, barley, rutabagas and alfalfa hay. "A Volumetric Method for the Estimation of Casein in Cow's Milk," by E. B. Hart. The method consists in measuring the amount of standard alkali neutralized by the casein from a measured sample of milk. "On Preformed Hypoxanthin," by V. N. Leonard and Walter Jones. Preformed hypoxanthin, *i. e.*, that not formed from adenin by action of adenase, is present in all tissues, especially in muscles, and contributes largely to the endogenous uric acid of the body. "The Intracellular Enzymes of Lower Fungi, Especially those of *Penicillium camemberti*," by Arthur Wayland Dox. From *Penicillium camemberti* enzymes were separated capable of decomposing certain proteins, nucleic acid, amides and amido-acids, glucosides, esters and carbohydrates.

THE Higher Education Association, whose office is at 42 Broadway, New York, has begun the publication of a monthly magazine en-

titled *The American College*. In addition to editorial articles and various departments, the first issue contains the following articles:

"The Carnegie Foundation's Dual Mission": F. B. Lawrence.

"Sensational Attacks on University Teachings": Edwin E. Slosson.

"College Bookkeeping and Accounting": Clarence F. Birdseye.

"A Victorious Defeat" (Story): George Thomas.

"The Moral Ideal and the Pursuit of Knowledge": Francis J. McConnell.

The directing editor of the journal is Mr. Clarence F. Birdseye, known for his books on "The Reorganization of our Colleges" and "Individual Training in our Colleges," and the managing editor is Mr. Frank F. Rogers. The Higher Education Association was incorporated in the state of New York last May. The first of the purposes of the corporation, according to the charter, being "to improve higher education throughout the United States, and in particular the internal and external conditions of the American college, by furnishing an agency and funds whereby a careful study can be made, and improvements can be brought about in the institutions of higher learning." The directors of the corporation are: Colonel C. E. Sprague, the Hon. George B. Cortelyou, Mr. Clarence F. Birdseye, Dr. E. E. Slosson, Dr. Virgil Prettyman, and Mr. Arthur H. Pogson.

THE editor of the *Monthly Weather Review* announces that beginning with the issue for July, 1909, the *Review* will be restricted to statistical tables of general climatological data for the United States. The relatively small amount of accompanying text will summarize the weather conditions of the month in the different districts. It is thus evident that hereafter the *Review* will be of value only to those advanced students of climates, engineers, etc., who need detailed data for their own discussion. Few papers of general interest to teachers, except as related to climatology, will be published in the *Review*, and it is not probable that the publication will be of value to those public schools and high schools that have been receiving it heretofore. The scope of the articles appearing in the *Mount Weather*

Bulletin will be limited to technical treatments of subjects of advanced research. This will make most of the articles of that publication also beyond the comprehension of the average pupil of the above grades of schools, and make the bulletin only appropriate for the libraries of colleges and universities.

#### SPECIAL ARTICLES

##### THE PERFECT STAGE OF LEAF-SPOT OF PEAR AND QUINCE

It is well known that the "leaf-spot" of the pear and quince is caused by an "imperfect fungus" called *Entomosporium maculatum* Lév. The perfect stage, however, is not so well known, although it is probably very common in both Europe and this country, but may be easily overlooked. It occurs quite abundantly on the leaves of the pear and quince, affected with the disease, which have lain on the ground during the winter. Such leaves are very commonly affected in the spring with species of *Sphærella*, as *S. sentina* and *S. pyri*. These two species are also "perfect" stages of fungi, but very different from the perfect stage of the leaf-spot caused by *Entomosporium*. Their fruit bodies are black and project slightly from the surface of the dead leaves and thus are quite conspicuous objects even on the dry leaves when examined with the pocket lens.

The fruit bodies of the perfect stage of *Entomosporium* are, however, usually very inconspicuous and are not easily, if at all, recognized with the aid of a pocket lens, in the dry state, because they are collapsed. When the leaves are wet, however, and the fruit bodies are mature, their contents are swollen and thus crowd apart the thin wall and expose the white tips of the asci in a more or less elliptical area. This character of the fruit body shows that the fungus is one of the Discomycetes. The asci are eight-spored, the spores hyaline and two-celled, while the asci are accompanied by paraphyses. Sorauer<sup>1</sup> first called attention to the perfect stage of *Entomosporium* on leaves of *Cotoneaster*

<sup>1</sup> "Pflanzenkrankheiten," Zweite Auflage, 2, 372-377, 1886.

*tomentosa* and *Pirus communis* silv., but placed the fungus in the genus *Stigmatea*, one of the Sphæriales closely related to the *Sphærella* but differing chiefly in the possession of paraphyses.

Twelve years ago I called attention to this perfect stage which I found on quince leaves at Ithaca, and identified as *Fabræa*,<sup>2</sup> at the same time pointing out how easy, under certain conditions, it might be to mistake it for a *Stigmatea*. The connection of the fungus with the *Entomosporium* by Sorauer was assumed because it follows the *Entomosporium* during late autumn and in the spring in the same tissues of the leaf. While I have several times grown the *Entomosporium* from quince fruit in pure cultures, I have never obtained the perfect stage in these cultures. I have, however, carried the cultures in the opposite direction, by obtaining the *Entomosporium* in pure cultures from ascospores of the *Fabræa*.

I hope before long to publish a full account of these studies, but in the meantime it seems desirable to indicate the name of the fungus in its new position. Sorauer's studies were concerned with *Entomosporium mespili* (DC.) Sacc., and he employed the name *Stigmatea mespili*<sup>3</sup> (DC.) Sor. This fungus would therefore be *Fabræa mespili* (Sor.) while the one I have worked with (*Entomosporium maculatum* (Lév.)) becomes *Fabræa maculata* (Lév.). There is a strong probability that these two species are identical, since the only difference between *Entomosporium maculatum* Lév., and *E. mespili* (DC.) Sacc., aside from differences in size of the spores and these will not, it appears, hold, as given in the descriptions, is that the lateral cells of the spore are depressed in the former, while they are a little larger and more rotund in the latter.

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<sup>2</sup> "Leaf-spot of Pear," *Garden and Forest*, 10, 73-74, 1897.

<sup>3</sup> *L. c.*, p. 371. See also Sorauer, P., "Handbuch du Pflanzenkrankheiten," Dritte Auflage, 2, 237, 1908, where the perfect stage is given as *Stigmatea mespili* Sor.