In older agricultural regions, where the cost of beef production reaches the maximum, dairying is generally resorted to, as it yields larger financial returns, and as a result more cheese and less beef are used in the dietary. As the cost of meats is enhanced, dairy products, as cheese, naturally take their place (page 96).

Food notions have, in many instances, been the cause of banishing from the dietary wholesome and nutritious foods, of greatly increasing the cost of living, as well as of promulgating incorrect ideas in regard to foods, so that individuals and in some cases entire families have suffered from improper or insufficient food (page 253).

The tables showing composition, digestibility, etc., are taken from the publications of the U. S. Department of Agriculture, based on American work in which Professor Snyder has played a large part. The chapters on cereals and bread are mainly the results of studies in his own laboratory.

It would have added to the value of the volume as a text-book if some of the illustrations had been better prepared. A student would find some difficulty in recognizing the varieties of starch from the indistinct figures given. On page 90 the centrifuge should have been designated as of fractional size as compared with the other apparatus or have been omitted altogether.

The water analyst wishes there had been a word of caution on page 278 as to the metals of which cheap water stills are often made. The discussion of the ice supply might also have included the statement that all ice used directly in foods and drinks should be crystal clear and not frothy or bubbly.

The chapter on laboratory practise and the admirable review questions will prove most helpful not only to teachers of home economics but also to the general science teachers many of whom are just ready to use this kind of information in their classes.

Ellen H. Richards

SCIENTIFIC JOURNALS AND ARTICLES

The opening (January) number of volume 10 of the *Transactions of the American Mathematical Society* contains the following papers:

Eduard Study: "Zur Differentialgeometrie der analytischen Curven."

G. A. Miller: "The central of a group."

J. I. Hutchinson: "The hypergeometric functions of N variables."

Virgil Snyder: "Surfaces derived from the cubic variety having nine double points in four dimensional space."

A. E. Young: "On a certain class of isothermic surfaces."

A. E. Landry: "A geometrical application of binary syzygies."

L. E. Dickson: "Definite forms in a finite field."

The December number (volume 15, number 3) of the *Bulletin of the American Mathematical Society* contains: "The September Meeting of the San Francisco Section," by W. A. Manning; "Note on Statistical Mechanics," by E. B. Wilson; "On certain Constants Analogous to Fourier's Constants," by C. N. Moore; "The Cologne Meeting of the Deutsche Mathematiker-Vereinigung," by R. G. D. Richardson; "Goursat's Cours d'Analyse," by W. F. Osgood; "Shorter Notices": D'Ocagne's Calcul graphique et Nomographie and Le Calcul simplifié, by L. I. Hewes; Durège's Theorie der elliptischen Funktionen, by J. I. Hutchinson; Veblen and Lennes's Introduction to Infinitesimal Analysis, and Hedrick's Algebra for Secondary Schools, by James Pierpont; Sturm's Lehre von den geometrischen Verwandtschaften, Erster Band, and Scheibner's Beiträge zur Theorie der linearen Transformationen, by Virgil Snyder; Lebon's Table de Caractéristiques des Facteurs premiers, by G. A. Bliss; Serret-Scheffers's Lehrbuch der Differential- und Integralrechnung, by A. R. Crathorne; Blaschke's Mathematische Statistik, by H. L. Rietz; Fleming-Aschkinass's Elektrische Wellen-Telegraphie, by E. B. Wilson. "Notes"; "New Publications."

The January number of the *Bulletin* contains: "The October Meeting of the American Mathematical Society," by F. N. Cole; "On the Groups Generated by two Operators Satisfying the Condition $s_1 s_2 = s_2^{-2} s_1^{-2}$," by G. A. Miller; "The Teaching of Mechanics" (review of Jeans's Theoretical Mechanics), by E. W. Brown; "Economics" (review of

Fisher's Nature of Capital and Income and Rate of Interest), by E. B. Wilson; "Shorter Notices": Hesse-Gundelfinger's Analytische Geometrie der geraden Linie, des Punktes und des Kreises in der Ebene, by E. J. Wilczynski; Gray's Bibliography of the Works of Sir Isaac Newton and White's Scrapbook of Elementary Mathematics, by D. E. Smith; Royal Society Catalogue of Pure Mathematics, by G. A. Miller; Carslaw's Fourier's Series and Integrals, by J. E. Wright; Grimsehl's Angewandte Potentialtheorie in elementarer Behandlung, by E. B. Wilson. "Notes"; "New Publications."

BOTANICAL NOTES

TWO RECENT PAPERS ON ALGAE

R. E. BUCHANAN'S paper—"Notes on the Algae of Iowa"—in the *Proceedings of the Iowa Academy of Science,* Vol. XIV., opens with a historical account of the study of the Iowa algae, in which eight previous papers are noted extending over a period of twenty-eight years from 1880 to the present. The 181 species credited to the state are arranged mainly according to the system given in West's "British Freshwater Algae," and for each particular localities are given with the name of the collector, and often the date of the collection.

Of the *Myxophyceae* there are 45 species enumerated, of *Bacillaricae* 5; *Heterokontae* 4; *Chlorophyceae* 127. No *Phaeophyceae,* nor *Rhodophyceae,* are known to occur in the state. This paper is to be considered as a preliminary report, for when the whole of the material collected by the author is worked over it is confidently predicted that many more species will be added to the algal flora of the state.

Somewhat like the foregoing is Conn and Webster's "Preliminary Report on the Algae of the Fresh Waters of Connecticut," published as Bulletin 10 of the State Geological and Natural History Survey. The authors say of it that "it is thought that it will be found to contain most of the common algae of the state." It, also, is based upon West's system, but no attempt is made to distinguish anything lower than the genera, the species merely being enumerated, usually without localities being given. A somewhat hasty count of species gives for Myxophyceae 55 species; Heterokontae, 3; Chlorophyceae, 223; and Rhodophyceae, 10. Comparing these with the Iowa algae we find that the species of *Oscillatoria* are the same in number (9) in the two lists, that Iowa has 12 species of *Oedogonium,* to 2 in Connecticut: so of *Cladophora* the corresponding numbers are 7 for Iowa and 2 for Connecticut; *Vaucheria,* 7 and 3; *Zygnema,* 4 and 5; *Spirogyra,* 25 and 20. In these genera the preponderance is greatly in favor of Iowa, but when we take up the desmids (*Desmidiaceae*) it is quite the opposite, standing 26 for Iowa, to 109 for Connecticut. Forty-four well-drawn plates add greatly to the usefulness of the Connecticut report.

PAPERS ON FUNGI

THE quite extended paper (86 pages, and 9 plates) by George R. Lyman on "Culture Studies on Polymorphism of Hymenomycetes" (*Proc. Boston Society of Natural History,* vol. 23, No. 4, pp. 124–209) records the results of careful cultural studies, especially of woody and encrusting species. Besides the normal basidiospores formed by these fungi there are four others which may be regarded as secondary, viz., (*a*) chlamydospores; (*b*) oidia; (*c*) budding cells; (*d*) conidia. The author concludes that "a considerable majority of Hymenomycetes possess no secondary spores; that oidia are common among the *Agaricaceae* and *Polyporaceae,* and are confined to these two families; that chlamydospores occasionally occur in connection with the basidio-fructification, as in *Nyctalis, Ptychogaster,* and *Fistulina,* and are quite widely distributed on the mycelia of all families; and that conidia and other highly specialized secondary methods of reproduction are rare, and occur more frequently in the *Thelephoraceae* than in the higher families."

Professor Olive's paper on "Sexual Cell Fusions and Vegetative Nuclear Divisions in the Rusts" (*Ann. Bot.,* Vol. XXII., pp. 331–360) explains to a certain extent some of the discordant results of Blackman's and Christ-