habit it is strongly suggestive of *Lepidium draba,* as noted by Meyer in his original description. It may be recognized by its erect habit; clasping-sagittate stem leaves, toothed and with a dense pubescence of fine simple hairs; the long racemes of small white flowers; and the small, globose and inflated, pubescent pods.

Coming from a region similar in climate to some parts of the western United States, this plant may become as widely established as certain other recent introductions. Another Old World plant of the same family, *Lepidium perfoliatum,* has spread with almost incredible rapidity through the Rocky Mountain states during the last few years.

PAUL C. STANDLEY

U. S. NATIONAL MUSEUM

THE PRIMARY FOODPLANT OF THE MELON APHID

A FACT known to those who are familiar with the habits of aphids is the seasonal migration of many species of these insects from their overwintering host plant to other vegetation which is colonized by the summer generations.

Certain species of aphids are of economic importance only while on their summer (or secondary) food plants, as would obviously be the case if their overwintering (or primary) host plant chanced to be a weed or vegetation of little economic value. Thus it happens that an aphid may be well known for its summer damage to important crops long before its overwintering habits have been discovered.

Such has been the history of the melon aphid (or the cotton aphid, as the same insect is also known in the south). This insect is a noted pest the world over, as it colonizes cotton, economic plants of the gourd family and certain other valuable annuals. It will accept, too, succulent, rapidly growing shoots of some shrubs and trees, and is recognized as one of the orange pests.

Since this insect does not deposit its overwintering eggs on any of these plants on which it is known as a summer pest, and since, in all parts of the country having cold winters, it would be impossible for such an aphid to overwinter without providing for an egg-stage somewhere, it has long been thought by entomologists that the melon aphid must be a migratory species existing during the winter in some unsuspected disguise.

But what plant it seeks for its winter quarters and from what plant it migrates each season when it is time for its summer depredations has remained a mystery.

It has, therefore, been with no little interest that I have watched the results of a series of experiments which I have recently been conducting with a certain aphid commonly infesting orpine (live-forever). This aphid causes a ruffling of the orpine leaves which renders its presence conspicuous. It has several color varieties—yellow, pale green, olive green, blackish green—the same range of color varieties, indeed, for which the melon aphid is famous. In structural characters, also, the orpine aphid and the melon aphid are twins.

This season I caged spring migrants (winged females) from orpine on squash, where they settled and produced young which have grown to maturity on the squash. I placed infested orpine plants near growing melons in the greenhouse; and some of the aphids voluntarily left the orpine and went over to the melons and there established thriving colonies of typical *A. gossypii.*

It does not, therefore, seem premature to report that the primary food plant of *Aphis gossypii* is *Sedum Telephium,* from which it migrates to its various summer food plants.

EDITH M. PATCH

MAINE AGRICULTURAL EXPERIMENT STATION

ILLITERACY IN THE COLLEGES

I HAVE felt rather out of patience with articles recently published, enumerating gross errors made by students. Our young people now coming into the universities and colleges have not always had the best advantages, and it is reasonable to expect a certain percentage to be ignorant of many things. If I, a mature teacher of long experience, were given an examination in the elements of engineering, the result would be pathetic or ridiculous to any engineer, according to his point of view. Nevertheless it becomes a serious matter if men go through college, and are sent out to teach others, while incompetent to do tolerably good work or write English correctly. In the field of entomology, we have recently seen the grossest errors in the construction of scientific names in taxonomic papers, emanating from workers in leading institutions. The principles of so-called neolatin allow extraordinary latitude, but the errors referred to result from mere ignorance. The other day a man graduating from a reputable college applied for a teaching position in the University of Colorado. He was supported by a letter from his major professor and a photograph showing him in the costume of an athlete. We had decided not to accept him, but before we could write we received a letter, addressed to "Proff. ——," stating that "Dr. —— of [a large state university] has just made me a very fine assistantship

proposition, which I have excepted. Please consider my application with you void. I thank you as sincerely for the intrest you have shown in me, I consider it an unusual privilage to have been allowed to apply for the assistantship you have." Accordingly, in a few months this man will presumably be teaching in the University of ——.

T. D. A. COCKERELL

MAY 27

THE PURPURIN METHOD OF LOCALIZING CALCIUM

DR. MYRA M. SAMPSON[1] is in error in attributing to me the introduction of the purpurin method of localizing calcium in animal and vegetable cells.

This method was first advanced by Grandis and Mainani in 1900 (*Arch. Ital. de Biol. 34,* 73) and a paper of theirs in the same Archives (1902, *38,* 143) gives the results of their use of the method in studying the distribution and deposition of calcium in epiphysial cartilage during bone formation.

In 1903, and later, I put this method to the test and found that while it is serviceable in localizing calcium in certain structures, *e.g.,* epiphysial cartilage, in which its salts may abound, it does not give decisive results in tissues or cellular elements in which it undoubtedly occurs, but much less abundantly, because the reagent is not sensitive to calcium when the latter is in greater dilution than 1 in 800, and it reacts the more slowly the more this degree of dilution is approached.

It is possible, however, that a mode of using the reagent, which will increase its sensitivity to calcium, may be found. A sensitive microchemical reagent for calcium in tissues and cells is a great desideratum and I would express the hope that Dr. Sampson will endeavor to find such a method and succeed in doing so.

A. B. MACALLUM

MCGILL UNIVERSITY,
MONTREAL, CANADA

SCIENTIFIC BOOKS

The Chemistry of Wheat Flour. By DR. C. H. BAILEY, New York: The Chemical Catalog Company, Inc., 1925.

BREAD is our fundamental diet. The more we can learn about it the better will our judgment be respecting its use. A study of the milling processes now in vogue is extremely important for the chemist and more so for the biologist. This work is a rich treasure of knowledge in regard to the milling processes by means of which wheat is converted into flour. The author had a particularly good opportunity of collecting the information in this book because of his location in the midst of the greatest milling region in the world and because of his own studies in the milling industry.

In his introduction he calls attention to the general plan of the work. The properties of flour are to be considered in their relation, first, to the raw state from which they are manufactured, namely, wheat; second, to the process of milling and third, to its adaptability to the principal use to which flour is put for baking.

A short sketch of the history of baking is found in Chapter I. This is particularly interesting now because we learn from it when the present system of milling was introduced into this country. In 1870 the purifier was introduced into the mills in Minneapolis. In combination with the new system of grinding, that is, using steel breakers instead of millstones with the purifying apparatus, it made the mills of Minneapolis famous. Following the new system of milling, according to the author, the next major development was the introduction of chemical bleaching of the finished flour, a practice which came into effect in the first decade of the present century.

The author departs very materially from his fundamental principles in introducing the discussion of the bleaching of finished flour. This practice has nothing whatever to do with milling but has to do with the products of milling and the health of the consumer. It is not, therefore, a part of the fundamental principles on which the book is said to be written.

This view is also held by Samuel T. Ballard, a prominent miller of Louisville, a witness for the United States at the famous bleached flour trial, as shown from the following extract from his testimony:

> I consider that bleaching is no part of the milling process. Milling consists in making pure flour and separating all impurities from it. After the flour is made I do not consider treating it with chemicals any part of the milling art. Natural aging improves the quality of flour. Bleached flour deteriorates from the day it is made.

The general accomplishments, up to the present time, are stated by the author in the following language:

> In both of these particulars remarkable success has attended his efforts until to-day the modern flour mill is one of the most completely automatic establishments of

[1] SCIENCE, October 30, 1925, p. 400.