

ficial purification of their water supplies, but it cannot be said that the conditions necessitating such action generally exist as yet. In most cases the safer and more economical course will be found to be either the securing of an unpolluted water, if such be available, or the protection from pollution of existing sources of supply.

LETTERS TO THE EDITOR.

**** Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.**

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

American Weeds.

PROFESSOR BYRON D. HALSTED of the New Jersey Experiment Station has recently presented to the agricultural public a list of "American Weeds,"—mostly phanerogams,—which contains no less than 751 varieties and species, exclusive of noxious fungi. Well may the long-suffering farmer turn up the whites of his eyes at this formidable list. A closer examination, however, shows us among the "weeds" all our cultivated clovers, medics, vetches, and many of our best agricultural grasses. The criterion used by the New Jersey botanist in deciding what to admit and what to exclude from his catalogue is not apparent, and no word of explanation is vouchsafed.

In the vegetable kingdom, if not in the United States Republic, it is true that "it is self-evident that all plants are born free and equal." The distinguishing of plants as weeds and not weeds is purely human and artificial. The popular idea of a weed seems to be a repulsive, or hurtful, wild plant. But few persons give exactly the same definition. I have been at some trouble to secure the definitions of a number of intelligent persons, and give below a few samples:—

"A plant where you don't want it."—*Director Experiment Station.*

"A noxious or useless plant."—*Curator of Museum.*

"A plant out of place."—*Chemist.*

"A troublesome plant."—*Chemist.*

"An obnoxious plant of many species not fit for food or medicinal purposes."—*Clerk.*

"A plant not edible, so far as known, nor medicinal, or otherwise serviceable to man, and which always thrives where not wanted."—*Inspector of Fertilizers.*

"A plant for which we have no use so far as we know."—*Meteorologist.*

"(1) Underbrush or bushes; (2) a useless or troublesome plant."—*Webster.*

My own definition: Any plant which from its situation or inherent properties is hurtful to human interests; a vegetable malfactor.

By the usage of the English language the name "weed" is connotative and implies in a plant a bad and hurtful quality. Used metaphorically or analogically it is always a term of opprobrium.

If we were dealing with individual plants as courts of justice deal with persons, each particular plant might be properly described as a weed or not weed according to the circumstances of each case. But here we are dealing not with individuals but with species and varieties, and can take note only of the general character of the groups. If we have planted a bed of pansies, and there springs up among the pansies a red clover plant, this particular plant is hurtful to us, and therefore is treated as a weed, but we are not therefore justified in writing the species *Trifolium pratense* in a list of weeds. The general character,—the qualities for which the clover genus generally and this species especially are noted, are good and beneficial to mankind. It was only by chance or the carelessness of some one that this clover plant got into our flower-bed. "The plant out of place" definition of a weed can refer only to a particular plant. It cannot be applied

to a species, for a plant of any species is liable to be occasionally misplaced.

We must maintain then that the inclusion in a list of weeds of such plants as the clovers, medics, vetches, and agricultural grasses is unjustifiable and wrong.

A large number of Professor Halsted's "weeds" are mere "wildlings of nature" for which we have as yet found no important use. But justice requires that in the case of plants as well as persons every one shall be held innocent until proven guilty of wrong.

Both from an æsthetic and from a practical standpoint it is true that most of these so-called weed plants are more useful than hurtful. They clothe and beautify waste places. Many of these wild plants furnish food and nectar for honey bees, and all aid more or less in conserving the fertility of the soil, prevent washing etc. It is as unjust to stigmatize such plants as "weeds" as it would be to call all savage tribes criminals.

Professor Halsted omits wholly and without comment noxious fungi from his list of weeds. Yet these are our very worst and most dangerous weeds. In number they far outrun all the phanerogamic species.

To justify its inclusion in a list of "American weeds" a plant must not only possess a positively noxious character, but must also be sufficiently obnoxious or wide spread to give it a national reputation.

If we exclude from Professor Halsted's list all obscure and non-noxious species we shall have left about 150 species of weed-plants worthy to be called "American Weeds."

GERALD MCCARTHY.

N. C. Experiment Station, July 5.

Some Remarks on Professor Cyrus Thomas's Brief Study of the Palenque Tablet.

IN *Science*, No. 488, Professor Cyrus Thomas stated that "the particular manner of reckoning the days of the month"—or more precisely, the exact designation of a date by the sign of the day and the position it holds in the number of twenty days (*uinal*) that people are in the habit of calling a Maya month—as it is found not only "in some of the series of the Dresden Codex," but throughout the whole of it, is also found on the Palenque tablet. This statement undoubtedly is a correct one. But Professor Thomas, following Professor Förstemann, asserts that the "peculiarity of this method is that the day of the month is counted not from the first of the given month, but from the last of the preceding month; thus the fifteenth day of *Pop*, beginning the count with the first, will, according to this method, be numbered 16." If it were really so, this method of reckoning the days of the month would be a very curious one, and hardly to be understood. Professor Förstemann based this assertion on the supposition that the calendar system of the Dresden Codex is the same as that which prevailed in Yucatan at the time of Bishop Landa's writing. In vol. xxiii. of the *Zeitschrift für Ethnologie*, published by the Berlin Anthropological Society, in a paper entitled "Zur mexikanischen Chronologie, mit besonderer Berücksichtigung des zapotekischen Kalenders," I have shown that the priests who wrote down the Dresden Codex did not begin their years with the days *kan*, *muluc*, *ix*, *cauac*, as in Landa's time, but with the days *been*, *e'tznab*, *akbal*, *lamat*, exactly corresponding to the *acatl*, *tecpatl*, *call*, *tochtli* (cane, flint, house, rabbit), the signs used by the Mexicans to designate their respective years. Beginning the years in this manner, the day 4 *ahau* 8 *cumku* is really the eighth day of the month *cumku* in the *been*, or "cane," years. The day 9 *kan* 12 *kayab* is really the twelfth day of the month *kayab* in the same *been*, or "cane," years; and thus with all the other dates throughout the whole Dresden Codex.

The evidence derived from the fact that the same method of numbering the days of the month, that is to say, the same method of beginning the years, is also found in the Palenque tablet, leads—I agree with Professor Thomas—to the inference "that there were intimate relations between the people of this city and those where the Dresden Codex was written, and that there is no very great difference in the ages of the two documents." On the other

side, it is proved by my statements that in this peculiarity both the Dresden Codex and the Palenque tablet differ from the Codex Troano-Cortez. For in the latter document the beginning of the years is in the days *kan, muluc, ix, cauac*. This is proved by Codex Troano 23-20, when compared with the Dresden Codex 25-28. From this, and the general character of the Codex Troano-Cortez, we may safely infer that this manuscript is of a later date than the Dresden Codex, and, perhaps, of a somewhat different locality.

Alluding to 9 C 9 D of the Palenque tablet, Professor Thomas remarks that on plate 48 and twice on plate 50 of the Dresden Codex no number-symbol is attached where the day is the twentieth of the month. This is obviously an erroneous statement; for in all the three cases named, and also in the Palenque tablet, there is a particular element attached to the hieroglyph of the month; and this particular element reveals itself as a graphic representation of the two eyes of the man (*uinic*), the substitute of the head of the slain, which I have shown is the usual representation of the man (*uinic*) or the number twenty (*uinal*) (see *Zeitschrift für Ethnologie*, XIX., pp. 237-240).

With reference to Professor Thomas's last remarks, I will add that the symbol of the hand, as it is seen in the hieroglyph *mānik*, is to be understood as a sign-language character for "to eat," and therefore has the phonetic value *chi* (compare the hieroglyph *chikin*, west). The figure of the outstretched hand occurs as a substitute for the hatchet, the probable expression of the sound *ch'ac*, "to cut." The proper phonetic and figurative value of the outstretched hand seems to be *pax*, "to beat."

DR. ED. SELER.

Steglitz, Germany, June, 1892.

A Grape Vine Produces Two Sets of Leaves During the Same Season.

THE scarcity of information upon the production of leaves at abnormal times furnishes an excuse for the following communication.

In the yard adjoining me there is a large grape-vine of several years' growth. A month ago this was a vigorous plant; the leaves were numerous and healthy, and the branches were loaded with grapes. About that time numerous caterpillars attacked the vine, and in less than a week there was not a leaf left upon it. Numerous petioles, bearing fragments of the principal veins, were all that remained of the foliage. The grapes began to shrivel, and the smaller twigs to show signs of premature decay.

But the end was not yet. About a week after the leaves were destroyed, buds located at the nodes — buds which normally would have remained dormant until next year — began to develop a second foliage. Although not yet full-grown, these leaves have given a new lease of life to the vine. The few shriveled bunches of grapes that have survived the great draught upon their moisture are rapidly regaining their plumpness. The plant is itself again.

One fact is worth noting; although almost four weeks have elapsed since the leaves were destroyed, the petioles remain attached to the stems. These petioles are as green as ever, and in most cases they retain short bits of the principal veins of the leaves. Near the petioles these veins are green, but their free extremities are shriveled and brown.

C. H. TURNER.

University of Cincinnati, July 10.

BOOK-REVIEWS.

The Stone, Bronze, and Iron Ages. A Popular Treatise on Early Archaeology. By JOHN HUNTER-DUVAR. London, Swan Sonnenschein & Co. New York, Macmillan & Co. 285 p. \$1.25.

As the author claims for this book no other character than that of a popular treatise, it will be sufficient to inquire whether it is a fair representation of the most approved views of the science, as expressed by those who have made it a speciality. This it usually is, although the author, who never quotes his authorities, has inserted opinions here and there which are certainly not those generally accepted. For instance, he understates the artistic

relics of the Palæolithic period; he assumes that the weapons of the river drift were more ponderous than those of later date; he asserts that no idols have been recovered from the stations of that epoch; and that no human remains have been unearthed from the European kitchen-middens. Our countrymen will also be surprised to learn that Mound City is another name for St. Louis (p. 142).

In spite of such slight blemishes, the book can be recommended as a convenient and usually accurate manual of this attractive science. It begins at the beginning, tracing the story of man from early post-tertiary times through the drift and cave periods in Europe, and the neolithic, bronze, and iron ages. There are special chapters on the lake-dwellers, fossil man, myths, pottery, sepulture, and art, and one on the mound-builders of the Ohio Valley.

Journal and Proceedings of the Royal Society of New South Wales. Vol. XXV. 1891. 348 p.

THE creditable publications of this active society have already reached their twenty-fifth volume, and it comes replete with entertaining material. Several reports from the Sydney Observatory on celestial photography will have interest for the astronomer; articles on Kaolinite and the microscopic structure of Australian rocks will attract the geologist; the causes of death among sheep and rabbits in Australia will be welcome to the agriculturist; the folk-lore will turn with pleasure to Mr. Pratt's translations of songs and myths from Samoa; while the mechanics and cranks will be glad to read about a ship which can be propelled by the action of the waves alone, and a flying machine which is to navigate the sky by the motive power of compressed air. This is certainly a varied repast, at which each may find a dish to his liking.

AMONG THE PUBLISHERS.

A WORK on the "Migration of Birds," by Charles Dixon, will shortly be published by Messrs. Chapman & Hall.

— Messrs. Longmans, Green, & Co. have issued a third edition, revised and enlarged, of Professor E. A. Schäfer's "Essentials of Histology." The intention of the author is to supply students with directions for the microscopical examination of the tissues.

— A "Dictionnaire de Chimie industrielle" is being issued in parts, under the direction of A. M. Villon, by the "Librairie Tignol." It gives an account of the applications of chemistry to metallurgy, agriculture, pharmacy, pyrotechnics, and the various arts and handicrafts.

— Henry Stevens & Son, 39 Great Russell Street, London, promise for next month Henry Harisse's "Discovery of North America: a critical, documentary, and historic investigation, with an essay on the early cartography of the New World," etc. This important work by the foremost investigator in the field will make a quarto volume of 800 pages, with 23 plates and many illustrations in the text, and will be issued to subscribers in three styles, ranging in price from £5 to £12 16s. Only 360 copies are to be printed.

— The American Society for the Extension of University Teaching, Philadelphia, has just issued five monographs on various phases of the university extension movement, being reprints from the Proceedings of the Society. These are: "The Place of University Extension in American Education," by William T. Harris, U. S. Commissioner of Education; "The Organization and Function of Local Centres," by Michael E. Sadler, secretary of the Oxford University Extension Delegation; "The Church and University Extension," by Rev. John S. Macintosh; "The Ideal Syllabus," by Henry W. Rolfe; and "The University Extension Class," by Edward T. Devine.

— With the number for July, the "Annals" of the American Academy of Political and Social Science begins its third volume. The first article in the current number is entitled "Cabinet Government in the United States." It is by Professor Freeman Snow of Harvard, and is an answer to the many pleas for the adoption