more or less absorbed by two streams of short-skulled tribes, one from the northeast across the lower Rhine, the other apparently from Switzerland and beyond, down the Rhone. Later than these, at about the middle of the neolithic period, a long-skulled stock entered from the northeast or east, the shape of whose heads in other respects differed materially from the original inhabitants of Gaul.

It would be tempting to undertake the identification of these various peoples on the one hand with the protohistoric tribes whose names are mentioned by Cæsar and other early chroniclers, and on the other with types of the existing population. Some ethnologists have attempted this, but M. Salmon prefers to avoid such uncertain though alluring fields.

PALÆOLITHS FROM SOMALILAND.

THE 'palæolithic' implements from South Africa have long been known; but it is quite lately that specimens from East Africa, from the territory of the Somalis in the 'horn' of Africa, have been exhibited. Mr. Seton-Karr figures a number of them in the journal of the Anthropological Institute for February. In size and form they resemble the so-called palæolithic types. But we know that these types survived in neolithic ages, in many localities. We turn, therefore, to the evidence of their discovery in ancient strata. This proves not very satisfactory. They were found on or near the surface, and the only evidences adduced as to their alleged antiquity were their form and their weathering (patine). "Different ages and styles were found mixed together, some not much weathered, others extraordinarily so." This is surely far from conclusive as to their antiquity, and certainly would not satisfy an intelligent American collector.

COMPARATIVE ETHNIC ANATOMY.

THE anatomical differences between the so-called races or varieties of the human species have been examined with considerable attention but without satisfactory results. This has largely been owing to the personal bias of observers. Either, like Nott and Gliddon, they were determined polygenists, and were bound to elevate racial into specific differences; or they held the opposite views, and worked with an aim to efface apparent distinctions; or, especially of late years (*e. g.* Dr. Hervé, of Paris), they were so bent on seeing simian and pithecoid analogies that they lost sight of racial traits in atavistic reversions.

The vague resultant of such biased studies is seen in a discussion before the Anthropological Society of Washington, reported in the *American Anthropologist* for April. It was agreed that the term 'atavism' has been much abused by naturalists. Dr. Baker pointed out that food habits have a marked effect on osseous structures; he denied that the racial peculiarities of the negro are remarkably simian; many supposed racial criteria are merely the result of conditions which would produce them in any race; and he considered that anthropometry as at present taught is inadequate to define true morphological characters. These opinions are unquestionably well-founded, and they illustrate why so little is positively established in comparative racial anatomy after so much labor has been expended upon it.

D. G. BRINTON.

NOTES UPON AGRICULTURE AND HORTICULTURE.

THE AMERICAN PERSIMMON.

A STATION bulletin (No. 60, Indiana) has been issued upon the persimmon, and with several full-page plates of the tree and its fruit the subject is given a most favorable introduction. Prof. Troop shows that on account of the astringent principle in the unripe fruit, the tendency of the plant to

sucker, and the long time before the tree comes into bearing, the plant has been neglected. By new methods of cultivation trees may begin to bear 'in three to five years from the bud or graft,' and the fruit is capable of much improvement and very likely will equal the Japanese sorts which are considered choice delicacies by many.

Under methods of propagation it is stated that, like the apple and many other standard fruits, the persimmon does not come true by seed, and therefore a variety needs to be continued by the ordinary methods, namely, by budding or grafting either of the stem or root. A plate is given showing a 'top-worked' old tree, and by grafting the comparatively worthless tree was made to bear a fine variety of persimmon.

When we bear in mind the revolution in grape culture in this country due to thorough work upon our native members of the genus Vitis, any similar study of another fruit group is welcome, fraught as it is with the possibility of adding a new fruit of no doubtful merit to our lengthening list.

PLUM-LEAF SPOT.

THE camera and photo-engraving process are doing wonders for the Experiment Station bulletins. Number 98 of the New (Geneva) Station comes to us this week with five full-page process plates upon the plum-leaf spot. The results of a comparative study of the value of Bordeaux mixture and Eau celeste soap mixture are given. The Bordeaux is preferable and the first spraying should be made soon after the bloom falls. The same treatment also lessens the attack of fruit rot. The reader needs to see the plates to be impressed with the efficiency of the sprayings, for the loss is reduced from 86.5 per cent. to 17 per cent.

In similar spraying for the leaf spot of cherry no good results were obtained. But one swallow does not make a summer and one trial is not sufficient to condemn any spraying mixture.

FUNGICIDES INCREASE THE GROWTH OF PLANTS.

THE use of fungicides is being looked at from various standpoints. Professor Galloway and Mr. Woods in a recent report from the Proceedings of the American Association for the Advancement of Science show from experiments and a collection of facts that the Bordeaux mixture has a marked physiological effect upon nursery stock, etc. Dr. Cuboni, of Italy, found milk of lime an advantage to grape vines. Dr. Rumm observed that Bordeaux gave better grape foliage even when no fungi were present. Dr. Frank and F. Krüger, also in Germany, found that chlorophyll is greater in sprayed foliage and all the vital processes increased, even to a lengthening of the life of the leaf. Professor Galloway has demonstrated that Bordeaux when added to the soil only has a stimulating effect upon the growth of the plants. The paper concludes as follows: "Whether the beneficial effect of spraying is wholly due to the presence of the mixture on the leaves, as concluded by Rumm, Frank and Krüger, or whether the presence of the mixture in the soil, as shown by the work of the division, may not, in part at least, account for the beneficial effect is still an open question."

VEGETABLE CULTURE.

THE above is the title of a small work by Alexander Dean, F. R. H. S., of 136 pages, with 38 illustrations fresh from the press of Macmillan & Co. It covers the whole subject from the treatment of the soil, its preparation, etc., to allotment gardening. Under the latter the author writes: "The land hunger of the masses seems to be fairly satisfied where garden plots of from 20 to 40 rods in area are furnished, and rarely is it the case that these plots are not admirably

cultivated." This method of garden culture is stimulated by societies which furnish lectures to the masses, publications in the shape of primers, etc. This portion of Mr. Dean's work will be particularly appreciated by those who are interested in a similar work for the city poor in this country.

The work before us is interesting in its classification of the products, or rather the crops of the garden. The first group is the tap and bulbous-rooted vegetables, including beets, carrots, onions, celeriac, turnip, etc., followed by tuberous-rooted vegetables, of which the potato is the leading example. Under pod-bearing vegetables are peas and beans, and the fruit-bearing vegetables include squashes, cucumbers, tomatoes. Cabbage and spinach are under green vegetables, while of edible stemmed plants, as asparagus, rhubarb and celery and representatives, and also the mushroom.

The handbook is quite English in the varieties it recommends, and the calendar for operations does not coincide with the one for our climate and seasons.

Byron D. Halsted.

SCIENTIFIC NOTES AND NEWS.

THE METRIC SYSTEM.

Appleton's Popular Science Monthly for June reprints the letters contributed anonymously by Mr. Herbert Spencer to the London *Times*, and endorses their point of view in an editorial article. The *Monthly* cannot but be admired for its allegiance to Mr. Spencer even in his vagaries, but it must be regarded as unfortunate that a journal whose readers will expect to find it represent the consensus of opinion of men of science should advocate the prejudices of the uninformed. We are not surprised to find that part of Mr. Spencer's contribution was written fifty years ago, and that the authorities he quotes are Sir John Herschel's article of 1863 and Prof. H. A. Hazen. But it was not to be expected that Mr. Spencer would confuse the metric and a decimal system, and argue that the former should not be adopted because the calendar cannot conveniently be divided decimally. Can the week be divided into quarters, eights and thirds, which Mr. Spencer rightly regards as desirable? If our ancestors had had twelve fingers in place of ten we should now have a better system of numeration, but the ideal and distant day, when we shall all do what is most reasonable, can be brought nearer by acting reasonably in the present and adopting the admirable system so rapidly becoming universal. For as Sir John Herschel wrote in 1863, "Were the question an open one what standard a new nation, unprovided with one and unfettered by usages of any sort should select, there could be no hesitation."

THE RÖNTGEN RAYS.

Nature gives an account of early experiments on the Röntgen rays by Prof. A Battelli and Dr. A. Garbasso, of Pisa. Referring to the discovery that the time of exposure required for taking photographs with these rays can be greatly shortened by placing certain fluorescent substances behind the photographic plate, the authors point out that they described a method of doing this in the January number of *Il Nuovo Cimento*. In some cases Prof. Battelli and Dr. Garbasso obtained good photographs with an exposure of only two seconds. In their paper experiments were also described proving that Röntgen rays can be reflected (or at any rate scattered) from surfaces, but indicating an absence of refraction. Since the appearance of the above paper Prof. Battelli has communicated two further papers to the same journal. In the first the author arrives at the conclusion that Röntgen rays behave as if they emanate from the base of the vacuum tube rather than from the anode or cathode, also that they are emitted even after the discharge in the tube has ceased (as proved by the discharge of an electrified disc in the neighborhood of the tube). In the second paper Prof. Battelli deduces that the rays which emanate from the cathode in a vacuum tube possess photographic properties; that their action increases as the rarefraction increases (at least up to $\frac{1}{200}$ mm. of pressure); and that some of the rays are deflected by a magnet, while others are not. It is hence quite permissible to maintain that Röntgen rays exist in the interior of the tube.