

NEWS and VIEWS

Soil-less Cultivation

A REVIEW of the recent progress in soil-less cultivation has recently been given by Prof. R. H. Stoughton (*J. Min. Agric.*, 49, 25; 1942). In spite of many misconceptions and difficulties, steady progress has been made both in the laboratory and on small-scale semi-commercial installations, and a stage appears to have been reached when some reliable judgment can be formed on the question. Two types of systems are in use: (1) in which the plants are grown in a tank of nutrient solution with the roots immersed in a liquid medium; (2) where the permanent substratum is an inert material such as sand or gravel, to which nutrient solution is supplied at intervals. Carefully controlled trials have shown that in general the first of these is unsuitable for use in Great Britain, owing to the difficulty of securing adequate aeration for the roots, and the low light intensity. Far more promising results have been obtained with the second method, which may be considered under two main headings, namely, sand and sub-irrigation culture. In sand culture the plants are fed by watering on the nutrient solution from above, the surplus liquid draining away. Tomatoes, chrysanthemums, lettuce and a wide range of vegetables gave very satisfactory crops under these conditions, and promising results have been obtained with carnations using a slightly modified and simplified technique.

The disadvantages of the system, however, are the care needed in the control of the moisture content of the medium, and wastage of materials through drainage, but these are to some extent offset by the small cost of the outlay compared with the sub-irrigation method. In the latter case, the nutrient solution is pumped at intervals from below into the growing-tank until the gravel is flooded to the top, the pump is then shut off and the liquid flows back by gravity to the supply tank. The watering and feeding can thus be made almost automatic, the aeration of the medium is excellent and considerable economy in fertilizer materials is effected. Further, chemical sterilization of the gravel is easily carried out. To meet the criticism that soil-less cultivation results in crops of lower nutritional value, chemical analysis of the carbohydrate, protein, inorganic constituents and vitamin C content were carried out. No significant differences could be established between plants grown in gravel and those grown in soil. Experiments are now in progress at the University of Reading, under a grant from the British Electrical and Allied Industries Research Association, to test, among other things, the effect of heating the solution in the sub-irrigation culture of tomatoes. Work is also proceeding on the chemical testing of the solution by simple colour tests, so that its composition may be readily controlled according to the requirements of the crops.

American Newspaper Reporting of Science News

A REVIEW with this title by Hillier Krieghbaum has been published in the *Kansas State College Bulletin* (25, No. 5, Aug. 15, 1941; pp. 1-73); it is the sixteenth in a series of surveys of specialized branches of journalism. The beginnings of newspaper science reporting are traced: there was little interest among the early colonists, but as communities stabilized the outlook of editors grew. Benjamin

Franklin could write with authority on science, but more usually items were reprints or grossly misinformed, and coverage was spasmodic. In the 1830's there occurred the rise of the penny Press and stunts and hoaxes became common; but editors were sceptical about the Atlantic cable, and Darwin's theory of evolution was barely mentioned. Again, in 1903, very few newspapers noted the first flight of the Wright Brothers. The section of the American Press led by Hearst and Pulitzer began, at the turn of the century, to search more widely for news sensations, but a fuller appreciation of science as news had to come through the War of 1914-18. E. W. Scripps was a pioneer in encouraging specialist writers for the Press, and it was his *New York Times* that was alone in publishing in 1919 an accurate story on the implications of the confirmation of Einstein's theory of relativity. In 1922 several writers attended the annual meeting of the American Association and one of them received a Pulitzer Prize for his work.

Scripps' interest in science led to the foundation and endowment of Science Service, formally known as the "American Society for the Dissemination of Science", launched in 1921 with the co-operation of three of the national scientific organizations. It was to be composed exclusively of men of science, with a layman journalist as editor; while not intended to be run at a profit, a fair charge for its services was to be made. Trustees were selected from the scientific bodies, the journalistic profession and the Scripps Estate. The first weekly issue of *Science News Bulletin* appeared in April 1921, edited by Dr. E. E. Slosson. To-day it is published for the general public as *Science News Letter*, and for the Press and radio there are syndicated news and features services; the director is Watson Davis, a member of the organization since its foundation. A technique was developed of writing stories for future release from advance information, and these are supplemented by regular articles by specialists. In 1941 the daily newspapers served in the United States reached eight million subscribers, with another million abroad before the present War. Science Service has aimed at being a liaison agency between the scientific world and the general public.

Scientific workers have felt in the past some antagonism—often justifiably—towards newspapermen: the independent scientific journalists of experience realized this and in 1934 formed in the United States the National Association of Science Writers, which now has twenty-eight members. The Association works with organizers of scientific conferences, and usually receives special facilities for advance information and 'off the record' talks. It is a mark of the success of the Association that in 1937 several of its members shared the Pulitzer Prize for reporting. To-day many of the large research laboratories and industrial organizations themselves issue material to the general Press. The 'science column' has become a permanent feature of many of the leading American newspapers, with additional activity in the fields of broadcasting and films, and a high standard of accuracy is maintained.

Early Astronomy in South America

IN Leaflet No. 159 (May 1942) of the Astronomical Society of the Pacific, Roscoe F. Sanford gives a brief account of early astronomy in South America. Our knowledge of the subject results from a number

of expeditions which were sent from the United States with the object of securing data on various astronomical matters. In 1847 Lieut. J. M. Gilliss, founder of the U.S. Naval Observatory, induced Congress to authorize and finance an expedition to South America to improve the value of the solar parallax. Cerro Santa Lucia in Chile was chosen as the site for the observatory, and great progress was made in the next three years, during which the positions of Mars and Venus were determined simultaneously in Chile and in the United States, mostly at Cambridge. Several years later, the reduction of these observations was carried out and a solar parallax of 8.5" was derived. Research was conducted in other directions, and eventually the Chilean Government became so interested in the work that it arranged for young Chileans to be taught the use of the instruments. Later it purchased these and founded a National Observatory. Dr. Benjamin Gould, who had carried out the reductions for the solar parallax, interested Sarmiento, the Argentine ambassador to the United States, in a scheme for determining accurate star positions in a zone where observations were lacking, and the result was that the Argentine Government founded El Observatorio Nacional de Argentina in 1870, Gould being chosen as director.

Among other projects in South America, reference is made to another Argentine observatory, built at San Luis, through the influence of Prof. Lewis Boss, director of the Dudley Observatory in Albany, New York. This Observatory obtained a total of 85,000 star positions between 1909 and 1911. Before this, so early as 1890, Prof. S. I. Bailey established a station for the Harvard College Observatory in Arequipa, Peru; this was transferred to South Africa in 1926. In 1903 Prof. W. H. Wright established a station on Cerro San Christobal on the outskirts of Santiago for determining radial velocities. This station was known as the D. O. Mills Expedition of the Lick Observatory, and when the work was completed, the equipment was sold for a nominal price to the Catholic University of Chile. These and other astronomical ventures have established creditable cultural relations and lasting good-will between races with differences in customs, aspirations, and mode of thought, and have led to a better understanding of both scientific and political problems.

Origin of Meteorites

H. H. MININGER, Colorado Museum of Natural History, in a paper entitled "Trends in Meteoritics" (*Sky and Telescope*, 1, 8; June, 1942), gives a short résumé of our knowledge of meteorites. Most hypotheses in the past regarding the origin of these bodies gave more attention to iron than to stone meteorites, and erroneous conclusions were drawn. Chondrules, the most abundant of all meteoric constituents, have almost certainly been formed by repeated collisions between crystals and other solid bodies. For this reason, a situation which would provide for the rounding of crystals into chondrules would also produce the fragmentary matrix in which chondrules are usually embedded. It is suggested that in the past, when the sun was more active, extruded gases crystallized and collected into cometary swarms and within these swarms chondrules were produced by repeated collisions, while the aggregation of the resulting fragments and chondrules gave rise to meteorites. Some of the cometary swarms passed

close enough to the sun to allow for the fusing of a percentage of the constituent grains, and this process was carried almost to the point of completely fusing the mass in the Lubbock aerolite, which was described in the *American Mineralogist* (25, 528-33; 1940).

It is surprising to learn that a considerable proportion of stony material which enters our atmosphere is reduced to dust. Dr. Lincoln La Paz has estimated that the Pasamonte meteorite weighed 66,000 tons at least when it entered the atmosphere, but only 4,000 gm. were collected. A huge dust cloud occupying about 1,000 cubic miles accounted for the principal mass of this meteorite. Further research on meteors may well yield useful information on the past history of the solar system.

The Beet Leafhopper

THIS insect, known scientifically as *Eutettix tenella*, forms the subject of Farmer's Bulletin No. 1886 (1941) of the U.S. Department of Agriculture, by W. C. Cook. We note in this publication a markedly enlarged dimension of its pages as compared with the usual run of its predecessors. Its value is thus enhanced by allowing of larger scale and more detailed illustrations and of a more convenient spacing of the letterpress. The beet leafhopper is native to the western United States and to northern Mexico, and is notorious as the carrier and transmitter of the virus of the destructive curly top disease of sugar beet and also of western yellow blight of tomatoes. During many years past the curly top disease has been a major factor limiting the production of sugar beet in many western areas. The whole problem of its control is a difficult one since direct spraying is rarely of value. In many areas the control of grazing is the most feasible method of attacking many of the plant hosts of this insect. In some cases reduction or elimination of the Russian-thistle, the most important summer host, by mechanical means is possible. The actual status of the natural enemies of the leafhopper is difficult to assess, but they are considered to be of great importance. The most notable are flies of the family Pipunculidae and parasitic wasps of the Dryinidae group. Predacious bugs, one of which is *Geocoris pallens*, are said to be of equal importance as parasites in reducing its numbers. The development and successful production of strains of beet resistant to the curly top disease has greatly reduced the losses incurred by the spread of the virus disease. By this means the cultivation of sugar beet has been made possible in districts formerly found to be unsuitable.

Earthquakes Registered in Switzerland

ACCORDING to bulletins just received concerning earthquakes registered at the observatories of Zurich, Basle, Neuchâtel and Chur, fifteen earthquakes were consistently registered during February 1942 and nine strong earthquakes during March. Many of these have been mentioned previously in the columns of NATURE, but epicentres on the European continent can now be given. On February 6 an earthquake recorded at Zurich at 00h. 10m. 46.6s. had its epicentre in the Rheintalgraben to the south of Freiburg. On February 7 an earthquake recorded at Zurich at 03h. 55m. 41.4s. had its epicentre near Venice. This was strongly recorded at all the stations. On February 12 an earthquake registered at Zurich at 16h. 03m. 17.6s. had its