THE COST OF AMERICAN PUBLICATIONS IN ROUMANIA

TO THE EDITOR OF SCIENCE: Foreseeing the high soar of science in the United States and desiring to be acquainted with the scientific events in that country and to pursue the activity of my numerous American friends and acquaintances, I have been for twenty years a subscriber to SCIENCE.

In December last, I renewed my subscription of seven dollars, which cost now in Roumanian money 595 lei instead of 35 lei in 1914.

In the university library of Cluj, otherwise well furnished, and in the libraries of the various institutes, the American publications are almost completely wanting; in the laboratories and clinics of our university there is no instrument or apparatus of American fabrication. The Hungarian administration, that had governed this university until 1919, had not yet discovered America.

The leaders and professors of the actual Roumanian University are very desirous to acquire the American books and periodicals; they would like to make use of the best instruments and apparatus constructed in the United States. They can not conceive that a modern and progressive university, as theirs, should lack the intellectual and technical cooperation of the American science.

But a microtome "Spencer" cost me 15,000 lei and a binocular "Spencer" 12,000 lei, to which must be added the transport and insurance expenses, etc.

There is no scientific institute that could afford such an expenditure, and no Roumanian institution can make "scientific purchases" in the United States as long as the dollar is worth 90 lei.

I take leave to draw the attention of the readers of your journal to this sad result of the world's war and to ask them if there might not be found any means to cure this evil, which is detrimental to both our nations.

I have great hopes that from the American practical spirit and high love of science will spring the best solution of this great difficulty and therefore I beg the editor of SCIENCE to open its columns to the study of that question.

I am at the disposal of the readers of SCIENCE who would desire any explanation about our university and who would like to transmit us directly their ideas or propositions.

E. G. RACOVITZA,
University professor, director of the Institute of Speology
UNIVERSITY OF CLUJ,
ROUMANIA

REQUESTS FOR BIOLOGICAL PUBLICATIONS

PROFESSOR CARL J. CORI has resumed his academic relations with the German university at Prague, Czecho-Slovak republic, in consequence of the transfer of the Marine Biological Station at Trieste, of which he was formerly director, from Austrian to Italian control. He desires to receive reprints and other biological works, especially those published since the outbreak of the war, which American biologists may wish to send him, at the Zoological Institute of the German university at Prague.

CHARLES A. KOFOID

SCIENTIFIC BOOKS

Root Development in the Grassland Formation, a Correlation of the Root Systems of Native Vegetation and Crop Plants. By JOHN E. WEAVER. Carnegie Inst. Washington Publ. 292. 18 × 26 cm., 151 pp., 25 pl., 39 text fig. Washington, 1920.

Students of plant physiology, ecology, agriculture and forestry, when they have taken occasion to survey the general field in which their own particular interests lay, must often have been greatly impressed with the extreme paucity of our knowledge of plant roots. Plant species have been described and redescribed, typical individuals have been photographed and painted, and thousands of pages in our libraries are devoted to the results of these descriptive studies and to their theoretical interpretation—but the far greater part of our accumulated knowledge of higher plants is closely confined to those portions of the plants that are readily seen and may be

easily examined. Until very recently no attempts have been made to extend observation and description to the subterranean parts of land plants, but excellent beginnings in this recondite province of botany are now available and enough has been accomplished to demonstrate that a well-rounded knowledge of plants or of any plant individual must include just as thorough study of root systems as has been devoted to the aerial parts.

Publication No. 292 of the Carnegie Institution of Washington is perhaps the most valuable contribution yet available in this new field. In this book Weaver presents the results of an enormous amount of detailed study devoted to the form and distribution of the roots of plants growing in the grasslands of the United States, this study being a continuation of the author's earlier volume on "The Ecological Relations of Roots." "Practically all of the grassland dominants have now been studied, many of them in two or more associations and under widely different conditions of environment." Descriptions of 38 new root systems of native plants are here presented and "more than 80 examinations of the root systems of crop plants have been made in widely varying soil types and conditions of growth." The root systems have been excavated with painstaking care and their form and distribution are set forth by descriptions and by diagrams drawn to scale, being frequently also illustrated by reproductions of photographs.

The point of view is primarily that of what may be called the Nebraska school of ecology. with much emphasis on the concept of plant succession and on the practical value of a knowledge of native vegetation as an indicator of agricultural possibilities.

> The phenomena of plant succession, whether ecesis, competition, or reaction, are controlled so largely by edaphic conditions and particularly by water-content [of the soil] that they can be properly interpreted and their true significance understood only from a thorough knowledge of root relations.

But the discussions involve much of the physiological, and the author's aim appears generally to be a consideration of the individual plant as a machine operating under the controlling conditions of the surroundings, both above and below the soil surface.

Since the work of charting root systems is very arduous and since the physiological processes of agricultural plants deserve attention before native plants are to be thoroughly studied in this way, it is especially gratifying that a goodly number of crop plants have received attention at the author's hands. Some striking points are shown by the following illustrations (from p. 139): Sweet clover (*Melilotus*) 116 days old had tops 1.8 ft. high and roots about 5 ft. deep in lowland soil, while the tops were only 1.5 ft. high and the roots were mainly about 5.8 ft. deep in upland soil. Oats (*Avena*) 75 days old had tops 3 ft. high in lowland and 2 ft. high in upland soil, the corresponding "working depths" of the roots being 2.6 and 3.1 ft., respectively.

The presentation of the results of these valuable investigations might rather easily have been rendered more generally clear and more readily comparable with the results of other similar studies, if the author had employed a meter-stick instead of his foot-rule. He does not appear to be consistently opposed to the use of the metric system, for some measurements are recorded in millimeters, etc., and he has grafted the decimal characteristic of the better system on to the unit of the worse; he dealt primarily with feet and inches but reduced his final values to terms of the foot and its decimal fractions.

The root characteristics of a given species are found to be "often as marked and distinctive as are those of the aerial vegetative parts," in spite of profound differences frequently concomitant with marked differences in habitat conditions. Different species of the same genus are sometimes markedly different in their root characteristics.

The volume should be familiar to all who are interested in the relations that obtain between plants, on the one hand, and the soil and air conditions of their surroundings, on the other.

B. E. Livingston