ing in Chicago in November formally adopted the term. No other terms suggested are even being considered. Those mentioned by Dr. Hamor are obviously out of the question. It is well known that the child scientists have been using the word, but if they will spell their word correctly there will be no difficulty. Of course it is not expected that any such term will immediately come into general use instead of soil science, which appeals to many of us as quite satisfactory. Perhaps it may never be generally used. But we can be sure that it will be used to some extent from now on in research work, at least.

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QUOTATIONS

MEDICAL EDUCATION IN AMERICA

THE third report of the influential American Commission on Medical Education dealt with general principles. In a supplement to the third report a critical summary is given of some of the changes in procedure which have been put to a practical test in a number of the American schools of medicine, and serve thereby to illustrate certain of the general principles of training emphasized in the earlier report. The schools are referred to by letters of the alphabet, and not by their names, and without considerable knowledge of the local conditions it is therefore very difficult to identify them. The former period of two years' pre-medical work has now been extended to three or even four years in most of the better schools of medicine, which can easily fill their classes with college graduates; and as 95 per cent. of the graduates follow their medical course of four years by a hospital internship of one to two years, it takes about ten years from the date of entering college for the student to become financially independent. The cost of medical education is naturally going up, and the fees paid by students supply, as shown by the average of the figures from sixty-three schools, little more than one third of the total, the difference being met by endowment and from other sources. In the sixty-three schools, 42 per cent. of the budget goes to provide salaries for the whole-time teachers, and 6 per cent. to part-time teachers. During the last few years the total amount of work, as shown by the number of hours required, has been somewhat reduced in the majority of schools; thus in thirteen schools which in 1925 demanded 4,000 or more hours, there has been an average reduction of over 400 hours, but there are wide variations; in twenty schools taken at random the hours required for anatomy varied from 1,267 to 480, for medicine 1,030 to 428, for surgery 660 to 332, and for gynecology and obstetrics 368 to 168. Although much consideration has been given to uniformity and standardization, there is probably far more variation in the curriculums at different schools than is generally assumed. Three types are described. The first is the orthodox standardized curriculum of recent development, intended to familiarize the students, who all take the same courses, with every phase of medical knowledge; the amount of instruction is heavy, and the staff is small. The second type is represented by a small number of schools closely allied with universities, having few students, who have much more freedom, working on graduate rather than on undergraduate lines, and specializing early; the teaching staff is large, and there are full-time clinical instructors. The third group is intermediate between the other two, and offers a comprehensive training for all and special opportunities for a limited few. Teaching in pharmacology is becoming less concerned with pharmacy and more with the physiological action of drugs, thus forming a bridge between physiology and therapeutics. Clinical-pathological conferences, in which the physician in charge of the case first gives the clinical history and diagnosis, and the pathologist then shows the post-mortem conditions, are well established at some schools, as are joint demonstrations of surgical problems by surgeons and anatomists. Efforts are made to remove the reproach that the student does not know how to deal with the sick person; thus at one school 15 per cent. of the fourth-year students follow the daily work of a general practitioner for one or even two months. The teaching of preventive medicine throughout the curriculum is gaining ground, and it is pointed out that pharmacological instruction might well deal with patent medicines and the mischief they do to patients who attempt to treat themselves at a stage when early diagnosis and proper treatment may prevent serious consequences.—*The British Medical Journal.*

SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN INNOVATION IN SCALE CONTROL

INCIDENTAL to a study of the effect of dusting citrus trees with extremely finely divided sulphurs for possible control of the citrus thrips, the discovery has been made that a very high mortality of the citricola scale (*Coccus pseudomagnoliarum* Kuw.) has accom-

panied the use of these sulphurs. The groves where these tests were conducted are located in the San Joaquin Valley—one of the hotter regions of California.

Dusting citrus trees with sulphur has been practiced for a number of years in southern California against the citrus mite, but evidently no records of scale control by this method are to be found. The daily maximum temperatures for southern California are decidedly lower, as a rule, than is the case in central California where our tests were made. At Lindsay, for example, where most of our data were secured, the mean maximum temperature for June is 94.9° and for July is 101.4° Fahrenheit (U. S. Weather Bureau). These high temperatures probably constitute the factor which causes the scale mortality through the accelerated sublimation of the sulphur particles.

The above table briefly summarizes our data bearing on the subject of scale mortality induced by applications of sulphur dust to citrus trees.

In further explanation of the table it should be recorded that all the dustings were applied between April 15 and June 14, inclusive. The period during which the scale hatched was from May 12 to about July 15, so that the sulphur applications were effective against the "crawlers" throughout most of the hatching period.

The gas-purification sulphur consisted of a mixture of 20 per cent. of sulphur recovered in the process of purifying city illuminating gas and 80 per cent. commercial yellow sulphur. In all cases the sulphurs employed were ground to the point where a high percentage of the material would pass through a 200-mesh-per-inch screen, and the majority of the particles through a 300-mesh screen.

The mortality percentages listed in the table do not include natural mortality from climatic or other causes. Each of the groves had an untreated check which provides the basis for the mortality computation.

It is planned to prepare a more complete manuscript to be submitted at some future time dealing with this highly interesting new method of scale control.

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TABLE I

MORTALITY OF CITRICOLA SCALE BY DUSTING WITH VERY FINELY DIVIDED SULPHURS

Grove	Type of sulphur	Number of applications	Date of scoring grove	Net scale mortality
Montague White	Gas-purification	2	June 14*	100.0 per cent.**
H. A. Campbell	Commercial yellow	2	" 15	90.1 "
A. T. Margo	"	2	July 7	97.5 "
"	Gas-purification	2	" 7	91.6 "
C. C. Chapman	"	2	" 24	96.1 "
I. A. Baldwin	"	3	" 25	100.0 " **
Frank Kennedy	"	3	Aug. 8	98.3 "
Paul Gramm	"	2	Sept. 11	97.2 "
"	Commercial yellow	2	" 11	96.5 "
"	"	3	" 13	96.7 "
Montague White	Gas-purification	3	" 20	96.7 "
E. I. Brown	"	3	" 23	98.6 "

* All dates are of 1929.

** Had larger series been employed these values no doubt would have dropped below 100.0 per cent.

Average mortality for 3 dustings ..... 98.1 per cent.
" " " 2 " ..... 95.6 "
" " " all jobs ..... 96.6 "

CULTIVATION OF BACTERIUM TULARENSE

THE literature contains numerous references to the difficulty encountered in the cultivation of *Bacterium tularense*. Francis has shown that this organism grows well on serum dextrose cystin agar. This medium may be prepared by a process simpler than the somewhat complicated method used by Francis. Medium prepared by the process given below produces abundant growths of *Bact. tularense*, even with primary isolations.

Dissolve 0.05 per cent. cystin in water containing 0.2 per cent. Na_2HPO_4, with the aid of heat; add this to dehydrated heart infusion agar to which 1 per cent. dextrose has been added; heat the whole in the water bath to dissolve the agar. If cystin dextrose agar is