fully described by Mansfield and Long in *Bulletin* 3401 of the University of Texas, and by H. I. Smith, of the U. S. Geological Survey, and in an article on "Potash in the Permian Salt Basin" in the *Journal of Industrial and Engineering Chemistry,* Vol. 30, page 854.

Dr. Dabney interested Senator Morris Sheppard and Representative Ganner in the subject and a bill authorizing $2,500,000 for surveys passed the Senate. The House Committee was ready to recommend a similar bill, but the Bureau of the Budget advised that the program was not in accord with the program of the President, so nothing further was done. What was accomplished was done with meager funds available from the U. S. Geological Survey and the State of Texas.

I am calling attention to these facts so that due credit may be accorded to these pioneer workers.

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"CHEMICAL" SEED TREATMENTS

AN item in SCIENCE-SUPPLEMENT of January 29, 1943, indicates that chemical treatment of seed offers little hope for increasing crop yields. Although the following context of the item makes it sufficiently clear to those familiar with the various types and purposes of seed treatment that treatment with growth-regulatory substances is in question, this item and others constantly appearing in the press indicate the need for more explicit reference to seed treatment if an important wartime contribution of science is not to suffer.

Several types of chemical seed treatments with several purposes are in common use or experimental stages to-day. Seeds may be treated with disinfestant chemicals to rid their surfaces of the organisms of disease and furnish chemical protection against such organisms in the soil; they may be treated with corrosive chemicals to alter the permeability of the seed coats and facilitate germination, a common practice in tree propagation; they may be treated with rodent-repelling chemicals as kerosene, turpentine or creosote; they may be chemically treated in the very doubtful, but commercially exploited, hope of thus imparting insect resistance to the resulting plants; they may be treated with growth-promoting substances in the expectation of thus increasing growth and yields; and leguminous seed are commonly treated with dusts containing nodule bacteria for increasing nitrogen fixation. It is important that these types of treatment be clearly differentiated in publicity.

Disinfestant seed treatments are of well-established value in the production of many crops and represent one of the most useful devices for increasing wartime production. It would indeed be unfortunate if the efforts of crop scientists and agricultural extension specialists to promote further adoption of them were to be thwarted by public statements, however correct, that chemical seed treatments (of certain other types) are useless or harmful.

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MINERAL DEPOSITS

MAY I make a suggestion that, if followed, may prove extremely valuable to our country and at the same time increase the contributions made by science to the war effort?

Vast quantities of ores and minerals are necessary to carry on the war. Commercial development after we win this war will likewise require mineral products in quantities that we may find difficult to supply.

Men in the Armed Forces will probably travel very nearly all over the world before the present war is finished. Would it not be wise, therefore, to give all officers of the Army and Marine Corps a short but intensive course in the recognition or identification of the ores of the more important metals. Thus equipped, they would constitute searching parties or prospectors, some of whom certainly might discover mineral deposits that would prove valuable or even vital to our cause. If all members of our Army and Marine Corps who will be going afield could be given this training, instead of just the officers, it should obviously increase our chances of finding these much-needed minerals.

Colleges and universities that teach geology, mineralogy, etc., could give such training, as could most commercial geologists and others who are familiar with rocks and minerals. If it is not practicable to give this training at the colleges and universities, then training centers manned by competent instructors could be set up in connection with already established Army and Marine Corps camps.

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QUOTATIONS

THE RETIREMENT OF PROFESSOR RAYMOND C. ARCHIBALD

FEW scholars have a larger circle of personal friends among mathematicians on both sides of the Atlantic than Professor Raymond C. Archibald, whose impending retirement is announced from Brown Uni-

versity. An official position in the American Mathematical Society has brought him into touch with every active mathematician of this century in America, while in the course of frequent and extensive journeys in Europe to ransack bookshops and visit libraries, he has taken every opportunity to make the acquaintance in their own countries of the men and women whose writings he already knew. Enthusiastic, persuasive and learned, he has made the mathematical section of the library at Brown University one of the finest to be found anywhere, and he has created there for mathematicians the surest source of bibliographical and biographical information in the world.

Professor Archibald's published works include the definitive edition of one of Euclid's minor treatises, and the semi-centennial history of the American Mathematical Society, the latter a heavily documented volume incorporating twenty-seven biographical sketches. He is the author of a vast number of bibliographical articles, distinguished for an impersonal and uncritical thoroughness that conceals the toil and the knowledge that go to their compilation, and is, it must be confessed, sometimes carried to excess, for Archibald's modesty will not allow him to believe that if only, like Keynes and Muir, he would sometimes tell us after reading a paper that no one need ever read it again, others would gladly accept his judgment and be spared the tedium of making the discovery for themselves. Professor Archibald has served for long periods on a number of editorial boards, and is now editing for the National Research Council of the United States the youngest of mathematical journals, *Mathematical Tables and Aids to Computation*. To Professor Archibald, retirement will not spell indolence. It need scarcely be said that his expert advice will still be available in the library which he has made famous, he is continuing in his latest editorship, and he hopes to devote the time saved from routine to perfecting the organization of a library of English and American poetry and drama which he has been developing at Sackville since 1905 in memory of his mother. Increased leisure, if miraculously he achieves it, will mean enhanced opportunities to cultivate a second passion, for he is not merely a lover of music but also a musician of exceptional skill, who might easily have become a professional violinist and remained an amateur in mathematics. May he long enjoy a strenuous life.—*Nature*.

SCIENTIFIC BOOKS

THE BLOOD IN TUBERCULOSIS

Clinical Significance of the Blood in Tuberculosis. By GULLI LINDH MULLER. Pp. xvii + 516. The Commonwealth Fund. 1943. $3.50.

SINCE medical monographs assume places of authority in medical knowledge they should meet two requirements. First, the scattered literature on a subject should be concisely and completely presented. Dr. Muller has performed a commendable and difficult task in this phase of her book, although citations and bibliography are not complete. Second, the observations of the author should be presented in such fashion that the reader can easily grasp the full significance of the data presented. In some instances Dr. Muller has failed to fulfil this requirement.

The emphasis placed upon *qualitative* changes in neutrophiles when the author states "the omission of shift in the neutrophiles in the description of a leukocytic picture is a gross error comparable to an examination of the heart without counting the pulse" is a case in point. Discussion of the data presented in the table on page 57 emphasizes that "shifts to the left" are commonly present in normal leukocytic counts (author's standard). Hematologists would agree that a percentage of 8 or more "band forms" is beyond normal limits. As I reported in the *American Journal of Medical Sciences* in January, 1929, the upper normal limit of neutrophiles is 65 per cent. Dr. Muller presents no data, either from her own studies or from the literature, to refute the reliability of my data. On the basis that above 65 per cent. of neutrophiles is abnormal, the table on page 57 shows that two thirds of the counts are abnormal and one third normal. In the abnormal range 46.5 per cent., and in the normal range 15 per cent., reveal an increase of "band forms." As the percentage of neutrophiles increases, especially above normal, the percentage of "shift to the left" increases. Without minimizing the significance of qualitative changes one may question the wisdom of insisting that Schilling counts be done on all leukocytic counts. A better policy would be to let the hematologist decide when Schilling counts are essential. Careful thought must be given to the diversity and quantity of laboratory tests recommended for a routine diagnostic service.

The rather lengthy dissertation on the eosinophile seems to be out of place since Dr. Muller states "eosinophilia . . . may anticipate an *improvement or a deterioration*," *i.e.*, no definite interpretation can be given an eosinophilia *per se*. The suggestion that eosinophilia in tuberculous cases reflects "an allergic response" hardly seems valid, since only 20 per cent. of the cases exhibited an eosinophilia and probably the entire group would react to tuberculin.