Much of the educational leadership in connection with this problem has been borne by Lyman J. Briggs, Ralph W. Smith, and the late F. S. Holbrook, of the National Bureau of Standards. A Model State Law on Weights and Measures, recommended by both the National Council on Weights and Measures and the National Bureau of Standards, is recognized as the most satisfactory basis for developing sound State or local regulation.

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A Dangerous Postwar Development in Science Teaching

Is the teaching of first-year science courses in the colleges and universities of the South to be taken away from the science departments of these institutions? This alarming possibility is proposed in a bulletin, entitled "Studies of higher education in the South," put out by no less an authority than the Committee on Work Conferences of the Southern Association of Colleges and Secondary Schools and currently being circulated for approval by the institutions concerned. The proposal in question is found in Chapter IV, which deals with the teaching of first-year courses in the natural sciences in the postwar era. The following specific proposal is made: "It is further proposed that college and university departments as presently constituted not have control over either methods, subject matter content, or objectives in this phase of general education" (p. 43).

It is significant of present-day trends in higher education to note that no representative of the natural sciences was on the committee which drew up Bulletins VI and VII, Seventh Series, 1946. The opening paragraph of Chapter IV asserts that educators have assigned the natural sciences a place of peerage with the humanities and the social sciences. If the group which prepared this report believes this statement, why were not the natural sciences given some representation on the committee?

There are a number of other disturbing statements made in this bulletin concerning the teaching of science in institutions of higher learning in the South. This note is written to call attention to the fact that the teaching of science is definitely on trial in these postwar days, and that now is the time for scientists to express their criticisms of the unique document under consideration by writing to Dr. Roscoe E. Parker, Executive Secretary, Committee on Work Conferences, Southern Association of Colleges and Secondary Schools, University of Tennessee, Knoxville, Tennessee, prior to the summer meeting of the committee.

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Death-rate Study on a High Molecular Quaternary Ammonium Compound With *Bacillus metiens*

The few reports appearing in the literature on the germicidal activity of high molecular quaternary ammonium salts against spores indicate a very low order of activity for these compounds, especially when compared with their efficacy against vegetative cells. For instance, alkyl dimethyl benzyl ammonium chloride has been shown to kill spores of *Clostridium tetani* in 20 but not 10 minutes at a concentration of 1: 100 at 20°; of *Bacillus anthracis* in 15 minutes at a 1: 10 dilution; and of *Bacillus subtilis* in less than 30 minutes at a 1: 10 dilution at 37° at pH 8.6 or greater. There are numerous reports to indicate that dilutions of the order of 1: 500 of this compound are not effective against spores. The killing action of alkyl dimethyl benzyl ammonium chloride against spores is enhanced at higher temperatures.

As part of a program of study on the rate of action of high molecular quaternary ammonium compounds against bacteria, preliminary experiments were run against *B. metiens* following the procedure described by Weber and Levine (*J. Amer. publ. Hlth*, 1944, 34, 719). The suspension of *B. metiens* in distilled water was heated to 80° C. for 10 minutes to kill vegetative cells, and 1 ml. was added to 99 ml. of the proper dilution of the compound to be tested. The solution was stirred throughout the period of test and samples plated at various time intervals. The germicide used was alkyl dimethyl 3,4-dichloro benzyl ammonium chloride (Tetrosan), and the tests were made at 20° at pH 7.

A 1: 10 dilution of Tetrosan was found necessary to kill *B. metiens* at 20° when tested by the FDA method. The killing dilution of Tetrosan against spores by the FDA method is of the same order as that of alkyl dimethyl benzyl ammonium chloride. A comparison of this killing dilution with the data on death-rate studies emphasizes the striking percentage reduction in the number of spores obtained with dilutions as low as 1: 5,000 and 1: 20,000. These high dilutions seem to kill a large number of spores (60–75 per cent) almost immediately, with a subsequent marked reduction in the rate of killing. Even after six hours only about 90 per cent of the organisms are killed. These results provide an indication that the FDA method does not give a complete picture of the germicidal action of a compound.

It is difficult to reconcile the data obtained with the concept of a logarithmic order of death. Actually, the experiments seem to demonstrate that the original population is made up of spores of very different resistance and that the death-rate pattern is due to the individual resistance.

The results of preliminary experiments, using the same technique with Tetrosan and cetyl trimethyl ammonium bromide, against *Staphylococcus aureus* parallel those obtained with spores. Whereas the killing dilution of these compounds against *Staph. aureus* is of the order of 1: 50,000, when determined by the FDA method, death-rate studies indicate that over 90 per cent of the organisms are killed immediately by dilutions as low as 1: 300,000. These experiments are being extended and will be published in a more detailed form at a later date.

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