

are available any definite units in sanitary science which could serve as the basis for a standard.

If the water analysts have agreed upon well-defined methods of water analysis, then the evaluation of a standard would be at least possible, if not valuable, for interpretation. In order to learn whether any degree of uniformity existed in the laboratory examination of water supplies, a questionnaire was submitted to thirty-three state department of health laboratories in the United States. Thirty-two answers were received and sufficiently detailed information was obtained to warrant the conclusions later to be discussed. With these data at hand, the practicability, at the present time, of formulating a standard of quality for water, in the light of present-day analytical practice, may be discussed with more precision.

Total Bacterial Count

The total number of bacteria in a stated quantity of water has been used frequently in establishing a maximum allowable pollution in potable waters. One of the more

Table I.—Method of Obtaining Total Bacterial Count in Laboratories of Various State Departments of Health

Name of State	Hours:—	20° C.				37° C.				Lit.
		Gelatine		Agar		Gelatine		Agar		
		48	96	48	96	48	24	48	24	48
Alabama		No definite information								
California		.	.	.	.	.	X	.	.	.
Connecticut	X	.	.	.	.	.	X	.	.	.
Dist. of Columbia		.	.	x(a)	.	.	.	.	.	.
Florida		.	.	.	.	.	.	X	.	.
Georgia		.	.	.	.	.	X	.	.	.
Illinois	X	.	.	.	.	.	X	.	.	.
Indiana		.	.	.	.	.	X	.	.	.
Iowa		.	.	X	.	.	.	.	X	.
Kansas	X	.	.	.	.	.	X	.	.	.
Kentucky		.	.	.	.	.	X	.	.	.
Maine	X	.	.	.	.	.	X	.	.	.
Maryland		.	.	X	.	.	X	.	.	.
Massachusetts ..		.	.	.	X	.	.	.	X	.
Michigan		.	.	.	.	.	X	.	.	.
Minnesota		.	.	.	X	.	.	.	.	.
Missouri		.	.	.	.	.	X	X	.	.
Montana		.	.	.	.	.	X	.	.	.
New Hampshire		No definite information								
New Jersey		.	.	X	.	.	X	.	X	.
New York		.	.	.	.	X	x(b)	.	.	.
North Carolina..	X	.	.	.	.	.	.	.	X	.
Ohio		.	.	X	.	.	X	.	.	.
Oklahoma		.	.	.	.	.	X	.	.	.
Pennsylvania ...		.	.	.	.	.	.	X	.	.
Rhode Island ...		.	.	X	.	.	.	.	X	.
South Carolina..		.	.	.	.	.	X	X	.	.
South Dakota...		.	.	.	.	.	.	X	.	.
Vermont		.	.	.	.	.	X	.	.	.
Virginia		.	.	.	.	.	X	.	.	.
West Virginia ..		.	.	.	.	.	.	X	.	.
Wisconsin		.	x(c)	.	.	.	.	.	.	X
Wyoming	X	.	.	.	.	.	.	X	.	.

(a)—25° C. (b)—Infrequent. (c)—15° to 20° C.

NOTE.—Data in above table obtained by letter in 1917 from officials of various state departments of health.

importance of particular bacterial counts obtained by definite procedures, over others found by any other methods. Such an agreement would be reflected, of course, in the routine procedures of such laboratories of which we have record. The data in Table I. disclose,

Table II.—Method of Making Presumptive Tests for B. Coli in Laboratories of Various State Departments of Health

Name of State	Medium Used		Period of Incubation	
	Lact. Broth	Lact. Bile	48 hrs.	72 hrs.
Alabama			No definite information	
California	x	.	X	.
Connecticut	x	.	X	.
Dist. of Columbia	.	x	X	.
Florida	x	.	X	.
Georgia	x	.	X	.
Illinois	x	.	X	.
Indiana	x	.	X	.
Iowa	x	.	X	.
Kansas	x	x	X	.
Kentucky	x	.	X	.
Maine	.	x	X	.
Maryland	x	.	X	.
Massachusetts	x	.	X	.
Michigan	x	.	X	.
Minnesota	x	.	X	.
Missouri	x	.	X	.
Montana	x	.	X	.
New Hampshire	.	x	x(36 hrs.)	
New Jersey	x	x(a)	x	.
New York			No presumptive test	
North Carolina	.	x	x	.
North Dakota	.	.	.	.
Ohio	x	.	x	.
Oklahoma	x	.	x	.
Pennsylvania			No presumptive test	
Rhode Island	x	.	x	.
South Carolina	.	x	.	x
South Dakota	x	.	x	.
Tennessee	.	.	.	.
Vermont	Lactose neutral red		x	.
Virginia	.	x	x	.
West Virginia	x	.	x	.
Wisconsin			No presumptive test	
Wyoming			No definite information	

(a)—Infrequent.

NOTE.—Data in above table obtained by letter in 1917 from officials of various state departments of health.

however, a disconcertingly wide difference, rather than agreement, of attitude toward the various methods. If official water analysts differ in their choice of the method of making total counts, it is reasonable to conclude that their disagreement would be even greater in a choice of a "standard" total count. Since the relative significance, for instance, of the total number of bacteria on a plain agar plate at 37° C., as compared with the count on a gelatine plate at 20° C., is still a moot question, it is clear that more confusion in interpretation will result when several additional different combinations of media, temperatures, and periods of incubation are to be considered.

It is also of striking interest to note that, in spite of the fact that the 37° C. agar count at 24 hours incubation has been for several years an official standard procedure of at least two organizations (American Public Health Association and U.S. Treasury Department), only 19, or

recent of these is the requirement of the United States Treasury Department that water supplied to common carriers should contain no more than 100 bacteria per c.c. (37° 24 hours agar). The creation of such standards presupposes a unanimity of opinion as to the significance and