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WHOSE BUSINESS IS THE PUBLIC HEALTH?[1]

THE larger the field of usefulness of any science or art, the more obvious its applications, the greater is its danger of exploitation. Just as real estate and insurance attract the business incompetent so does public health attract the intellectual "piker." All things to all men, dripping with statistical odds and ends, full of startling though often uncontrolled results, stamped with the hall-mark of altruism, public health draws the well-meaning and self-seeking alike. Even when based on the greatest accuracy that science affords it often becomes essentially inaccurate through the medium of its interpreters and its employment.

In this large forest of accuracies and inaccuracies, of scientific principles and their application, it would seem that one should counsel simplification rather than elaboration—and yet my idea is that we have not thought of public health in a large enough way—we have indeed failed to see the woods for the trees. What then is public health?

Let us recall, to begin with, that "health" means a normal condition not only of body but of mind and morals as well. We may stretch our definition a little further and following Henderson demand that "health" include not only a normal individual but a normal environment. The business of public health then consists in the detection, correction and prevention of the maladjustments of human life, individual and collective. The forces of public health are engaged in war against "The Kingdom of Evil." Some of you may recall the service that Southard rendered social workers in offering them an orderly classification of their labors. The analy-

[1] Address read in a Symposium on Science and the Public Health before the Pacific Division of the American Association for the Advancement of Science, Aug. 4, 1921.

sis of social maladjustment, according to Southard (1), should first of all be on the basis of the individual rather than the family and should proceed by a "process of orderly exclusion," weighing in turn the significance of disease, vice, delinquency, ignorance and poverty. These, then, are the provinces of the kingdom of evil.

We should conceive the public health program as embracing and extending this field of social service. I find it easy to explain how public health embraces this inclusive scheme of Southard's, but more difficult to state just how it extends it, other than in the way of specialized correction. Social work can scarcely be confined to simple detection of evil, leaving its correction and prevention to a more inclusive public health. Social work may then be a mere synonym for public health but of course the social worker as now conceived would be only one of the cogs in the machine.

To re-define, it is the function of public health to spy out and remedy the "ills that flesh is heir to," to deal with the individual and collective problems of disease, ignorance, vice, crime and poverty. It is evident we have here the whole tissue of human altruism, and have far outstripped the meaning of public health in common speech. What then are the discrepancies between the term "public health" as currently employed and the larger definition which, with possible prevision, I have here given.

Let us here correlate very briefly recent information as to the scope of public health. There exist in this country several well-established curricula, schools, or institutes of public health. What are the vocational fields for which they train their students? In what do their courses of training consist?

There are several statements by experts on the careers that are open to properly qualified students in public health work. Vincent (2), Winslow (3) and Ferrell (4) have all expressed themselves on this matter and with considerable unanimity. We may construct from their articles a composite picture of the public health field as they conceive it, as viewed from the aspect of its opportunities.

One of the most interesting aspects of our field is that it offers opportunities of usefulness to individuals of several different degrees of intellectual training. Thus we find that a class "A" which we may designate as "skilled workers" is required: clerks, stenographers, accountants and laboratory technicians. These individuals after an ordinary high-school education are trained through apprenticeship.

Class B includes the "professional workers." These individuals are the specialists and their assistants, with collegiate and usually graduate training and comprise several groups:

1. Administrators: directors of public health schools, public health laboratories, bureaus and the like.

2. Laboratory workers: statisticians, bacteriologists, zoologists with various subgroups, immunologists, chemists and physiologists.

3. Field workers: public health nurses, sanitary engineers, epidemiologists, physicians, particularly school health officers, and social workers.

Although there is rather general agreement concerning most of these occupations and professions that together compose "public health" as now understood, it is evident that new groups are being added, that there are as yet "untilled fields," as Winslow has expressed it.

If vocational fields as ample as these exist, if tillers of these fields are in demand it is evident that they must be trained in other than the haphazard way that was necessary with the pioneers. Hence the "school of public health" the present conception of which now occupies us. A survey of the courses required and offered in four of the leading schools of public health in this country, Harvard-Technology, Yale, Pennsylvania and Johns Hopkins, shows certain accepted standards and suggests the lines of further advance that are contemplated. We shall not here concern ourselves with prerequisites and degrees granted but consider only what may be regarded as the fullest training offered.

It is evident that public health training for other than medical graduates requires practically the first two years as given in first class medical schools, that is, complete courses

in at least physiology, biochemistry and bacteriology. Anatomy is required at Hopkins and Harvard and the latter school also requires introductory pathology. It is evident that we are approaching the curriculum recently advocated by Sedgwick (5), who advised identical training for medicine and public health students for two years with divergent paths for two years more. Public health further requires somewhat more elaborate training of its students in certain branches of zoology, notably in parasitology, protozoology, helminthology and entomology, than is usually required of medical students.

Then come the medical and pre-medical sciences specifically applied to public health problems. Advanced physiology particularly of fatigue, respiration, climatology and ventilation; chemistry as applied to nutrition and metabolism, food, food adulteration and sanitation; bacteriology as applied in public health laboratories and to sanitary engineering.

And lastly are the public health sciences properly speaking: vital statistics, public health administration, sanitary law, sanitary engineering, epidemiology, school inspection, control of contagious diseases, and the like.

The total curriculum is certainly medical enough in aspect, which accounts for the very natural supposition in the minds of the general public and of many of the medical profession that public health is simply another specialty of medicine. How far wrong this conception is I shall hope to bring out a little later. Let it suffice here to note that the medical bulk of public health as outlined in schools of public health is preventive medicine and not curative medicine, medical science and not medical art. This is clearly brought out by the almost complete absence in all these curricula of the medical clinic. The hospital is not a necessary adjunct in public health training.

In finally considering the scope of public health we may glance at it as mirrored in current textbooks. Here at least no practical consideration of money or men need limit the field to be covered.[1] Again the main emphasis very properly lies in disease prevention with rather more emphasis than in the course outlines on certain correlated branches of personal hygiene and community welfare; the construction of dwellings; the question of clothing; the group care of infants and school children; health measures as applied to prisons, to armies, to transportation, and the tropics. A wider field is suggested by mention at least of such deeply specialized fields as mental hygiene (Park) and eugenics (Rosenau).

It is evident then from these summaries that public health is primarily concerned and properly so with the abolition of disease and in this campaign has enlisted the cooperation of many specialists outside the field of medicine. We suggest again that its future lies in the further assumption of the burden of combating ignorance, vice, crime, and poverty. What then is the actual and prospective personnel of the army of public health workers? Since disease is and will probably remain its most serious, tangible and defeatable enemy the man with a medical training is the most considerable figure in the scheme. Undoubtedly a full medical training remains the best foundation on which to base a further training in the broader field of public health. As an entire training medicine alone is inadequate, and to the type of mind that remains satisfied with accomplishment of the diagnosis and cure of an individual case of disease, it may even be detrimental. This is no place for the guild-consciousness of the practitioner of medicine. As a matter of fact the graduate in medicine is no longer of necessity the forwarder of those very sciences on which the art of medicine depends. If it be true that physiology, bacteriology, biochemistry and anatomy are progressing in the hands of non-medical specialists to the ultimate advantage of medical practise, this is even more true of the field of public health. No one would dream of asserting that one must have a medical training to be a good sanitary engineer, social worker, or criminologist. In this connection it is of interest to note that less than half the faculties of

[1] Rosenau (6), Park (7), and Abel (8) were consulted in this connection.

the Yale and of the John Hopkins Schools of Public Health are doctors of medicine.

May I point out then in conclusion that there are a number of fields of human endeavor that have been largely or entirely overlooked in efforts to present the scope of public health? They overlap each other and the fields already recognized.

The whole field of social economics has been notably neglected. The study of poverty, care of dependents, the question of housing from the standpoint of the inhabitant; some conception of city government, and the labor problem may be mentioned as contributory in this training.

Further consideration of industrial hygiene is necessary not simply from the standpoint of occupational diseases and accident prevention but from the aspect of labor education and efficiency.

There is a group of studies that may be included under mental hygiene: psychology; abnormal psychology; criminology, the studies of vice, and delinquency. Closely related thereto are the endeavors in child hygiene and child welfare, eugenics, juvenile court work and the like.

Somewhere in the scheme I am sure should come certain aspects of physical education as a building method of the healthy mind and body. And perhaps, as Vincent has suggested, we should consider some forms at least of proper publicity and education of the masses in the results of public health work.

The whole business of public health action then seems dependent on those who have specialized information in any one of the numerous branches that have and will comprise it. The further development of this art depends on those with successively larger visions of what's wrong with the world.

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THE ABORIGINAL POPULATION OF CALIFORNIA[1]

The only attempt to compute the aboriginal population of California is that of C. Hart Merriam in the *American Anthropologist* for 1905. His figure of 260,000 was obtained thus: In 1834 there were 30,000 converted Indians at the Missions. The addition of unconverted Indians within the Mission area would make 40,000. The population at the Missions had suffered a decline; correct therefore to 50,000 for aboriginal times. The Missionized area embraced one fifth of the habitable area of the state. The total would be 250,000; to which add 10,000 in the mountains and deserts.

This computation appears to err on the side of the area tapped by the Missions, which should be estimated at one third rather than one fifth of the total, reducing the result to 150,000 or 160,000.

Calculations gradually made during the past twenty years suggest a still lower figure, 133,000. This is the aggregate of the closest possible estimates which can be made for individual tribes and groups. For instance, a close survey of the Yurok shows them inhabiting between 50 and 55 settlements at the time of discovery. The houses averaged 6 per settlement, the inmates 7.5 per house. The total of approximately 2,500 for the Yurok, together with less complete data on number

[1] Abstract of a paper presented before the Section of Anthropology, American Association for the Advancement of Science, Chicago.