PUBLIC HEALTH AND THE FUTURE COMMONWEALTH[1]

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Participants in this congress are deliberately and courageously turning their faces toward the future; they are attempting to attain a knowledge of coming things; and they are seeking the best means of making provision for approaching needs. The speakers have emphasized anticipation rather than retrospection. As the conference draws toward its close, all must feel that the concentrated beam of light that has been directed forward has given a view of possibilities and of probabilities that is encouraging and inciting to effort.

Science and art would make but sorry progress if their devotees failed to infer the future. Discoveries nowadays are but rarely made by accident. On the contrary, they depend upon prearranged plans, upon clear definition of problems, upon ideas that have their origin in brooding over facts that have been collected, analyzed, arranged, and compared, and upon reasoning out the consequences of such ideas and testing them for their validity. Thus, and thus only can conclusions be arrived at that justify confident forecasts.

Prophecy to-day is a wholly different thing from what it was before the advent of the scientific method. Applying this method the chemist foretells the discovery of unknown elements and knows beforehand the qualities they must possess; the

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physicist gains glimpses of energy manifestations long before the technical procedures for demonstrating them have been devised; and the biologist can, by induction, mentally construct genotypes and phenotypes that have never yet existed but are none the less definitely realizable. Obviously public-health workers, also, should, by utilizing the scientific method, participate in prediction, estimate future needs, and visualize methods of meeting those needs.

We live in a rapidly changing world. The future of public health will differ, doubtless, markedly from the past. Knowledge of the past is, of course, necessary for the understanding of the present and is a helpful guide for conjecturing what is before us. Public-health workers are not likely to be unduly influenced by the view of that great industrialist who, it is alleged, declared that "history is bunk." On the contrary, they believe that what is coming must evolve by a natural process out of what has gone before. As the conditions of this evolution are learned and as the causes that are operative are recognized, forecasts of its general trend will become increasingly reliable.

Many in attendance at this conference believe that they can discern certain settled directions of advance, certain inevitable lines along which public-health work in the future must move. They are of the opinion that within a comparatively short time public-health activities will far exceed those of to-day, both in intensity and range. They feel sure that in this country, at least, the environment will speedily be made more wholesome, that the mass of the people will be led up the scale of personal hygiene and efficiency, and that possibly also the germ plasm of Americans may be gradually improved. In a general way, then, the main tasks of public-health workers for the future can be foreseen and certain of the results obtainable can be confidently predicted.

Public-health work should have as its ideal the provision through collective action (1) of conditions that will insure the

birth of children with those inherited potentialities of physical and mental growth that are suitable for each successive stage of national and international development, and (2) of conditions that will promote the growth, the longevity, the physical and mental efficiency, and the social serviceableness of those that are born.

Private practitioners of medicine are most useful in the diagnosis and treatment of disease in single persons and in the advising of individuals and families regarding disease prevention and health promotion, but it has long since been learned that they are wholly unequal to the performance of the tasks imposed by the ideal to which I have referred. The size and the ever-increasing variety of these tasks necessitate the organization and maintenance of public health services (local, State, national, and international) for the carrying on of the work. Hitherto, such public-health services have occupied themselves chiefly with (*a*) the provision of a more wholesome physical environment ("sanitation") and (*b*) the education of the people in the principles and methods of wholesome living ("personal hygiene"). It is only relatively recently that the public-health services have entered the fields of diagnostic and curative medicine (left formerly entirely to private practice); but experience with public medical and nursing services for maternal and child welfare; for the health of school children; for the early recognition and prompt treatment of certain infectious diseases, especially tuberculosis, gonorrhea, and syphilis; for the diagnosis, treatment, and custodial care of the insane, the feeble-minded, and the delinquent classes; and for the adequate care of the health of the population of those rural districts in which private physicians and nurses are unavailable would indicate that public-health workers will from now on become even more active in diagnostic and curative domains.

Again, the growing conviction that the maintenance of physical and mental health of individuals is definitely related to the

industrial, the social, and the economic conditions in which they find themselves would make it seem likely, too, that in the near future the public-health service will be compelled to play a rôle in the invention and application of contrivances that will insure for every person in the Commonwealth standards of living that are not incompatible with the preservation of health or the maintenance of an abounding vitality. The problems that here confront the public-health investigator are not easy of solution. A vast amount of research will be required before the principles can be discovered and before the social and political apparatus can be devised that will dissipate the difficulties.

The eugenic problem, perhaps the most difficult and perplexing of all, has, as yet, been scarcely touched by public-health workers. Sanitary science, bacteriology, epidemiology, personal hygiene, medicine and surgery, modern nursing, and social service are improving the environment, preventing disease or recognizing it early and arresting it, prolonging life and ameliorating the conditions of life of individuals; but what are they doing to the race? May they not be causing racial deterioration through survival of persons who transmit inferior germ plasm? As environmental improvement keeps alive the biologically "less fit," should we not see to it that arrangements be made for the encouragement of parenthood by the "more fit," for the discouragement of parenthood by the "less fit," and for the prohibition of parenthood by the "notoriously unfit?" Otherwise will not the inborn capacities of man undergo progressive decrease and contribute to racial extinction? If biologists are right about heredity, should we refuse to face the facts? Ought we not rather resolutely to face them, cooperating with nature as we gain knowledge of her laws? These are some of the queries that biologists, and especially eugenists, are propounding. For these interrogators, eugenics would seem to be even more important than euthenics or environmental improvement for consideration by public-health workers in the future Commonwealth.

If the facts that we now possess concerning environmental influences on the one hand and heredity on the other could be systematically applied by public-health workers there would result an enormous push upward both in the health of individuals and in germ-plasm betterment. And, of course, the main duty of public-health administrators at a given time is to apply systematically for the promotion of health the knowledge that then actually exists. Legal enactments have their place in public-health work and police power must be exercised for maintaining the order that is conducive to public health; but these measures are far less important than others that are available, particularly the extension of educational policies, the improvement of social customs, the promulgation of better ethical standards, and the encouragement of various forms of art by which ideals of physical and moral beauty are determined, for these ideals are of great importance in influencing men and women in mate selection.

The facts should be told to the people in a way that will be understood by them and by persons who can convince them. For the masses heredity and environment are still wrapped in mystery. Public-health workers should be intermediaries between the scientist and the common man. Matters hidden from him or misunderstood by him should be brought to light and carefully explained to him. Germ plasms, fertilization, gestation, infancy, growth, puberty, adolescence, maturity, sex mating, parenthood, economic security, intellectual and emotional satisfaction, senility, disease, and death are among the subjects that require elucidation. The teachings of science must be especially prepared if they are to tempt the appetite and provide nourishment for the common man.

An efficient public-health service would go far toward supplying the information and compelling the convictions that would protect our people from health fads and fancies and from quacks

and charlatans. If the average man and woman knew the facts about rheumatism, they would not waste much money on liniments; if they were trained in health habits they would refuse to swallow sawdust to overcome constipation; and they would get along without yeast cakes if they knew the sources of vitamins. It is partly the ignorance and credulity of the layman, partly the apathy and negligence of the medical profession, and partly the cupidity of the exploiter that account for the prevalence of the healing cults, the "pathies," and the nostrum mongers. Their reputed successes, like many of those of the regular practitioner of medicine, depend partly upon suggestion, partly upon the self-limiting nature of many diseases. Their failures and the positive injuries for which they are responsible are but little advertised. The public should know the facts; then only those who are incurably gullible need longer be duped.

In planning their work in the future Commonwealth, public-health workers will require periodically to revise their euthenic and eugenic aims in the light of extending knowledge. At each revision the program should be considered from two points of view—the individual and the racial.

In discussing desirable euthenic goals, for example, at present it would be well to keep in mind that a mere increase of the longevity of a person would scarcely be worth while if to attain it his life were made almost intolerable to him. May there not be a lack of sense of measure in some of our present-day health crusades? If life were to be very rigorously regulated—censored, sterilized, antisepticized, dealcoholized, and asexualized; if we were to be made afraid of life itself in order to live joylessly a little while longer—would the end gained justify the means? Americans have been called the "people of action;" but is action always preceded by sufficient thought and investigation? Are we not sometimes guilty of an almost reckless experimentation in environmental change?

Again, in discussing desirable eugenic goals—and I may say that I am exceedingly skeptical of the possibility of any extensive practical eugenic program until knowledge has been further increased and diffused—it would be well to keep in mind the difficulty in arriving at decisions as to who are "fit," who are "fitter," and who are "fittest" to survive, even though we arrived at a general agreement that certain groups are "manifestly unfit" and should be denied the privilege of parenthood. Is it not desirable as yet, at any rate, to have many different races of man in the world and many varieties and degrees of inborn capacities in the individuals of a single race? Instead of attempting to breed people who are nearly alike, no matter how superior the type, might it not be wiser to encourage variation and to attempt to preserve as many worthy and pleasing varieties as possible, adapting the circumstances to them when necessary rather than forcing them into an unfavorable milieu? Think how far physics, chemistry, and mechanics would have to advance before machines could be devised that would take the place of the working men and women now engaged in various "inferior" occupations. As knowledge grows and as social life becomes ever more complex, we shall need a greater variety of special aptitudes than ever before. There will be more rather than fewer kinds of services necessary in our social life, and it will be the task of vocational education to discover the particular kind of specialization to which each individual is most suited and to arrange for his proper articulation in the social machinery.

What public health will need more than anything else, however, is a steady increase of knowledge and persistent betterment of technique through scientific research. The only way to cooperate with nature is to discover natural laws and bring our activities into conformity with those laws. Nature is inexorable in the infliction of penalties. Ignorance is, for her, not an extenuating circumstance. You may not know that it is danger-

ous to take whisky before breakfast, but if you take it long enough and strong enough your liver will become hardened. Many an arthritis has developed from tooth infection about which the patient knew nothing until the X-ray revealed it. Blissfully disregardful as one may be of the qualities of the chromosomes of his own germ cells and those of his spouse, his offspring will inherit certain traits that are inevitably and mathematically distributed. Public-health services must arrange then both for the increase of knowledge useful for its purposes and for the training of the personnel to apply that knowledge.

Universities, Government laboratories, research institutes, and schools of sanitation and hygiene will be more and more called upon for facts that will promote work in public health and for trained men and women to make use of the facts. It is certain, I think, that this conference will later on be found to have done much to increase the interest in public-health functions, to stimulate the investigation of public-health problems, and to enlarge materially the number of men and women desirous of engaging in public-health work.