I recently attended the retirement party of a man who had worked for the Public Health Service for more than 40 years—a service record actually extending back to the days before our entry into World War I. In talking about what the Public Health Service was like in 1915, he told me that it was indeed a very different organization in those days than it is now. My brief interview with this retiring staff member, sandwiched in between felicitations and non-alcoholic punch, brought out some stories which were pretty interesting. And one thing which stuck to my ribs was the fact that in the Public Health Service of his earliest day the headquarters staff, then comprising some 60 or 70 people, consisted of about 80 percent physicians aided and abetted chiefly by messengers and male stenographers.

Today, although the Public Health Service is still primarily a medically oriented establishment, we physicians have been materially diluted. New skills, new methods of operation, and new principalities of knowledge have developed in the health field. In fact, health work now involves so many of the human crafts and specialties that it is sometimes much easier to decide what you want to do than to determine who can best carry out the job.

On the whole, physicians are no wiser than other men. And in trying to live with this whole new bag of tricks which we have picked up during the past few decades; in trying to understand the signals and communicate on the wave lengths of these new very and ultra-high frequencies, we doctors have become a pretty worried group. We skip from the complexities of radiation physics to the intricacies of macromolecular physiology and then to the patent problems in contract chemotherapeutic screening, hoping that our advisers have been well chosen and our briefings adequate. All the time we hold the bag—lots of bags, in fact—for every field of expertise involved.

Yet it's a grand life—it's like directing a symphony orchestra without a score, and occasionally hearing at least one or two bars which truly sound like the essential music of the spheres.

What I am trying to say is that in our fast-growing world we have to be flexible, cooperative, good at teamwork, if we want to do really effective health work.

In the past few decades there has been, as we all know, a shift from the communicable to the chronic diseases. So too there has been a corresponding change in the nature and extent of disease and injury arising from the environment: the air we breathe, the water we drink, and the food we eat. Formerly, this environment was frequently implicated in communicable disease; now it has become strongly implicated in producing chronic disease.

The environmental public health stresses which apply today may not be clearly definitive but they are generally identifiable. They relate to technology, chemistry, and radiation. They are concomitant with population growth, congestion, speed, and by-product wastes. They are manifested in chronic impairments.

Our environmental health problems are closely related to concentrations of people and machines. In terms of people, although we all are aware that our population already approaches 180 millions, most of us do not quite credit the fact that it might even reach 260 millions by 1990. Certainly it is growing at an unprecedented rate. And as it grows it clusters. Already more than 100 million people live in 184 metropolitan areas. Within two decades three out of every four people will be living in metropolitan centers.

At the same time industrial development continues apace: in fact, its growth is even more phenomenal than population growth. Industrial production is up ten-fold over 1900. And some two-thirds of this increase has occurred since 1940. In recent years, completely new industries have sprung up. This economic growth creates new processes and thousands of new substances. And, with respect to both its products and by-products wastes, a host of new forces has sprung into being whose health implications have yet to be diagnosed.

I shall not go into the details of the problems of air and water pollution which we presently face. But what about foods and milk in this great era of change?

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In addition to the traditional sanitary considerations, food and milk now also run the risk of chemical exposure. Some 500 million tons per year of insecticides, weedicides, and fungicides are used in crop production.

Processing and preservation of foods include increasing amounts of chemical additives and preservatives. And, even in preparation and serving, foods come in contact with more and more proprietary compounds, some with questionable toxicological significance.

As a House of Representatives Select Committee report said recently, "There is hardly a food sold in the market place today . . . from our daily bread to the maraschino cherry — which has not had some chemical used on or in it at some stage in its production, processing, transportation or storage." In short, our foods expose each of us to a complex environment of chemical and physical exposures — all poorly understood and often unquestionably hazardous.

The atomic age introduces new terms and dimensions. We must now consider radioactive contamination in air, water, milk, and other foods. There is a growing awareness and keen public interest in radiation exposure, and there are pressures to establish standards or levels governing environmental exposure. On the one hand, there are the facts that all radiation exposure is harmful and that total radiation over a lifespan is cumulative, regardless of source. On the other hand, there is need to be realistic in this atomic age; to recognize that the peacetime uses of radioactive materials will increase — not decrease, and that because of world tension the general population may well continue to be exposed to radioactive sources resulting from military uses of fissionable materials.

This very inadequate summary of our current situation and our future prospects sets the stage for the title of my talk: The Sanitarian in Tomorrow's Public Health Programs.

Sanitarians are both numerically and qualitatively a very important group in public health programs. In terms of numbers, the sanitarians are second only to the profession of public health nursing. Some 10,000 strong, they are a great reservoir of human strength for health.

But strength is relative. Comparatively speaking, you are a small number comprising only the number of individuals who might be required to fill out a single Army division. It is rather on the record of accomplishment that your strength should be weighed; the performance not only of day-to-day duties but also the constant pursuit of excellence and the wisdom of foreseeing the future.

Sanitarians belong to a rather new profession created to meet more effectively needs which had existed over a considerable period. The Public Health Service recognized the profession in 1943 by establishing this category in its Reserve Corps. In 1949 sanitarians were first commissioned in the Regular Corps.

At about this time the American Public Health Association agreed upon a definition of a sanitarian. It has been substantially unchanged in meaning, but frequently reworded. The original language is worth underscoring:

A public health sanitarian is a person whose education and experience in the biological and sanitary sciences qualify him to engage in the promotion and protection of the public health. He applies technical knowledge to solve problems of sanitary nature and develops methods and carries out procedures for the control of those factors of man's environment which affect his health, safety, and well-being.

Here is a charter and a challenge which both you and your employers, public and private, have accepted and endorsed. Your work and progress have had the full support of the American Public Health Association, and the Association of State and Territorial Health Officers.

The States are also recognizing the increased professional stature of the sanitarian with Registered Sanitarian Acts in some 16 States enacted into law and others already in the legislative mill.

Just a year ago at your sessions in New York City, Mark Hollis lauded the work of the Sanitarians Joint Council as another forward step in professional progress. Permit me to quote from his paper published in the Journal of Milk and Food Technology this April:

"The formation of the Sanitarians Joint Council . . . can prevent the wastes and tragedies that have occurred with other professions who did not provide a forum where organizations having parallel interests could meet and agree on one program with consolidated support."

This is important for all health workers to remember. Whether as physicians or sanitarians, we should bear in mind that our thinking inevitably tends to function on the basis of past experience. Therefore many of us still subconsciously tend to operate in the bacterial age of public health, still cherishing a rationale appropriate to the pathways of disease whose obliteration made the first five decades of this century an era of great public health achievement.

But if we are to make half as much progress in the second half of the 20th Century as we did in the period 1900-1950, we shall have to organize a veritable renaissance of learning and action focused
on the new health environment. And we shall have
to do this right speedily.

This does not mean that I deplore the need
which every population has for some kind of organi-
ized protection against the spread of infectious dis-
case. Here the concept of surveillance and of stand-
by control mechanisms is gaining acceptance. But
it certainly appears unnecessary, unrealistic, and
wasteful for local public health services in low-
prevalence areas to devote a substantial share of
scarce health resources to many of the control rou-
tines which are no longer needed. Yet in many com-
munities these routines are still observed, being main-
tained, as it were, in the hope that some epidemic
or small outbreak will eventually justify their exist-
ence.

He also sounded a warning when he said:

“In developing your program I would suggest
that you not limit your thinking to the traditional
and established activities of the sanitary. There
is need for new skills and competencies to cope
with coming problems. The stature of sanitari-
ans will be increased if these can be supplied
from his category.”

As is the case with other health workers, sanitary-
ians are going to have an extremely uneasy time of it
unless they can make very rapid adjustment to our
forthcoming tomorrows. Otherwise we and these
tomorrows won’t hit it off very well. Our era calls
for major social invention of a caliber equal to tech-
nological advance and, for my money, we technolo-
gists must accept the responsibility for inventions
needed to keep our field at least in balance with
social change because if we don’t, other groups will
take over.

To make the transitions from yesterday through
today and into tomorrow requires constant and
highly critical reassessment of all the factors which
have positive and negative impacts on health and of
the constantly increasing flow of new developments
which research brings.

I stress this point in my conversations with all
health workers not only in terms of the priority of
current health needs as I see them, but also because
I believe that the retention of outmoded practice is
a source of intense frustration to newly recruited and
technically competent young workers who may well
be lost to public health as a career unless we give
them tasks of high priority to perform.

My comments on the need for critical reassessment
also do not mean to imply that all old programs are
unnecessary merely by virtue of their seniority.

For example, progress in foodborne disease con-
trol is probably not keeping pace with progress in
other fields of public health. I say probably, because
no one really knows how many outbreaks of food-
borne diseases occur in the United States.

Even though your Association has developed and
publicized an excellent procedure for the investiga-
tion of foodborne disease outbreaks and though there
is an established way of collecting and publishing
national data on food and waterborne disease out-
breaks, many States and cities rarely report them.

In 1957, for example, of the 250 outbreaks of food-
borne disease reported to our National Office of
Vital Statistics, 106 or 42 percent were reported from
California. But even though California reported far
more than its proportionate share, its State Depart-
ment of Public Health “estimates that only 3 per-
cent of all cases of foodborne disease are reported . . .
Each year some 100,000 persons are affected with
food poisoning (in California). . . .”

Dr. Karl F. Meyer, internationally recognized
epidemiologist, estimated in 1953 that over 300,000
cases of foodborne illness occur each year in the
United States. Of course, extrapolations from the
California data would set a figure much higher than
this for the entire United States.

Certainly these indications of the level of foodborne
disease show that we are not yet ready to relax
control procedures in this area.

Moreover, thorough and meticulous investigation
of individual outbreaks can be expected to bring to
light factors which point up the need for alteration
in milk and food sanitation programs.

Action following the discovery of Q fever on the
West Coast is a story with which you are familiar.
Epidemiological investigation of cases revealed that
dairy cattle were a source. A cooperative study by
the University of California, the Milk Industry Foun-
dation, the Dairy Industries Supply Association, and
the Public Health Service developed the need for
certain changes in pasteurization techniques. This
was done with good results.

But I understand that the problems of Q fever
are not yet entirely resolved, and I note that your
agenda for tomorrow afternoon includes a paper on
Q fever in the neighboring State of Wyoming.

However, the kinds of controls I have been talk-
ing about so far are well developed. What about
some of your forthcoming problems?

Some of the sweep of the sanitarian’s possible fu-
ture destiny can be surmised by inference from what
has already happened yesterday and is happening
today. Let me give you some examples.

Let’s first talk about that very adaptable organism,
the staphylococcus, which has been highly success-
ful in maintaining a parasitic relationship with man
and other species for as long as we know. You all
know that the most highly educated staphylococci
are presently found in hospitals where they have learned to resist most of the antibiotics and are being given postgraduate courses in the newest antibiotics as they come out. So, for lack of a simpler avenue of approach to staphylococcus control, our hospitals are going to have to revert to the aseptic regimens of pre-antibiotic days.

But we know that although these staphylococci are domiciled mainly in the hospitals, they are also entering into the community. It is therefore quite reasonable to hypothecate their establishing a two-way linkage between the hospitals and the food-producing industries whose personnel become hospital patients. And these potential interchanges are developing at a time when the etiology of bovine mastitis has been shifting from the streptococcus to the staphylococci, coincident with the newer therapies for mastitis. There are also some remarkable identities in phage types among the staphylococci found in food, milk, and hospitals. What all of this may mean for the future is not certain but I would venture to guess that the sanitation emphasis will tend to increase.

Another feature of our civilization which relates to the sanitarian's future is the geometric rate at which our civilization spawns new products, some of which may contaminate food. The soil, water, and air by which crops grow may contain large quantities of contaminants: some inadvertently present as by fall-out; others present by intent like the pesticides. While resolution of the extent to which mankind must compromise with such contamination is both a high level technical and policy matter, application of standards in this area will certainly be a function needing the sanitarian's aid.

Still another possible example relates to the field of our future relationships with other nations. The Civil Defense Foods Advisory Committee of the National Academy of Sciences-National Research Council has pointed out that "certain segments of the food industry are extremely vulnerable to covert activity with Biological warfare or Chemical warfare agents or both, and possibly to Radiological warfare," and that "under present conditions of food manufacture, packing, and distribution, it would be possible to contaminate sufficient food — to impair the health or endanger the lives of large numbers of people scattered over wide areas in the USA." The implications of this statement represent a challenge to the sanitarian and this is certainly an area where he should be prepared to render service to his community.

These are some instances of what the future role of the sanitarians might include. At best they are guesses, and I am sure you share my hope that you will never be called on to protect our food and milk supplies from the contamination of warfare. But I think even this example will serve to illustrate what the future may require of you.

And I know that you as sanitarians and as members of what a learned philosopher once called the "opinion-making minority" of your own community are anxious to accept the challenges by which you can be of help tomorrow as well as today.

I think the composite membership of the International Association of Milk and Food Sanitarians, which includes industry, government, and the public health professions, has already made an outstanding contribution and, which is more important, has laid an important foundation for the future.

Here I want to pay tribute to some of the programs which exemplify these potentials for futurity. The 3-A Sanitary Standards program presents much more than a commendable purpose of developing standards for dairy equipment. It is symbolic of the growing partnership of industry and the government in coping with contemporary public health problems.

Similarly in the field of food you have participated in the development and operation of the National Sanitation Foundation and its Testing Laboratory which, as a nonprofit-making organization, concerns itself — as do we all — with disease prevention and improvement of the health of the environment. The National Sanitation Foundation does this by sponsoring or conducting research to find improved sanitation methods and to determine facts.

The baking industry has also made a very substantial approach to establishing principles of sanitary design for baking equipment in similar cooperation with this Association and with public health workers generally, and here too the development of standards has given us significant health benefits.

I should also mention recent developments in the vending machine industry which provide an excellent example of cooperation between government and industry. When technologists combined the fundamental idea of coin vending with the use of electronic circuits and developed machines which could provide a variety of hot and cold food items, they also introduced a new potential for spreading foodborne disease. Fortunately this hazard was anticipated and, because an excellent relationship existed between this industrial group and public health officials, these machines have been so designed as to safeguard the products they sell from contamination and deterioration.

Here indeed are concrete instances of an important tendency in the approach to community health: a change in emphasis from regulation and enforcement to education and cooperation. In our highly interdigitated society, it is becoming more and more im-
portant that organized groups coordinate their activities with others so as to maximize public good. This is certainly most true in the health field.

Hence, just as producers and distributors are now working with public health authorities to maintain high standards of cleanliness in the equipment which processes milk and food, so it should be gradually possible to develop similar cooperative efforts with the primary producers of crops and the ultimate distributors of food and milk, whether this distribution be in restaurant, institution, or the home. By the same token, as new hazards affect food and new areas of cooperation are required, your profession should play a large role in arranging for appropriate joint action.

This of course requires a high degree of leadership. And in thinking about how this leadership must be applied, Dr. Burney is fond of saying, "Health isn't an isolated problem." He feels that the role of leadership in each of the health professions is to understand how its function in the quest for health can best be fitted into the pattern of community life, and to discover the dynamic forces of society which are bringing forth new resources as well as new needs with which and toward which the individual health professions can shape their future.

Such leadership will of course involve an increasing amount of cooperative effort—cooperation within government between workers in health and food and drug agencies; cooperation between levels of government—Federal, State, and local; cooperation between units of government; cooperation between the food industries and public agencies concerned, as well as cooperation between sanitation personnel and workers in related fields such as agriculture, radiological health, and civil defense.

There will of course be fluctuations of interest and pressure in your careers as sanitarians as in other fields of public health endeavor. Sometimes as health workers we get discouraged because our particular field of endeavor seems for the moment to have gotten lost in the shuffle. There is no doubt that health too has fads and fashions just as do the women's dress and the shape of automobiles. This is a perfectly natural phenomenon characteristic of all human endeavors and if as Americans we seem prone to shift our interests somewhat more rapidly than is the case in other nations, we differ only in degree and not in kind.

All of you have heard about the new "programs" in public health: the research expansion in many fields, the developments in radiological health, accident prevention, air pollution, health mobilization, and the like. Why are these programs being highlighted at the Federal level and other program areas being retrenched?

You may not have thought of asking yourself a parallel question: Why are other programs receiving heavy support even though they are not intrinsically "new"? Why for example is so much Federal support being given to the construction of hospitals and water pollution abatement plants? Certainly we have had hospital and water pollution abatement needs for a long time.

I do not think there is any fundamental difference in the amount of public support that can be enlisted for a program exclusively on the basis of whether it is a new program or an old program. It seems to me that factors are instead twofold: one, the factor of need and two, the factor of the public's understanding of this need.

The important thing to remember is that any cause, any crusade, needs constant re-evaluation and reinvigoration if it is to remain productive and, even more, if it is to continue to receive deserved recognition from the various publics which give it support.

Such revitalizing interests should most desirably come from the professional groups concerned with the field of endeavor at hand. That this is necessarily always the case. Sometimes unfortunately a need becomes so acute that the public without professional guidance must explore many blind avenues in an urgent need for problem solutions. When this happens it is both wasteful and pathetic. Of course, if people were sickening in quantity from the use of improperly processed milk or from food processed by Typhoid Marys, popular interest would soon threaten to overwhelm the sanitarian functionaries of the health department. But this is, as you all know, not necessary. It is therefore most desirable that as a fundamental part of every professional career there be incorporated a continuous and searching study of the many future problems which can be anticipated by an enlightened and imaginative professional group.

In addition to the new worlds which you as health workers may be destined to conquer, you should also constantly direct yourselves to another task: the intensive as well as thoughtful development of relationships between your profession and your public which will permit the profession to convey to its public the existence of emerging problems, the need for exploration of solutions, the carrying out of demonstrations and dispositions.

This kind of communication between public and profession cannot be generated from the outside, from Washington, or through occasional and perfunctory use of the channels of public communication.

I think that what is involved here is the progressive
development of new attitudes by all health workers at every level of government toward not only our fellow health professionals and our colleagues in other areas within and without the government, but also toward the public. The future will certainly require more and more careful self-examination as well as much more active alliance with all of the professional and public groups who can help us to achieve greater vitality and viability in the particular areas where we function.

It probably cannot be over-stressed that a great part of our difficulties today as public health workers is that we have engendered a public attitude of indifference to public health. And, although it is probably true that public health does not now measure up to the needs of our time, it is equally true that our time does not recognize its own needs because our health professions have not provided the public with the material on which that recognition could be based.

In public health whether we be sanitarians, laboratory workers, researchers, or physicians, the responsibility inherently is not only ours as a profession but fundamentally ours as individuals to serve as instruments in providing for the health aspects of national growth. In a democratic society we must each communicate with our public and our acceptance is contingent on the success of that communication. Here too the future of the sanitarian in public health is his own to make.