

At the Detroit meeting of the APHA in 1961, the opening symposium dealt with organization for new responsibilities in public health. The symposium is presented in this issue. The first section, concerned with "Health Needs and Trends," was opened by Dr. Wegman with the address presented below. The paper was then discussed in terms of administration, environmental health, and research and epidemiology in the three papers that follow.

ORGANIZATION FOR NEW RESPONSIBILITIES IN PUBLIC HEALTH

PART I—HEALTH NEEDS AND TRENDS

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THROUGHOUT the years of existence of the American Public Health Association, dealing with the new has been a hallmark of its Annual Meetings. Indeed, interest in the Annual Meeting has grown in the measure that reports of new ideas and experiments have stimulated the minds of the public health world. For it is novelty and originality of concept and program that most readily keep faces turned forward.

As today's symposium takes up the topic of newer responsibilities, it is, however, only proper that we attempt to delimit newness more precisely. Where does new begin? In Ecclesiastes, 1:9, we read "The thing that hath been it is that which shall be, and that which is done is that which shall be done, and there is no new thing under the sun." Those who have carried out experimental research in laboratory or community can hardly be satisfied to accept such a statement literally. None will

deny, however, the wisdom of a precept which directs us to look ever more carefully on what has gone before. In our constant search for the new, and for new interpretations of the already known, there is a compelling necessity to reexamine constantly the implications of the past and the current significance of previously accumulated information.

A classic example of the way our thinking so often comes full circle is our present concern with the problems of medical care administration. In antiquity, Hippocrates and Galen wrote on hygiene in the context of preventive medicine for the individual. Centuries later, when public health had its beginnings as an organized community responsibility, the first concern of the state was to exercise its police power in order to prevent the ills of one person from being visited upon another. It was subsequently a logical extension of community responsibility to embrace the

protection of those groups of society—notably mothers and children—exposed to special risk. And now, from concern with contagion, and the environment, and the care of special risk groups, we come back to the realization that we cannot think adequately of the health of the public if we do not concern ourselves with the health of all the individuals who make it up. Thus, we come back again to the Hippocratic and Galenic preoccupation with individual health, but this time as a least common denominator of community health.

I have presented the foregoing not just to ring the changes on a semantic theme but to point up the dynamic status of public health. Effective organization to meet new responsibility involves fundamentally unceasing attack on our oldest responsibility—constant re-examination and reevaluation of where we stand in protecting the health of the entire community. To do this properly, of course, is more easily said than done. How easy it is to become set in one's ways, to be sure that since what has been done has produced results, or at least has failed to produce demonstrable ill results, it is the thing to do. Here is an interpretation of Ecclesiastes at its most negative: Since there is nothing new, what's the use of any change?

Fortunately, we are often shocked out of our complacency. I well remember an epidemic of diarrhea in a newborn nursery limited almost entirely to breast-fed infants. Laboratory and epidemiologic investigations indicated strong likelihood that the vehicle of spread was the boric acid solution used to clean the mother's nipples routinely in the thought that a presumably antiseptic procedure would prevent infection! Stopping this practice saved nurse-time, saved material expense, and, "incidentally," was followed by cessation of the epidemic.

In some problems a new discovery, either technical or organizational, opens

a new pathway of attack. One may cite development of effective vaccines against poliomyelitis as a current example. Killed vaccine, now thoroughly proven in effectiveness, presents certain difficulties from the standpoint of a sustained public health effort, notably in countries with limited resources and limited medical and nursing personnel. Some of these difficulties can easily be overcome by recently developed effective live virus vaccines. These have other advantages as a public health weapon, but also have their own difficulties. Careful analysis of the total situation is necessary to maintain past gains and to make new progress. Here new responsibility is clearly to take prompt advantage of a technical advance within a balanced program that does not lightly toss over proven accomplishments of the past.

The principle is clear but how often can the public health worker expect to draw back a distance and look critically at what he is doing? Realistically, such reexamination is likely to follow when one of several things happens—dramatic episodes like those mentioned above; the advent of a new staff member eager to demonstrate his ability to make a change (sometimes, just any kind of change!); other outside stimuli such as pressure from a superior, or even exposure to a philosophic lecture. Organizationally, the urgent need is never to be satisfied that well enough is good enough and always to be willing to undertake critical reexamination with our minds open to new ideas.

Often discovery of a new responsibility may be but recognition of a previously concealed problem. Those of you who play chess will recognize the analogy with the move to "discover check." The hidden danger is disclosed only when a more obvious danger is removed. This analogy perhaps fits best the "newer" diseases such as fibrocystic disease or phenylketonuria, dis-

eases which come to light only as hitherto more common problems are brought under control. In another sense this also applies to our present-day widespread and increasing concern with chronic diseases, diseases which might not have achieved priority had not infectious diseases been reduced so strikingly.

Occasionally, of course, there are so-called "really new" problems, those which have perhaps been invented rather than discovered. The obvious current example is ionizing radiation. Not too long ago the concept of radiation and health as a major concern of health agencies or schools of public health was simply unheard of. The Interim Commission which began the work of WHO, for example, discussed the use of radioisotopes and radiotherapy, but gave no priority to protection against radiation hazards.

But, in a broader sense, here, too, the matter of newness is a matter of degree. Ionizing radiation surely constitutes a new danger because of the quantitative increase in radiation hazard created by man in the course of developing both warlike and peaceful uses of nuclear energy and because of the great increase in exposure to x-rays. Recent studies, however, of the variation in background radiation found in different parts of the world suggest that the influence of ionizing radiation on health is by no means new. What is new and what must be carefully taken into consideration in any planned public health attack on the problem is the enormous quantitative increase of exposure danger through the actions of man himself.

Another type of man-made disease was identified not too many years ago when it was shown, after a great deal of research, that retrolental fibroplasia in premature infants, a hitherto unknown disease, was being caused by excessive use of oxygen, given originally on the theory that high concentrations

were needed to prevent fatal anoxia. An excessive zeal in utilizing an important therapeutic aid had produced a hitherto unknown disease. How easy it is to confuse cause and effect. As a member of our faculty recently remarked somewhat cynically, "The best thing for a headache in the morning is whiskey the night before!"

To apply critical examination effectively, I should like to use as a frame of reference the complex and constantly interacting triangle of human being, disease, and environment.

The triangle is a useful figure for this since it permits putting man at the apex, where indeed prime concern is needed. Judging from the newspapers, as well as daily contacts, man seems to be, on the average, just as crotchety, cantankerous, and contentious as ever. In certain societies, indeed, he appears to have more emotional problems. Yet in these very societies he has grown physically and suffers less communicable disease. A logical consequence has been that as the burden of infectious disease has been stripped off it has been possible for a great many more persons to reach old age and its attendant problems. From the legendary Methuselah to the present, individual stories of ripe old age abound. What makes aging different now is the number of people involved. There has been a concomitant increase in those with unfortunate side effects of the aging process—mental deterioration, impairment of physical mobility, a dependency strikingly resembling that at the other extreme of life. As happens so often, a quantitative change in an existing situation has produced a new problem and new concerns for the public health worker.

Increasing numbers of aged persons bring with them difficulties in daily care and living not thought of a generation ago, when the individual family took for granted its responsibility to provide

for the few who reached this age period. Incidentally, an intriguing "new" variation on this idea is a recent suggestion that families in a community might "exchange" their oldsters, thus helping to avoid the psychological difficulties so often present with an older parent in the home, yet maintaining familial responsibility for the daily care of an older person.

A problem related to aging is that of the sheer total number of human beings. At its present rate of increase the world population bids fair to double itself in 40 years. One need hardly look further for a more important new responsibility for public health than the actual number of human beings. In a problem fraught with so many cultural, political, emotional, and religious connotations there has been thus far much more heat than light. Public health people will sooner or later have to come to grips with the problem and will have to seek solutions more clearly thought through than any now proposed.

Some of the most exciting recent research in regard to man has been in the field of genetics. We are daily learning more about the chemistry of the genes, as was so beautifully demonstrated in last year's Delta Omega address at the Annual Meeting of the American Public Health Association. We are acquiring vastly increased knowledge concerning the morphology of the chromosomes and the way they behave in division and multiplication, knowledge which has already opened a whole new chapter in such hitherto unsolved conditions as mongolism. As today's generation of medical students grows familiar with such terms as nondisjunction, translocation, and trisomy twenty-one, we inevitably come nearer a break-through to prevention in one of the important sources of human misery and heartache.

Yet, this kind of brilliant research also highlights our continuing and distressing tendency to think of man as a

combination of organ systems rather than a complete human being. This is complicated by the pervasive effects of television and other channels of mass communication. Chiefly through drug advertising, but even occasionally on educational programs, man is shown as a chain of organs and conduits. To some it is laughable but it represents the tendency to overlook man as a thinking, feeling, and reacting part of humanity. Even in the increased attention to emotional problems, these are too often thought of as engrafted on a body. There is still great need for looking at a person as a person, with his physical strengths and infirmities as well as his emotional strong points and weak ones.

Turning to disease, another part of the triangle, here too, knowledge increases daily. But progress highlights the distance left to go. As we greet the advances which bring not one but several effective vaccines against poliomyelitis, we recognize how far we are from specific preventives and therapy against such a world-wide scourge as salmonellosis. This very evening there will be a review of the present status of a vaccine against measles. Anyone who has looked at the morbidity and mortality from measles in the United States must recognize what a boon an effective vaccine will be. Yet how well organized are we to meet the responsibility we shall have when the vaccine is ready technically? What a magnificent opportunity to profit from the difficulties and mistakes attending the introduction of the Salk Vaccine!

While recognizing the continuing priority of the problem of infectious disease in a great deal of the world, it hardly needs repeating that, in the United States, a large part of the stage has been given over to metabolic, neoplastic, and other long-term illnesses. We have learned a great deal about how to cope with chronic infections, such as

tuberculosis. Can we make equal progress with the many other long-term conditions now coming to the fore? Do we realize clearly that the effective level of prevention in long-term disease will generally be prompt and effective therapy and rehabilitation, so often categorized as curative medicine?

At this point I am constrained to insist that a major new responsibility in protecting the public health is to do something about the indiscriminate use of potent therapeutic agents. The great example, of course, is in regard to antibiotics where physicians are exposed to a bewildering succession of often uncritical claims and counter-claims. It takes little imagination or reading of the literature to realize how deliberately we are proceeding to attempt to kill the goose that laid the golden eggs. It is all well and good to put faith in human ingenuity to discover new antibiotics as resistance develops to the old. Unfortunately, the truth of ecology comes to the fore—microorganisms appear to be equally ingenious in developing resistance and in frustrating attempts to wipe them out. In so far as we use drugs without adequate reason we hasten the process of their becoming ineffective.

In considering newer responsibilities related to the environment, it is useful once more to turn back to Hippocrates, who explained much of disease as related to the four elements of the physical environment: air, water, earth, and fire. Today we contemplate the problem of limitation of our resources of water, earth, and even air, and we face pollution of all of them. Furthermore, we do not have to stretch the analogy too far to equate fire with ionizing radiation. And, in another sense, are we not playing with fire if we do not draw on all our talents to confront the problem of food additives and the need to protect our natural resources from contamination? I can do no more at this time than point to such developments as

the proposed Bureau of Environmental Health in the Public Health Service and the recent Congress on Man and His Environment, organized by my distinguished predecessor at Michigan, Dr. Henry Vaughan, as indications of our growing concern with this aspect of human existence.

Equally great and serious problems are developing in the social environment. The progressive change toward urbanization of our population applies not only in the United States but other countries around the world. This trend is bound to increase as the population grows. Curiously a series of contradictions have developed in this regard. The great urban concentrations become more complex daily but the populations of the cities themselves consistently decrease, as the flight to suburbia continues. One has but to look from the air at the New York, Detroit, or Baltimore-Washington areas to realize how quickly city boundaries will become blurred.

To complicate the provision of adequate services in metropolitan areas, there is the further problem of the great mobility of the American people. It is said that one-third of the population change their dwellings yearly. Difficulties in regard to record keeping, continuity of care, and avoidance of duplication are legion.

Just a word on the very direct interrelationship between social and economic factors and health, possibly more obvious in other countries than in the United States. As Dr. Abraham Horwitz, director of the Pan American Health Organization, pointed out at the recent Conference of the Inter-American Social and Economic Council, in Uruguay, poor health leads to limited production which leads to inadequate funds of which a disproportionately high amount must be spent on cure rather than on prevention, which, in turn, fails to improve the basic health situation

and leads once more to inadequate production. The conference recognized the validity of this observation and adopted as its second resolution a comprehensive ten-year public health program, to be closely correlated with plans for social and economic development.

It is frequently asserted that public health is based firmly on both the social sciences and the natural sciences. In practice, however, the lessons from the social sciences are all too often politely ignored as health workers have concentrated on their traditional tasks. In the measure that the public health worker considers his task as embracing a concern with all aspects of daily existence that impinge on maintenance and restoration of health, in that measure will his direct operating program grow in importance and value. The very force of such factors as spreading urbanization, of the change in manner of daily life, of the growing interdependence of humanity demands increasing recognition of the importance of the social environment to achieve adequate organization for health.

As one sums up the relations within our triangle and the kinds of new responsibilities which are thereby brought to light, it is obvious that public health must turn again to Hippocratic concepts of broad concern for total health and the corollary concern—how all the people receive their health services. This, of course, includes an interest in how they receive needed medical care. In this country, fortunate enough to enjoy relatively high levels of medical care, the health officer has an easier task than his counterpart in a country lacking physicians and facilities. On the other hand, because of our traditional patterns of medical practice, the health officer's role in providing leadership to assure quantitative and qualitative adequacy of medical care for all the population may indeed be more difficult. Establishment of effective social

controls and coordination of our present badly fragmented services are goals not easily achieved.

The recently published report from the National Advisory Health Council on Medical Care in the United States recommends a broad and active role for the Public Health Service, and inferentially other public health workers. The council's recommendations ranged from assisting in developing standards for qualitative and quantitative adequacy to promoting coordination among the various groups and individuals concerned.

Health officers have been slow to move into the field of medical care, possibly because of fear to become involved in an unfortunate controversy. As a result, public health workers find themselves in the strange position of avoiding responsibility within a field which should be within their technical competence. Last summer at an Institute on the Administration of Medical Care for the Needy, held at our school with the support of the Public Health Service, invitations were sent equally to health agencies and welfare agencies, yet attendants from the latter outnumbered the former almost five to one.

There is no magic formula on how to organize to meet these newer responsibilities. What is clear is that far too often we have failed to apply long known principles of adequate and careful planning on the basis of meticulously accumulated facts, continuous research and evaluation and proper training of personnel. As in other fields there are knowledge and resources concerning organization and administration already at hand, notably in the social sciences, to help us in looking at our own agencies as sociologic units, in improving communication, in measuring goals, in making coordination more effective.

Newer responsibilities make more urgent than ever the need to break the

job down into its component parts and then build these up into a coordinated program. One important aspect of the first part of this process is decision as to who does what. In the light of realistic personnel possibilities, there is urgent need for reappraisal of what jobs can be done satisfactorily by others than those who have carried them out traditionally in the past. Fifteen years ago, it was inconceivable that in a premature unit specific repetitive aspects of daily care of the baby, even including gavaging, should be entrusted to anyone but a graduate nurse. Now there is ample proof that properly trained and, even more important, properly supervised nonprofessional personnel may do many of these tasks completely satisfactorily.

An important illustration of the process of combining organizational details and concentrating forces is presented in the fulfillment of one of the most urgent new public health responsibilities, the world-wide program for eradication of malaria. There has been much loose talk about eradication and the term is too often used without fundamental appreciation of the concept involved. Eradication means purely and simply tearing out by the roots permanently.

In giving the first of the lectures named in his honor, Dr. Fred L. Soper in 1959 laid down the principles upon which a successful eradication campaign may be mounted. Use of the word campaign itself has significance. In contrast to most health services a campaign ought to have a beginning, a height and a clearly defined end point.

This theme will be examined in another session,* and I shall not explore it further here other than to point out some general implications from the malaria campaigns. Even in noncommunicable diseases, proper planning,

* See papers by F. L. Soper, page 734, and I. J. Brightman, p. 749, in this issue.

based on prior careful measurement of the problem and the resources needed, can often so concentrate energies and resources within a time span that a coordinated effort achieves gains not possible when the same amount of energy is fragmented or distributed. The doctrine of combining resources and assigning to each the task for which it is best fitted has clear significance for the kind of collaboration that should take place among official agencies, voluntary agencies, professional associations, and individuals to accomplish a specific task.

I have time for only a few words on the role of research and training in organizing for newer responsibilities. Great expansion in the program of the National Institutes of Health has, for the first time in our history, made it possible to overcome the financial obstacles which impeded laboratory research. Nevertheless, it is equally important to develop a considerably expanded program of administrative research where once again we are turning increasingly, and I hope not uncritically, to the social scientist for help. Urgently needed for effective planning of services are experimental studies which may be evaluated by critically applied epidemiologic technics. My first paper before this Association 24 years ago was a description of a rural consultation service as a means of teaching physicians. As I look back on this, I recognize how much more valuable the report would have been had it been planned with more critical evaluation and more actual measurement of accomplishment.

In my present position I would be the first to say that academic institutions need equally to examine critically the content and duration of their teaching programs. This need is heightened as our students must be prepared for new responsibilities along with the old.

I should like to bring into focus some of my ideas by considering them

in terms of the needs and trends of newer health responsibilities in the so-called developing countries. In the broadest sense organization for the newer responsibilities in public health will everywhere follow the same principles in regard to critical reexamination that have already been discussed. For most of the world's population fewer resources, shortage of trained personnel, and far greater needs make the task more difficult and demand better planned and more economic use of what is available. On the other hand, the necessity to be more efficient may indeed be an advantage and is often accompanied by greater willingness to accept outside advice, thus drawing on the best of newer ideas.

International health itself, however, constitutes a new responsibility on the world scene, meriting recognition in its own right. In a shrinking world problems of communicable disease, always a concern for neighboring countries, now must preoccupy all countries. The need for nations to work together in development of standards must produce better balanced criteria and lead each country in the long run to more effective evaluation of the quality of its own health services and facilities. Provision of technical assistance is an avenue for bringing to each country of the world knowledge available in other countries. While certain countries tend more often to be on the receiving than on the giving end of technical assistance, all have something to offer. It is not amiss to point out the possibility that the United States may learn needed tech-

nic for eradicating *Aedes aegypti*, the urban vector of yellow fever, from the smaller Latin American countries which have accomplished the goal successfully.

Finally, to us as public servants must come recognition of the extraordinary opportunity we have for promoting peace through understanding among nations and among health workers. Ours is the advantage of having a common language which can often surmount the obstacles of the Tower of Babel. The person who goes into public health is the person who starts out with a sympathy for others that makes cross-cultural and cross-governmental understanding possible.

It is no accident that among the specialized agencies of the United Nations family, no other has seen the expansion in program usefulness, influence, and prestige which has attended the world-wide efforts of the World Health Organization. Bilateral collaboration and exchange have also expanded to contribute to the common goal. Working together for health is no substitute for political understanding and political peace, but it is incumbent on the public health workers of the world to exploit to the fullest, in the best sense of the words, the possibilities for promoting international collaboration through joint health efforts. What greater new responsibility can there be for health workers than to demonstrate patterns of understanding and accomplishment through joint action across national boundaries? Nowhere can health be more effective than as an avenue for peace.

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