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## SYMPOSIUM ON THE RECENT ADVANCES IN THE MEDICAL SCIENCE

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### ADVANCES IN PUBLIC HEALTH

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Public health has passed its adolescent stage and is emerging into maturity as a positive science. The scientific advancements of the past quarter century have brought with them a phase of public health consciousness on the part of the medical profession as well as the general public, with the result that tools have been developed whereby the health of the people as a whole has been improved. Withal, we are only beginning the battle against disease and the next few years will see many more advancements.

New case finding techniques in tuberculosis are being expanded, mainly in the field of mass x-ray procedures. With the use of microphotofluorographic equipment, large numbers of persons can be screened effectively and at relatively low cost. The follow-up of suspects and cases includes the examination of contacts, along with education in prevention and treatment. Increasing emphasis is being placed on the finding of early cases in a wholehearted effort to cure and rehabilitate, so that patients may become self-supporting and useful members of society.

Research goes on in the use of aluminum in the prevention and treatment of silicosis, where evidence, available to date, indicates aluminum therapy is of therapeutic significance. It is recommended, however, that the general application of aluminum therapy in industry be delayed until adequately and impartially controlled clinical observation demonstrates a practicable effectiveness. In the meantime, there should be no slackening in the control measures that have been found to accomplish a reduction of the hazards of harmful dusts in industry.

During the past few years great strides have been made in the control of communicable diseases. To name but a few . . . , a significantly effective influenza vaccine has been developed, and diphtheria toxoid has been combined successfully with tetanus and whooping cough immunizing agents. It is noteworthy that, because of complete immunization by the Army and Navy, tetanus was extremely rare in the armed forces during the recent conflict. Recent developments have given us an immune globulin for the prophylaxis and treatment of measles which may have far-reaching possibilities in this, as well as other fields in pediatrics. Research goes on with penicillin, its usefulness already having been established in reducing the period of communicability of certain of the more common infections, and in reducing the hazards of complications.

Penicillin also permits the safe and effective rapid treatment of syphilis and gonorrhoea, allowing more emphasis to be placed by public health agencies on case finding. The main value of the short-term therapy of syphilis is the reduction in the proportion of lapses from treatment, so frequent in long-term standard therapy. However, in the manufacture of penicillin for commercial use, certain refinements have lowered its curative value for syphilis. Knowing that factors F and G are essential for the successful treatment of this disease, and that factor K is the least effective, methods have been developed during the past year to inhibit the formation of the K factor. At the present time, a considerable amount of commercial penicillin containing an abundance of the K factor and deficient in F and G is on the market, thus necessitating relatively larger doses of the drug to effect cure.

The diagnosis of syphilis is primarily a laboratory procedure and the recently developed cardiolipin antigen can be set at a stable sensitivity level, while increasing specificity, giving cause for hope of enhancing the reliability of serodiagnostic methods. Cardiolipin, however, is still definitely experimental, but, if proven, may result in a complete overhaul in the field of syphilis serology.

The extent of the toxicity to human beings of D.D.T. (dichloro-diphenyl-trichloroethane) is not known, but it has been found that it can be used in the control of insects with little danger to the user if reasonable precautions are observed. Perhaps in this country it will find its greatest use in the control of malaria. At the present time, the U. S. Public Health Service is engaged in an anophelene mosquito control program in the endemic areas of the southern states, putting to use practices found effective by our armed forces. D.D.T. is also being used effectively in the control of the vectors typhus and yellow fever. It must be remembered, however, that though D.D.T. may prove to be a boon to humanity, it must not be regarded as a substitute for sanitation.

In the field of dental health, the discovery that the topical application of a two per cent solution of fluorine reduces the incidence of dental caries by approximately fifty per cent, offers great possibilities. Perhaps we may be justified in assuming that in the not too distant future, caries will be a minor instead of a major problem in oral health.

One of the important causes of death in childhood is rheumatic fever, and although it is not known as yet, with certainty, whether rheumatic fever programs are preventing illness or prolonging lives, substitution of good management for the neglect or over protection which frequently characterizes the handling of these children, is enough to make these programs worthwhile. Realizing the need for better and more widely available consultative services for rheumatic fever, as well as coordinated services for the care of patients, health departments are encouraging the development of such facilities. In some instances, clinics are being organized independently by local medical associations and hospital staffs, working cooperatively with local or state health departments in case finding, follow-up and education.

The outlook for the control of cancer is definitely improving. There is growing evidence that cancer patients are seeking medical care earlier in the course of their disease, enhancing their chances of survival. This trend is due in most part to public education. Even in the present state of our knowledge, many lives could be saved annually by earlier diagnosis and with the institution of appropriate treatment. The ultimate answer, however, lies in the laboratory.

Today, public health has developed to the point where it has become apparent that many diseases cannot be controlled without full citizen understanding and participation, and therefore health education is coming to be universally accepted as an essential part of every public health program. To stimulate public action and individual participation, well planned and coordinated programs of education are required. Three major methods are employed in health education, namely:

as a part of teaching in the schools and colleges, health information for the general public; and health teaching by those who are actually engaged in giving medical care to the sick. This latter is one of the great responsibilities and privileges of the practitioner of medicine.

It is generally accepted that some method is needed for distributing the risks in sickness and the costs of medical care, so that the population as a whole can gain access to medical services as needed. Insurance and taxation are the two methods of distributing costs. Both are employed in this country, but as yet only for special groups of people or for particular types of care, usually hospitalization. Plans for insurance are faulty in many respects in that they do not offer comprehensive medical care, provide for no prevention or control of disease, are not really plans for medical service but for financing general hospitalization and surgery. Because of variations in the types of services offered by the 219 plans for prepaid hospitalization in this country, it is impossible to compute any arithmetic totals of service furnished by them.

The year 1945 was revolutionary inasmuch as it witnessed the publication of two books which bared the shortcomings of public health facilities as provided by official and voluntary health agencies. Reference is made to the report of the Commonwealth Fund by Haven Emerson, M.D., entitled "Local Health Units for the Nation," which reviews the organization and management of the health departments of each of the 48 states and gives recommendations for improvement in service; and the Gunn-Platt report, "Voluntary Health Agencies—An Interpretive Study," made under the auspices of the National Health Council. This latter report is a critical review of the services available through health agencies throughout the nation which are dependent upon voluntary contributions for survival. Both reports are serving a useful purpose inasmuch as they expose the weaknesses of existing health services organized entirely for the benefit of the people, and dependent entirely upon the people for support, whether supported through taxation or by voluntary contribution.

The contemporary health services offered in our nation, supply only about two-thirds of the population with adequate full-time local health protection, while approximately 40 million persons are excluded for one reason or another. The question which faces all those interested or participating in the provision of public health services seems to be—can we move on into the realm of attainable possibilities and meet the needs and wishes of the people to the achievement of still higher levels of human health and welfare?

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