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THE AMERICAN PUBLIC HEALTH ASSOCIATION

By Watson Davis

A new method of attack on common diseases, such as scarlet fever and diphtheria, was urged upon public health officers at the meeting of the American Public Health Association by Dr. Dwight M. Lewis, of the New Haven Department of Health. It consists in combatting the disease at its source by detecting and treating the carriers who, in an epidemic or a continued prevalence of the disease among a community, can be blamed for the spread. This is the most successful method of controlling typhoid, and it is the first step in the sanitary methods of breaking up typhoid's triumvirate of flies, fingers and food.

For months after they have seemingly recovered, some scarlet fever and diphtheria patients are still capable of spreading germs about wherever they go by means of their nasal discharges. The patients are the means of continuing the epidemic; once they are detected and controlled the epidemic can be controlled. Dr. Lewis stated that it is at least as important for health departments to follow up cases and hold carriers in check as it is to see that the susceptible child population is immunized and thus protected.

Dr. Lewis decried the tendency of some health authorities to feel that disease control is not consistently possible until widespread immunization can be practiced. Even when little is known about a disease it can often be controlled by eliminating the carriers, a procedure that was effective in army war camps plagued with epidemic meningitis. Measles, at present a curse of childhood that can not be controlled by immunization or antitoxin, may prove susceptible to the carrier method of control, Dr. Lewis indicated.

No longer are the common contagious diseases common and the chief concern of those protecting the health of the nation. To-day the microbe is on the run; man knows and foils his methods of warfare.

Now heart disease, acute respiratory diseases, cancer and the best methods of medical organization are the problems that public health workers are wrestling with in their battle with premature death.

For civilization is now emerging from the A. P. (after Pasteur) era when mass attacks and civic sanitary measures based on the new science of bacteriology were the principal activity of medicine and health work; we are now entering a period in which health must be applied to the individual as an individual problem. This was the message contained in the presidential address of Professor C.-E. A. Winslow, of Yale University.

In the past half century the average length of life has increased seventeen years, Professor Winslow pointed out. This means that in a mere two generations the average human being has been presented nearly 50 per cent. more years of life, provided New York City statistics can be taken as representative. Diseases such as scarlet fever, diphtheria, diarrhea and pulmonary tuberculosis are becoming less significant in mortality statistics. In fact, with the present effective campaign of organized immunization of preschool children with diphtheria toxin-antitoxin and the development of scarlet fever serum as an effective therapeutic agent, these two diseases should in a decade join smallpox in the potentially "dodo" disease class.

In the recently perfected Calmette vaccine for preventing tuberculosis and its application to cows, Dr. Winslow sees an effective control of tuberculosis infected milk and a consequent reduction of the human disease that it causes.

America's overheated houses were blamed by Professor Winslow for a large part of the uncontrolled pneumonia, broncho-pneumonia, bronchitis and influenza that constitutes a major health problem. England with 60 degrees houses suffers from broncho-pneumonia which flourishes where chill and dampness prevail; whereas America with houses heated to seventy degrees has excessive lobar-pneumonia rates. Both countries would be better off if they kept their houses at a temperature of 65 degrees.

Although at present surgery is the proper treatment for cancer, a disease that increased alarmingly in the past fifty years, Dr. Winslow predicted that "within the next decade cancer research carried out along chemical lines may give us specific methods of treatment for this disease based either on the use of chemical substances inhibiting cell division or on the discovery of serological antibodies for some constituent in the cancer cell."

Ills of the mind, hardly considered in routine medical practice of to-day, hold possibilities beyond the health of individuals.

"The gravest ills from which this world of ours suffers, industrial disputes and international misunderstandings," said Professor Winslow, "are all in their essence problems of mental hygiene and will be solved less by economic or political panaceas than by a fuller grasp of the principles of applied psychology."

A change in the fundamental system of payment for medical services may be necessary, Dr. Winslow suggested, if the individual is to have the benefit of the prevention of diseases that so often obviates the necessity for cure. Perhaps the ideal of paying the doctor to keep one well rather than to cure one's ills may be approximated. With human nature as it is, Dr. Winslow said, it is only natural that the average person will be slow to call in a physician for true preventive service if he must make immediate and direct payment for such preventive service. In some way the purely individualistic practice of medicine must be supplemented by some form of organized medicine that will place at

the service of the patient modern scientific medical care, laboratory facilities and specialized consultation. How this can be done is a concern of the community but not necessarily a function of the community except in emergencies.

Millions of dollars of the public school funds of the nation are being wasted annually to install in schools ventilating equipment that is unnecessary and usually unused. This is the opinion of many public health experts. On the other hand, ventilating and heating engineers hold that equipment for forced ventilation as now required by law in many states is necessary for the health of the children. The reconciliation of these two viewpoints was one of the tasks attempted at the meeting.

Written into the regulations or laws of about half the states there are provisions requiring that thirty cubic feet of air per minute per pupil be circulated through the school rooms. This means that expensive fans and air ducts must be installed. The ventilation system of a single school building in New York City cost $55,000, and in seventeen months it is estimated that that city spent $1,500,000 on ventilation equipment for new school buildings.

Those who claim that this money is wasted point out that the American Public Health Association is already on record recommending that school rooms be ventilated "by fresh untreated outdoor air, admitted at the windows with gravity exhaust ducts for removing vitiated air from near the ceiling." They contend that a little cold air is preferable to a large amount of hot air. Moreover it is charged that where mechanical ventilation has been installed it has been operated only in cold weather during the heating season and that in many cases it has not been operated at all. Opponents of mechanical ventilation declare that this system is based on a conception of ventilation that became antiquated over a decade ago when it was found that ventilation is more a matter of temperature and other physical properties of air than of chemical composition. Defenders of the present forced draft systems cite experiments to prove their contentions that the air in school rooms must be changed often and completely. Attempts are to be made to bring the two factions together.

More than an unaided thermometer is necessary to tell good air from bad, Dr. W. James McConnell, of Philadelphia, told the meeting. The moisture and the movement of the air have as much effect on comfort as does temperature. He suggested that in order to please everyone in a room it might be necessary to fluctuate the temperature and other properties of the air in the room within certain limits.

Fortunately for the human race, the body is equipped to combat successfully and without harm low concentrations of dusts and poisonous gases, Dr. Philip Drinker, of Harvard, told the health experts in reporting experiments to determine just what amounts of dusts are held in the lungs to cause damage.

Face powders, rouges and other cosmetics should be subjected to the same sort of regulation that now controls the sale of food and drugs. This was the contention of Dr. S. Dana Hubbard, of the New York City Department of Health, who reported that lead, arsenic, mercury, wood alcohol and coal tar dyes are being used in these beauty preparations. In addition to menacing the health of those who use them, Dr. Hubbard charged that cosmetics are often sold and exploited through the use of misinformation and half-truths.

Even the all-day sucker and other sticky candy delights of childhood came in for condemnation when Professor John Weinzirl, of the University of Washington, reported that such sweets are frequently carriers of disease germs.

Fifteen hundred billion dollars. That is the estimated economic value of human lives of the men and women of this country by Dr. Louis I. Dublin, statistician of the Metropolitan Life Insurance Company. The vital capital measured in dollars and cents is about five times as great as the total national material wealth contained in money, stocks, bonds, merchandise, real estate, etc.

The worth of a baby born to parents who have a family income of $2,500 a year is $9,333 at the time of birth. It will cost the parents some $10,000 to raise the child to the age of 18, provided the valuable but unpaid services of the mother are not included in the estimate. If the child is a boy, his net future earnings at this age is $29,000; at 25, he may be expected to make a net profit of $32,000 in future life. If he lives until he is 50, at that age he has the prospect of netting only $17,500 during the rest of his life.

With such a high economic value of human life, it is not amazing that Dr. Dublin finds that six billion dollars could be saved annually by applying what is known about modern preventive medicine and public health.

The present average duration of life in the United States is fifty-eight years. Professor Irving Fisher, of Yale, gave a schedule of how the duration of life should increase in the years to come, assuming that a hundred year average duration is the attainable limit.

In 1930, the average length of life will be 61; in 1940, 65; 1950, 69; 1960, 72; 1970, 75; 1980, 78; 1990, 80; 2000, 82. In the distant time of 2100 nearly every one should live until 94 years of age.

Professor Fisher presented what he declared to be "the most sensational conclusions which science has ever reached." It is that life cells and many tissues of man are potentially immortal in the purely physical sense. There will be a time, perhaps, when man will live, if not forever, at least much longer than the century mark which is now practically the limit of the human life span.

Professor Woodruff, of Yale, he recalled, found that no natural death occurred in 8,500 generations of a minute organism, paramecium, a period of time equal to 250,000 years of human life. Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, has kept a chicken heart growing and alive for over fifteen years, an age that no chicken can attain. Professor Thomas H. Morgan, of Columbia, found that 1/250

part of a worm will regenerate and become younger than the original worm. The time will come perhaps, Dr. Fisher said, when the human being will have an indefinite life span, when his defective and worn-out parts can be replaced and renewed like those of a watch.

The cause of measles has been discovered, provided researches reported to-day by Dr. N. S. Ferry, of the Medical Research Laboratory of Parke, Davis and Company, Detroit, are substantiated by other investigators. The culprit is a streptococcus that is of medium size, grows in chains, and produces small germ colonies, with green halos around them. Dr. Ferry has named it streptococcus morbilli. Using this germ, Dr. Ferry has made an antitoxin which when injected into the patient early enough in the course of the disease has prevented the appearance of the rash. This antitoxin, which is similar to that of diphtheria, has been found to protect against measles when injected into susceptible individuals. The measles toxin Dr. Ferry has made can be used to distinguish between those susceptible to measles in a procedure analogous to the Schick test for diphtheria, according to his claims. D. W. H. Park, veteran bacteriologist of New York City Department of Health, who has been working with Dr. Ferry's germ and also that reported as associated with measles by Dr. Ruth Tunnicliff, of the John McCormack Institute, Chicago, indicated that more research would be needed before conflicts in evidence in various laboratories and claims could be ironed out.

At present the most hopeful method of combating measles is through the use of convalescent serum made from the blood of those who have had the disease and are just recovering. Dr. Park told how through the limited quantities of this serum available it was being used only on those very young children who are likely to contract pneumonia as an after-effect of measles.

An increase in the prevalence of poliomyelitis, infantile paralysis, may be expected next year on the grounds that it has been less prevalent this year than previously, was reported to the convention on behalf of Dr. M. J. Rosenau, of Harvard. Poliomyelitis is still very much a mystery disease with a very high death rate, and much more research is necessary before the first step in its control can be taken.

Gas attacks, colorless, odorless, deadly, occurring in these days of peace and industry are worrying those who care for the health of the nation.

CO, the chemical symbol for deadly carbon monoxide gas, is partaking of a new significance, allied to the conventional skull and crossbones. Members of the Association heard some of the latest news of defensive measures being taken in New York against this menace.

Carbon monoxide, the product of incomplete combustion, occurs in most dangerous concentration in garages and service stations, around blast furnaces, near gas fired appliances and wherever gas is burned or internal combustion engines are run. Dr. May R. Mayers, of the Bureau of Industrial Hygiene of the N. Y. State Department of Labor, reported that over three fourths of the public garages inspected in New York City showed the presence of some carbon monoxide in their air, while over half of them had concentrations of over one tenth of one per cent., the danger limit. Nearly three fourths of the workers gave definite evidence of CO in the blood while some showed symptoms of being poisoned. There is hardly any industrial activity in which carbon monoxide is not encountered in some concentration. Lead poisoning, long an outstanding industrial menace, is now said to be second to the carbon monoxide danger.

Germ-carrying dishes in public restaurants provide another menace to which the public is exposed. W. A. Hadfield and J. W. Yates, chemist and sanitation expert of Madison, Wis., told how dishes can be made bacteriologically clean as well as clean in appearance. Chlorine is now widely used in treating and purifying drinking water in many communities. The experts recommended a similar treatment of dish rinsing water to kill the germs of the wash water that otherwise becomes heavily contaminated in even the cleanest establishments. They found the most satisfactory method of hand washing dishes was to use two compartments, one for washing and one for final rinse. Twenty-five to a hundred parts of sodium hypochlorite, a chemical that liberates chlorine, should be added to the rinse water in which the dishes should be immersed for at least a minute.

A simplification of the regulations governing the production and sale of milk was urged as a means of encouraging greater milk consumption in this country by Professor Henry C. Sherman, of Columbia University. He stated that "unless at least a pint of milk a day per person is used in a community, serious nutritional errors are certain to develop and affect the vitality, sturdiness and capacity to resist disease of a large number of both children and adults." Due to the high nutritive value of milk, Professor Sherman urged that as much attention be given to increasing consumption as to its sanitation.

Pasteurization of all milk, except that produced under rigorous conditions and known as "certified" milk, is now a usual practice in most cities. The exact temperature to which the milk should be heated to kill the harmful bacteria is still a matter of controversy. There is one group, in which Chicago health authorities are leaders, that holds that a temperature of from 145 to 148 degrees is necessary, while others, among them the New York authorities, believe that heating to 142 to 145 degrees is sufficient. Dairymen favor the lower temperature because above 145 degrees the milk changes its characteristics, seems to contain less cream and acquires somewhat of a different taste.

Soon the whole country will be keeping accurate statistical tab on its health. This is the prediction made following the recent entry of Arizona into what is known as the "registration area," the part of the country in which federal methods of recording births and deaths are in force. Tennessee, Arkansas, Georgia and South Carolina are expected to take the same step soon. Then only the three states, Texas, South Dakota and New Mexico, will be without the fold. Health officials point out that until vital statistics are accurately reported satisfactory application of health knowledge can not be made.