In the history of man, prevention—deliberate or not—has been the most powerful force for the improvement of health. In our own era, the historical epidemiologist Thomas McKeown has demonstrated this fact most convincingly in a series of works culminating in the monograph entitled *The Role of Medicine: Dream, Mirage or Nemesis*.\(^1\) Some years ago, the great medical historian Henry Sigerist made a similar point in his book, *Medicine and Human Welfare*.\(^2\) His argument, although not presented in the same detail nor with the great weight of evidence that McKeown provides, certainly had the same meaning. Sigerist pointed out, for example, that the Hippocratic physicians of ancient Greece "came to the conclusion that it was impossible for a man to remain in perfect health unless he organized his entire life for such a purpose."\(^3\)

In 1944 the great preventionist C.E.A. Winslow, in a series of editorials in the *American Journal of Public Health*, offered an argument almost precisely like that of McKeown, albeit on a smaller scale.\(^4\) Winslow reviewed the progress made during the first four decades of the 20th century in combatting those diseases that were the major killers in the United States in 1900. Most of the crude death rate reduction during that time resulted from very marked reductions in the cause-specific death rates for the major infectious diseases, all before the introduction of antibiotics. He concluded: "It seems certain that the organized public health profession rather than the private medical practitioner [that is, treatment medicine] is responsible for a major part of the gains which have been made during the past forty years."

Winslow noted that the remaining major killers in the mid-1940s were primarily noninfectious, chronic, degenerative diseases. Indeed, most of those killers still remain with us, and some of them have grown in importance since that time. Winslow felt that, although prevention could conquer the infectious disease killers, improved medical care services were needed to deal with the noninfectious disease killers. He said:

> It is no doubt true that the non-infectious disease causes of death . . . are much more difficult to control than those which the public health administrator has so successfully attacked; but it may be hoped that a sound system of prepayment which will make good medical care avail-

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able to the lower economic half of the population, now woefully lacking in such services, would produce notable results in the reduction of many other causes of death than those which have so far been successfully attacked.

Following World War II, a generation of progressive, socially oriented physicians developed an overriding interest in improving the organization and delivery of treatment services rather than devoting the major portion of their energies to the further development of preventive medicine as their ideological forebears would have done. They were strongly influenced by the views of such elder statesmen of social medicine as Dr. Winslow. This career trend was also influenced by the fact that scientific and technical understanding of the role of those environmental factors in the causation of noninfectious disease that are susceptible to preventive measures was at a much lower level in the 1940s than it is today. Indeed, there has been an explosion of epidemiological knowledge in the last 30 years that rivals the explosion of biomedical knowledge also occurring during that time. Whether the lack of public, professional, and political appreciation of this epidemiological knowledge explosion is due to the fact that the press agents of the preventionists are not as good as those of the therapeutists, or rather to something more significant, I cannot be sure.

In any case, epidemiological understanding of causation, association, and risk factors has advanced greatly over the past 30 years. There is now an impressive array of preventive measures, developed largely by the science of epidemiology, for use in the struggle to improve the health of our people. The modern armamentarium of prevention includes the following principal components, not listed in order of importance:

1. Measurement and analysis: Applied epidemiology
2. Environmental sanitation:
   a. Pure water supply
   b. Sanitary sewage disposal
   c. Solid waste disposal
   d. Vector control
   e. Water, air, and ground pollution control
3. Industrial safety and hygiene
4. Accident prevention and risk modification
5. Immunization
6. Case-finding and contact investigation
7. "Life-style" and behavioral change:
   a. Substances such as tobacco, alcohol, and drugs of abuse can be controlled
   b. Habits can be modified
8. Measures concerned with conception and birth:
   a. Family planning
   b. Genetic counselling
   c. Prenatal care