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Federal Support of Cancer Research

Cancer is an enemy of all mankind, and whoever helps to attenuate its effects will be the benefactor of untold billions of people. With so much at stake the public would like to believe that a massive centrally directed program could conquer the disease. Unfortunately a sharply focused effort has no guarantee of success and could damage other health research programs.

The basic nature and origins of cancer are complex. Countless related diseases are subsumed under the name of cancer with numberless causes, different courses, and different prognoses. For example, it has been demonstrated that 110 viruses and over 1000 chemical substances can produce cancer in animals.

A major recent source of information on the status of cancer research is the report of the National Panel of Consultants on the Conquest of Cancer.* The report devotes much attention to results of laboratory studies on the disease. These are interesting and hold much promise. However, the report also points out, "Cancer prevention offers greater possibilities for the control of cancer and the saving of human lives than any other measure now at hand. Many, perhaps most, human cancers can now be prevented. The most important environmental causal agent in the production of internal cancer today is the prolonged inhalation of cigarette smoke." Other preventable cancers include those due to environmental agents such as arsenic, asbestos, coal tar, and radiation. Fragmentary evidence indicates the heavy involvement of yet unidentified environmental and social factors that may be preventable. Primary cancer of the liver may be as much as 500 times more frequent in the African population of Mozambique than among black people in the United States. The probable cause is aflatoxin, a carcinogen produced by a mold that can grow on peanuts or cereal grains. Cancer of the colon and rectum is the leading internal cancer in the United States but is infrequent in Mexico and Latin America. American women have about seven times more cancer of the breast than Japanese women. Incidence of stomach cancer is high in some countries but has been decreasing in the United States. Sharp discrepancies in cancer incidence seem related to environmental, not genetic, factors since they hold true for people with similar genetic constitutions in different environments.

Next to prevention, the most effective approach to cancer seems to be early detection and treatment. Statistics show that the prognosis deteriorates badly as the cancer becomes more advanced. Cytological tests, notably the one developed by Papanicolaou, have been very helpful in early detection of cancer, leading to successful treatment. Chemical and immunological tests for early detection seem promising, and they will certainly be developed further. Very tantalizing but still unevaluated are hopes that immunological knowledge and techniques may prove helpful in the treatment of cancer.

In view of the complexity of the diseases known as cancer, we cannot reasonably hope for a magical single cure. The time that will be required for substantial attenuation of the effects of cancer is decades. Increase in long-term support for cancer research is fully justifiable and should be implemented. However, the likely result of a hurry-up-and-wait crash program is wreckage of the nation's medical research enterprise without much counterbalancing progress in coping with cancer.

—PHILIP H. ABELSON

* "Report of the National Panel of Consultants on the Conquest of Cancer," *U.S. Senate Report 91-1402* (U.S. Government Printing Office, Washington, 4 December 1970), p. 12.

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Philip H. Abelson

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