

# CANCER RESEARCH

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## Guest Editorial

### SMOKING AND LUNG CANCER

In June, 1954, when the first statistics indicating an association between cigarette smoking and the incidence of lung cancer were presented, an extraordinarily interesting, if not unique, situation resulted.

It was the first time that a national health organization had offered data claiming an association between a widespread and long existing human habit and malignant disease. At the same time, data were advanced by the same authors that purported to show an association between cigarette smoking and coronary disease.

Of course, the main question raised by these data was to what degree, if any, did they bear on a *causal* relationship between smoking and the two important diseases with which a *statistical association* was claimed. So obvious was the importance of this question that certain clinicians, statisticians, and epidemiologists assumed immediately that this statistical association proved a causal relationship. Radical "preventive" procedures were suggested, such as prohibiting the use of cigarettes. This indicated a dormant "emotional virus" similar to the violent "anti-alcohol" reaction. So, to some degree, did the suggestion of establishing educational activities to "warn youth" of the lethality of the habit.

In this situation, many of those who have long been engaged in cancer research felt that the traditional scientific approach—clarification, definition, and unemotional analysis—was required. This seemed necessary for a number of reasons, among which may be listed the following:

1. The claim of any single or major cause of any type of human cancer is of great scientific importance. It should be based on as direct and complete evidence as it is possible to obtain.

2. When the claimed or implied cause is present in the daily life of many millions of people, a social obligation of great seriousness and national import is added to the problem.

3. After a "cause and effect" relationship has been claimed or even strongly implied, either the failure to prove its existence or the obtaining of results which show only a distinctly minor, uncertain, or unpredictable causal relationship could easily cause at least two unhappy effects: (a) Public confidence in announced conclusions from "research" could be shaken or destroyed, thereby decreasing its support. (b) The results of long-continued education of the public could be disrupted or undone by doubts of the validity of programs based on "research" findings.

4. Cancer of the lung is difficult of early diagnosis. Its incidence is affected by age and sex. The lung, by being a common site of metastasis, presents a further complication. For example, the relatively recent and marked changes in effectiveness of diagnosis. The changing attitude towards reporting cancer as a cause of death and the changing proportions of autopsies are other factors. It is, therefore, a type of cancer which has in its incidence many variables—technical, statistical, and biological. All these things make it an exceedingly difficult type in which to prove a simple cause-and-effect relationship.

As soon as the statistical data were available for evaluation, it appeared to many laboratory investigators and scientifically minded clinicians that a great deal of new knowledge based on extensive and intensive research was needed before the claims of a cause-and-effect relationship could be considered as having been proved.

Quite naturally, the tobacco industry itself was deeply concerned and disturbed. In January, 1954, virtually all the major companies joined with other tobacco groups to form the Tobacco Industry Research Committee to support and continue research on a broad and inclusive scale until final and convincing answers to the problem were obtained.

The entire responsibility for the industry's

research effort was placed in the hands of a Scientific Advisory Board of men pledged from the outset to plan, observe, and make available the results of the entire research program, without fear or favor. The Board has, and always will have, one objective, namely, to find the whole truth and to see that it is made known as quickly and effectively as possible.

It has been almost two years since the Scientific Advisory Board was organized. During the entire period, it has been left completely free from suggestions or pressure by the industry in any form whatsoever. There have been several public statements by the industry that this is its irrevocable policy.

The total of \$1,500,000 already appropriated by the industry for research on tobacco in relation to human health is a significant material contribution towards advancing knowledge. The industry has also pledged additional funds for research as the need develops.

Perhaps the most exciting and promising features of the whole effort, however, are the long-time implications of the impact of this program upon the future freedom of support for basic research.

They rest upon the following premises, the soundness of which seems unquestioned:

The Scientific Advisory Board to the TIRC has certain opportunities and obligations of tremendous importance to the future development of scientific research in the United States.

First, from its own collective evaluation of individuals, departments, or institutions, it can recommend financial support of basic or pioneer research on the basis of promise and faith rather than on a purely factual and materialistic standard.

Organizations supported by public subscription find it difficult or impossible to give funds to any research other than that which is definitely described, budgeted, and restricted to a classifiable project.

Pioneer research, however, is the creative "idea" phase of discovery. It is the absolutely essential forerunner of progress to the "project" stage. It has been relatively neglected in competition with the more restricted and "literal" project which has a false sense of "guaranteeing" results to the donor.

Second, the Board can itself plan and initiate research in fields and for purposes not now being covered.

This is, I believe, an entirely new departure for any industry-supported research effort. To hand over to a group of scientists the power of creating new research activity is a great and exciting development.

If those of us on the Board have the wisdom and vision to plan creatively, we may be able to justify this confidence placed in us. If we do justify it, the tobacco industry will have made its greatest contribution of service to mankind and may well establish a precedent or pattern which other industries will follow.

Should this occur, the stability and development of basic research in a democracy will be assured on a foundation of nonpolitical support, unselfish and idealistic in concept and execution.

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