

## MEDICINE

# Link Additives and Cancer

► LIVER CANCERS found in rainbow trout of western hatcheries have yielded an important link in understanding the cause of cancer, since the outbreaks of liver cancer are believed due to food additives.

Although the physiology of fish does not exactly parallel that of mammals, new avenues for investigation have been opened up by finding "an animal population 100% involved by tumor," Drs. E. M. Wood and Charles P. Larson of the Tacoma General Hospital, Tacoma, Wash., said.

At every hatchery where the disease was observed, the same pelleted food diet has been fed for varying periods. The dry pellets contain vitamins, antioxidants, growth stimulants and other additives de-

signed to replace factors in fresh meat.

The scientists state that lack of balance in the diet could not be ruled out as a cause of the cancer. However, the rapid growth of affected fish indicates that nutritional factors are not the primary cause. A chemical or cancer-causing hormone "appears to be a possible cause," they report in the Archives of Pathology, 71:471, 1961, published by the American Medical Association.

There was a direct correlation between the severity of the disease and the length of time the diet was fed. In other hatcheries in the same localities where fish were of the same genetic strain but fed a different diet, the disease was not found.

• Science News Letter, 79:340 June 3, 1961

## MEDICINE

# Mice and Man Leukemias

► THE LEUKEMIAS, or blood cancers, of man and mouse are closely related and probably caused by virus, scientists at the Hektoen Institute for Medical Research and Cook County Hospital in Chicago have shown by animal skin tests.

The American Cancer Society, which supports research by the scientists, Drs. Irving Greenspan and Steven O. Schwartz, reported their findings.

Experiments were conducted with filtered leukemic material made into a vaccine and injected into normal persons who volunteered. Guinea pigs were injected with the vaccinated persons' blood serum, containing anti-leukemia antibodies.

Then material obtained from leukemic tissues was injected under the guinea pigs' skin and they reacted with a welt, showing that antibodies were present in the previously injected serum.

But when the scientists injected serum from leukemic patients into guinea pigs and then followed these injections with leukemic tissue extracts no welts or other

signs of antibodies to the leukemia could be seen.

This meant that for some reason the blood of leukemic persons did not contain antibodies against leukemic viruses.

The experiments were part of a series to determine whether a virus is involved in the cause of leukemia. While a dozen or so cancers in animals have been shown to be caused by viruses no virus so far has been demonstrated to cause any human cancer.

If a cancer-causing virus exists as a cause of human cancer, it must be obtained in pure form before progress can be made toward producing vaccines for the prevention of leukemia, as smallpox and polio can be prevented today.

The finding that leukemic mice and humans, treated and untreated, lack antibodies against leukemic material raises the question of how this natural resistance can be restored once it has disappeared. The control of leukemia may hinge on the answer to this question.

• Science News Letter, 79:340 June 3, 1961

## GENERAL SCIENCE

# College Research Boom

► ALMOST 70,000 scientists and engineers, representing 44% of the total at United States colleges and universities, were working in research and development during 1958, the latest year for which figures are available, the National Science Foundation reported in Washington, D. C.

The survey showed that the 377 reporting colleges and universities increased their money allocation for research and development from \$410,000,000 in 1954 to \$736,000,000 in 1958.

But the number of faculty members engaged in research and development did not rise proportionally. Instead, the three per-

cent increase during the same four-year period indicates more use of faculty time for such work, rather than more new manpower.

The actual number of faculty members working at research and development full-time rose from about 7,000 to 10,400—32% of the total, compared to 22% four years earlier.

Of the 69,919 scientists and engineers, 47% were employed in the life sciences, 26% in the physical sciences, 17% in engineering sciences and 10% in social sciences.

Classified by sources of support, 28,413 or

40% depended entirely on funds from outside the institutions, 14,689 or 20% depended on combinations of outside funds and institutional funds, and the remainder depended entirely on institutional funds.

For survey purposes, research was defined as "systematic, intensive study directed toward fuller knowledge of the subject," and development as "the systematic use of knowledge directed toward the design and production of useful prototypes, materials, devices, systems, methods or processes."

The Health, Education and Welfare Department's education office conducted the survey, using 1,916 questionnaires.

• Science News Letter, 79:340 June 3, 1961

## SCIENCE NEWS LETTER

VOL. 79 JUNE 3, 1961 NO. 22

Edited by WATSON DAVIS

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N.W., Washington 6, D. C., North 7-2255. Cable Address: SCIENSERV.

Subscription rates: 1 yr., \$5.50; 2 yrs., \$10.00; 3 yrs., \$14.50; ten or more copies in one package to one address, 7½ cents per copy per week; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

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Printed in U.S.A. Second class postage paid at Washington, D. C. Established in mimeograph form March 13, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index. Member Audit Bureau of Circulation.



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