

MEDICINE

# Importance of Heredity as Cause of Cancer Stressed

## Disease Possibly Linked with Aging Process; Is Result of Many Influences Within the Body

**T**HE IMPORTANCE of heredity or of constitutional factors in the causation of cancer was stressed at the meeting of the American Association for Cancer Research at Boston, Mass.

Failure to nurse one's young, for example, causes breast cancer only when there is a constitutional tendency to the disease. This was brought out in studies on mice reported by Dr. C. V. Green and Elizabeth Fekete of the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine.

Cancer-susceptible individuals may be those having a constitutional tendency to grow old, physiologically, at an early age. Studies of the blood in cancerous mice suggest this possible linking of cancer with the aging process, Dr. Leonell C. Strong of Yale University School of Medicine reported.

A defect in the supply of hemoglobin, the oxygen-carrier in circulating blood, was found by Dr. Strong in mice with a known hereditary tendency to cancer.

"This defect is probably hereditarily determined," Dr. Strong said. "The precocious drop in hemoglobin reflects possibly a premature aging involution process in those mice which are more susceptible to develop spontaneous cancer."

From his own and other studies, Dr. Strong concludes that susceptibility to spontaneous cancer is not controlled by a single genetic determiner and that cancer of any part of the body is the resultant of many influences within the body. The mechanism that controls the start of cancer is, however, not entirely genetic or constitutional.

The relation between breast cancer and nursing was found by experiments on two groups of mice. One group was of a strain highly susceptible to develop spontaneous breast cancer. The other group was from a strain in which such cancers practically never appear. When the females were ten days old, before the breasts had developed, the nipples on one side were sealed permanently without injuring the glands. When the mice bore young, they could therefore nurse from only one side, although the

breasts of both sides secreted milk.

As a result, milk stagnation occurred, a condition which has sometimes been suggested as a possible cause of cancer in human mothers. This condition apparently did cause cancer in the mice with the strong hereditary tendency to the disease. More than seven times as many females of the cancer-susceptible strain developed breast cancers on the blocked side as on the untreated side, and the cancers appeared, on the average, two and a half months earlier than on the untreated side.

In the mice of the cancer-resistant strain, however, no female whatever developed cancer. This finding seems to give further evidence of the importance of the hereditary factor.

The slowing of cancerous growth in

mice by a sulfur-containing compound was reported by Dr. Stanley P. Reimann of the Lankenau Hospital, Philadelphia. The results obtained with this compound do not mean that a chemical cure for cancer has been found or that cancer can or will be eradicated by simply retarding its growth by chemical treatment, Dr. Reimann emphasized.

The results are significant, however, because the chemical which slowed the growth of the cancer is derived from a naturally occurring chemical compound which itself probably takes part in natural growth processes within the body.

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ASTRONOMY-PHOTOGRAPHY

## Photographic Improvements For Eclipse Expedition

**E**CLIPSE photographs that can be enlarged 500 or 600 times, spectrographic records of infra-red rays never before caught in a plate, and a full photometric analysis of the eclipsed sun's brightness, will be among the scientific trophies which the joint expedition of Georgetown University and the National Geographic Society expect to bring home from the interior of Soviet Russia, where they will set up their in-



### TO WATCH THE SUN GO OUT

*Dr. Paul A. McNally, S.J., leader of the Georgetown University-National Geographic Society eclipse expedition now on the way to Siberia to study the total solar eclipse on June 19, with one of the instruments which will be trained on the sun when the moon hides it.*

struments before "the Day," which is June 19 next.

Dr. Paul A. McNally, director of Georgetown University Observatory and leader of the expedition, outlined to Science Service some of the preparations which have been made.

### Get Away From Big Plates

The highly enlargeable photographs represent an effort to get away from the ponderous temporary "astronomic artillery" which it has always been necessary to set up for solar photographs during an eclipse. They have been necessary because of the graininess of rapid photographic emulsions hitherto in use, which necessitated big plates taken through long focal lenses, if astronomers were to get any kind of detail to study.

Dr. McNally, using relatively short focal length cameras and fine-grained photographic emulsions, secured at the 1932 eclipse (Georgetown University total solar eclipse expedition) pictures that rank among the finest ever obtained of any eclipse. These pictures have been successfully enlarged as much as 100 times. Now, thanks to the cooperation of Dr. C. E. K. Mees of the Eastman laboratories at Rochester, N. Y., a still finer emulsion has been applied to glass plates for the first time. Dr. McNally hopes to obtain photographs that will enlarge up to 600 times. Such highly enlargeable photographs will permit the use of smaller, more easily carried and managed instruments, since the originals do not need to be so large.

### To Photograph Spectrum

An important part of the expedition's work will be the photographing of the sun's spectrum, or broken-up rainbow-band of light, during the eclipse. Thanks to the development of five new emulsions especially sensitive in the infra-red, photographs of this hitherto unstudied part of the spectrum will be obtained. The expedition will carry glass plates of a unique type, each one bearing all five of these emulsions in adjoining strips or zones, laid down "on the bias" to provide overlaps. The first of the emulsions is sensitive to infra-red rays up near the lower limit of the visible red, and thence they range in sensitivity down to an emulsion especially adapted to the deep infra-red rays of 12,000 Angstrom units wavelength.

When the first of these infra-red sensitive emulsions was brought out, some years ago, the plates could not stand being warmed at all, and had to be kept in a refrigerator. Since then, this instability has been largely overcome.

Another set of five special emulsions, each especially adapted for one group of wavelengths in the visible spectrum, will be used on five by seven inch plates, in the equatorial-mount camera. These will give photometric measurements of the light intensity in their respective parts of the spectrum. These measurements can be used directly in technical astrophysical studies, and they can also be used as the basis for a composite color-picture of the eclipsed sun, in hues of a scientific accuracy hitherto unattempted.

Direct color photographs will also be made during the eclipse, using negatives of the Du Fay process, and in addition a small motion picture camera, attached to the equatorial mounting, will make Kodachrome movies of the eclipse.

The expedition sailed on April 10.

They will set up their apparatus somewhere near the town of Kustanai—about 500 miles east of Orenburg, because past weather records indicate that this region offers better-than-average chances of good weather at the time of the eclipse.

It is expected that the National Broadcasting Company will set up a station at the Georgetown University-National Geographic site to furnish details for their American listeners at the time of the eclipse. While the eclipse takes place at Kustanai at 8:40 a. m., local time, on June 19, the broadcast would reach hearers in the United States on the previous day, June 18, at about 10:30 p. m., E.S.T. Dr. McNally has been requested to speak to the American audience immediately after the eclipse.

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#### PSYCHIATRY

## Unmarried Persons More Prone to Mental Disease

**B**ACHELORS are three times as likely to go insane as are married men. Divorced men are even more likely to develop mental disease, Drs. James Page and Carney Landis of New York Psychiatric Institute revealed in a report to the meeting of the New York Branch, American Psychological Association.

Marriage is not a "vaccine against mental disease," they warned. But it acts as a sieve; men who are later to need treatment for mental disease are not the ones who readily find wives and willingly enter into marriage. If they do get married, they are more likely to be weeded out by divorce.

Here are the striking figures presented to the meeting by Dr. Page: For every one married man admitted to mental hospitals during the period studied, two widowers were admitted, three single men, and about 4.5 divorced men.

For women, the figures are much the same. One married woman to two single women, three divorced women and about 1.4 widowed.

Young people under 25 years old were not considered in these figures.

When the proportion of married and unmarried mental patients was compared with the marital status of the general population, it was found that a somewhat greater percentage of single persons and a markedly greater percentage of divorced persons find

their way into mental hospitals than remain in the population at large. To be sure, it was pointed out, the married people do not always need to go to mental hospitals; they are taken care of at home.

Only among women admitted for alcoholism or general paresis were the numbers of single persons smaller. That is due to the high moral standards of American spinsters, Dr. Page said.

"The eugenic implication of this study is that from a heredity viewpoint mental diseases are self-limiting," Drs. Page and Landis concluded. "Since comparatively few mental patients marry, the spread of psychopathic tainting is restricted. In other words the biological principal of the survival of the fittest is present in the field of psychopathology."

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#### PHYSIOLOGY

## Mongolian Idiots Have Special Finger Markings

**T**HE LINES and crosses on the palms of the hands and the finger-tip whorls are characteristically different in mongolian idiots, Prof. Harold Cummins of Tulane University told members of the American Association of Anatomists at Durham, N. C.

Prof. Cummins has previously found