

GENETICS-NUCLEAR PHYSICS

No New Types of Freaks

Rays from atomic bombs would not cause any more grotesque types of human being than those now known, but mutations would simply occur more often.

► ATOMIC warfare would not give rise to new and fearsome races of human monsters in future generations.

That was the opinion of a panel of atomic and genetic experts who met in London to discuss "The Biological Hazards of Atomic Energy."

According to such authorities as Dr. D. G. Catcheside, Cambridge University geneticist, the mutation types produced by exposing reproductive cells to the kinds of rays given off in an atomic explosion are no different from those which spring up quite spontaneously. The only effect of irradiation is to speed up the mutation rate so that the odd types appear more frequently.

Referring specifically to atomic bombs, Dr. Catcheside said: "Geneticists would not expect any more bizarre types following irradiation (as at Nagasaki and Hiroshima) than would turn up naturally."

Nonetheless the experts urged that extreme precautions be taken to protect people of reproductive age and younger from unnecessary exposure to penetrating rays, including X-rays. All such rays cause damage to the genes, which carry hereditary characteristics from generation to generation. It is conservatively estimated that over 99% of mutated genes are harmful.

In most cases the hereditary changes which take place are recessive in character, that is, they must be inherited from both

parents to show up as a positive defect. The results of present carelessness in exposure, therefore, may not show up for many generations, but ultimately they will result in human misery and wastage.

Prof. K. Mather of Birmingham University put it like this: "If you murder a gene, sooner or later murder will out!"

The principal harmful genetic effects of excessive irradiation were listed as: an increase in stillbirths and miscarriages, an increase in inherited deformities and an increase in the incidence of familial disease. All of these would show up in future generations.

According to studies made at the British Atomic Energy Research Establishment at Harwell it is not the person working on atomic piles that is in special danger of excessive irradiation. Precautions taken to protect such workers from stray atomic rays have proven effective. For the most part the exposure of such workers is kept well within the agreed safe levels.

Much more danger exists in the indiscriminate use of X-rays in mass chest radiography for tuberculosis and in such lay devices as the X-ray machines used in shoe stores so that you can see how your shoes fit. Though the immediate danger to the person so exposed is slight, the cumulative effect over a whole population may well cause serious increases in harmful mutations in future generations.

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MEDICINE

Yardstick for Cancer Test

A cancer detection test, to be used as X-rays are in spotting TB, would have to detect 90% of the cases and show no more than 5% false positive results.

► A YARDSTICK for judging a cancer detection test has been set up by the National Cancer Institute. A test that measures up to this yardstick will: 1. detect 90% of the actual cases of cancer and 2. show no more than 5% false positive results.

This yardstick was described by Dr. John E. Dunn at the conference of State and Territorial Health Officers in Washington.

So far, he said, no test suitable for detecting cancer in the healthy population, as X-rays are used to screen tuberculosis patients, has yet measured up entirely to the yardstick.

This does not rule out some of those now under investigation, however. Some of them have not been measured up because they have not been tried on enough healthy people in the cancer age group.

A blood flocculation test reported last spring by Dr. Harry S. Penn of the University of California at Los Angeles needs to be tried by other scientists to see whether they can get as good results with it as its originator.

The yardstick Dr. Dunn described is for tests that can be given easily and cheaply to large numbers of persons to pick up un-

suspected cases of cancer in any part of the body.

Using a cytological, or cell smear test, unsuspected cancer of the womb has been detected on the average in one out of every 100 women examined during the past two years in a screening program carried on by the National Cancer Institute at the U. S. Public Health Service dispensary in Washington.

These results were reported by Dr. E. D. Murphy. Diagnosis of cancer of the womb and more knowledge of the controversial pre-cancerous conditions of the womb may come from Dr. Murphy's success, just announced, in producing cancer of the womb, or uterus, in mice.

These cancers are very much like human cancers and shed cells much as human cancers do. The cells that have been shed form the basis of the cell smear diagnostic test for cancers of the uterus and other organs, such as lungs and stomach, which was originally devised by Dr. G. N. Papanicolaou of Cornell University Medical College, New York.

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ARCHAEOLOGY

Greek Language Riddle One Step Nearer Solution

► THE RIDDLE of an unreadable language that was used by the Greeks over 3,000 years ago is one step nearer solution.

Dr. Carl W. Blegen of the University of Cincinnati reported in Philadelphia that he and Dr. Emmett L. Bennett of Yale University have sorted out 1,300 words of this unreadable language. From these words they have arranged an alphabet of 74 characters as well as 50 other signs.

"We don't know how it sounds or what it means, but 1,300 words are more than basic in whatever the language is," Dr. Blegen told the members of the American Philosophical Society meeting. "All that is needed to begin a dictionary in a language is 800 words."

Drs. Blegen and Bennett compiled the words and alphabet when they were preparing for publication a book to contain reproductions of hundreds of clay tablets on which the language is written. This book will give language experts a chance to study the clay tablets, all of which are bookkeeping records.

The clay tablets were discovered by Dr. Blegen in the archives room of the palace of King Nestor, who lived more than 3,000 years ago in Greece. These hundreds of tablets were the first to be found on the mainland of Greece, although the same language had been found on the Island of Crete 50 years ago.

When discovered, the tablets were soft. They had to be dried and hardened, cleaned and photographed. During the war they were stored in an underground vault in Greece. Last summer they were brought back to the United States for study.

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