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MEDICINE

Study Radiation Sickness

► THE SEVERE illness following X-rays and radioactive radiation in the treatment of cancer can be treated successfully by transfusions of blood and its leucocyte and thrombocyte components, a Russian group headed by A. A. Bagdasarov told the Second United Nations International Conference on Peaceful Uses of Atomic Energy meeting in Geneva.

Studying 250 patients with various cancerous conditions requiring radiation, it was found that 80% were aided by the transfusions to the point that it was possible to continue the radiation treatments. The leucocyte preparation used at the Central Institute of Hematology and Blood Transfusion was made from non-citrated blood preserved with the aid of ion exchange resins. This gave a longer life for the leucocytes.

The female is tougher than the male, at least in mice, when it comes to resisting the effects of large doses of atomic gamma radiation, Drs. W. L. Russell and Liane Brauch Russell of the Oak Ridge National Laboratory, Tenn., reported. The offspring of irradiated female mice have fewer changes than those caused in the progeny when the fathers alone were subjected to radiation. This female advantage may apply to human mothers and gives a hope that the efforts of atomic war damage may be less than anticipated.

Even a single heavy dose of X-radiation to female rats 40 days old is followed by a large amount of breast cancer within 11 months of the exposure, a group from Brookhaven National Laboratory's medical department led by Dr. V. P. Bond, reported. Removal of the ovaries before radiation reduced the cancer incidence, but shielding of head and ovaries did not reduce the effects of the radiation given over the whole body. This rat experiment may also have human applications.

Contrary to previous ideas, two U.S.S.R. scientists, M. N. Livanov and D. A. Biryukov reported that there are profound effects upon the brain and central nervous system from ionizing radiations.

Slow Life Processes

► THE LIFE PROCESSES of mice and rats can be slowed when they are given relatively large amounts of heavy water, which contains deuterium, instead of regular water.

The animals usually die when the heavy water rises to about a third of the natural body water but no permanent adverse effects were found when the level was maintained at 25% heavy water.

In a report prepared for delivery at the atomic energy meeting, ten United States scientists reported their studies of the effects of deuterium on growth processes. They were also looking for chemical compounds that could be used in disease treatment.

Heavy water, found in small proportions

in all natural water, is the form of hydrogen containing double-weight deuterium. Its main use is as a moderator to slow down neutrons in atomic reactors but it also has value in probing fundamental biological problems.

Deuterium seems to retard most greatly the growth of the most active living cells, of which cancer is an abnormal example.

The scientists therefore implanted cancerous tumors in mice, then let them drink heavy water. They found tumor growth was slower in these mice than in those drinking ordinary water.

Another possible application of deuterium, the scientists suggested, would be in slowing down metabolism of the living system so that a medicine administered in reasonable quantities would have more time to act before it is eliminated from the body.

The scientists conducting this research are Dr. Joseph J. Katz, Dr. Henry L. Crespi, Dr. Asher J. Finkel, Dr. John F. Thompson, William Chorney and Dr. Nobert J. Scully of the Argonne National Laboratory, Lemont, Ill.; Dr. Robert J. Hasterlik of the Argonne Cancer Research Hospital, Chicago; Dr. William Lester Jr. and Dr. Sung Huang Sun of the Suburban Cook County Tuberculosis Hospital-Sanitarium, Hinsdale, Ill.; and Dr. Robert L. Shaffer of the University of Chicago.

Science News Letter, September 20, 1958

ENGINEERING

"Teen-Age Pink" Is Only A Number to Color Sorter

► COLORS of new fall clothing can be analyzed and described by an optical-electronic device that makes the human eye obsolete.

A merchant in Des Moines will be able to telegraph a New England mill for rush shipments in specific colors by reference to numbers rather than to "toast brown," or "sky blue," which may mean different shades to different people.

A device long used by chemists and physicists, a spectrophotometer, has been developed by scientists of the National Bureau of Standards to scan a swatch of fabric or other colored specimen and plot on graph paper the percentages of red, orange, yellow, green, blue and violet contained in the sample.

The recording spectrophotometer, or light analyzer, is coupled with a high speed computer that translates the analyzer's findings almost instantaneously into terms of industrial and scientific color codes already in wide use.

Thus, persons already trained in use of color code keys and books will be able to use information supplied by the device without having to learn a new system. Books and guides already distributed will not have to be reprinted.

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