

MEDICINE

Find New Clues to Virus-Cancer Relation

► SOME VIRUSES added to cancer cells growing outside the body will make the cancer cells clump together. Other viruses, added two at a time, will grow in the test tube culture of cancer cells.

These findings, by Drs. Jerome T. Syvertson and William F. Scherer of the University of Minnesota, were announced by the American Cancer Society as "new evidence of the relationships of viruses and cancer."

The two viruses that will grow together in a cancer cell culture are pseudorabies, a paralytic hydrophobia, and herpes simplex, which causes fever blisters and cold sores.

One of the viruses that make the cancer cells clump together is vaccinia virus, the cow pox virus used to make anti-smallpox vaccine. Mumps and influenza viruses did not clump the cancer cells.

Some animal cancers are known to be caused, at least in part, by viruses. One kind of rabbit skin cancer develops from an earlier infection by viruses that cause warts; but frequently when the cancers appear, no trace of the wart virus can be found.

The University of Minnesota studies suggest, says the American Cancer Society, that the hidden viruses may be vegetating inside cancer cells, or have changed their form and become raw materials for future virus production.

Science News Letter, March 6, 1954

EDUCATION

First Graders Vary Six Years in Reading Ability

► THE AVERAGE six-year-old can write his own name legibly, read the name on the box of cereal on the breakfast table, use all forms of sentence structure and all parts of speech. Far from all six-year-olds are average, however, Dr. Emmett Albert Betts, director of the Reading Clinic at Temple University, Philadelphia, has found.

Among school beginners, there is actually a six-year range of reading maturity levels, Dr. Betts reports in *Education* (Jan.). And this range grows even wider as the children grow older.

When a child is 12, he is in the junior high school. Some 12-year-olds can read as well or better than the average high school senior. Some cannot read at all. In this group, the range spreads over at least 12 years.

The teacher who is faced with such a range of instruction problems must organize her class into groups. And she must take into account also individual differences in the various subjects.

She has trouble finding suitable reading materials for all the different levels of students in her class. A 12- or 15-year-old who cannot read very well may have the same interests as his classmate with advanced reading ability. He needs reading

matter of primer difficulty, but with high-school interest level. A nine-year-old would have no interest in a basic reader intended for the six-year-old, whether he is accelerated or retarded in reading.

Generally, girls are superior to boys in reading and writing although the situation is reversed with arithmetic, history and science.

On the average, girls begin to talk earlier than boys do and they use short sentences earlier. Boys are more likely than girls to have a speech defect or reading disability.

An average child uses two words at 12 months and short sentences at two years.

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MEDICINE

South Reassured on Polio Vaccine Tests

► SOUTHERN COMMUNITIES afraid the polio vaccine production delay might count them out on vaccine trials this year because polio starts early in the South have been given some reassurance by the National Foundation for Infantile Paralysis.

Polio vaccine tests will begin in the South in late March or early April, Dr. Hart E. Van Riper, medical director of the Foundation said.

In fact, the first supply of test vaccine will be made available to southern test areas, he stated. This is because the annual outbreak of poliomyelitis in epidemic form "traditionally" starts in the South in the spring, and moves northward during June, July and August.

Whether the vaccine will be effective in protecting against polio is not yet known. The large scale tests this spring and summer are planned to answer that question if possible. But if, as hoped, the vaccine does have protective power, it must be given well before any exposure to polio cases. That is why everyone concerned hopes the test vaccinating in the South can start early.

The decision whether to go ahead or not in any county selected for the test will be made, when the time comes, by the State Health Officer on the basis of the situation as it is then found to be.

"I am sure the Health Officer in any state would cancel the test in a county if the incidence of polio showed an epidemic was already gathering momentum there," Dr. Van Riper stated.

"We are very certain, however, this will not be the case in many of the southern counties selected for the test. The appearance of a few cases of polio without the pattern of steady increase in numbers would not be sufficient reason for abandoning the test."

Polio epidemics before May are rare even in the South, Dr. Van Riper said. He also pointed out that the pattern of outbreaks in the past has differed from state to state.

Children selected for receiving the vaccine will be given three doses over a period of five weeks.

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IN SCIEN

BIOPHYSICS

Warns of Danger in Some Atomic Treatments

► TREATING PATIENTS with fast neutrons released by atomic energy radiation should be done with "great caution," warns Dr. George H. Mickey of Northwestern University, Evanston, Ill.

He bases his warning on studies showing that, contrary to past belief, these neutrons are much more likely than X-rays to damage hereditary genes in parents and to cause death-dealing biological abnormalities, called mutations, in offspring.

Working at Evanston and at Oak Ridge, Tenn., Dr. Mickey and his research assistant, Armon F. Yanders, compared the effects on fruit flies of X-rays, fast neutrons from a cyclotron and fast neutrons from a nuclear detonation.

The effect of each was tested upon five types of mutation. In each case, the neutron radiations, either from a cyclotron or an atomic blast, were found to be much more effective in producing biological abnormalities.

Two of the mutation types studied are fatal to the mutant. These are recessive sex-linked lethal mutations and dominant lethal mutations. Concerning these, Dr. Mickey said:

"Contrary to reports of previous investigators that fast neutrons are only about two-thirds as effective as X-rays in producing sex-linked recessive lethal mutations, we find the neutrons to be more than twice as effective. Also, dominant lethals are produced at a much higher frequency by fast neutrons than by X-rays."

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VETERINARY MEDICINE

Tests Show Florida Bats Can Carry Dread Rabies

► RABIES HAS been found in Florida yellow bats and seminoles bats, Dr. James E. Scatterday, public health veterinarian of the Florida State Board of Health, Jacksonville, reports in the *Journal of the American Veterinary Medical Association* (Feb.).

In the summer of 1953 a seven-year-old child on a ranch near Tampa was bitten by a yellow bat. Tests showed that the bat was rabid and the child was given antirabies vaccine. Since that time, Dr. Scatterday said, bats have been collected from the ranch and another area. Six of the bats had positive tests for rabies.

The Florida yellow bat and the seminoles bat live in trees and other vegetation. They do not form colonies in caves or enclosures as some bats do.

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CE FIELDS

GEOPHYSICS

Shortwave Upsets Now Not Always Atmospheric

► EVEN THOUGH shortwave listening conditions are forecast as being good, users have been warned that, at the present time, reception can be upset because of operating difficulties and the limited number of frequencies now available.

"We are now at a very low point of the 11-year solar activity cycle," radio forecasters at the National Bureau of Standards point out. This accounts for the seeming disturbances when the ionosphere is actually quiet.

There are very few usable frequencies available even under normal conditions, with the worst squeeze in the pre-dawn hours. The effect of small changes in ionospheric conditions, or minor variations in the power supply, which are relatively unimportant at sunspot maximum, can be greatly magnified at the present low stage of solar activity.

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MEDICINE

Outlook Better for Women in Some Cancers

► WOMEN FARE much better than men in recovering, after treatment, from cancers of the mouth, tongue and pharynx, Dr. Marion H. Russell, statistician of the Christie Hospital and Holt Radium Institute, Manchester, reports in the *British Medical Journal* (Feb. 20).

This finding is based on a study of more than 2,000 patients treated by radium or deep X-rays during the years 1932 to 1942 inclusive.

In terms of survival after operation, long-term survival (10 years), primary recurrence of the cancer and secondary involvement of lymph glands before and after treatment of the primary cancer, the women did better than the men.

Dr. Russell's studies showed such differences as 15% post-operative mortality for men with cancer of the tongue compared to four percent for the women, and 23% survival for 10 years for the men with tongue cancer compared to 42% survival for 10 years for the women.

Women, the study showed, are also less prone to develop metastases, or spread of the cancer, than men.

Possible reasons for the difference might be the effect of female hormones, the comparative incidence of syphilis and the standards of mouth hygiene.

Analysis of the results on a pre- and post-menopausal basis failed to show any real difference, so the female sex hormone

influence seems ruled out. It was not possible for Dr. Russell to get accurate information on the presence of syphilis or the state of mouth hygiene in all the patients, although "there is a strong suggestion from various sources that the standard of oral hygiene is appreciably higher in women than in men."

Such local influences, however, may play only a small part, Dr. Russell points out. The differences between the sexes shown in the study may be "merely a cogent example of the fact that the female, although lacking equal physical strength, is nevertheless fundamentally possessed of greater stamina than the male."

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MEDICINE

Arthritis From Modern Blood Pressure Remedy

► DEVELOPMENT OF arthritis and other diseases of joints and connective tissue in 17 of 211 patients getting one of the modern blood pressure reducing remedies brings a warning on the need for care in the use of the drug.

The warning appears in a report from Drs. H. Mitchell Perry Jr. and Henry A. Schroeder of Washington University School of Medicine and Barnes Hospital, St. Louis, in the *Journal of the American Medical Association* (Feb. 20).

The drug is hydralazine hydrochloride. The combination of this drug with hexamethonium chloride, called hyphex therapy, when given in adequate doses effectively controls severe and malignant hypertension, or high blood pressure.

This poses quite a problem for doctors. The arthritis and other symptoms, even when severe, clear up soon after the hydralazine treatment is stopped, but then the blood pressure goes up. Substituting extracts of the Indian plant, *Rauwolfia serpentina*, has "invariably" resulted in a return of the high blood pressure even when given with considerably larger or almost doubled doses of hexamethonium, Drs. Perry and Schroeder found.

In one case when treatment was stopped because of the reaction to the drug, the patient died of a ruptured aneurysm of the aorta that had not been evident when the blood pressure was controlled by the hydralazine.

A substitute for hydralazine with a similar action is greatly needed, the doctors point out.

Meanwhile, because the arthritis and other reactions are reversible and do not develop in all patients and because the hazard of severe and malignant high blood pressure is real, doctors may have to take the "calculated risk" of continuing to use hydralazine in some patients whose high blood pressure endangers their health.

The treatment, the doctors warn, should not be used "indiscriminately" without adequate follow-up and an awareness of the nature of late toxic reactions.

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PSYCHOLOGY

Distances in Space Affect Your Judgment of Time

► EINSTEIN'S IDEA of the close relationship between time and space receives support from experiments in psychology reported in *Nature* (Feb. 20). They show your perception of time is affected by space.

If you watch two lights flashing one after the other and try to hold down a telegraph key for a time equal to the interval between the two flashes, your estimate of the time is affected by the space between the lights. The shorter the distance in space between them, the shorter will be your estimate of the time interval. This discovery was made by psychologist Dr. D. R. Price-Williams of Birkbeck College, University of London.

In nearly every case, the estimate of the time was shorter than the actual interval, he found. When the same light was flashed twice, a seven-second interval was judged to be only six and a half seconds. When a 32-inch space separated the two lights, the judgment was 6.64 seconds. An 11-second interval with the single light was judged to be 8.96 seconds, with the two lights, 9.51.

In a second experiment, two different lights were flashed each time, but the distance between them was sometimes eight inches, sometimes 16 inches and sometimes 32 inches.

The seven-second interval between light flashes spaced eight inches apart was judged to be 5.93 seconds, spaced 32 inches apart it was judged to be 7.07 seconds. The 11-second interval was judged as 8.39 seconds at eight inches and 9.49 seconds at 32 inches.

Even when the lights are both directly in line with the observer instead of at right angles to him, a similar effect is noted. With a single light flashed, a seven-second interval was judged at 6.49 seconds. With two lights, one 32 inches behind the other, it was judged at 7.09 seconds. An 11-second interval with one light and with two lights is judged as 9.04 and 9.71 seconds, respectively.

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ENTOMOLOGY

Insecticides Control Peach and Cherry Pest

► NEW INSECTICIDES applied to foliage and soil are controlling the serious peach, cherry and apple pest, the plum curculio.

Tests made by O. I. Snapp at the U. S. Department of Agriculture entomology station, Fort Valley, Ga., have shown that dieldrin and parathion sprays provide better control of the insect than existing methods.

Early season spraying with dieldrin, an insecticide in the DDT family, followed by parathion sprays are being used. This treatment is still in the experimental stages.

Full season spraying with dieldrin would probably leave excessive spray residues on the fruit. When applied to the soil, dieldrin kills the larvae of the curculio.

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