

Americans hanker after cancer cure

Although medical scientists don't appear to be much closer to a cancer cure than they were when the U.S. government declared war on cancer seven years ago (SN: 4/1/72, p. 216) and thus started infusing the National Cancer Institute with massive funds, nearly half of all Americans believe that a cancer cure should be the number one target of scientific and technological research. So reports a nationwide survey conducted by Cambridge Reports, Inc., of Cambridge, Mass.

Some 1,500 Americans were polled to determine public attitudes toward the purposes of scientific and technological research, the adequacy of its funding and whether government or private industry should execute the programs. Of those Americans queried, 45 percent said that scientific and technological research should first tackle curing cancer and then focus on solving energy problems and the cost of consumer products.

Slow viruses and radiation resistance

For the past quarter century, medical scientists have become increasingly intrigued by a group of agents that infect animals and people, yet wait months or even years before triggering disease. And when disease finally appears, it is swift, dramatic and nearly always fatal.

Last fall, a slow virus (the virus that causes scrapie in sheep) was finally identified. It is not a total virus, rather a naked core of DNA (genes) without a protein coat (SN: 10/7/78, p. 245). Now Clarence J. Gibbs Jr. and D. Carleton Gajdusek of the National Institutes of Health, pioneers in slow virus research, along with R. Latarjet of the Curie Institute in Paris, report that the viruses that cause two human slow virus diseases — kuru and Creutzfeldt-Jakob disease — show the same incredible resistance to ionizing radiation that the scrapie virus does.

The great resistance of both these viruses to radiation, the researchers write in the December PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, suggests that "their genetically active portions, like that of scrapie virus, are much smaller than those of any other virus of mammals."

Tubal sterilization can be reversed

Women who have had their fallopian tubes disconnected to prevent pregnancy permanently might be able to have their sterilization reversed if they decide they want to get pregnant again. At the Johns Hopkins University School of Medicine in Baltimore, for instance, two obstetrics-gynecology professors, John A. Rock of Hopkins and Howard W. Jones, now at Eastern Virginia Medical Center, have used sutures finer than a human hair to reconnect the fallopian tubes of 26 women who had had their tubes disconnected an average of seven years previously. So far, 17 of the 26 have become pregnant.

Legionnaires' disease 'down under'

Legionnaires' disease appears to be becoming increasingly widespread, or perhaps it just looks that way because medical scientists now know of its existence and are on the lookout for it. For instance, the disease has been reported from Canada, England, Israel, the Netherlands, Scotland, Sweden and Denmark. And now Australia also reports its first confirmed case, according to the Jan. 5 MORBIDITY AND MORTALITY WEEKLY REPORT, published by the Center for Disease Control in Atlanta, Ga.

The case was identified through retrospective tests of blood taken from 32 patients admitted with atypical pneumonia to a hospital in Melbourne, Australia, during 1976 and 1977. The tests were conducted at the CDC.

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From our reporters at the annual meeting of the American Association for the Advancement of Science in Houston

Alcohol level and offspring

The same amount of alcohol consumed by different pregnant women may affect their offspring to varying degrees. Experiments on mice, performed by Gerald F. Chernoff of the University of California Medical Center at San Diego, indicate that the extent of retardation and malformation (known in humans as fetal alcohol syndrome) is related to the alcohol levels in the pregnant mouse's blood. Strains of mice differ in their ability to metabolize alcohol, so consumption of a constant amount produces different blood levels and, Chernoff finds, different risks to the offspring. Thus, Chernoff says, the risk of giving birth to a child with fetal alcohol syndrome cannot be accurately gauged by the mother's alcoholic consumption. Chernoff next plans to examine whether alcohol metabolism in women varies as greatly as in mice. In the meantime Chernoff advises women who are or might be pregnant to avoid chronic alcohol use.

Mathematically modeling malaria

Longitudinal studies, which follow identified individuals over a period of time, often provide more accurate information on the course of a disease than studies that pool results on an entire population. The World Health Organization and the government of the Federal Republic of Nigeria recently conducted the first complete longitudinal study of malaria. They recorded the presence or absence of each of three species of malaria parasite in more than 5,000 individuals of an unprotected human population at 10-week intervals for 1.5 years. Joel E. Cohen of the Rockefeller University reports some of the unexpected results. Previous studies, where researchers identified the parasites in a large number of people at a single time, suggested that infection with one type of parasite reduces the likelihood of infections with a second type. However, such studies were clouded with a wide range of uncertainties. The more recent study, analyzed by Louis Molineaux of WHO, Burton Singer of Columbia University and Cohen and claiming greater accuracy in its design and analysis, showed that in some situations infection with one type of malaria parasite appears to increase the chance of infection with a second type. Sophisticated mathematical analyses also indicated that changes in the infection status of an individual are not independent of the past states as previously assumed, so investigators now need to devise more complicated mathematical models. Cohen is interested in malaria not only from the public health perspective (the disease still kills a million people each year), but also from an ecological view. A human population can be regarded as a collection of replicated ecosystems, each able to host several species of parasites, sometimes separately and sometimes simultaneously.

Return of the blimp?

"Truly, it could be termed the ultimate airship." Or so Francis Morse, a Boston University engineering professor views his pet project—design of a new breed of dirigibles. Wafting through the skies at 125 miles per hour, they'll never replace the airplane, but they could provide a spaciousness and savings in cost and energy that planes never will, he says.

Unlike heavier-than-air craft, the blimp benefits from an increase in size. A 12.5-million-cubic-foot version would weigh the same as a Boeing 747 but offer the same 400 passengers 10 times more room. Inflated with nonflammable helium, it would be safer than Hindenburg-era predecessors. And its rear-end propulsion, for improved aerodynamic efficiency, could use advanced power systems—such as cryogenic turbines or nuclear power, he says. Morse claims it would be ideal for high-volume, low-density freight and airsick-free transatlantic crossings.

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