

GENERAL SCIENCE

Newspaper Readers Want More Science News

► TWO OUT of three readers would like to see more science news in their newspapers, even at the expense of other news.

This was revealed in a nation-wide survey undertaken by the National Association of Science Writers and New York University and reported in New York. The survey included 1,919 persons who were carefully selected to represent a cross section of the American reading public.

The survey also revealed that the public has a high regard for science and scientists, although a strong minority views both with suspicion and fear.

These are some of the highlights of the survey which was conducted by the Survey Research Center of the University of Michigan with the aid of a grant from the Rockefeller Foundation:

1. Two-thirds of those interviewed reported they received some science news from newspapers and about half of these persons said they depended on the press primarily for science information.

2. Three out of every four persons could recall at least one specific science news item.

3. More than one-third reported that they read all of the medical news in their newspapers. More than one-fourth said they read all the non-medical science news.

4. More than two-fifths wanted newspapers to print more medical news, and more than one-fourth wanted more space given to other science items.

5. Persons living west of the Rocky Mountains seem to be more enthusiastic about science news than other Americans.

The study also disclosed that one out of every seven readers is curious about anything in science, even such topics as molecular structure and stellar discoveries. This was pointed out by Dr. Hillier Krieghbaum, chairman of the NASW surveys committee and associate professor of journalism at NYU.

Science News Letter, August 23, 1958

ENGINEERING

Man on the Ground Flies Helicopter Like a Kite

► AN ELECTRONIC device that permits a man to lead a helicopter around on the end of a 50-foot tether was demonstrated in Stratford, Conn.

The man does not have to be a pilot to lead the flying aircraft around like an obedient bird, it was announced by Sikorsky Aircraft Division of United Aircraft Corporation, developers of the tether system. The "Go Man," as he is known, can guide the helicopter anywhere he wishes with only a couple hours' instruction.

The electronic equipment, which takes over complete control from the pilot, responds to tension and motion of the tether hanging down from the side of the cabin.

If the Go Man pulls down, the ship descends to a gentle landing. If he slacks off on the tether, the ship rises like a kite

until he stops it with a gentle tug. If he walks right or left, backward or forward, the helicopter follows along obediently, and will change position as quickly and accurately as the Go Man's signals direct.

To put the tether system into operation, the pilot brings his craft to a hover within 50 feet of the ground and lowers the cable to the Go Man. He then engages the electronic sensing equipment to which the tether is attached and removes his hands and feet from the controls. Signal lights inform the Go Man when he has control, but the pilot can over-ride the tether system and regain command of his ship in an emergency.

Many military and civilian uses are anticipated for the tether system. Since a helicopter pilot's visibility is somewhat restricted directly underneath the ship, the tether will help in hooking up loads to be carried externally in the ship's cargo sling. The Go Man can guide the aircraft while another man hooks up the cargo.

The tether is also expected to facilitate such operations as placing utility poles in pre-dug holes, lowering tower sections into exact position, loading and unloading trucks, and other flying crane operations.

Science News Letter, August 23, 1958

ROENTGENOLOGY

Russians Report Sensitive Test for Radiation

► RUSSIAN scientists may have discovered an extremely sensitive method of detecting radiation sickness in its earliest stages.

They have found that nerves, rather than the blood as has been believed among Western scientists, are the first tissues of the human body to show signs of damage.

Their method can detect changes caused by doses of radiation one-fifth the level of present methods in the West.

This was reported by Dr. Nathalie Bach, a Soviet biochemist, during a press conference at the International Congress on Radiation Research in Burlington, Vt. Dr. Bach is a member of the Academy of Sciences, Moscow.

Dr. Bach said workers in Russian atomic plants who showed signs of radiation sickness are immediately taken off the job and placed in a sanitarium for rest and treatment. After recovery, they are sent on to other jobs.

The Russians found that a chronic dose of two-hundredths of a roentgen a day during a six-month period causes symptoms of headache, nausea, sweating and general malaise. They have also found changes within the nerve nuclei in the tiny bodies known as mitochondria. It all adds up, Dr. Bach said, to nerve damage.

She emphasized, however, that in the early stages the damage is reversible.

It takes five times as much radiation, one-tenth of a roentgen, to produce the first detectable changes in blood count.

The natural background radiation existing all over the earth averages about 15-hundredths of a roentgen a year. This is about one-fiftieth of the nerve-damaging dose.

Science News Letter, August 23, 1958



ASTRONOMY

Ultraviolet Radiation Of Night Sky Mapped

► A MAP of the night sky as it would look if human eyes were sensitive to the far ultraviolet was presented in Moscow, at the Fifth Assembly of CSAGI, governing body for the current International Geophysical Year.

The ultraviolet radiation was spotted in nebulous regions scattered throughout the Milky Way galaxy in which the sun, earth and planets are located. The seven strongly emitting areas found by rocket-borne instruments are in the regions of Orion; Taurus, the bull; Canis Major, the great dog; Argo, the ship; Leo, the lion; Virgo, the virgin, and Ursa Major, the great bear.

The far ultraviolet radiation of galactic origin was mapped at a wavelength of 1225 Angstroms to 1350 Angstroms by Drs. J. E. Kupperian Jr., A. Boggess III, J. E. Milligan and H. Friedman of the U. S. Naval Research Laboratory, located in Washington, D. C.

Science News Letter, August 23, 1958

GEOPHYSICS

Antarctic Glaciers Show Little Change in 46 Years

► COMPARISON of the fronts of many glaciers in Antarctica with their positions as shown in photographs taken 46 years ago on Scott's last expedition reveal little or no change in this interval.

This is in sharp contrast to the movement of glacier fronts in both northern and southern temperate latitudes, where evidence both for growth and recession have been found. The Antarctic studies support the idea that glaciers there are sluggish.

Examination of glacial deposits in the McMurdo Sound region of Antarctica showed that both the outlet glaciers from the ice cap and the alpine, or mountain, glaciers not connected with the ice cap have fluctuated widely in thickness and extent. In the last million years, at least three major advances and retreats are recorded, each less extensive than the former.

The two groups of glaciers are now independent but in the past they merged to fill McMurdo Sound with ice.

At several times, many large lakes formed when valleys were blocked by glaciers. Troy L. Pewe, glacial geologist of the U. S. National Committee for the International Geophysical Year, reported.

Although a chronology of the glacial advances and retreats, formation and destruction of lakes, and changes in sea level is recorded for the past million years near McMurdo Sound region, no direct connection has yet been made with the glacial chronology in other parts of the world.

Science News Letter, August 23, 1958

CE FIELDS

BIOLOGY

Study Unique Fire Ant Venom

► THE IMPORTED fire ant, which has been running wild in the southeastern United States, damaging crops, and attacking livestock and humans, may do some good to offset the harm it is currently causing.

Right now, a team of scientists reports in *Science* (Aug. 8), the chemical composition of the fire ant venom and its effects on malignant cells—such as cancer cells—are being studied.

Tests of venom's toxicity indicate houseflies, termites, the boll weevil, rice weevil and two species of mites are highly susceptible to the poison. The growth of several types of microorganisms was also inhibited by venom diluted to one part in fifty.

"A thorough study of the antibiotic properties is now being made," the scientists report.

Analysis of the chemical properties of fire ant venom indicates it does not resemble any other insect venom.

The instantaneous paralysis produced by highly toxic samples of venom is very suggestive of a nerve poison. However, paralysis is unaccompanied by tremors or shaking, as with some other substances produced by ants. This venom causes a sedative reaction.

Murray S. Blum, J. Robert Walker, Philip S. Callahan and Arthur F. Novak of Louisiana State University report on the fire ant study.

Persons bitten by the imported fire ant can get relief by taking injections of Benadryl, the U. S. 3rd Army medical laboratory at Fort McPherson, Ga., reports.

The antihistamine has proved successful in treating adult victims. Treatment of infants and children weighing less than 100 pounds consists of graduated doses of epinephrine and antihistamines.

Science News Letter, August 23, 1958

MEDICINE

Effects of Aspirin Vary With the Kind of Pain

► MEASURING the effectiveness of a pain-killer is difficult in the laboratory, but a scientist reports that it can be done using "experimental pain."

Dr. F. B. Benjamin of the University of Pennsylvania's School of Medicine tested the responses of 16 men between the ages of 21 and 44 in an effort to determine how well a pain-killer acted under laboratory conditions. Despite early experiments with the measurement of pain that seemed to indicate that experimental pain is not suitable for evaluating a pain-killer or analgesic, Dr. Benjamin believes he has shown it can be used.

The test subjects received four kinds of

pain, including immersion of the hand in ice water, radiation heat and contact heat, and ischemic pain—local blood shortage—induced by applying a blood pressure cuff to the upper arm. Each individual received aspirin and an ineffective "sugar pill" or placebo.

The aspirin was apparently most effective in raising the pain threshold for ischemic pain. Significant changes occurred only with this method of inducing pain. The emotional aspect of pain was possibly more important in the other methods.

"The difference between aspirin and placebo becomes more pronounced with the greater ability of the subject to evaluate pain objectively," Dr. Benjamin points out. With knowledge of the patient, even weak drugs could be tested.

As long as the differences between experimental pain and clinical pain are realized, the scientist concludes, the experimental approach to the testing of pain-killing drugs can still be used.

Dr. Benjamin reports his work in *Science* (Aug. 8).

Science News Letter, August 23, 1958

ENGINEERING

Ultrahigh Vacuums Created by "Pumps"

► BETTER VACUUM TUBES for new electronic wonders are being made by vacuum "pumps" that do not pump.

Ultrahigh vacuums are being created by changing unwanted gases in vacuum tubes to solids instead of removing them.

These apparent paradoxes are common practice of scientists using new ionic vacuum pumps that create such virtually perfect vacuums that the tiny pressures often cannot be measured by existing instruments.

In a review of recent ultrahigh vacuum advances in *Science* (Aug. 8), Dr. Lewis D. Hall, Varian Associates, Palo Alto, Calif., cites major advantages held by ionic pumps over older oil and mercury pumps used for many years to create the vacuums essential to electronics.

Most of the new "pumps," which actually are controlled electrical streams, involve no moving parts that must be adjusted or repaired. They eliminate pump fluids which sometimes contaminate vacuums. Ionic pumps do away with the necessity for bulky refrigeration equipment formerly used to maintain "cold traps."

Dr. Hall points out that usual definitions of the word "pumping" do not apply to the ionic pumps, but that scientists continue to call the devices "pumps" because they are capable of emptying a container of its gaseous contents.

Most of the pumps depend on the production of ions, or electrically charged particles, created when electrons are released from electrodes within the tube. The ionized gas particles then either combine with other materials in the tube to form a solid "fall-out," become embedded in the tube walls, or are attracted to charged plates which confine them to a small area such that they no longer contaminate the vacuum.

Science News Letter, August 23, 1958

ENGINEERING

Better Engines Will Cost Less in the Near Future

► DIESEL ENGINES for automobiles and trucks will increase in efficiency and durability during the next few years, while their size, weight and cost decrease, a meeting of the Society of Automotive Engineers was told in Los Angeles.

Developments from engine research laboratories and from field tests added to "radically changing market requirements" will give diesels a new "forward look on engines" that will make them even more popular than the widely publicized gas turbine and free piston engines, D. T. Marks and N. M. Reiners of Cummins Engine Co., Inc., Columbus, Ind., predicted.

Among the improvements foreseen by the engineers will be reduced fuel consumption and repair cost and better matching of engines to vehicles and specific jobs, as well as reduced size, weight and cost.

Additional experience is being sought with turbo-diesel engines to make them more attractive than the straight gas turbine.

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ELECTRONICS

Bureau of Standards Opens Electronic Center

► The National Bureau of Standards has dedicated its new \$2,500,000 Electronic Calibration Center at Boulder, Colo.

Following the dedication ceremony, Dr. Allen V. Astin, NBS director, opened a three-day conference on Electronic Standards and Measurements, which was attended by more than 400 scientists.

Dr. Astin said the electronics industry has expanded so rapidly in the last ten years that its needs for standards and measurement techniques, and for an orderly system of measurement units, have outstripped the development of such services.

The Calibration Center was set up in response to the urgent and continually increasing need of both industry and the armed services for accurate electronic equipment to be used in radar, aircraft control, missile guidance, and satellite launching and tracking.

The Center's primary mission is to calibrate interlaboratory secondary standards for such quantities as voltage, power and impedance against master standards to be maintained at the Boulder laboratory. These interlaboratory standards, in turn, will be used to assure the accuracy of working standards on the production line and in overhaul stations.

Dr. Astin said the Calibration Center would not only reduce the probability of error but also provide an effective network tying electronic standards to the standards of length, mass and time.

The importance of these interrelationships, he pointed out, is often forgotten "when we get to that end of the measurement spectrum which we call production."

Science News Letter, August 23, 1958