

## TECHNOLOGY

**Hair Analysis Gives Owner's Age and Sex**

► SCIENTIFIC DETECTIVES now have a new tool to use in identification. Examination of human hair with a polarizing microscope and an instrument called a refractometer can indicate roughly the age and sex of the person from whom the hair came.

This was found in a study of hair taken from the heads of 16 children each month from birth to 20 years. Results are reported in the *American Journal of Physical Anthropology* (March) by Dr. Oliver H. Duggins, anatomist of Washington University, St. Louis, Mo.

First big change in hair comes when the young infant loses his pre-natal hair and gets his first fine baby hair. During the first two years of life, the hair changes rapidly and markedly, Dr. Duggins found.

From the third to the seventh years, the hair, as it shows up under the instruments, remains relatively constant. There are no marked differences between the hair of boys and girls.

After the eighth year, the refractive index of the hair of girls drops sharply and this drop continues up to about age 16. During this period, the refractive indexes of boys' hair also drop, but much more slowly at first. After 16 years, the hair of boys and girls becomes more nearly alike again.

A permanent wave makes a marked change in the characteristics of the hair, but fortunately for the use of this method for identification, use of permanent waves is still uncommon for children, Dr. Duggins said.

Science News Letter, July 10, 1954

## AERONAUTICS

**Catapult Pitches Cougar Into Air in Navy Test**

► THE NAVY'S modified Cougar, now being delivered to aircraft carriers, has been successfully pitched into the air by a hydraulic catapult similar in principle to the one on the fire-ravaged U.S.S. Bennington.

Although a brisk crosswind hampered launching, the improved Grumman F9F-8 Cougar climbed into the sky at Patuxent River, Md., while members of the Institute of Aeronautical Sciences watched.

It was the first time that this fighter had been launched from a catapult of any sort, officials of the Naval Air Test Center in Patuxent declared. Later the plane made its first arrested landing on the same runway.

This ground-based runway has been equipped to approximate a carrier's flight deck so that Navy experts can check the suitability of new planes for fleet duty. There is plenty of extra concrete beyond the theoretical end of the mockup "carrier" deck. If a plane fails to become airborne at the end of this "deck," it therefore is spared a dunking.

Neither the Cougar nor the flashy Cutlass climbed into the air before reaching the end of the "deck." But Navy officials pointed out that stronger winds would ordinarily blow at sea, and they would be headwinds, not tricky crosswinds. This would help the planes make successful take-offs.

However, to continue its carrier-launching tests on land, the Navy is installing a modern, more powerful steam-type catapult to handle its newer, heavier planes. Now earmarked for new aircraft carriers, these catapults may be able to hurl planes into the sky at air speeds greater than 120 miles an hour.

The IAS group also was shown water skis now under test. They fit on telescoping legs and contain small wheels that permit the plane to operate also from land.

A spray deflector was needed on the original skis, investigators found. So much water was being thrown into the engines during take-off that large amounts of thrust were lost and many take-offs were aborted.

Science News Letter, July 10, 1954

## MEDICINE

**"Ideal Treatment" For Obesity Discovered**

► THE "IDEAL treatment for obesity," a chemical that would let fat people eat without getting overfat, has been discovered. But it may be several years before it can be given to human patients.

This chemical is a hormone made by the pituitary gland in the head. It is called adipokin, meaning fat burner. Its existence has been suspected for many years. Now Dr. Isadore Nathan Rosenberg of Tufts College Medical School, Boston, has succeeded in extracting it in nearly pure form. For this and other research, Dr. Rosenberg received the Ciba Award of the Endocrine Society at its meeting in San Francisco.

Adipokin, the fat-burning hormone, comes from a fraction of the pituitary gland that also contains two other hormones, intramedin and ACTH, famous as an arthritis remedy. Intramedin can be separated from the other two relatively easily. The big job still ahead is to get adipokin completely separated from ACTH, so that it can be given in large doses without also giving ACTH.

Dr. Rosenberg has given the partially pure fat-burning hormone to laboratory animals. In them it has a very striking and rapid effect. It greatly increases the rate at which their bodies burn fat. It is as if the body changed its fuel and burned fat predominantly.

The fat person's lament, "It's my glands that make me fat," may be true after all, Dr. Rosenberg says. Fat people are fat because they eat more than their bodies need. However, he explained, there may be some derangement in their pituitary glands that upsets the balance between production of the fat-burning hormone and the appetite governing mechanism.

Science News Letter, July 10, 1954

**IN SCIENCE**

## GENERAL SCIENCE

**50 Foreign Scientists Are Denied Visas**

► AT LEAST 50 foreign scientists have been refused visas in the last two years, SCIENCE SERVICE has learned. The total is probably many times this number, since only a small percentage of the visas denied are heard about in the United States.

These 50 or more foreign scientists are all top men in their fields, including some who have won Nobel prizes. Refusal of their visa applications for unspecified reasons is tearing down the U.S. reputation for democracy and fair play abroad, scientists who have visited European laboratories report.

The most recent example is that of Dr. P. A. M. Dirac. (See SNL, June 5, p. 357.) However, there are other scientists equally as eminent in other fields, who likewise have previously visited the United States, who are now barred.

Scientists and others high in government advisory councils have expressed deep concern that such bans are an example of a drive toward "negative security." Negative security, they believe, can result only in harm to this country if continued over a period of time. Eventually, they charge, sterility of ideas would result.

Science News Letter, July 10, 1954

## BACTERIOLOGY

**Two New Techniques to Track Brucellosis Germs**

► GERM DETECTIVES have devised two new techniques to track down the elusive organisms that cause brucellosis.

One method involves sugar fermentation by the organisms. Textbooks say that brucella do not ferment sugars. The scientists have established that all species ferment some types of sugars and have been able to identify them by the sugars they ferment.

Another method distinguishes among closely similar species through varying sensitivity to certain dye tablets. Tablets are placed on culture plates with brucella colonies. Degree of sensitivity is indicated by size of the area around the tablet where bacteria do not grow. It varies markedly from species to species.

The studies on brucellosis are being made by Dr. John Pickett and Dr. Eric Nelson of the University of California at Los Angeles.

Their research is part of a long-range effort to develop better techniques of tracing the bacteria to their animal sources. These bacteria, which may be responsible for many vague, undiagnosed ills, are difficult to identify by usual laboratory methods.

Science News Letter, July 10, 1954

# CE FIELDS

## ASTRONOMY

### Binoculars Show Galaxy Size Better Than Photos

► GOOD BINOCULARS will show you the size of the Great Nebula in Andromeda better than photographs, Dr. Robert Jonckheere of Marseilles Observatory in France has reported to the Royal Astronomical Society in London.

Andromeda, or M-31 as it is known to astronomers, is a pinwheel of stars in our local family of galaxies and the spiral galaxy that is closest to our own Milky Way.

Dr. Jonckheere made the "very remarkable" discovery that binoculars could be used to measure the full size of Andromeda Nebula in the winter of 1952-53. He waited to confirm it this past winter before announcing it now.

The Andromeda Nebula, 1,500,000 light years from the earth, is the brightest of the spiral systems of galaxies and visible as a hazy patch to the naked eye. It is located in the constellation of Andromeda, visible in the northeast just to the right of Cassiopeia's familiar W.

Measuring such a far away galaxy with binoculars more accurately than with photographs shows that the eye "is indeed wonderfully sensitive," Dr. Jonckheere stated.

To see the full size of Andromeda, Dr. Jonckheere warned, the eyepieces of the binoculars must be "very carefully centered on the eyes so that both pupils are fully used." You should remain in darkness, with your eyes open, for at least 10 minutes before looking at the galaxy, and be completely excluded from external light.

"The view of the nebula through such binoculars will then well repay the care taken," Dr. Jonckheere promises in *The Observatory* (April).

Science News Letter, July 10, 1954

## ASTRONOMY

### Suggest Venus Has Surface of Oceans Only

► EARTH'S NEAREST neighbor in the sky, the planet Venus, may have a surface completely covered by oceans, Drs. Donald H. Menzel and Fred L. Whipple of Harvard College Observatory reported to the American Astronomical Society meeting in Ann Arbor, Mich.

This proposal contradicts earlier suggestions that there is little or no water on that planet, and makes the possibility of life on Venus more plausible than has previously been thought.

The thick cloud layer surrounding Venus has been shown to have the optical properties of terrestrial clouds. Thus it is probably condensed water vapor as are earth clouds.

The temperature of the Venus cloud

layer has recently been measured as about minus 38 degrees Fahrenheit by Dr. William Sinton of Johns Hopkins University, using the giant 200-inch Mount Palomar telescope. At this low temperature, the atmosphere above the clouds of Venus is too cold to hold any appreciable water vapor. This, the Harvard astronomers point out, would explain earlier observations that seemed to indicate water vapor was absent from the atmosphere above the clouds.

If the clouds are actually water vapor, there should also be some liquid water on the planet itself. This must cover the whole surface, Drs. Menzel and Whipple conclude, otherwise damp, protruding rocks would soon absorb practically all the carbon dioxide in the atmosphere of Venus. This has not happened, however, for spectroscopic observations prove without doubt that carbon dioxide is very abundant there.

Science News Letter, July 10, 1954

## PHYSICS

### Use "Cold" Ice for Cool Summer Drinks

► FOR TALL cool summer drinks, use ice cubes pried loose from refrigerator trays at the last moment. In this way, you get the full benefit of "cold" ice.

As most people know, ice cools the drink and the drink warms the ice. However, Servel refrigeration engineers in Evansville, Ind., point out that "cold" ice is more efficient for cooling drinks than "warm" ice.

"Cold" ice, taken directly from the freezer section, is at zero degrees Fahrenheit. It cools in two ways when dropped into a drink.

First, it attracts heat from the liquid, thus cooling the drink, while the temperature of the ice rises to 32 degrees. This is known as "sensible heat transfer." At this temperature, the ice then melts, causing a second cooling action, or "latent heat transfer."

Ice kept outside the refrigerator in a bucket or bowl has a temperature close to 32 degrees, so its main cooling action is only by melting.

Ice at zero degrees from the freezer section cools faster and has up to 40% more cooling capacity than ice at 32 degrees from a bucket or bowl, the Servel engineers found.

Science News Letter, July 10, 1954

## GENERAL SCIENCE

### Students Urged to Enter Careers in Health Work

► HIGH SCHOOL graduates have many opportunities to enter careers that will aid the health of the nation, the National Health Council has pointed out in New York. A program is underway to bring to the attention of high school students opportunities to become doctors, nurses, technicians and other health workers to staff the health services of the future.

Science News Letter, July 10, 1954

## ENGINEERING

### Polonium Freshens Air In Ventilating Systems

► SOME DAY window air conditioners or household cooling plants may contain a trace of a rare element to freshen indoor air with invisible, health-stimulating particles of electricity.

J. C. Beckett, chief engineer of the Wesix Electric Heater Co., San Francisco, told the American Institute of Electrical Engineers meeting in Los Angeles that radioactive polonium 210 has been used to generate alpha particles in air conditioning systems.

He described experiments that were aimed at finding a way of processing indoor air so it would not lose its outdoor-air qualities. Polonium, once a hard-to-get member of the sulfur family, was selected because it did not generate any ozone, oxides of nitrogen or hydrogen peroxide.

Currently produced as a by-product of atomic piles, polonium 210 does the same ionizing work as high-voltage discharges and X-rays. However, no ions are formed that would be irritating if inhaled to excess.

Citing studies which tie in the effect of air composition on health, Mr. Beckett said, "Until additional biological experiment can show how to use ion control for relief of specific diseases or ailments, it is necessary . . . to be content with making indoor air like outdoor air at its best, before attempting to improve on the electrical properties of fresh air."

Science News Letter, July 10, 1954

## MEDICINE

### Muscle Differences Are Possible Dystrophy Key

► DISCOVERY OF considerable chemical differences among various muscles in the same person and between the same muscle in the two sexes is announced by Dr. Samuel Leonard of Cornell University, Ithaca, N. Y.

These differences are now being probed in the hope of finding leads for solving the problem of muscular dystrophy and other muscular disorders.

All skeletal muscles look alike under the microscope, Dr. Leonard points out, but when cortisone, famous arthritis hormone remedy, is injected, it causes a large storage of glycogen or "animal starch" in the leg muscles. It does not have an effect on the diaphragm muscle. Cortisone, Dr. Leonard has discovered, increases the glycogen in the belly muscles of a female rat, but has no effect on the same muscles of male rats.

It is very difficult to produce muscular dystrophies in experimental animals, Dr. Leonard explained. Basic research on normal muscles is therefore necessary for understanding muscular disorders in general. To aid his research, the Muscular Dystrophy Associations of America, Inc., has just given Dr. Leonard a \$3,000 grant.

Science News Letter, July 10, 1954