

PSYCHOLOGY

Your Nose Is a Chemical Analyzer

► YOUR NOSE is a chemical analyzer. If you sniff a mixture of odorous substances, after a little study you can name the substances that make up the mixture.

This result of an experiment conducted by Drs. Lloyd H. Beck, James J. Stovin and John J. Doyle of Yale University was reported to the American Psychological Association meeting in New York.

The experiment was tried on 112 persons, some of whom were children.

The odor of the mixture, it was found, can be analyzed by the nose when the odors are familiar or unfamiliar, when the material smelled was a liquid or a gas, and when either one or both nostrils are used.

In this respect, the nose performs like the ear which can hear the separate sounds making up a chord.

It is unlike the eye. When you look at a mixture of yellow and blue, you see green, not a combination of yellow and blue.

Monosodium glutamate, sold to the public as a seasoning to sharpen the flavoring of foods, has no effect on increasing the keenness of your taste, the psychologists learned from another report by Drs. Francis J. Pilgrim, Howard G. Schutz and David R. Peryam of the Quartermaster Food and Container Institute, Chicago.

This substance does not intensify food flavors, the scientists conclude from experiments. It is simply another seasoning that may contribute a flavor of its own to a complex food flavor.

Science News Letter, September 18, 1954

MEDICINE

Simple Bone Drill Speeds Tests on Polio Vaccine

► DESIGN OF a bone drilling and injecting device created especially to speed testing of the Salk polio vaccine for its mass trials on school children last spring is announced by its inventor, Dr. William H. Berkeley of the U. S. National Microbiological Institute, Bethesda, Md.

The Institute's laboratory of biologics control was one of the three laboratories responsible for safety testing all the vaccine used in the mass trials. The tests were made by injecting the vaccine into the brains of monkeys.

A large amount of vaccine had to be tested and the testing had to be done swiftly so that the children in the mass trials could be vaccinated before the start of this summer's polio season.

Previous methods for making injections into the brain involved either cutting a disk out of the skull or cutting the skin and drilling holes through the skull to admit the injecting needle. Both methods are, as Dr. Berkeley points out, tedious and time consuming.

With his method, injections could be made in 18 monkeys in an hour. With

two operators working, the time for drilling two holes and making the injections averaged about one minute per monkey.

The instrument has now been used on about 500 monkeys. It consists essentially of a stainless steel cup with a hole through the bottom and two needle-sharp stainless steel pins, one on each side of the hole. A drill bit for penetrating the skull bone fits through the hole.

When used on the monkeys, the hair on the head was clipped as short as possible and the skin then sterilized with iodine followed by alcohol wash. The instrument is placed firmly against the head of the animal so that the pins stick through the skin and rest on the skull bone. This keeps both the instrument and skin from slipping.

The bit of the electric drill is then inserted through the hole in the instrument and a hole is drilled through the skull bone. The drill bit is removed and the vaccine injected into the brain through this same hole.

In reporting design of the instrument in *Science* (Sept. 3), Dr. Berkeley points out that the instrument may be adapted by slight changes in size to fit any hand or electric drill.

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PUBLIC HEALTH

Pillow or Painter's Mask For Defense Against BW

► FOR DEFENSE in case of germ warfare, you might tie over your mouth and nose a child's size pillow stuffed with cotton batting. Or you might put on a painter's spray mask.

The pillow, if properly constructed, and the painter's mask, if fitted tight to the face, would filter out 94% or more of germ-laden mist, scientists at the Army's biological warfare center at Camp Detrick, Md., have found.

Either the pillow or the painter's mask are about ten times as efficient at this particular job as the mask usually worn by surgeons and nurses in hospital operating rooms. This, however, does not mean the hospital masks are faulty. They were not designed to keep out germs dispersed in aerosols such as might be used in BW, or germ warfare. The germs the hospital masks are designed to stop are the much larger particles or droplets of a sneeze or cough.

The masks, including the pillow-like one, and their ratings at stopping germs in aerosols are part of an exhibit the Safety Division of Camp Detrick put on for the International Congress of Clinical Pathologists' meeting in Washington.

The mask that looks like a child's pillow is the Public Health Service's anti-plague mask.

The safety division's job at Camp Detrick is to develop safe methods for scientists and technicians to work with deadly disease germs. Many of the methods which have won safety awards for Detrick have been adopted by laboratories elsewhere.

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IN SCIEN

PUBLIC HEALTH

North Europe Nations Joined in Polio Fight

► FIVE NORTHERN European nations have international agreements for joint action in the war on polio, Dr. Svend M. Clemmesen of the Kommunehospitalet, Copenhagen, Denmark, reported at the Third International Poliomyelitis Conference in Rome.

The pool includes the national polio foundations of Denmark, Finland, Iceland, Norway and Sweden.

During serious epidemics, these countries pool their efforts and share respirators, doctors, nurses, physiotherapists and other assistants.

"As soon as the number of respirator cases in an epidemic exceeds 100, sometimes even before, the co-operative system will be brought into action," Dr. Clemmesen reported. "Our national foundations will immediately guarantee the necessary money, and later on each country will pay for the assistance which it has received."

Most of the polio cases in the north European countries are treated in state or municipal hospitals.

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PSYCHOLOGY

Test for the Boss Uses Problems in In-Basket

► NOW A test for the boss!

For many years psychologists have been bringing out tests to measure aptitude for various jobs in office and shop from the file clerk to a television repair man. Now a test for "administrative proficiency" has been reported to the American Psychological Association meeting in New York.

The test takes the form of an "in-basket," which any administrator knows can be a real problem. In the basket are letters, memoranda, etc., all calling for immediate action. In some cases, it is impossible to see what the problem involves from the study of a single letter or memorandum; it is necessary to bring together several separated papers in order to size it up.

The person tested is instructed to take definite action on each problem within the two hours allowed, even though they may lack extensive experience in the imaginary situation and, can not get more information or exchange ideas with others.

Results show that it is possible to construct a test of administrative proficiency that can be administered to a group and scored objectively, Drs. Norman Frederiksen and D. R. Saunders of Educational Testing Service, Princeton, N. J., said.

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CE FIELDS

PSYCHOLOGY

Mild Electric Current Picks Brain-Injured Baby

► DOCTORS IN the future may be able to diagnose brain injury in a newborn baby by applying a mild electric current to one leg.

The behavior of a normal baby is very different from that of a brain-injured child when the current is applied, Dr. Frances K. Graham of the Washington University School of Medicine, St. Louis, told the American Psychological Association meeting in New York.

The normal baby is increasingly sensitive to the electric current during the first five days of his life.

None of the normal babies, but 71% of the brain-damaged infants were comparatively very unresponsive to the current, and their failure to respond persisted for a number of days.

Apparently, the brain-damaged baby can feel the current but does not react to it.

Often the brain-damaged baby would cry when the mild current was applied, but would not jerk his leg away until the current had been stepped up to much higher intensity.

The electric current test shows great promise as a means for knowing which babies have suffered brain damage, Dr. Graham told the psychologists. It is reliable, sensitive and can be given in about ten minutes without any danger.

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PSYCHOLOGY

Good Fighters Superior in Mind, Body, Social Talent

► THE SOLDIERS who make the best fighters when they get into actual combat are superior mentally, physically and socially to men who fail to fight well.

What makes a man a good fighter in combat was discovered by three psychologists who went to Korea in the summer of 1953 for an on-the-spot study of front line infantrymen.

The psychologists are Drs. Robert Egbert, Tor Neeland and Victor Cline of Human Research Unit #2 Office, Chief of Army Field Forces, Fort Ord, California. They reported their results to the American Psychological Association meeting in New York.

To pick a group of good fighters and poor fighters for their comparison, the psychologists interviewed 647 men from rifle companies. The men described instances they knew that were examples of either superior action in combat or poor performance.

Over 1,100 men were described in the interviews. Of these, 345 were selected for whom at least two men agreed in classifying them as good or poor fighters.

A psychological testing center was set up near Ch'un'ch'on to study these 345 men. They were given a battery of physiological measures, mental tests and personality tests.

The good fighters, it was found, are more intelligent than poor fighters. They have better mental health.

The good fighter is taller, heavier, healthier and more muscular than is the poor fighter.

The good fighter is a doer. He likes to take part in football, swimming, hunting and fishing. He wants to tinker with a car or operate a bulldozer. The only things the poor fighters took part in more was going to the movies and art work.

The good fighter gets along well with other men. He is picked by other men to go around with or as a leader. He has more leadership qualities and he is more masculine.

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MEDICINE

Home Treatment OK For Most Polio Patients

► AT LEAST 80% of the polio patients could be treated at home, even in the acute stage of the disease, if conditions are good, Dr. W. Ritchie Russell of Oxford, England, told doctors attending the Third International Poliomyelitis Conference in Rome.

These cases do not need special treatment. The other 20%, however, made up of the severely crippled and those who have bulbar polio with breathing difficulty, must have the services of a team of experts to meet emergencies that may arise.

Dr. Russell stressed the importance of physical rest during the acute illness. At this stage the polio virus is already in the motor nerve cells and no serum protein, such as gamma globulin, no antibiotic and no physical treatment can do any good.

"Physical rest," he declared, "is our most powerful method of influencing for good the virus-cell relationship during the acute illness, and indeed is as yet our only method of treatment which shows any promise of being effective at this stage of the disease."

To "encourage" this physical rest, sedatives may be used. In some cases of bulbar polio, sedatives may be dangerous to the breathing center. Some of these patients are so restless, however, that the sedatives are urgently needed. To meet this difficult situation, tracheotomy, or cutting an opening through the neck into the windpipe, and appropriate artificial respiration may be needed so that the necessary sedatives can be given with relative safety.

Dr. Russell advised against fastening paralyzed legs or arms to prevent deformity, and said that hot packs are of more sentimental than scientific value.

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ASTRONOMY

Baseball Diamond In the Heavens

► THE GREAT Square of Pegasus has been seen as a giant baseball diamond in the sky, instead of the winged horse pictured by the ancients, by an alert young visitor to the Hayden Planetarium in New York.

Now is a good time to meet the Great Square, visible over the eastern horizon in the middle evening hours, for it is one of the landmarks of the sky and will be prominent through next January.

This autumn star grouping is not a constellation in itself, but consists of four bright stars, two of which belong to Andromeda, the other two being part of Pegasus. These four stars make a giant baseball diamond in the sky. (See SNL, Aug. 21, p. 123.)

Players in the heavenly ball game have names not too different from those on big league teams: On first base is Alpheratz, second base is Algenib and third base, Markab. At the bat is Scheat. Tau and Upsilon, two stars inside the Great Square near home plate, represent the short stop going up to talk over signals with the pitcher.

Back of home plate is Eta, the catcher, and Mu and Lambda, the manager giving "lip" to an umpire.

The young New Yorker identified the players as the Yankees with manager Leo Durocher giving "lip" to the umpire.

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ENGINEERING

Three Radio Telescopes Track Sun Automatically

See Front Cover

► THREE RADIO telescopes for tracking the sun automatically are a feature of Gun Barrel Hill, Colo., field station of the Central Radio Propagation Laboratory of the National Bureau of Standards, Boulder, Colo.

President Eisenhower dedicated the new laboratories, also the home of the NBS-AEC Cryogenic Engineering Laboratory, on Tuesday, Sept. 14.

The radio telescopes, designed to receive radio waves sent out by the sun, are painted red, white and blue. They are shown on the cover of this week's SCIENCE NEWS LETTER.

The red antenna, in the foreground, receives signals at 460 megacycles; the white antenna, in the center, 167 megacycles and the blue antenna, in the background, 80 megacycles, although it is not being used currently.

Gun Barrel Hill, on which the three radio telescopes are located, is so named because concentric rings around the hill make it look like a gun barrel.

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