BIOLOGY

Sniffing Is Best For Smelling Test

➤ NOTHING BEATS a sniff for carrying air to the smelling nerves, Dr. Bernice M. Wenzel of Barnard College, Columbia University, New York, has reported.

The sniff can be any size, too, Dr. Wenzel said, if the concentration of gaseous mixture being sniffed is controlled so that the number of odorous molecules available as well as the volume of non-odorous air can be specified.

Blast and stream injection techniques have been used by scientists, including Dr. Wenzel, for measuring smell sensitivity in human beings. But Dr. Wenzel reported these are not as good as a sniff after all and she has abandoned the blast and stream techniques.

She has, however, built a "camera inodorata" for testing smells and smell sensitivity. The camera consists of a Plexiglas box with a Pliofilm bottom. The person being tested puts his head through a slit in the Pliofilm. Continually flowing odor-free air surrounds his head during tests. At intervals controlled amounts of odor are added to the air in the box. The person being tested sniffs at will.

The method is simple, and even reasonably small animals can be trained to give an indicator response, Dr. Wenzel reported in *Science* (June 3).

Science News Letter, June 18, 1955

TECHNOLOGY

Electronic Thermometer Promises Great Accuracy

➤ MEDICINE'S TWO familiar trademarks, the glass thermometer and the doctor's stethoscope, are undergoing an electronic age change.

A skin thermometer that instantaneously measures change in temperature in or on the body, and a subminiature microphone that was developed to record sounds inside the human heart were demonstrated at an exhibit of things-to-come in medical detection devices in Washington.

The thermometer consists of a pencil-like probe connected to a power source and an easily readable temperature scale. When the probe is placed on the skin, the temperature is immediately read off the scale. Compared to the traditional glass thermometer, the electronic device eliminates any waiting period, the possibility of breakage and any inaccuracies in reading the temperature.

Dr. Max Greenberg, director of medical research for the Vibro-Ceramics Corporation of Linden, N. J., foresees that the skin thermometer can be made into a pocket-sized device that will be able to print a gummed label giving the date, time and temperature reading for permanent and accurate recording.

The heart microphone, described as probably the smallest operative device of its kind, is designed to be inserted into an artery in the arm or neck and passed through to one of the heart's chambers.

A pressure-sounding measuring instrument, the microphone produces an electrical signal exactly proportional to instantaneous changes of the heart's pressure or vibration for either graphic or audible recording.

Dr. Greenberg said that the microphone provides accuracy, permanent records of heart sounds, eliminates disputes about murmurs and is a convenient probe during operations. It might also prove useful in locating gallstones, he added. When the microphone hits against stones, it makes a particular noise.

The first operating model of the microphone has been delivered to Johns Hopkins Hospital of Baltimore, Md., where studies will be made to develop its proper use.

With modification, the small internal microphone can be converted into a chest stethoscope that will provide doctors with a more accurate and handier heart detection device.

The devices are the development of three companies affiliated with Gulton Industries, Inc., of Metuchen, N. J.

Science News Letter, June 18, 1955

HORTICULTURE

Develop Rose Dusts With Multiple Protection

➤ SIX ROSE dusts have been developed that will protect garden roses from most insects, mites and plant diseases. The multipurpose, combination dusts result from five years' experimentation by government scientists at the Agricultural Research Center, Beltsville, Md.

Each of the six dusts is a mixture of insecticides, miticides and fungicides, and prevents damage by aphids, leafhoppers, spider mites, and by the plant diseases, mildew and blackspot.

Although all are still classed as experimental and not available on the market, the government scientists reported that many dust formulations now being sold could prove to be as effective if they contained similar combinations.

If used as recommended, the mixtures are harmless to both the roses and the gardener, but the scientists caution that they must not be swallowed or inhaled. They must be kept out of the reach of children and pets.

All six of the combination rose dusts contained five percent DDT and one percent lindane as insecticides and one of the following fungicide-miticide combinations:

1. 3.4% copper, 25% sulfur, 1.5% Aramite.
2. 3.4% copper, 25% sulfur, 4% malathion.
3. 7.6% ferbam, 25% sulfur, 1.5% Aramite.
4. 7.6% ferbam, 1.0% Karathane, 1.5% Aramite.
5. 6% zineb, 1.5% Aramite.
6. 6% zineb, 1.0% Karathane, 1.5% Aramite.

Science News Letter, June 18, 1955

IN SCIEN

STATISTICS

College Graduates Still Contribute to Baby Boom

➤ COLLEGE GRADUATES are still contributing more and more to the baby boom, and college men are doing even more toward increasing the baby crop than are college girls.

This was shown by figures in *Population Bulletin* (June) collected by the "College Study" which this year has surveyed 29,494 graduates from 178 colleges.

College graduates have taken part in the upswing of the birth rate to an even greater extent than some of the traditionally more fertile portions of the population, the report of the study stated. However, they are not yet contributing their pro-rata share to the numbers of the nation's children.

That the births to college graduates are not falling off is considered by population experts to be of great national importance, because a larger proportion of children of college-educated parents go to college than of children of any other group. This is of great importance because of the growing shortage of scientific manpower.

"College graduates are, in large part, the parents of tomorrow's leaders in science, industry, and in many other fields," the report said.

Science News Letter, June 18, 1955

ELECTRONICS

Electronic "Brain" to Analyze Human Brain

➤ AN ELECTRONIC computer to analyze the rapid and complex electrical activity of the brain is being tested at the Massachusetts Institute of Technology and the Massachusetts General Hospital, Cambridge.

By automatically comparing brain waves in one short time period with those preceding them, the computer shows a time sequence of brain wave activity.

The computer displays in a new form the information in the tiny electrical impulses that are related to the nervous system's operating and controlling mechanism.

Using it, scientists hope to learn answers to such questions as: How stable a phenomenon are brain waves? Are there wave patterns which repeat periodically? If a range of normal stability for brain waves can be defined, can we then determine variations from this norm in children; in older people; in those with mental disease?

Dr. Norbert Wiener, mathematics professor at M.I.T., is largely responsible for the mathematical developments that are the basis of the method.

Science News Letter, June 18, 1955

CE FIELDS

MEDICINE

Guinea Pigs Test Polio Vaccine's Potency

➤A NEW test for the potency of polio vaccine was revealed at the American Medical Association meeting in Atlantic City, N. J., by Dr. Albert Sabin of Cincinnati.

The test was developed by Dr. Sven Gard of Stockholm, Sweden. Dr. Gard gave Dr. Sabin permission to report it for the first time in America.

The test is made on guinea pigs. These laboratory animals are given vaccine in graded doses, each pig getting a larger one than the preceding pig. The level of polio antibodies in the animal's blood is then determined. The antibody level shows the strength of the vaccine.

Dr. Gard has found the guinea pig test reflects accurately the rise in antibody level in children following each dose of vaccine and consequently the ability of the vaccine to protect children.

Science News Letter, June 18, 1955

BIOCHEMISTRY

New Approach for Treating Liver Cancer

➤ A FRESH approach to treatment of liver cancer is foreseen from studies of the part manganese plays in cell functioning.

Dr. Lee E. Farr, medical director of Brookhaven National Laboratory, Upton, N. Y., said scientists are studying substances that deliver radioactive isotopes to a desired spot. One may some day be used to "special delivery" a killing dose of radioactivity to cancerous livers.

Dr. Laurence S. Maynard, a physiologist, and Dr. George C. Cotzias, head of the Medical Department's physiology division, studied radioactive manganese distribution in rat tissues and cells. They used manganese 56, an isotope losing half its radioactivity in 2.6 hours.

The scientists began their rat experiments by injecting radioactive manganese into the peritoneum, the membrane enclosing abdominal organs, then tracing the radioactive atoms absorbed by various organs.

The liver and pancreas took up more manganese than any other organ, they found. These two are also rich in mitochondria, the units that regulate metabolic processes inside living cells.

By separating the cell components and counting them, again with a scintillation counter, Drs. Maynard and Cotzias found that most of the radiomanganese was picked up by the mitochondria. This established that manganese has a vital role in mitochondrial function.

Meanwhile, Robert E. Bases, a New York University School of Medicine student, and Dr. F. M. Sinex, Brookhaven medical biochemist, were studying whether organic molecules can be used as vehicles to carry metal atoms through the body better than such atoms travel alone.

They confirmed previous experiments showing that some porphyrins, which are complex pigments, tend to become associated with tumor tissue. Mr. Bases and Dr. Sinex then demonstrated the possibility of using a porphyrin molecule as an "envelope" to carry radioactive copper to an "address" where beta and gamma rays would reveal tumors.

Based on this study, Drs. Cotzias and Maynard started using organic molecules as "envelopes" to carry radioactive isotopes to "addresses" on which "cancer" is written.

Many successful experiments would have to be carried out with mice and other animals before any preliminary evaluation of this approach to treatment of human patients can be made.

Science News Letter, June 18, 1955

MEDICINE

Organize Society for Artificial Organs

➤ A NEW medical society of experts working on internal "spare parts" of the human body held its first meeting in Atlantic City, N. J.

The organization is the American Society for Artificial Internal Organs. Members are those scientists who have pioneered the development and use of such life-saving devices as artificial kidneys and heart-lung machines.

These men are widely scattered in various fields of medicine and have heretofore had no common meeting ground for presenting and discussing new work in the field and for establishing criteria for determining training and competence of those wanting to come into this field of special medical practice.

Science News Letter, June 18, 1955

MEDICINE

Technique for Learning More About Antibodies

➤ A NEW technique for studying antibodies and learning more about how these disease germ fighters are made in the body was described by Dr. T. N. Harris of the Children's Hospital of Philadelphia at the hospital's Centennial Medical Convocation.

Antibodies, he found, are formed in lymph nodes, better known to the layman as glands. In his latest studies he was able to incubate rabbit lymph node cells in the test tube with antigenic material that would stimulate antibody formation. When the cells were then washed and injected into another rabbit, this second rabbit's blood showed antibodies to the antigen with which the lymph node cells had been incubated.

Science News Letter, June 18, 1955

AERONAUTICS

New Parachute Allows Accurate Supply Drops

➤ DROPS OF military supplies can now be pin-pointed from high altitudes with a new cloth "windmill parachute" developed by Canadian scientists.

After snapping open like an ordinary 'chute, the mushroom begins to spin, winding up the strings and finally collapsing the parachute. It falls freely. Then the package begins to spin in the other direction because of the coiled strings, untwisting the cords until the 'chute opens again. The operation is timed so the mushroom opens just before the unit hits the ground.

The new supply-dropping technique is designed to prevent inaccuracy due to wind drift of the conventional slow-falling parachutes.

Dr. John Green, head of the aeronautics division of the Canadian Defense Research Board, revealing details of the parachute in Toronto, Canada, said the 'chute had been successful in tests and that scientists now have the timing down pat. It can go through one cycle of winding and unwinding or several, he said.

Dr. P. Mandl and H. T. Stevinson at the National Aeronautical Establishment in Ottawa developed the system.

The cloth mushroom is made of cloth strips held at an angle by the stringing arrangement, causing the spin.

Science News Letter, June 18, 1955

BIOLOGY

Germ Discovered That Feeds on Cyanide

➤ A GERM that thrives on potassium cyanide, deadly poison to man, animals and most forms of life, has been discovered.

Experiments were made at Britain's Water Pollution Research Laboratory to determine the fate of potassium cyanide in sewage being treated. This resulted in the isolation of the bacterium that was capable of growing on silica gel medium containing only the poisonous chemical as a source of nitrogen and carbon.

The scientists, G. C. Ware and H. A. Painter, found that ammonia is produced from the cyanide by the growth of the organism, but the fate of the carbon in the chemical has not yet been traced.

The organism has been provisionally classed among the *Actinomycetaceae,* the two scientists have reported in *Nature* (May 21).

The organism consists of Gram-positive branching filaments approximately a micron in diameter, some of which are broken up into bacillary segments. These grow as a hard, white and powdery colony which gets as large as a millimeter in diameter after incubation for seven days at 28 degrees Centigrade. Some of these colonies can utilize more than half a milligram of cyanide a day.

Science News Letter, June 18, 1955