BOTANY

Peanuts and Tulips Yield New Chemical Nutrients

➤ THE PEANUT, the tulip and the fern have yielded new information of scientific value in agriculture, nutrition and biochemistry, explaining how plants make use of nitrogen.

In addition to the amino acids making up the well known proteins, a whole new array of nitrogen compounds in plants has been discovered by the new process of chromatography. These compounds, although known to chemists, were not recognized previously as occurring in plant tissues.

Recent advances in identifying these compounds have come so fast that scientific publication cannot keep up with them, Prof. F. C. Steward of the department of botany at Cornell University, Ithaca, N. Y., reported. Airmail letters exchanged with scientists in Finland, England, Australia and South Africa are constantly bringing news of additional materials of the new types, found in plants of different kinds.

One of the new compounds, known to chemists as gamma-methylene-glutamine, was discovered independently, by different groups of scientists, in peanuts and in tulip bulbs.

A third source, the growing tip of the maidenhair fern, discovered by research groups of both Harvard and Cornell Universities, gives unusually large quantities of the glutamine chemical, aiding in its chemical identification.

Working with Prof. Steward in this study, reported in *Nature* (April 23), were Drs. N. Grobbelaar and John K. Pollard of Cornell University.

Science News Letter, July 23, 1955

ENTOMOLOGY

USDA Tightens Controls On Pink Bollworm

➤ FARMERS OF the cotton states are girding themselves for battle with the world's worst cotton pest, the pink bollworm.

The U. S. Department of Agriculture on July 12 ordered all infested areas of six southwestern states to be merged into a single regulated area, because of increasing build-up of the pink bollworm.

Until 1952, heaviest concentrations of the destructive insect were centered in Texas along the Mexican border, and the entire infested region was divided into "heavily" and "lightly" infested areas. The USDA order abolished this division and, at the same time, 20 Arkansas counties were added to the regulated area.

The regulated region now includes all of Texas and Oklahoma and parts of Arizona, Arkansas, Louisiana and New Mexico.

Although the pink bollworm, *Pectinophora gossypiela,* established itself in the Lower Rio Grande Valley in 1936 and has extended its range steadily since then, its usually devastating effects on cotton have been kept down by rigorous cultural control practices and quarantine.

The pink bollworm is generally established throughout all the major cotton producing countries except Mexico and the United States, where it has been kept bottled up as well as possible. In Egypt and India, this bollworm has accounted for 15% to 25% of cotton losses. The insect pest was so bad in the U.S.S.R. in 1933 that Russian entomologists came to the United States to study control methods.

The preferred food of the pink bollworm larva is the kernel of the cotton seed. To reach it, he tunnels his way through the cotton boll, ruining the lint as he goes. Once inside, he devours one seed after another, and may reduce oil content from cotton seed as much as 20%.

Science News Letter, July 23, 1955

AERONAUTICS

Animals Hazard in Airplane Piloting

➤ ANIMALS are a hazard to flying airplanes. Reports reaching the Civil Aeronautics Administration show that birds, which collide with airplanes in the United States at the rate of about one smack per week, are not the only wild life involved in such aviation mishaps.

Other creatures troublesome to pilots include heifers, deer, jackrabbits, mice, gophers and lions.

The wide open, level spaces of the modern airfield attract herds of deer, forcing some airports to build special fences to keep the animals out. Gophers apparently take great pride in digging holes on paved runways where planes can catch their wheels in them.

In the spring, the spacious air intakes of engines and cozy exhaust pipes are favorite nesting places for birds, thus forcing the ground crew to plug exhausts and cover engines overnight. Doing this, however, does not prevent field mice from eating holes in wooden structures. One airport in Canada was even infested with ducks and appealed to the CAA for advice.

A CAA safety agent in Indiana tells of a farmer whose prize heifer wandered into a field of "chest deep" wheat. A friend with a Piper Cub agreed to fly over the field and dive low over the heifer to point the animal out. He dived and the farmer headed for the spot. He dived again. By this time the heifer began wondering what all the fuss was about and raised her head high just as the plane came in for a third low dive. Her head hit the landing gear.

According to the report, the plane was demolished, the pilot emerged with a cut lip and the "heifer died of either a broken neck or heart failure."

In Africa a marauding lion made armed guards necessary at one landing strip.

Birds fly so frequently into commercial craft that the CAA now requires bird-proof windshields on planes.

Science News Letter, July 23, 1955

IN SCIEN

PHYSICS

Atom Studied in Australian Cliff Cave

➤ NUCLEAR PHYSICISTS at Sydney University, Australia, are moving into a laboratory 110 feet underground, an old wartime searchlight gallery on the cliffs at Sydney Harbor's South Head.

Under the direction of Dr. Paul George, chief of research, and Dr. Harry Messel, professor of physics, the scientists are moving $125,000 worth of equipment underground.

For the next three years, they will conduct underground experiments aimed at learning about nuclear matter.

Because the scientists require only high-energy mesons for their studies, they will use the 110 feet of rock and earth as a filter to stop the low-energy particles.

Their equipment will include two electromagnets weighing 25 tons, a cosmic ray spectrometer, sensitive Geiger counters, automatic cameras and a cloud chamber.

Other laboratories for similar research have been established in England and Italy.

Science News Letter, July 23, 1955

EDUCATION

Left-Handed Children Need Writing Help

➤ LEFT-HANDED CHILDREN need special guidance while still in the "scribbling stage," and the help that parents give them in this preschool period can make writing easier later on.

This is the advice of Dr. Norma V. Scheidemann, psychologist on the summer faculty of the University of California at Los Angeles.

Dr. Scheidemann, who has studied left-handedness for many years, points out that our system of writing, progressing from left to right with predominantly counter-clockwise rotary movements, capitalizes on the directional movements easiest for the right-handed.

Parents of a young left-handed child can smooth the way for his later school years by helping him reverse his natural "scribble" pattern of right to left and clockwise rotary movements.

This can be done by guiding the child's hand, first in drawing bold sweeping strokes and large continuous loops from the left edge of the paper to right; later in making more carefully controlled lines, broken and dotted lines, and in smaller loops and rings.

Without this preschool practice children may establish directional movement habits making writing difficult.

Science News Letter, July 23, 1955

CE FIELDS

ENTOMOLOGY

Mite Spreads Costly Peach Disease

➤ ENDING a 17-year search, a microscopic mite has been pegged as the carrier of a disease that has cost peach growers 400,000 trees, valued at $10,000,000, the U. S. Department of Agriculture announced.

Credit for tracking down the tiny spreader of peach mosaic disease was given to entomologists Laurence S. Jones and Norton S. Wilson and plant pathologist L. C. Cochran of the U.S.D.A.'s Agricultural Research Service, Riverside, Calif.

This scientific team found that within two weeks after they transferred the mites from diseased peach trees in an orchard to isolated, healthy trees in a greenhouse, the healthy trees showed symptoms of infection.

Until now, the only effective control possible for the peach disease was removal and destruction of diseased trees. Discovery of the mite as carrier of the disease offers new and easier control possibilities, perhaps through insecticides.

The exact identity of the mite has not yet been determined. It may be a new species.

The investigators first found the mite beneath the scales of retarded leaf buds. As shoot growth pushed from the buds, loosening the scales, the mites were picked up and wafted about the orchard by air currents.

Peach mosaic disease has been a major problem to orchardists in eight western and southwestern states for over 20 years. The disease also attacks plums, nectarines, almonds and apricots.

Science News Letter, July 23, 1955

GEOLOGY

X-Rays Aid Search For A-Bomb Minerals

X-RAYS PROVIDE geologists with an ultra-fast search aid to help them keep pace with electronic prospecting for atomic energy minerals.

The use of X-rays for assaying was described by two Government scientists who developed a technique for determining the percentage of radioactive thorium in an ore sample.

Thorium can be converted into fissionable uranium 233 for use in A-bombs and atomic power plants.

The electronic assayer is known as an X-ray spectrometer, and the technique, which can be applied to most minerals, is called fluorescent X-ray analysis.

In operation, an ore sample is mixed with selenium, a non-metallic element resembling sulfur. The amount of selenium is known. The mixture is then subjected to a beam of X-rays, which gives off secondary X-rays whose intensities are recorded.

The intensities of the X-rays are then compared and the percentage of thorium in the sample determined.

This method of assaying is seen as cutting time of chemical analysis from as long as two days in the past to a matter of minutes.

Reporting use of selenium in thorium analysis in *Science* (July 8) were Alan G. King and Pauline Dunton of the U. S. Geological Survey, Denver, Colo.

Science News Letter, July 23, 1955

AERONAUTICS

Lying While Flying In British Jet Plane

➤ THE BRITISH Ministry of Supply in London is experimenting with an airplane built for two, with one pilot sitting and the other lying down.

A Meteor jet fighter has been modified so that a bed-like cockpit is installed in its nose. One pilot lies in the prone position in this cockpit, and the other pilot sits upright in the regular Meteor cockpit.

Either pilot can take over control of the airplane when desired. The craft was designed to test the advantages and disadvantages of lying while flying.

Science News Letter, July 23, 1955

ANIMAL PSYCHOLOGY

Judgment of Light Aids Brain Studies

➤ CERTAIN BRAIN disorders may be diagnosed more accurately some day because of a cat that likes "bright lights" and good food.

Aided by a device developed by Dr. Ralph Gunter of the biophysics department of the University of California at Los Angeles Medical School, the cat has learned to associate hunger with light.

The device contains two small windows through which light intensity can be varied. The cat learns to get food by going to the window with the brighter light. Over a period of time, light intensity at the two windows is made more equal until the cat is then re-tested for its ability to associate the different degrees of brightness with its food.

At this point in conditioning, tiny portions of the cat's brain are removed. The cat is then re-tested for its ability to associate the different degrees of brightness with its food.

The U.C.L.A. scientist hopes to pinpoint the brain areas controlling particular visual functions. This information might be used by brain specialists to determine, through visual symptoms, the location of brain tumors and to aid in diagnosis of other brain disorders.

Science News Letter, July 23, 1955

PSYCHOLOGY

Lie Detector Itself May Lie About Person's Lies

➤ AN UPWARD swing of the record of a lie detector, or polygraph, may point to innocence, not guilt. So warned Richard O. Arther, of the New York Laboratory of John E. Reid and Associates, New York.

This instrument is sometimes used by police in crime investigations. It makes a record of a suspect's blood pressure and breathing rate as he answers a series of questions about the crime and others which are not "loaded."

Investigators have thought that if the questions about the crime caused a sudden rise in blood pressure, that would point to the suspect's guilt. Such a rise may indicate just the opposite, Mr. Arthur reported in the *Journal of Criminal Law, Criminology and Police Science* (May-June).

He suggested certain tricks to avoid being misled by lie detector records. One is to ask a question about a purely fictitious "crime." If the suspect's blood pressure goes up when he answers this question, as well as the question about the real crime, innocence is indicated.

If the suspect's blood pressure goes up in response to a control question — about whether he has been guilty of any other crimes — and the rise at this point is greater than the rise on questions related to the crime being investigated, this is strongly indicative of truth telling.

If the suspect's breathing is normal on the crime questions but speeds up on the control questions, this is suggestive of truth telling, even though the blood pressure record would otherwise point to guilt.

Science News Letter, July 23, 1955

PUBLIC HEALTH

Chemical Sterilizes Hospital Blankets Easily

➤ HOSPITAL BLANKETS that may harbor and spread disease from patient to patient can be sterilized easily in a low-temperature wash by using the chemical Cirrasol OD, two English scientists have found.

Robert Blowers, director, and K. R. Wallace, assistant bacteriologist, of the Public Health Laboratory, Middlesbrough, laundered blankets from hospital beds in a washer using a non-ionic detergent for cleaning. The blankets were rinsed, then washed again in water to which Cirrasol OD (cetyl trimethylamine bromide) was added. Other blankets were laundered in the routine way, using only an anionic detergent.

The blankets washed with Cirrasol OD were found to have only occasional bacteria on them, while the blankets laundered routinely showed a high bacterial count.

Washing with Cirrasol OD left the blankets normal in appearance and texture and odorless, the scientists reported in *Lancet* (June 18).

Science News Letter, July 23, 1955