

## ROENTGENOLOGY

**Microradiographic Lab  
Established at UCLA**

► A MICRORADIOGRAPHIC laboratory for taking tiny X-ray pictures of microscopic tissue has been established at the University of California at Angeles Medical School.

The new unit, first of its kind in the United States, is under the direction of Dr. Richard C. Greulich.

Techniques to be used in the laboratory were described in the recently published volume, *X-ray Microscopy and Microradiography* (The Academic Press, New York).

Microradiograms of tiny clumps of cells are ultimately expected to provide a quantitative elementary analysis of individual cells and cell components, and currently may be used to determine the weight of a variety of microscopic structures.

Thus, much more may be learned about the vital processes of cells, such as those in our glands, as well as about the roles of vitamins, enzymes and minerals in living tissues.

Techniques are based on the same principles as those of conventional X-ray imaging. However, very fine-grained photographic emulsion is necessary for the high resolution required to distinguish adjacent regions of altered mass or chemistry.

Very low-energy X-ray beams are used, as the stronger rays used in bone studies would penetrate soft tissue so readily that there would be too little contrast in the photos for them to be of any value. The specimen must be in a vacuum so that the low-energy X-ray can penetrate air molecules sufficiently to produce a good negative.

The microradiograms of tissue specimens are about the size of a postage stamp and are examined in the light microscope.

These techniques will not replace traditional light and electron microscope studies of tissue, Dr. Greulich points out. They will, however, be a valuable new approach in the effort to extend our knowledge of complex cellular processes.

Science News Letter, July 19, 1958

## MEDICINE

**Antibiotic Fights  
Staphylococcus**

► AN ANTIBIOTIC that is active against strains of staphylococcus that other antibiotics do not affect has been introduced.

The antibiotic, kanamycin, is very active against clinical strains of staphylococcus resistant to the commonly used antibiotics, penicillin, streptomycin, the tetracyclines, erythromycin, chloramphenicol and novobiocin, researchers at the Bristol Laboratories in Syracuse, N. Y., reported at a conference on the antibiotic meeting in New York.

Combinations of kanamycin, named Kantrex by Bristol, and penicillin indicate that there is no interference with each other's action and that the two antibiotics are consequently compatible, A. Gourevitch, V. Z. Rossomano, T. A. Puglisi, J. M. Tynda and J. Lein of Bristol, said.

Kanamycin's action is bactericidal rather than bacteriostatic. It kills bacteria instead of inhibiting bacterial growth.

Kanamycin proved effective in the treatment of many acute infections in mice as well as long-term infections produced by virulent staphylococci, George A. Hunt and Alvin J. Moses, also of Bristol, reported.

Kanamycin's success as an antituberculosis drug was reported this spring at the 54th annual meeting of the National Tuberculosis Association in Philadelphia. (See SNL, May 31, p. 344.)

The antibiotic was first discovered in Japan in 1957 by Dr. Hamao Umezawa of Tokyo University. It is made from a mold related to that from which streptomycin and another antibiotic, neomycin, are derived.

Science News Letter, July 19, 1958

## ARCHAEOLOGY

**Rome's Founding Legend  
Confirmed by Bones**

► IN A HEAP of ancient bone fragments that have lain unidentified for more than half a century in Rome's Antiquarium Forense, scientists have found confirmation for a legend about the founding of ancient Rome.

The new find is reported in *Nature* (July 5) by Drs. G. A. and A. C. Blanc of the University of Rome.

Three of the bone fragments are now known to belong to an exceptionally large vulture, either the black vulture or the griffon vulture. They were found in 1899 by Giacomo Boni, director of the diggings in the Roman Forum, where they lay with votive bronze statuettes and sherds of the sixth to seventh century B.C., around the monument marking the burial of Romulus or of his adoptive father Faustulus.

The vulture is a non-edible bird, difficult to capture, particularly in Roman times. It was protected by religious interdictions, being considered sacred to Mars and preferred to any other bird for taking omens.

Buried with Romulus, the bones of the bird are believed to be obviously a reference to the story of the foundation of Rome.

The legend has come down to us in the writings of Titus Livius and other classical authors. Romulus and his twin brother Remus were said to have decided to settle their quarrel on where the new town should be founded by accepting an omen from the gods. Remus watched from the Aventine Hill, Romulus from the Palatine. First, Remus is reported to have seen the flight of six vultures. Romulus is said to have seen 12. Remus, suspecting a cheat, moved towards his twin brother. But at that moment, Romulus really saw 12 vultures, and Remus had to accept the divine command revealed by the omen.

Discovery of vulture bones around the monument to Romulus gives confirmation to the ancient legend.

Science News Letter, July 19, 1958

**IN SCIEN**

## AGRICULTURE

**Nematodes Survive  
Man-Killing Radiation**

► NEMATODES may be the only survivors following an atomic war. A radiation dose strong enough to kill more than 180 men will not kill one tiny golden nematode, U. S. Department of Agriculture scientists have found.

While the dosage considered invariably lethal to man is 650 roentgens, it takes 120,000 roentgens or more to kill this nematode. Some other species of this tiny plant-killer can take 350,000, or as much as 640,000 roentgens, before succumbing to the radiation effects. The female golden nematode can also withstand radiation up to 20,000 roentgens before being sterilized.

These minute worm-like parasites of plants cause millions of dollars of damage to farmers' crops each year and USDA scientists have been searching for ways to destroy the nematodes.

Radiation is unsuccessful, they reported, since lethal doses are high enough to injure the living plants.

Science News Letter, July 19, 1958

## HORTICULTURE

**Double Snapdragons  
May Rival Roses**

► ROSES, CARNATIONS and chrysanthemums; look to your laurels!

Double snapdragons may some day become a rival commercial flower crop that could be grown in California and sold in eastern markets.

Dr. Anton M. Kofranek, assistant professor of floriculture at the University of California at Los Angeles, says the double type has built-in features that might make it economical to grow and ship over long distances.

Besides having about twice as many petals as singles, double snapdragon petals are mechanically "locked in," says Dr. Kofranek.

This overcomes a weakness that has prevented shipment of singles to distant markets. Petals of singles fall off because of the ethylene gas the flower gives off.

"But you could ship doubles from Los Angeles to Nome, Alaska, without losing petals," says the UCLA floriculturist.

Doubles have disadvantages. They are not as pretty as singles and must be propagated from cuttings. Rust often carries over from plant to plant during propagation.

But grown in quantity, with good quality, and marketed at a relatively low cost, double snapdragons might make good sales in the East, Dr. Kofranek suggests.

Science News Letter, July 19, 1958

# CE FIELDS

## MEDICINE

### New Diagnostic Tool Employs Ultrasound

➤ A DEVICE has been successfully used to sound out lumps or masses within the abdomen.

The ultrasonic scanning device was used on 100 patients to diagnose pregnancy and pelvic and abdominal tumors.

The ultrasonic probe is moved slowly across the abdomen. Echo patterns created by the ultrasound are reflected to an oscilloscope. Images created by these echo patterns can then be interpreted, Dr. Ian Donald, professor at the University of Glasgow, reports in the British journal *Lancet* (June 7).

The process usually takes between one and one-half to two and one-half minutes, and causes no discomfort to the patient, Dr. Donald explains.

Dr. Donald and co-workers, J. MacVicar, gynecological registrar, Western Infirmary, Glasgow, and T. G. Brown of Messrs. Kelvin Hughes Ltd., photographed examples of echo patterns of scanned abdominal regions. The pictures include various ovarian cysts, healthy abdomens, a thigh, and a uterus with twins.

The possible harmful effects of the use of ultrasonic beams for diagnosis appear to be negligible, the scientists say.

However, inadequate scanning methods are producing somewhat crude results. Further development is needed before the ultrasound pulses can be intelligible and consistently reproducible.

The possibility of diagnosing benign and malignant tissue by this simple, quick and harmless method awaits further testing. Nevertheless, further refinements in technique may provide a useful diagnostic weapon in cases in which X-ray diagnosis is either impractical or undesirable, they point out.

Science News Letter, July 19, 1958

## MEDICINE

### Egg Yolk Factor May Promote Cancer Growth

➤ A CZECHOSLOVAKIAN scientist has indicted egg yolk as a promoter of cancerous growths.

The growth-promoting factor in egg yolk is suspected to be identical to tumor growth factor, Jan Hradec, department of biochemistry, Oncological Institute, Prague, reports.

A high incidence of malignant tumors had been recently reported in a group of mice fed egg yolks. The growth-promoting factor in egg yolk has since been suspected as the responsible agent for this high percentage of cancers, Mr. Hradec explains in *Nature* (July 5).

Extensive research into this problem revealed that:

1. The tumor growth-promoting factor is present in only minute quantities in normal mice and rats, as compared to its presence in organs of tumor-bearing animals.

2. It resembles, chemically, an aromatic hydrocarbon, possibly some bile acid.

3. The growth factor from tumor tissue and the growth factor from egg yolk were identical in their chromatographic behavior and absorption spectra, two methods of identification of chemicals.

The next step will be the chemical identification of this egg yolk growth factor to determine how closely it chemically resembles the tumor growth factor, the Czechoslovakian scientist says.

Science News Letter, July 19, 1958

## NATURAL RESOURCES

### Nuclear Energy Will Not Solve Power Problems

➤ THE AGE of nuclear energy is not as near as you may have thought.

It will be sometime before the coal pile becomes obsolete and the United States can stop relying on foreign import of oil for fuel.

These are some of the conclusions of a National Planning Association study.

Twenty years from now, the study shows, the U. S. will still be depending upon coal and oil to supply its growing energy needs. Atomic energy will be contributing only about 10% of the total energy consumed, or the equivalent of some 270,000,000 tons of coal out of a total of 3,000,000,000 tons.

We may even have to tackle the problem of tapping energy from the sun and using controlled thermonuclear fusion or H-power, the study suggests.

Nuclear energy cannot be expected to be a cure-all for the nation's dependence on the fluid fuels secured in part from lower-cost, but strategically vulnerable, foreign sources.

Nations such as the U.S., in comparison with those like Great Britain whose conventional power costs are high, will probably continue to depend on the conventional fuels for many years. However, regions where energy costs are high will benefit with nuclear energy's competitive entry into the power field. Industries will be freer to choose their locations with respect to markets and raw materials other than coal, water power and so on.

Other findings of the report which was prepared by Perry D. Teitelbaum of the Corporation for Economic and Industrial Research, include:

1. Estimated increases in cost of conventional fuels range between 15% and 20% by 1980, indicating nuclear energy costs will have to decline in order to compete.

2. Development of a synthetic liquid fuels industry would control oil prices, assure a domestic supply of liquid fuels and provide a use for coal as it competes with nuclear fuel.

3. Exports of nuclear materials, hardware, technical know-how may be an important and profitable by-product of nuclear power.

Science News Letter, July 19, 1958

## MEDICINE

### Common Cold Germs Produce Antibodies

➤ THE INFECTIOUS agents that cause the common cold are able to stimulate the body to produce antibodies that fight the cold.

Therefore, the cold-causing agents are antigenic and are responsible for some antibodies that circulate in the human body. Experiments by Drs. George G. Jackson, Harry F. Dowling and Truman O. Anderson of the University of Illinois College of Medicine, Chicago, indicate that:

1. Common cold infectious agents are widespread.

2. These antigens produce antibodies in human gamma globulin that neutralize the action of the infection.

3. The common cold in adults is usually located in the mucous membranes of the upper respiratory tract. Repeated tests have shown the gamma globulin antibody is found in nasal secretions. These antibodies, however, do not act against the cold. Therefore, antibodies may be of little importance in the prevention of a local infection of the mucous membranes of the upper respiratory tract.

4. When volunteers received "nose drop" doses of infectious agent plus a mixture of "pooled" gamma globulin from many humans, only 20% of the tested group suffered colds. Approximately 50% of the groups that received the infectious agent but no gamma globulin developed colds, Dr. Jackson told SCIENCE SERVICE.

The knowledge that antibodies can fight the common cold will play an important role in the feasibility of developing a common cold immunizing vaccine, Dr. Jackson says in *Science* (July 4). However, further research is needed.

Science News Letter, July 19, 1958

## MEDICINE

### Insulin, Glucagon Found To Inhibit Tumor Growth

➤ INSULIN, long recognized as a successful agent in the treatment of diabetes, exhibits definite tumor growth-inhibiting action.

The administration of insulin alone inhibited the growth of rat tumors by 10%. Tumor growth was also slowed approximately 30% by administration of glucagon, a sugar, Drs. J. M. Salter, R. De Meyer and C. H. Best of the Banting and Best Department of Medical Research, University of Toronto, report in the *British Medical Journal* (July 5).

A combination of both glucagon and insulin inhibited growth in 50% to 70% of the particular tumor, they say.

However, when treatment is stopped, the growth resumes at a normal rate. Further studies of the effects of the two agents on the growth of a variety of tumors are underway.

Perhaps the two together "starve" the tumors, the scientists suggest.

Science News Letter, July 19, 1958