

EMBRYOLOGY-GENETICS

Unborn Mice Have Young

Transplantation experiment is expected to aid medical research, including cancer search. Could be repeated for any number of successive generations.

► UNBORN female mice, that never lived to see the light of day, have nevertheless become the mothers of new broods of mice, in a unique group of experiments performed by Dr. W. L. Russell and Patricia M. Douglass at the Roscoe B. Jackson Memorial Laboratory in Bar Harbor, Maine, and reported in the *Proceedings* of the National Academy of Sciences. The new transplantation method is expected to aid medical research, especially on hereditary factors in cancer.

The dead embryo mice were enabled to produce living offspring through the transplantation of their still-immature ovaries into the bodies of other female mice, whose ovaries had just been removed. The transplanted organs were accepted by the bodies of the foster-mothers and in a relatively short time were in reproductive condition. When the foster-mother mice were mated they produced litters of young, in normal fashion.

To make sure that the new mice really developed from eggs produced by the transplanted ovaries, two strongly contrasting genetic strains of mice were used

in the experiment, giving easily detected differences in color and coat character between the "donor" embryos and the "host" foster-mothers. The offspring plainly showed their kinship to the strain to which the sacrificed embryos had belonged.

Dr. Russell and Miss Douglass point out several ways in which their work may yield scientifically valuable results. It should produce data of value in deciding relative importance of heredity and maternal environment, and also give opportunities to study the effects of hormones, or internal gland secretions, in prenatal development.

Finally, the experimenters point out, "There is no reason to suppose that the method could not be repeated for any number of successive generations, thus leading to an indefinite number of unborn direct female ancestors. This possibility should be of interest to investigators in several fields of research. In studies of the mammary tumor agent, for example, mice could be obtained whose female ancestors, for any number of generations, had not been nursed."

Science News Letter, January 26, 1946

MEDICINE-CHEMISTRY

Protects Penicillin

Phenol compound helps the drug do a better job in fighting germs in infected wounds. Can also be used as a liquid or as an ointment on dressings.

► PENICILLIN can do a better job of fighting germs in infected wounds when it is protected by a chemical related to carbolic acid, it appears from a report by Dr. Frank L. Meleney, Miss Balbina A. Johnson and Miss Frances Colonna of New York and Capt. Edwin J. Pulaski, of the Army Medical Corps. (*Journal, American Medical Association, Jan. 19*)

Surprising as it may be to those who have looked on the mold chemical as almost a cure-all for germ diseases, penicillin is powerless against some germs and its anti-germ power is destroyed by

substances these germs produce.

Wounds on the battlefield or in peacetime accidents may become infected with these penicillin destroyers and at the same time with germs that are ordinarily susceptible to penicillin. The problem for the surgeon is to determine which germs are present and, if there are penicillin destroyers, to get rid of them so the penicillin can act on the others. If this is not done, and penicillin is used in the wound in ordinary amounts, there is the danger that germs ordinarily susceptible to penicillin will develop penicillin resistance because the

amount of penicillin in the wound will be reduced by penicillin destroyers below the level needed to destroy susceptible germs.

In a search for a way to overcome this situation, the scientists tested over 200 chemicals and antibiotic agents for their ability to destroy the germs that destroy penicillin. The carbolic acid relative, parachlorophenol, was the most effective of the antiseptics tested. It does not injure the tissues or cause toxic symptoms, can be used with penicillin and can be used as a liquid or as an ointment on gauze dressings.

Results of tests of other substances, the scientists state, will be reported later.

Science News Letter, January 26, 1946

ENGINEERING

26 Horsepower Engine Built on New Principle

► A NEW 26-HORSEPOWER engine for light automobiles, built on a radically new principle from thin sheet-steel stampings instead of heavy forgings and castings and weighing only 59 pounds, has been announced by Crosley Motors, Inc. It is low in first cost, economical to operate, and can drive the new 1000-pound Crosley car at a top speed of 60 miles an hour. At a 35-mile speed it can operate 50 miles on one gallon of gas.



COMPACT ENGINE—The new 26-horsepower Crosley engine is built on a radically new principle from thin sheet-steel stampings and weighs only 59 pounds. Holding the engine easily on his lap is Powel Crosley, Jr., president of Crosley Motors, Inc.

The cylinder walls of the new engine are of chrom-molybdenum steel, and are only one-sixteenth of an inch thick. The engine parts are all stamped from thin metal sheet and tubes crimped together, then braced into a single piece by melting pure copper into all the joints by an hour's baking in a hydrogen or gas furnace. The entire engine is thus precision-formed, machined to exact dimensions and is ready to go to work. Its cost is a small fraction of that of a standard engine, it is claimed.

The low fuel consumption of the new

engine, the makers state, is a direct result of the thin walls which permit efficient cooling of the cylinders. It operates at the high speed of 5,000 revolutions a minute. Its four cylinders are only two and one-half inches in diameter with a two-and-a-quarter inch stroke. The pistons are cast of aluminum alloy and the crankcase is an aluminum casting. The cooling system holds but five quarts of water, but the pump forces 12 gallons of water through the system every minute.

Science News Letter, January 26, 1946

trail wide enough for a line of tanks to move forward without danger of enemy land-mines. A "snake" is shown on the front cover of this SCIENCE NEWS LETTER.

This type of mine destroyer is a long metal trough, loaded with two parallel linear explosive charges encased between corrugated aluminum plates, bolted together to form a rigid assembly which can be towed or pushed by a light or medium tank. It is 400 feet long, 14 inches wide, five inches high, and weighs about 9,000 pounds, approximately half of which is its load of high explosives.

ELECTRONICS

Throat Microphone

Highly sensitive to throat vibrations and insensitive to sound waves in the air, it is particularly suitable for use in noisy surroundings.

► THROAT MICROPHONES, that reproduce speech by picking up the vibrations of the larynx instead of sound waves from the mouth, are particularly suitable for use in machine shops, airplanes, warships and other places with noisy surroundings, members of the American Institute of Electrical Engineers were told by L. G. Pacent of the Pacent Engineering Corporation and E. H. Greibach of the Sonotone Corporation.

The throat microphone is a discriminating type of microphone, they said, because it is highly sensitive to vibrations transmitted to it by bodily contact with the sound-producing throat, but is quite insensitive to sound waves transmitted by air. It is comfortable to wear, does not shift out of position, and permits normal conversation to be carried on unrestricted to a degree not approached by any other form of microphone, they declared.

Throat microphones can be built on different principles, it was explained, according to the method used for the conversion of acoustic into electrical energy, such as carbon chambers, crystal microphones, and electromagnetic systems. Of these three kinds of elements, the scientists stated, the electromagnetic system is especially well suited to provide a high-articulation throat microphone.

The paper presented by Mr. Pacent and Mr. Greibach dealt technically with the theory and design of magnetic inertia throat microphones. Especial attention was given to the treatment of sound power and high-articulation throat instruments. Because they operate while pressed against the human body, it is

necessary to enclose their working mechanism within a rigid housing to prevent external forces from affecting the air gap. For the same reason, they said, it also becomes desirable to use the inertia principle in the design of such microphones.

Testing Bone Receivers

At the same meeting Mr. Greibach explained laboratory methods for the objective testing of bone receivers and throat microphones. The problem of building an artificial ear, he said, is relatively simple compared with that of constructing an "artificial mastoid" for testing bone conduction receivers, or an "artificial throat" for testing throat microphones.

The artificial throat must have a vibrating platform capable of imparting a velocity to a throat microphone through a filter simulating the layer of skin. The platform must be large enough, he stated, to make the microphone response independent of small changes of position of the microphone on its surface.

Science News Letter, January 26, 1946

MILITARY SCIENCE

"Snakes" Cleared Trails Of Mines for Allied Tanks

See Front Cover

► DETAILS were revealed by the War Department concerning one type of the rumored Army "snakes" that were used in the European theater to cut wires and detonate enemy mines ahead of advancing Allied forces. The snake cleared a

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