N-allylnormorphine was reported an antagonist to opiate drugs.

Acetylmethadol, related to pain-relieving methadon, was reported successful in treating morphine addicts and promising as pain-reliever in first aid treatment.

A gel of milk casein, sodium lactate and sodium lauryl acetate was reported good treatment for severe burns.

Tibione, German-developed tuberculosis drug, was reported most promising new drug for leprosy.

Thyroid gland cancers in animals have been produced experimentally for the first time by setting up a chain reaction of abnormal activity of two glands.

Promise of a birth control pill was held out in reports of animal experiments with an unnamed synthetic chemical already under trial on human patients for a quite different purpose.

Birth control in 98.2% of 704 patients was provided by a gel containing ricinoleic acid and p-diisobutyl-phenoxypolyethoxyethanol.

A simple test which tells within an hour whether a patient has influenza was developed.

Prospects for chemical conquest of poliomyelitis and influenza seemed brighter from the discovery that ethionine will stop growth of both 'flu and polio viruses, the former in embryonated hen's eggs and the latter in cultures of human tissue, by depriving them of its close relative, protein-building methionine, though treatment will probably come through some other similar-acting chemical, ethionine itself being unsuitable to give patients.

Success in growing poliomyelitis virus on tissue cultures outside the body was achieved, giving hope that weakened strains thus developed could be used for a vaccine.

A simple diagnostic test for polio, of the complement fixation type, was developed but has not yet reached practical use readiness.

A new quick, simple, cheap test, called a flocculation test, for diagnosing trichinosis, brucellosis, tularemia and possibly other parasitic diseases was developed.

Successful transplantation of the heart from one body to another was achieved in laboratory animals.

Construction of a substitute stomach from part of the large intestine succeeded in cancer patients who had to have their own stomachs removed.

The buds of developing permanent teeth were successfully transplanted from the jaw of one cat to that of another.

The first blood vessel bank was established.

Methods for freeze-drying bones and arteries to preserve them for future use were developd.

Hemophilia, hereditary bleeders' disease, can develop in women, contrary to previous medical reports, it was discovered.

A new family of B vitamins, called lipoic acids, were discovered and one of them, alpha lipoic acid, was isolated.

A B-complex vitamin, called the citrovorum factor, which may give better understanding of blood diseases and help in their treatment, was isolated.

Chemicals that are precursors of vitamin B 12 were discovered.

First evidence for hereditary obesity and diabetes was obtained in mice.

A new biological material, amino-iso-butyric acid, hitherto unknown in nature, was discovered in kidney secretions from certain families of normal, healthy humans.

A new, apparently safe sleeping medicine, 3-methyl-pentyne-ol-3, was announced.

Treatment with a fever-causing substance from certain bacteria permitted regrowth of nerve cells in completely severed spinal cords of dogs and cats by preventing growth of scar tissue.

Two antivirotics, that may stop viruses as antibiotics stop bacteria, were discovered, named viscosin and ehrlichin.

Speedy remedy for ivy poisoning was found in zirconium.

Wild birds were found to be the natural reservoir for the virus of encephalitis, sometimes called "sleeping sickness."

Tomatoes can be made to yield sex hormones and may become plentiful, cheap source of cortisone.

Feedback electrical systems were developed for control of anesthesia.

A plastic hypodermic needle for caudal anesthesia was made.

A plastic sponge was used as a framework for living tissue in reparative surgery.

A new hip-lift or hip-roll method of giving artificial respiration more effectively was developed.

The Nobel Prize in medicine was awarded to Dr. Max Theiler, of the Rockefeller Foundation, for his researches leading to successful vaccine against yellow fever.

The Guinea Pig Club, of men and women who have served as human test material for medical research, was organized under the formal name, Walter Reed Volunteers.

Cornerstone for a new national research hospital, the Clinical Center of the National Institutes of Health, U. S. Public Health Service, was laid by President Truman.

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PSYCHOLOGY-PSYCHIATRY

Diet Plus Shock Treats Mental Ills Successfully

A fat-protein diet producing acidosis, combined with electric shock, was successful in treating mental illness.

The fiber projections from the brain's frontal lobes which are the part of the brain governing anxiety were exactly located.

Symptoms of mental illness were produced experimentally in normal persons by an ergot derivative, affording scientists an opportunity for study of them.

Loss of a large part of the brain cortex in monkeys was partially compensated for by extensive training in problem solving previous to the operation.

Knowledge of the developmental anatomy of the brain cortex of the young human infant was significantly advanced by microscopic studies.

Glutamic acid fed to pregnant rats was found to improve the learning ability of the offspring.

Glutamic acid prevented deaths from noise-induced convulsions in susceptible mice, thus promising to throw light on the chemical processes in the brain.

Precise measurement of eye movement in binocular vision showed that the two eyes scan an object independently and the brain must combine both spatial and temporal patterns.

The mechanism of depth perception is different when the object observed is large than it is when the object is so small that the image is smaller than the eye's fovea.

A one-eyed person can perceive depth, distance and speed well enough to land an airplane successfully, tests in the Air Force showed.

BANK FOR BONES—The pieces of bone in the tubes in this rack have been freeze-dried at the Naval Medical Center, Bethesda, Md., and thus they can be safely kept at room temperature.

By listening to the electrical signals picked up from individual retinal cells of cats and other animals, a scientist found that the visual cells respond differentially to different colors.

When an observer is lying on one side, the lower eye is more sensitive to red, the upper one to blue, it was reported.

Perceptual behavior was extensively investigated as an important key to the understanding of human personality.

Appointed leaders tend to behave more democratically than emergent leaders in problem-solving situations, it was observed.

It was proposed that Menticide, or political intervention in the individual human mind to force confessions or impose an ideology, should be declared an international crime.

Decision-making conferences were found to be most productive when they showed most adequate communication (in terms of audibility, understandability and freedom to participate) and were most orderly in their treatment of topics.

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PATENTS

Top Patents Include Electroluminescent Phosphor

Numbers following items refer to U. S. Patents. Printed copies of patents can be obtained from the U. S. Patent Office at 25 cents each. Order by number, do not send stamps, and address orders to the Commissioner of Patents, Washington 25, D. C.

Notable and interesting inventions patented during the year include:

Electroluminescent lamp in which voltage is applied direct to a phosphor. Patent 2,566,349.

Cheaper germanium crystals for germanium electrical rectifiers and amplifiers using a less pure germanium as a starting material. Patent 2,565,338.

Radio equipment, truck-mounted, for determining all radio programs being received by home instruments in a neighborhood. Patent 2,552,585.

Semiconductive metal, usable in rectifiers, made largely of silicon but with additives of boron or alumnum, and phosphorus, arsenic or antimony. Patent 2,567,970.

Methylene bromide and another brominated hydrocarbon as the basis of fire extinguisher for burning gasoline. Patent 2,569,979.

Aluminum wire containing a small amount of boron to give strength and better electrical conductivity. Patent 2,545,866.

Chemical treatment process by which sea water can be made suitable for irrigation purposes but not for household uses. Patent 2,546,071.

Sonic proximity fuze to cause bombs dropped from airplanes to explode at the proper distance from the earth to cause most damage. Patent 2,536,327.

Coal-burning gas-turbine electric locomotive which uses finely pulverized coal as a fuel. Patent 2,533,866.

Electronic systems that make it possible to use powerline alternating electric current to operate direct-current motors. Patents 2,530,949 and 2,530,993.

Method used in modern artificial rain-making of forming crystals of ice in a supercooled cloud by the use of dry ice pellets dropped from an airplane through the cloud. Patent 2,570,867.

Paint for highway lines containing tiny beads of glass and titanium dioxide pigment. Patent 2,574,971.

Electric igniter to start the coal fire in a stove or furnace without kindling. Patent 2,549,806.

Light-weight concrete containing aluminum powder in an aqueous solution of a water soluble, organic sulphonate emulsifying agent to give increased resistance to water and heat insulation. Patent 2,534,915.

Better quality synthetic rubber containing calcium silicate as a reinforcing pigment. Patent 2,532,665.

Magnesium alloy, with tensile strength at elevated temperatures, utilizing the rare earth metals cerium, neodymium and praseodymium. Patent 2,569,477.

Wartime-developed radio beacon for guiding airplanes in flight by a coded signal. Patent 2,568,265.

Process for treating waste citrus liquors to obtain oil and other constituents. Patent 2,561,072.

Improved isoparaffinic aviation fuel for military and civil planes using minor portions of methyl substituted pyridines. Patent 2,560,898.

Stable insulating iron oxide coatings for ferrous metals which also protect against rusting. Patent 2,543,710.

High-lift airplanes requiring only a short runway and usable in areas where space for ordinary runways is lacking. Patent 2,541,704.

High-temperature stainless steel, usable where ordinary stainless steel can not be employed. Patent 2,540,509.

Ductile cast iron, containing zirconium, which can be used to replace steel in certain applications. Patent 2,538,263.

Electromagnetic ignition apparatus for fuel gas in the kitchen range or household furnace. Patent 2,536,468.

Silicone resin preparation to make brick and masonry walls water-repellent. Patent 2,574,168.

Fluid-tight, gas-tight case for ordinary cameras for taking pictures underwater or in gases that might ruin a film. Patent 2,573,885.

For invalids walk-in bathtub with a non-leak door on the side. Patent 2,570,053.

Vest-pocket capsule made of sugar and bicarbonate of soda and filled with an alcoholate for dropping in a glass of water to make a champagne-wine-like drink. Patent 2,537,453.

Improved cross-wind landing gear for airplanes. Patent 2,538,388.

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GENERAL SCIENCE

Top 1951 Science Stories

➤ THE TOP ten important advances in science and technology during 1951 as picked by Watson Davis, director of SCIENCE SERVICE, are:

1. Use of atomic bombs in artillery and guided missiles, and the beginning of operation of a breeder reactor for making fissionable material out of thorium.

2. Cancer advances that include control by removing both adrenal glands and use of aureomycin to treat a precancerous stage.

3. Use of a new pain-killing drug (Dromoran) that promises to free us eventually from reliance upon morphine from imported opium.

4. Discovery of anti-atomic radiation substance, pressed juice from embryonic mice, that restores damaged blood formation in bones.

5. Evidence that space between the stars is filled sparsely with hydrogen gas.

6. Development of new method of light production from glowing surfaces, called electroluminescence.

7. Production in quantity of first U. S. guided missile weapon, the Matador.

8. Discovery of modern type human skeleton in Old Stone Age cave in Iran.

9. Methods of synthesis of cortisone from vegetable raw materials, promising larger and cheaper production of this drug.

10. Use of antibiotics and vitamin B-12 in promoting growth of poultry and pigs.

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GENETICS

Baby Mice Are Born to Unrelated Foster Mothers

➤ BABY MICE have been raised from the early egg stage in foster mothers without the necessity of performing a radical operation to implant the fertilized eggs into the reproductive tract of the mouse.

Success in this technique, which will be of use in breeding and other experiments, is announced by Dr. R. A. Beatty of the Institute of Animal Genetics, Edinburgh, in a communication to the British journal, NATURE (Dec. 8).

The process is called inovulation, analogously with artificial insemination, now widely practiced in research and practical animal breeding. Fertilized eggs are taken from one mouse by an operation and then by means of syringe apparatus are placed in the uterus of the foster mother. Heretofore an abdominal operation on the foster mother has been necessary.

The baby mice thus produced are not related genetically to the mother that gives birth to them.

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INVENTION

Patent Liquid Rouge Containing Perfume

➤ LIQUID ROUGE would replace the widely used solid face rouges in an invention for which Leola Silva, Oakland, Calif., received patent 2,578,210. The coloring material is in a solution of water and ethyl alcohol, both of which evaporate when the liquid is applied to the face. For coloring, one of several coal-tar dyes may be used to which is added mercurochrome. Perfume is also included. The thin film left after evaporation adheres strongly.

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