

New, safer form of electric shock treatment in which each pulse lasts only one-half to one-thousandth of a second was successful against depression; shock by weak electrical current followed by a deep, dream-like sleep was found useful.

Two personality tests, Rorschach ink-blot test and Minnesota Multiphasic Personality Inventory, were used to separate quickly curable mental patients from resistant ones.

Lack of sleep for five days and nights made a healthy young man temporarily "see things," laugh and talk crazily, and show other symptoms of the serious mental disease, schizophrenia, pointing to a relation between the two conditions.

Mental patients were found to have an average intelligence quotient eight points below the normal expectancy of 100; alcoholics and neurotics rated highest intellectually, epileptics and syphilitics among the lowest.

Inability to form new conditioned reflexes was used as a clue to serious brain damage, and to distinguish between functional disturbances and organic disturbances.

Children displayed more intelligence after treatment with glutamic acid.

Chemical constitution you inherited from your parents plus the environment in which you live was reported to determine whether you would become an alcoholic; alcoholic addicts were declared subconsciously to enjoy being treated badly.

Smell is not a chemical sense but is due to infrared radiation from the sense organ, according to a theory confirmed by experiments; odorous substances are those capable of absorbing radiation of the critical wavelengths—eight to 14 microns.

Tapping of electric currents from the eye itself was found to be an objective method for measuring visual sensitivity uncomplicated by what happens in the brain's visual centers.

Possibility that sounds may be used to produce an illusion of sight for the purpose of guiding a pilot into an airport was the outcome of war research.

Simpler instrument panels with fewer, less confusing dials and knobs easier to reach and manipulate also resulted from these programs.

#### GENERAL SCIENCE

## Ten Top Science Advances

► THE TEN most important advances in science made during 1947, as picked by Watson Davis, director of Science Service, are:

1. Discovery that smell is detected by infrared radiation absorbed by odor material reaching the nose.
2. Pilotless plane that crossed Atlantic untouched by human hand at controls.
3. Attempts at artificial rainmaking through sprinkling dry ice or water on clouds under certain conditions.
4. Synthesis of protein in long-chain molecules, promising new plastics of medical and industrial importance.

An auditory afterimage was found to follow a buzzing sound of high intensity, causing familiar sounds to have a strange metallic quality.

A person's ear was reported to be more sensitive to interruptions in sound than his eye to a flicker in light, being capable of noticing the difference between a continuous noise and one interrupted 1,000 times per second; this research is important in new telephone systems.

Sight, except for responses to light, must be learned, it was shown through studies with baby chimpanzees raised in darkness and humans born blind in whom sight was restored.

Master hearing aid that will suit almost all deafened persons was made possible by war research on noise and communications.

Learning under intense pressure tends to be narrow and rigid so that a need to adapt under changed conditions results in frustration; this finding from animal experiments is believed to explain the psychological difficulties of men and nations.

Most accurate prediction of a man's leadership comes from the men who work with him, it was found, as intelligence, mechanical aptitude and personality tests fail to predict ability to command in combat.

Lefthandedness can be predicted while the person is still a baby from study of his posture in motion pictures made at monthly intervals, it was reported.

Punishment may stamp in the behavior for which punishment is given, it was indicated by studies in which rats punished for running often ran faster.

People begin to lose their strength at the age of 25, measurements of hand strength showed.

Although school books intended to build a child's vocabulary only introduce about 500 new words a year, the average child was found to add 5,000 new words to his vocabulary every year.

Two-thirds of the mothers bringing their babies regularly to a health clinic, and themselves learning a realistic and tolerant attitude toward infant behavior, reported their babies had no unapproved habits.

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5. Interconversion of proton and neutron fundamental particles and smashing of many more elements yielding new isotopes and transmutations in world's highest voltage synchro-cyclotron.
6. Largest display of sunspots in over a century.
7. Use of streptomycin in tuberculosis treatment.
8. Development of jet bombers and higher speed jet planes.
9. Discovery of 10,000 year-old Tepexpan man in Mexico.
10. Camera that makes finished photoprint in one-step process.

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## Do You Know?

*Alfalfa* may some day be grown as a source of food for humans; it is rich in proteins.

The *frost* that forms on the freezing compartment of an electric refrigerator can be melted and used where relatively pure water is required.

Four methods of *air disinfection* for hospitals are recommended: ultra violet radiation, chemical disinfection with sprays, dust suppression, and ventilation.

Starting from sea-level, the *temperature* of the atmosphere drops steadily up to an altitude of about 12 miles, then remains constant for several miles, rising at an altitude of 36 miles and later dropping again.

Butyl alcohol, a possible *fuel* for automobile engines, is obtained from corn-cobs by a new process in which the cobs are treated with an acid, yielding glucose, or corn sugar, and xylose, once called wood sugar.

#### ENTOMOLOGY

### New Unwetable DDT Will Provide Poisonous Film

► MOSQUITO "wrigglers" coming to the surface to breathe, also their mothers coming down to lay another clutch of eggs, are in for worse DDT trouble than ever. For covering the water surface there is very likely to be a persistent, poisonous film of a new "hydrophobic" DDT.

This does not mean that the mosquitoes will get hydrophobia; it merely means that the etymology of this new entomological woe indicates that the compound "hates water", in the sense that it cannot be wetted and thus washed out or sunk.

This new, unwetable form of DDT, on which U. S. patent 2,430,288 has been issued to a du Pont chemist, Albert L. Flenner of Wilmington, Del., is prepared by hooking the DDT molecules up to molecules of stearylamine, which are long-tailed affairs built somewhat like soap molecules, then mixing to a paste with tricalcium phosphate. Dried and re-powdered, this forms highly fluid dust, the particles of which stick to each other but will not stick to water. Hence their excellent film-forming properties.

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