INVENTION

Playing Records Non-Stop Possible with New Machine

➤ A PHONOGRAPHIC apparatus that will take a series of ordinary records and run through a whole symphony or opera without the awkward pauses necessitated by changes or turn-overs is the novel invention on which U. S. patent 2,462,435 has just been issued to Robert E. Stanton of Denver.

The basic idea is quite simple. It plays a stack of disks just as any automatic phonograph would. But instead of translating their vibrations directly into sound, it transfers them to a magnetic steel tape record. This runs at a slower rate than the disks, so that there is always enough left over at the end of each disk to fill in the pause until the next one comes on.

After the magnetic tape record has been played it is automatically erased, so that it is always ready for the next recording.

Science News Letter, March 19, 1949

VOLCANOLOGY

Hawaiian Volcano Due for Eruption within Two Years

➤ YOU CAN expect another eruption of Hawaii's famed volcano, Mauna Loa, "within two years." That is the forecast of the foremost authority on Mauna Loa, Dr. T. A. Jaggar.

Dr. Jaggar cautions that "within two years" may mean only weeks or months.

If the big mountain, biggest in the world in total volume, keeps up its recent record of eruptions, the next one is due about 1951, however.

The last eruption a couple of months ago had the summit crater spilling lava southwest. In both 1933 and 1940, there were similar eruptions. Both times, they were followed in two years by summit eruptions which spilled lava toward the northeast.

Thus, the next eruption, if it follows the pattern, will be in about two years, and spill the lava northeast like the 1935 and 1942 eruptions.

Dr. Jaggar, who has had a distinguished scientific career recording the outbursts of the Hawaiian volcanoes, compares Mauna Loa with a giant beer mug.

Some people think that the lava might drain off through underground connections, but it doesn't. That, Dr. Jaggar explains, is "because a froth rises by expanding gases just like beer."

For use in future eruptions, he urges a laboratory which can be used by scientists to make observations of the first hour of an eruption. Dr. Jaggar proposes that a laboratory be built 13,000 feet above sea level on Mauna Loa.

On the less scientific side, he wants a jeep road from Kilauea to Mauna Loa summit house "so that there will be no more lost airplanes, no more pack trains of horses caught in blizzards of sleet and snow and so that science and public can see a Mauna Loa outbreak."

Dr. Jaggar also believes that studies of Mauna Loa and other volcanoes must go down as well as up. He would like to see the Navy make a survey of lava flows under the Pacific east, south and northwest of Hawaii Island where Mauna Loa is.

Science News Letter, March 19, 1949

CONSERVATION

Resources Conferences Scheduled at Lake Success

➤ CONSERVATION and development of the resources of all parts of the world will be discussed at a United Nations Scientific Conference on the Conservation and Utilization of Resources to be held at Lake Success, N. Y., from Aug. 17 to Sept. 6.

Originally proposed by President Truman, this meeting is being called by the United Nations Economic and Social Council. Engineers, economists, scientists and other experts will be invited to participate in UNSCCUR, which is the short name given the conference.

At the same time, UNESCO is assembling another conference jointly with the International Union for the Protection of Nature. Sessions of both conferences will be held during the same period as many experts will participate in both.

Science News Letter, March 19, 1949

GENERAL SCIENCE

Films May Bring Science to War-Devastated University

➤ A PLAN for bringing great scientists and elaborate experiments with costly equipment to classrooms in war-devastated universities has been proposed to the United Nations Educational, Scientific and Cultural Organization.

Schools without funds for expensive classroom science equipment can use films to show their students the experiments which cannot be performed for them. This is the idea that came to Dean Vidal Tan of the College of Engineering of the University of Philippines, when he saw in the United States audio-visual films of science experiments.

Dean Tan was in the U. S. on a UNESCO reconstruction fellowship studying educational administration.

"Scientists of world repute and statesmen of international fame may be seen and heard through the audio-visual films, furnishing inspiration and stimulus heretofore beyond our modest reach," Dean Tan explained in a letter to UNESCO headquarters in Paris.

"It is relatively inexpensive and will surely vitalize instruction, especially in the courses where our economic handicaps prevent us from acquiring expensive and elaborate equipment."

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IN SCIEN

PHYSICS

Atomic Bomb in the Hand Is Worth Many Death Rays

➤ AMERICAN military scientists are not greatly alarmed at German reports that the Soviets have made progress with "death rays."

One reason is the proven power of atomic bombs. Death rays have been dreamed of for years. Some scientists and many non-scientists have thought they had one. But no real death ray has ever been found.

A scientist assigned to investigate the death rays proposed by American inventors during the last war came up with a blank. Only death ray casualty he found was a canary cooked to death at a distance of nine feet.

Heat is a favorite subject for death ray designers. A leading U. S. military scientist tells this story of one such ray:

A pair of German scientists were experimenting with the infrared rays which are found in sunlight and emitted by such things as stoves. The scientists were not sympathetic to Hitler and wanted to continue their peaceful research despite the war. So, they sold Hitler's science leaders on the idea of an infrared death ray.

Their infrared rays produced heat and no deaths. But they were able to continue their research under the guise of developing a death ray.

Now that atomic bombs have been made, the old search for a death ray is more difficult. It will have to be able to compete as a weapon with the A-bomb.

Science News Letter, March 19, 1949

PLANT PHYSIOLOGY

Polarized Infra-Red Light Changes Starch into Sugar

➤ STARCH grains can be chemically broken down and converted into sugar by infra-red "black light" reflected in such a way that it becomes polarized, having all its wave-fronts vibrating in the same plane. This has been demonstrated at the Chelsea Physic Garden in London by Dr. Elizabeth Sidney Semmens.

Source of the infra-red rays in her experiments was an electric heating coil. The reflecting surface was either black glass or a ferrotype plate, such as is used by photographers in finishing their prints.

Dr. Semmens has for some years worked on problems connected with the conversion of starch into sugar under the influence of polarized light. Her present results are described in a letter to the editor of the British Journal, NATURE (March 5).

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CE FIELDS

RADIO

Higher Power for Radio Given by Diplexer Network

➤ HIGHER power for radio broadcasting is obtained by a system which allows two transmitter tubes to be operated simultaneously into a common load without interaction between tubes and without reduction in bandwidth, the Institute of Radio Engineers was told in New York by four scientists of the Radio Corporation of America.

These research men from the RCA Laboratories at Princeton, N. J., described what they called a diplexer, a combining network which is applicable from powerline frequencies through at least the ultra-high frequency band. It is a combining network for tying the output of two transmitters into a single antenna which works out to be a simple means of doubling the power output. They emphasized that the network does not combine tubes, but combines their output.

The continual struggle in radio broadcasting is for higher power, the scientists stated. They are G. H. Brown, W. C. Morrison, W. L. Behrend and J. G. Reddeck. The ultra-high frequency band is no exception, they continued; the only difference is the increased difficulty in getting it. Tubes capable of high power have been developed, but still higher power is desired. This two-tube network promises a solution.

In it, two transmitters can be combined with one diplexer, which can then be considered as a single unit. Another two transmitters combined with a second diplexer form a second unit, and then the units can be used with a third diplexer to give four times the power of a single transmitter. The process can be continued as desired, always doubling the number of transmitters and the output power.

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ENTOMOLOGY

Insects Anesthetized for Experiments in New Gadget

➤ FOR the micro-surgical operations which entomologists sometimes want to perform on insects, Edwin R. Willis and Louis M. Roth, of the U. S. Quartermaster General Laboratories in Philadelphia, have devised a convenient operating stage on which their small experimental subjects can be kept anesthetized as long as they need to work on them.

The device consists of a rectangular block fitting on the stage of the dissecting microscope, with a circular depression cut into it. Slightly above the bottom of this is a fine screen, held in place by a plastic ring. On this the insects are placed.

Carbon dioxide is the anesthetic gas used. Insects exposed to it quickly become motionless, and can be worked on in any way desired without "kicking up a fuss". Micro-operations on such insects as clothes moths, flour beetles and mosquitoes help scientists to find out what makes them tick—with the ultimate objective of making millions of them stop ticking.

The scientists have reported their new device to the journal, SCIENCE (March 4).

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RADIO

One Antenna Can Feed Several Receivers

➤ AN electronic device called a multicoupler, which enables one antenna to supply signals to several receivers, was described to the Institute of Radio Engineers in New York by W. R. Aylward and E. G. Fubini of Airborne Instruments Laboratory, Mineola, N. Y. It is usable where for lack of space only one antenna can be erected. It is a situation common in receiving stations in the armed services, and in aircraft.

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AERONAUTICS

Miniature Airport Tests Plane Models Successfully

➤ A MINIATURE airport in operation for the past year at the Wright-Patterson Air Force Base in Dayton, O., has served successfully as a test ground for flying models of airplanes in obtaining pre-flight data.

The tiny airport has a circular runway 400 feet in diameter. In the center is a pylon, actually a control line base tower, for flying the models. Strong thin wires connect to the model's control surfaces, enabling an operator on the ground to fly it as he would a full-sized plane.

While their movements are limited to a single axis, these control-line type models yield rationalized, proportional control data more nearly simulating actual flight control problems than do the radio-controlled type of models, Air Force officials state.

The tests are filmed by a camera which, riding the pylon cable, follows models through all maneuvers and speeds, maintaining continual photographic contact at a constant distance. The models tested are exact copies of the plane under study, and are from seven to 18 feet in length.

At present, the models fly up to 200 miles per hour with tiny conventional engines. Plans, however, are underway to operate them at transonic and supersonic speeds, utilizing rockets and jet engines. When this is achieved, extensive experiments will be made in the critical speed range.

Science News Letter, March 19, 1949

MEDICINE

Allot Funds for Research On Polio Viruses

➤ HOW MANY different viruses capable of causing infantile paralysis are there? How do the numerous polio viruses differ and what are their characteristics?

Answers to these questions, important if vaccination against polio ever can be achieved, are being sought in a new research venture financed by $1,370,160 of March of Dimes funds from the National Foundation for Infantile Paralysis. Cooperating in the three-year study of this phase of the polio problem are the Universities of Southern California, Kansas, Utah and Pittsburgh.

Infantile paralysis, or poliomyelitis, is now considered not a single disease but a family of diseases, with certain common symptoms, caused by two or more groups or families of viruses, Dr. Harry M. Weaver, director of research for the National Foundation, explained.

The specific problems which the research scientists at the four universities must answer are: 1. What are the differences between the polio viruses isolated in different geographic areas and in different epidemics? 2. Is there any detectable difference in viruses isolated recently as compared with those isolated in the past? 3. Is there any detectable difference in the viruses isolated from healthy carriers, non-paralytic and paralytic patients?

This and other research and educational projects involving March of Dimes funds in excess of $2,500,000 were announced by Basil O'Connor, president of the National Foundation for Infantile Paralysis.

Science News Letter, March 19, 1949

WILDLIFE

Big American Elk Gains, Thanks to Its Bigness

➤ ONE of the nation's big-game animals seems to be increasing in numbers because it is big.

The wapiti, or American elk, now numbers an estimated 226,500, compared with a low population of 50,000 a few decades ago, the North American Wildlife Conference was told in Washington.

Reasons for this increase include the animals' size, explained D. I. Rasmussen of the U. S. Forest Service. The wapiti is large enough to resist predators and compete with other animals for food. Also in the animal's favor is the fact that it responds well to management practices.

Less encouraging was the report on a famed and unique species of the North, the caribou. A. W. F. Banfield of Canada's Dominion Wildlife Service said that inroads of civilization left the status of the caribou "precarious."

Science News Letter, March 19, 1949