

PHYSICS

Ordinary Light Speeds Up Spinning of Tiny Tops

► ORDINARY light can speed up the spinning of tiny tops.

The "tops" are tiny rotors, suspended magnetically in a vacuum, at the Roush Physical Laboratory of the University of Virginia by Dr. J. W. Beams. Dr. Beams has speeded up the spinning of the rotors by light from a 100-watt concentrated arc-type lamp, focused by a large short focus lens with a mirror on the surface of the rotor. The light was applied in opposite directions on opposite sides of the rotor.

If sunlight were used, it should be possible to drive the rotors at such a high speed they would explode, the scientist believes.

Pressure from the light is what powers the tiny rotors, less than one-fifteenth of an inch in diameter. Light has pressure but it is a very small amount. Low pressure is used in the experiments to overcome friction. This is an adaptation of the little spinning device run by light which can be seen in optical store windows.

Dr. Beams suggests in a report to the *Physical Review* (Nov. 15) that it may be possible to obtain precise measurements of the pressure and angular momentum of light with this type of experiment.

Science News Letter, November 29, 1947

PHYSICS

Goals of Pure Science Suffer in Large Projects

► DECLARING that men of science are motivated by spirit, a scientist accepting an award for his leadership in the development of the wartime proximity fuze and other achievements charged that today's large programs of technological development are creating a "risky and unbalanced situation."

Dr. Merle A. Tuve, head of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, warned against large projects in which scientists "are losing sight of the higher goals and values of pure science."

The scientist made an address accepting a \$2,500 Research Corporation Award for pioneering in exploration of the ionosphere and for his role in the development of the proximity fuze. Dr. Joseph W. Barker, president of Research Corporation, made the presentation at a dinner, presided over by Dr. Vannevar

Bush, president of Carnegie Institution of Washington and a previous winner of the award.

Emphasizing that creative research is done by small, independent groups, Dr. Tuve said that "any one group larger than six or seven men will primarily turn its activities into development work."

Current programs of vast sums of money and many men may give more control of science to "people who do not understand the spirit or the methods of science," he cautioned. Another danger is sacrificing the character and spirit of men of science, he added.

"A great many of the large operations which are being publicized as scientific activities today," Dr. Tuve asserted, "are directed toward objectives which are not related to the true nature of science.

"We need much clearer public distinctions in these matters, or science will be charged with the goals and selfish objectives which are impressed on technology for political and economic reasons and which have nothing in common with those of science," Dr. Tuve urged.

Instead of more acceleration in science, the scientist said we need more understanding of human relationships.

"The great need of today," he concluded, "is for the leadership of the humanities."

The scientist who headed the wartime laboratory where major radar developments were made was given another \$2,500 annual award.

The scientist is Dr. Lee A. DuBridge, president of the California Institute of Technology. During the war, Dr. DuBridge headed the Radiation Laboratory of the Office of Scientific Research and Development at Cambridge, Mass. This laboratory did important work on radar.

In making the award to Dr. DuBridge, Dr. Joseph W. Barker, president of the Research Corporation, called the radar scientist "a great research man and leader of what may well have been the greatest research team ever assembled for a specific project."

Two other special awards of \$1,000 have been made this year by the Research Corporation to physics teachers in small colleges whose students have made an outstanding record in advanced work. The teachers who have received the award are Dr. A. A. Knowlton of Reed College, Portland, Ore., and Dr. Clifford N. Wall of the University of Minnesota, formerly at North Central College, Naperville, Ill.

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IN SCIENCE

GENERAL SCIENCE

India Is Split Politically But Scientists Are United

► WHILE India is now divided into two parts politically, the scientists of that area are continuing to work together and the principal science organizations there will continue to unite all scientists whether Hindu or Moslem.

This message was brought to UNESCO meeting in Mexico City by the principal scientist in India's united delegation, Prof. H. J. Bhabha, cosmic ray authority from Bombay.

The important Indian Science Congress will continue as it has been constituted, coordinating science in all parts of the Indian nations. The newly organized Indian Association of Scientific Workers will likewise not be split. Dr. Bhabha reported that some Moslem scientists, such as Dr. R. Siddiqui, director of national chemical laboratories, will continue to work in Hindu territory. Dr. Nazir Ahmed, director of scientific development for Pakistan, will be one of the principal advisers to the scientific activity of Hindu area.

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MEDICINE

New Chemical Prolongs Penicillin's Stay in Blood

► PATIENTS with the heart disease, subacute bacterial endocarditis, have a better chance of being cured, thanks to a new chemical that keeps penicillin in their blood longer. The chemical is called caronamide and was developed by Dr. K. H. Beyer, of Sharp and Dohme.

Its effectiveness in keeping high levels of penicillin in the blood of patients where excessively high levels are necessary for cure is reported by Drs. Leo Loewe, Harold B. Eiber and Erna Altire-Werber, of the Jewish Hospital, Brooklyn, in *Science* (Nov. 21).

Besides enhancing the curative possibilities of penicillin for these patients, caronamide helps to conserve the consumption of the mold chemical, thereby lessening the cost of treatment. In cases requiring such huge amounts of penicillin, this is a matter of some importance.

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E FIELDS

NUTRITION

Frozen Sandwiches Give Lunch Boxes More Variety

► THE ten o'clock scholar who forgot his lunch may soon be replaced by the one who forgot to put it out to thaw.

Dr. Faith Fenton, who has been conducting research on frozen foods at Cornell University, has found that a package of two half sandwiches will thaw at room temperature in from three to three and a half hours. This means that it will thaw in time for Junior's, or his dad's, lunch.

Frozen sandwiches for school lunch boxes will mean less work for mothers and more variety for the children, Dr. Fenton predicts. Instead of fixing lunch along with breakfast each school day, mother can use mass production to turn out several weeks' sandwiches at one time.

"You don't have to finish one jar of sandwich filler before you start another—freeze it in the sandwiches," points out Dr. Fenton.

Sandwich fillings suitable for freezing include cheddar and cream cheese, sliced and ground meat and poultry, fish and cooked egg yolk. Greens in sandwiches will not freeze well, so lettuce, celery or other greens should be freshly packed with the lunch. Mayonnaise should be left out of frozen sandwiches, too. It separates and soaks into the bread when frozen.

If the school child forgets to thaw his lunch in time, the process can be speeded by exposing the frozen sandwiches to the breeze of an electric fan.

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PSYCHOLOGY

Tests Reveal What Kind of Adult a Baby Will Become

► A LITTLE BABY in his crib, long before he can walk and talk, can be given psychological tests that will reveal how he will grow up.

After only one or two examinations of the infant, a trained expert can tell whether he is suitable for adoption and even give him a rating of "favorable," "highly favorable," or "unfavorable,"

Dr. Arnold Gesell, director of the clinic of child development, Yale University, told the National Academy of Sciences at a meeting in Washington.

If a baseball fan father wants to know whether his son is going to grow up to be a southpaw, Dr. Gesell can tell him the answer before the baby is three months old. All babies during their first few months tend to lie with the head turned to one side and one arm turned in the same direction. A strong preference for the left side shows that the baby will later be left handed, Dr. Gesell said.

During the baby's first year it is possible to detect nearly all cases of idiocy, of brain injury, defects of the senses or motor defects, and serious personality abnormalities, he told the scientists.

Various kinds of giftedness and temperamental qualities can be observed before the child is old enough to go to school.

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GENERAL SCIENCE

Logger Wills Estate To National Science Fund

► A FRENCH-BORN logger, who lost his life in a logging accident in Multnomah County, Oregon, Sept. 23, has willed his estate to American science.

Dr. Harlow Shapley, director of the Harvard College Observatory and chairman of the National Academy of Sciences' national science fund, revealed the bequest at the meeting of the Academy. During a session devoted to scientific papers on protein structure, the Harvard astronomer interjected a strange but welcome document: the last will and testament of Jules Pradel.

The estate, valued at more than \$16,000, was left to the national science fund. With news of the gift to science came a few sparse details about the little-known benefactor.

Born in France, Jules Pradel was brought to this country when he was four years old, a communication from the First National Bank of Portland, Ore., disclosed. Pradel traveled throughout the world and was naturalized as an American citizen in 1942. Explanation of the contribution to science is believed to be that his mother suffered from a neurosis.

Jules Pradel's savings will be used to subsidize scientific research under the program of the science fund, Dr. Shapley said.

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ENGINEERING-AERONAUTICS

Gas Turbine Engines Made Suitable for Small Planes

► NEW developments in gas-turbine and jet propulsion of aircraft recently revealed in London include the Rolls-Royce Dart, claimed to be the first propeller-jet engine of small power to fly; the Napier Naiad, one of the smallest gas turbines in the world; and a jet-propelled fighter capable of over 600 miles an hour.

The Dart, a gas turbine driving a propeller, is intended for use in aircraft such as military trainers, but is regarded as an ideal engine for middle-sized planes of the privately-owned class. It is rated at 1,000 horsepower.

The Napier engine is arranged to drive a rotary propeller and also to give jet-propulsion from its exhaust gases. It is an axial-flow type of engine, 28 inches in diameter and eight and one-half feet long. It weighs 1,095 pounds and generates 1,500 horsepower, using kerosene as a fuel.

The new jet-propulsion fighter has already made its first flight. Still on the secret list, it is known only by the designation N7/46. It is expected to furnish the British Navy with a craft superior to anything of its type in the world. It will be built in two versions; one to be land-based and the other to operate from aircraft carriers. It is powered with a Rolls-Royce Nene turbo-jet engine which develops a thrust of 5,000 pounds.

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MEDICINE

Penicillin's Cousin Is Found Good for the Itch

► TYROTHRIN, one of penicillin's cousins among the new antibiotic remedies, has now been used successfully to treat scabies, or the itch, in cases complicated by a secondary infection with pus formation.

Within two weeks active sores disappeared in 69 out of 71 cases, Drs. Harry M. Robinson and Harry M. Robinson, Jr., of the University of Maryland School of Medicine, reported at the meeting of the Southern Medical Association.

The tyrothricin, which is an anti-germ chemical from a soil bacillus, was used in a mixture with benzyl benzoate, standard scabies remedy. Only one moderately severe reaction to the tyrothricin occurred.

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