

PSYCHIATRY

Mental Cases to Run Own Wing in Hospital

► A NEW WING which is being added to an English mental hospital will be run entirely by the patients. Doctors and nurses will enter it only by invitation.

Administration will be by a committee of patients, which will have a room for meetings and for keeping its records. Patients will themselves decide how they wish to spend their time, and they will be free to invite relatives and friends inside.

The hospital where this experiment will be made is the Coppice Hospital, Nottingham. The project has received approval of the Minister of Health and it is hoped to bring the wing into use this year.

"Even when a patient is mentally fit again," said one of the doctors, "he has to learn again to live with other people in a normal setting. This resocialization is a vital process.

"If it is done within the walls of an ordinary hospital, the difficulty is that patients are always aware that they are patients and the staff that they are staff. This relationship cannot be broken down by goodwill.

"We plan to solve the difficulty by physical separation of the hospital from this new wing, which will be the patients' own. We shall go in only when we are asked to give advice or help. We hope patients will have many visitors and much help from friends and families."

There will be a tea bar which can be divided into small sections when patients want to hold a birthday party or some other function. There will be a lounge, store, music room, an artist's studio and a stage with dressing rooms.

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ENGINEERING

Electric Drive Designed For Manned Spacecraft

► A NUCLEAR-FUELED electric powerplant has been designed to drive man deep into space in big interplanetary space vehicles. It would weigh about 60 tons and could supply 20,000 kilowatts of electricity. It would have a full-power life of about two years.

The National Aeronautics and Space Administration indicated that the powerplant's life would let a manned space vehicle pull away from an earth orbit, descend into an orbit about Mars, and return to an earth orbit through operation of its thrust unit for about 250 days.

The design was created by Robert E. English, Henry O. Slone, Daniel T. Bernatowicz, Elmer H. Davison and Seymour Lieblein of NASA's Lewis Research Center, Cleveland, Ohio.

The design calls for the "nuclear turboelectric powerplant" to use sodium vapor as the working fluid, and liquid sodium as the reactor coolant. The nuclear reactor would be situated at one end of the vehicle and with the crew's quarters at the other.

Although an ion jet would shoot from

a ring near the crew's quarters, to drive the craft, the crew would be protected from radiation by various shields around the reactor, and by a big heat radiator between the electric generator and the crew capsule.

The whole spacecraft would rotate slowly about its long axis to provide artificial gravity, through centrifugal force, for the crew. The structure that ties the reactor and the crew compartment together is specified to be rigid so that the crew quarters would not be slung out of the radiation-protective shadow of the big heat radiator.

For this craft, no sleek rocket-like style is indicated. The vehicle likely would be built in space and never land anywhere. It probably would be used strictly between space stations in orbit around planets. Other types of space craft probably would get man from earth to the space station, then back down again.

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CONSERVATION

Hold Hearing on Revised Senate Wilderness Bill

► THIS SUMMER we may get our national wilderness.

The talk seems about to end and the action to begin.

This can mean that, for the first time in the nation's history, several million acres of lands will be protected against careless or hasty hands that might destroy a national heritage. Wilderness that has remained much like the land of the early settlers and Indians will be preserved for future generations.

Proponents of the revised Senate bill, S. 1123, are hopeful that after several years of study, hearings, proposed bills that never passed, and a general "education" program, their legislation will be passed. Two more hearings have been scheduled in the West for March 30, in Seattle, Wash., and on April 2, in Phoenix, Ariz. At these hearings interested persons, including the oil, mining and lumbering industries, can present their case for or against wilderness legislation.

As a result of earlier hearings held after Congress recessed in 1958, certain changes have been made in the proposed bill.

Now, as the revised S. 1123 reads, the Secretary of Agriculture would have 20 years, not ten, for making boundary modifications in the so-called primitive lands. Also as a result of hearings held in the western states, the consent of the Indian tribes concerned would be needed before their lands could be included as wilderness. These are but two of several changes.

Many persons in the fields of conservation and wildlife protection believe all objections to the proposed bill have been answered. Commercial interests do not now have access to many of the areas that would be protected, they point out. Current agreements involving commercial use of these lands would be honored under the new bill.

In effect, the wilderness bill would simply make it an official policy of our national Government to protect and preserve the wilderness.

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IN SCIENCE

BIOLOGY

Tadpole Study May Aid Human Disease

► TADPOLES may soon be helping scientists study arthritis and other diseases of the connective tissue.

When they are reared in water containing certain chemical compounds known as nitriles, toad and salamander embryos develop tumors. These compounds produce tumors and lesions experimentally in the same way that an extract of sweet pea seed does, Barnet M. Levy of the University of Texas Dental Branch, Houston, explains.

Scientists are interested in the compounds because of similarities between several human diseases of the connective tissue and this "experimental lathyrisms" — so-called after *Lathyrus odoratus*, the scientific name for sweet pea.

Now, Dr. Levy reports, several more compounds have been found that cause lathyrisms. These are all water-soluble aldehyde blocking agents causing tumors in the animals by the end of one week. The technique provides an accurate and fast screening method for seeking new lathyrisms-causing agents, Dr. Levy says.

Our findings suggest that there may be some defect with the carbohydrate metabolism of the connective tissue ground substance, Dr. Levy concludes in *Science* (March 13).

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SOCIOLOGY

NSF Establishes New Office of Social Sciences

► BASIC RESEARCH in the social sciences is coming in for some needed recognition with the establishment of an Office of Social Sciences by the National Science Foundation.

Previously the NSF program in the social sciences had been part of the general natural sciences program. The new office "represents a further step in the development of the Foundation's program in support of basic social science research."

The Foundation said it is "proper and desirable to support basic research in the social sciences, since such support is invaluable in assisting social scientists to improve their research techniques, to accumulate fundamental knowledge about human behavior and society, and to develop sound theoretical bases for further inquiry."

Dr. Henry W. Riecken, currently on leave from the University of Minnesota, is head of the new office. An eight-member committee has also been set up to advise the National Science Foundation on program and policy in support of the social sciences.

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E FIELDS

SOCIOLOGY

Scientists and Engineers Oppose Unionization

► SCIENTISTS and engineers overwhelmingly oppose collective bargaining as a means of improving their salaries and working conditions in industry.

Their principal reasons for opposing any form of unionization were:

1. It is unnecessary, offers no advantages and might even be harmful.
2. Salaries and promotions would not reflect the individual's performance, responsibilities or qualifications.
3. It would reduce professional productivity and development.

These attitudes were disclosed in preliminary findings of a survey by the Bureau of Industrial Relations, University of Michigan. The findings represent interviews with more than 250 scientists and engineers from four chemical firms, two automotive companies, two electronics manufacturers and two public utilities.

Some 50% of the interviewees strongly opposed collective bargaining, while 29% were mildly opposed and 3% had no opinion. In favor of organization along union lines were 10%, and 8% believed their professional societies could act as middlemen between employees and management.

The 18% favoring collective bargaining gave as their main reason the attainment of higher salaries and more equitable salary adjustments.

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ENGINEERING

Powerful Gas Turbine Meets Electric Load Peaks

► A POWERFUL gas turbine has been developed to help electric power companies meet their troublesome peak loads more economically.

Fired by natural gas or distillate oil, the machine can be brought on the line by remote control in 20 minutes to supply the extra power needed briefly as thousands of housewives switch on electric stoves and lights in the early morning, or as thousands of air conditioners snap on in the humid afternoon heat.

The machine is especially designed for short-run operation, Charles W. Elston, general manager of General Electric Company's gas turbine department, reported. It squeezes 20,500 kilowatts for a short time out of a machine rated for around-the-clock operation at 16,500 kilowatts.

One of the units already has been called for by the City of New Orleans. However, it will be used to supply electricity to the city's electric pumps after heavy rains, rather than to meet the peak demand on an electric utility's power system.

It is predicted that this type of machine

will soon become the electric utility's ace-in-the-sleeve. Until now, utilities have met fast-growing electric demand with new and bigger machines, using older, less efficient machines for "peaking."

Until recently, the new, more efficient machines offset the economic penalties of using old machines for peaking. But now, said Mr. Elston, the new steam power plants do not offer the substantial improvement in efficiency which previously offset the system's overall cost of power generation.

Advantages cited for the gas-turbine peaking machines are: 1. its 20-minute get-up-and-go record; old steam-driven machines might require many hours of lead time, 2. its ability to be operated remotely and situated wherever convenient without an attendant, 3. its comparatively negligible demand for cooling water, and 4. its quiet, clean operating characteristics.

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PHYSICS

Russia May Overtake U.S. In Heavy Nuclei Studies

► RUSSIA may overtake the United States in the discovery of new elements and study of heavy nuclei, a basic science area in which America has been dominant.

This was suggested by Dr. Glenn T. Seaborg, Nobel laureate at the University of California, who has taken part in the discovery of nine out of ten transuranium elements, including plutonium, element 94.

Dr. Seaborg was officially inaugurated as chancellor of the Berkeley campus on March 20. In the University's faculty research lecture, he said, the Russians are building an ultra-high flux research reactor, which is a key to studies of the very heavy elements. No such reactor has been authorized in this country.

Object of such a reactor is to produce an enormous barrage of neutrons, duplicating in a modest way conditions of super novae and hydrogen bombs. Uranium atoms can capture a number of neutrons and be "fattened up" to become heavier atoms. Milligram quantities of californium, element 98, could be produced; this is a huge quantity in terms of this element.

Such quantities of californium would provide a better target for bombardment with heavy nuclei in the Hilac accelerator, making possible production of elements ranging up to 104, 105 and higher. At present only invisible amounts of californium can be produced and only after years of waiting.

An ultra-high flux reactor would cost \$10,000,000, generate about 100,000 kilowatts in a core of only about a cubic foot volume, and in this core generate five million billion neutrons per second per square centimeter.

Increasing competition from the Russians in the heavy element work is indicated by their discovery, said Dr. Seaborg, of an isotope of element 102. Berkeley scientists, including Dr. Seaborg, discovered isotope 254 of element 102 last year. Apparently the Russians have discovered isotope 253, although identification is not yet certain.

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ROENTGENOLOGY

Red Frostbites Get X-Rays; U. S. Antibiotics

► CHANCES ARE that a Russian who suffers frostbite on his fingers or toes will receive X-ray treatment while an American will receive antibiotics.

Thirty patients at the Tomsk Medical Institute in Moscow received radiation treatment for frostbite on the fingers, toes, wrists, hands, feet, and knee joint.

Circulation improved in the frostbitten areas after the first or second radiation treatment, V. N. Agafonova, chair of surgery of the sanitation faculty at the Institute, reports.

The dead tissue also sloughed off within 12 to 15 days. Currently, American doctors use antibiotics to treat frostbite. These control infections that arise, Dr. Gregory Hensy of the radiology department of Washington Hospital Center explained.

The tissue damage that results from frostbite is permanent. Skin that has been effectively destroyed is beyond saving, he added. X-ray treatment was used before World War II but has since been abandoned in the treatment of frostbite here in the United States.

It is still used occasionally to deaden pain or control infections that cannot be curbed by antibiotics, but the use of radiation does not alter the course of the condition itself, Dr. Hensy said.

But the Russians state that their results prove that the blood circulation in the injured tissue is favorably affected by the use of X-rays.

The Russian report was translated from the *Vestnik Rentgenologii i Radiologii*, (Sept./Oct. 1958) by U. S. Government researchers.

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ICHTHYOLOGY

Fish Become Unhappy When Taken From Home

► A FISH taken from his home becomes unhappy, and like unhappy people in similar circumstances, he may commit foolish acts or behave differently, reports C. W. Threinen, administrative assistant in the Wisconsin Conservation Department.

Mr. Threinen said that one of the first acts of a trout upon being released from his hatchery home into strange waters is to look for an unoccupied home.

If he cannot find a new home quickly, the trout may literally run himself to death in his search. In fact, in some cases as many as 50% of the trout planted in streams have been known to die within the first two weeks after planting.

Writing in the *Wisconsin Conservation Bulletin*, Mr. Threinen said biologists have found that the stress of a new environment may cause the lactic acid level of the blood to rise to the point where death results. Because of this, it is a good policy to stock streams close to the opening of the season, and to stock in heavily fished streams, which have few competing trout.

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