

ENGINEERING

Cities Half-Lit as Japan Battles With Power Crisis

WHILE western European cities black-out at night, Japanese streets are now reduced to a half-lit dim gray, due to seriousness of the power shortage.

Reports received in the United States indicate that one of the worst droughts in Japan's history, plus the insufficient coal supply, are together straining industrial and economic projects that depend either on water or power.

Patriotic Japanese are urged to use low-wattage electric bulbs, and to discontinue use of electricity in cooking and other household tasks. Street cars and elevator services are cut. Compulsory rationing of electricity may be imposed on the public. Even the favored steel industry has had to suspend output of some materials.

Science News Letter, November 25, 1939

GEOLOGY

U. S. S. R. Gets Big Share Of Oil Fields in Poland

ACAREFUL study of the German-Russian partition of Poland by experts of the American Petroleum Institute shows that the U. S. S. R. has gained the greater share of the conquered oil fields.

When the German troops moved out of territory in East Poland, the Russian troops took over the Drohobycz area and thus gained possession of an oil district producing 3,000,000 barrels annually.

Significant from a study of who won what is the disclosure that the Drohobycz area produces 75 per cent. of all Poland's oil.

In the western district of Jaslo the Germans retained possession of a region that yields 900,000 barrels of oil annually and retained, also, a number of refineries. In refineries, American petroleum experts claim, Russia and Germany each obtained an even split of Poland's ten. Most of the idle refineries are in Germany's half of the former Polish Republic.

An independent survey of Germany's gains in conquering Poland by Karl Falk of Fresno College, Calif., who as late as 1937 was a steel expert in Upper Silesia, shows that the Reich gains amount mainly to the large and newly created industrial plants in the so-called "safety industrial triangle" around Sandomierz.

Writing in *Chemical and Metallurgical Engineering*, Mr. Falk adds that the other chief advantage to Germany is the

gain of much raw material for industry; mineral wealth which is largely unexploited. His conclusion, however, is that despite the Polish adventure Germany is still vulnerable if cut off from supplies in foodstuffs, oil and metals.

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CHEMISTRY

Chemical Find Permits Storage of Reserve Latex

ANEW chemical development makes possible the keeping of a reserve of liquid rubber, latex, in storage in the U.S.A. for use in time of war or interruption of the line of rubber supply stretching from British Malaya and Netherlands East Indies to our shores. A Monsanto product is sodium pentachlorophenate with a very small amount of ammonia which keeps from spoiling by disinfecting the latex more effectively than more than double the percentage of ammonia alone previously used. Latex is big business, raw material for tires and a thousand other rubber articles, 100,000,000 pounds of the liquid being shipped into U.S.A. in one year (1937).

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ENGINEERING

Caesium and Tellurium To Make Better Lamps

FOR THE future: Lamps at least three times as efficient as the best light sources in use today. Caesium, rare metal now used in small quantities in photoelectric cells, is at work creating light of far greater efficiency than any lamp known. Tellurium, chemical neighbor of sulfur with compounds with a garlic odor, promises to make possible a "turn-coat" lamp yielding almost exact duplicate of sunlight—a bluish light or a yellow light as desired.

Forecasters: Westinghouse lamp research engineers: Dr. J. W. Marden, Dr. N. C. Beese and George Meister speaking before Temperature Symposium of the American Institute of Physics.

Difficulties in making these lamps of the future include: Fragility of quartz which must be used to confine the vapors at extraordinary high temperatures and pressures needed for high efficiencies. Strong chemical affinity of caesium for quartz at high temperatures. Fact that tellurium vapor with enticing color differences at different temperatures yields light efficiently on direct current but not on the alternating current commonly used. The science of light making is not finished.

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IN SCIENCE

MEDICINE

Cancer Victims In London Receive Radium Treatment

LONDON'S Cancer Hospital has resumed radium treatment of cancer cases.

Treatment was suspended at the start of war because the radium had to be stored deep underground. It was feared that a direct hit of a bomb would scatter the radium irretrievably if not protected. Aside from the loss of the precious stuff, every person in the general neighborhood would be in danger from its piercing radiation.

The hospital, which houses the radium supply of 13 medical institutions and has therefore a hoard worth a million dollars, has bored a 50-foot shaft paralleling the shaft at the bottom of which the radium is kept. Through the second shaft, it will be possible to return the radium to safe-keeping within three minutes in the event of an air raid.

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PHYSIOLOGY

Tiny Adrenal Glands Help Protect Against Injury

THE TINY adrenal glands near the kidneys pour into the body extra amounts of their life-essential hormone as part of a protective mechanism against damage by injury or germ invasion, it appears from investigations reported by Drs. Paul Weil and J. S. L. Browne, of the Royal Victoria Hospital, Montreal. (*Science*, Nov. 10.)

In patients convalescing from influenza or suffering other infections and in other patients after appendicitis and other operations, an increased amount of this hormone, cortin, is excreted from the body. This, the Montreal scientists believe, is a sign that the body is responding to a damaging stimulus by producing more of the hormone.

This hormone is made in one part of the adrenal glands. Another part of the same glands makes the familiar adrenalin, which is also produced in extra amounts during emergencies to prepare the body for fight or flight in life-threatening situations.

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E FIELDS

ZOOLOGY

Rare Tarsiers Thrive With Special Care at Yale

See Front Cover

SPECTRAL tarsiers, occupying a branch near the very bottom of man's ancestral tree, are also among the rarest of animals. Until recently they have never been successfully kept in captivity outside the tropics. However, the two (apparently mother and son) shown on the front cover of this week's SCIENCE NEWS LETTER have lived and thrived in a warm basement room at Yale University, whither they were brought from the island of Mindanao, in the Philippines, a year ago.

They don't mind living in a basement, for they are nocturnal animals, as their big, owl-like eyes indicate. All they care to eat is mealworms—live ones. Their owner, Prof. J. F. Fulton, guards their health with ultraviolet light baths, plus a few drops of codliver oil and a little salt with their mealworms. The animals are about as large as squirrels.

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ENGINEERING

Insulation Cuts Fuel Bill Nearly in Half, TVA Finds

ADEQUATE insulation of a house against heat loss can cut the fuel bill nearly in half, E. S. Draper, director of TVA's department of regional planning studies, reported at the meeting in New York of the Committee on Hygiene of Housing of the American Public Health Association.

Mr. Draper announced at the same time that a simple heater practical for central heating of small houses, improved after tests in a TVA house at the Gilbertsville Dam construction community, is now in production for the open market, according to the manufacturer's last report.

The insulation studies were carried out in two identical four-room houses in the Hiwassee Dam construction community. Installation of electrical heaters made it possible to record with great accuracy the heat loss in the two houses. One of them was insulated throughout by wool bats in the walls and over the

ceiling and an insulation board under the floor joists. Both houses had both doors weatherstripped. Both families were held to the same schedule of window-opening in bedrooms at night, windows closed by day, and the heaters were turned on and off at the same times. The reduction in total heat loss in the insulated house was 44.75%. Cost of insulation, including labor and materials, was about \$200.

The simple heater described by Mr. Draper was designed to effect a reduction in the capital cost of central warm air heating over that of installing the warm air furnaces then available on the market. The object was to have a primary heat source (without provision for air filtering or humidification) placed in an exceptionally small first floor heating chamber centrally located so that it might service all rooms of a small house without the usual extensive system and basement.

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PSYCHIATRY

Unconscious Infections Of Groups Very Dangerous

A BOOK leading the reader through strange places—almost the only unexplored frontier—the deep places of the human mind is a new translation of Carl G. Jung's *The Integration of Personality*, (Farrar and Rinehart) just published. Jung, follower of Freud but not imitator, sees in every man a dual personality, light and dark, rational and irrational, intellectual and intuitive. In an insane man, the irrational nature takes over, ideas occur to him over which he has no control. This happens occasionally to the most sane, under stress of powerful emotion.

A quote and unquote, pertinent to a disordered world:

"On such occasions, strange ideas may seize upon otherwise sound individuals. Groups and societies, even whole peoples, may have seizures of a similar kind; these are mental epidemics. In such a case only malevolent critics speak of a psychosis, while others speak of an ism. The ordinary lunatic is generally a harmless, isolated case; since everyone sees that something is wrong with him, he is quickly taken care of. But the unconscious infections of groups of so-called normal people are more subtle and far more dangerous, although they derive from the autonomy of unconscious processes just as much as does insanity."

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PSYCHIATRY

Adult Guidance Clinic Gives Free Mental Care

AN "ADULT GUIDANCE" clinic has been established experimentally in Worcester, Mass.

There troubled men and women can tell of their fears, worries, family disharmony, obsessions, the tyranny of alcoholism, or the tragedy of epileptic seizures. There they receive advice and treatment.

In this clinic, Dr. James Watson, of Worcester State Hospital, suggests in the journal *Mental Hygiene*, may be repeated the successes of the child guidance clinics. Mental diseases can be prevented. The adult guidance clinic is intended to provide the ounce of prevention.

Since the clientele of the clinic is limited to those who cannot afford to pay a physician specialist, economic distress is the shadow in the background of many of the patients' difficulties.

Doubts, the feeling of being handicapped, sensitiveness to the situation of being compelled to accept charity, discouragement—these fill their minds.

Many do not need mental treatment. But they are not hurried away. Their troubles are considered important enough for thorough discussion. Physical examination and treatment are provided for those in need of them. When the aid of other community resources is needed, these are obtained.

Mental treatment is, of course, freely dispensed, along with friendly counsel and a helping hand.

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PHYSIOLOGY

Sulfanilamide Compound Found Useful as Stain

SULFANILAMIDE compounds, used in the war against disease on a score of fronts, promise to be useful also in the scientific study of the undiseased tissues of animals and plants. It has been found to be an effective "vital stain" by Dr. Walter Carter of the University of Hawaii (*Science*, Oct. 27).

Vital stains are dyes used on living tissues, which they color up and thus make easier to examine under the microscope. The sulfanilamide compound used by Dr. Carter, known under the trade name of Neoprontosil, tinges the cells of plants and insects red. He made the discovery incidentally, while investigating possible effects on virus diseases.

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