

## ASTRONOMY—RADIO

**Communication Black-Out  
May Come Near End of July**

**W**ATCH out for sun-caused trouble with radio and telegraphic communication toward the end of July.

This is the possibility pointed out by astronomers at the Carnegie Institution's Mt. Wilson Observatory based on the fact that the sun revolves every 27 days.

A flare-up in the atmosphere of the sun caused severe magnetic disturbances and interruption to radio circuits on July 4. When the same region of the sun is turned toward the earth about July 29 or a few days later, these disturbances may be repeated. There may then be auroras as well as disturbed radio and telegraphic communication.

These recurrences do not always happen, but astronomers and those in communications will keep an apprehensive watch on the sun.

Because communication is so important in modern war, it is possible that a sudden blacking-out of long distance communication such as caused by such sun disturbances would have important international effects.

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## NUTRITION

**Vitamin Pills for Soldiers  
In Northern Climates**

**U**NCLE SAM'S proud boast that the American soldier is the best-fed in the world will be made good under any and all conditions, it appears from a War Department announcement. Each American soldier on duty in far northern climates, it is revealed, will get each day two vitamin tablets along with his daily rations.

Under normal conditions the Army rations contain enough fresh vegetables, fruits, milk and the like to insure an ample supply of vitamins. In far northern climates such as Iceland and Alaska, fresh foods of any sort are scarce and so is sunshine which turns the ergosterol in human skin into vitamin D. The daily vitamin ration is planned to make up for any possible deficiency of vitamins in the food.

The issue tablets will contain the following: vitamin A to protect against bacterial infection, night blindness, dry skin, an eye disease known as xerophthalmia, bladder stones, and infections of the ears, respiratory tract and kidneys; the morale vitamin B<sub>1</sub> to protect against loss of appetite, indigestion, fatigue, and

nervous disorders such as neuritis and beriberi; vitamin B<sub>2</sub> or riboflavin to protect against partial blindness caused by opacity of the cornea of the eye and chronic inflammatory skin disorders; vitamin C to protect against scurvy, defective teeth, weakened capillary blood vessels, poor bone knitting, tender joints and infection; vitamin D to protect against inefficient utilization of bone building elements, especially where the supply of calcium and phosphorus is inadequate; and nicotinic acid to protect against pellagra, a skin affection with severe constitutional and nervous symptoms.

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## PSYCHOLOGY—MEDICINE

**Seek Chemical Antidote  
To High Altitude Effects**

**A**CHEMICAL antidote against the perils that beset pilots flying at high altitudes is being sought by the psychology department of the College of the City of New York.

The low oxygen content in the air at high altitudes, the freezing temperature, the poor ventilation, noise and boredom frequently cause emotional and muscular disturbances similar to those induced by drunkenness, it is explained. A number of accidents in landing and errors of judgment have been traced directly to the conditions found in high altitude flying.

Oxygen tanks and masks for pilots flying at high altitudes are the measures chiefly relied on at present for protection against the damaging effects of oxygen lack in the upper atmosphere. The City College scientists are going to investigate the stimulating effects of various drugs on persons under conditions similar to those encountered in planes at altitudes up to 12,000 feet, to determine whether any such drug could be used to counteract the effects of high altitude flying on aviators.

The study is being made under the sponsorship of the National Research Council with a grant from the Josiah Macy, Jr., Foundation. In charge of the study are Prof. Gardner Murphy and Dr. Joseph E. Barmack, of City College, and Dr. Eugene Cohen, of the New York Hospital and Cornell University Medical College. Dr. Eugene F. DuBois, of Cornell, chairman of the Aviation Medicine Committee of the National Research Council, is serving as research adviser.

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**IN SCIEN**

## BOTANY

**Blue Nuclei in Flower  
Petal Cells Explained**

**B**LUE nuclei in flower petal cells, a rare and hitherto puzzling phenomenon, have been very simply explained by Prof. Robert Chambers of New York University. (*American Journal of Botany*, June) They are due simply to an injury of the cell which permits the coloring matter in the cell sap to penetrate into the protoplasm and reach the nucleus, where its hue may be changed due to the higher alkalinity of that part of the cell.

Nuclei of all cells are normally colorless. Blue ones were first observed in tulip petals, in flowers subject to attack by a virus disease. Prof. Chambers produced them artificially simply by slightly crushing strips of petal tissue, while he watched the changes.

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## AGRICULTURE

**Tear Gas in Soil Makes It  
Safe for Watermelons**

**T**EAR gas (chloropicrin) makes the soil safe for watermelons in parts of the country, especially the South, where the destructive eelworm pest has practically wiped out watermelon culture, U. S. Department of Agriculture scientists have discovered.

Chloropicrin has been known for some time as an effective soil disinfectant, killing some kinds of weed seeds as well as worms, earth-dwelling insects, etc. It has been used by greenhousemen, but its cost places it out of the question for the large masses of soil in outdoor fields.

Key to its usefulness in watermelon fields lies in the slowness of eelworms' migration through the soil. They travel at the very modest rate of an inch a month. Hence, if the spots where watermelon hills are to be located are given a sufficient injection of the tear gas to clean out the area that is going to be occupied by the watermelon roots, the crop can be grown and harvested before the slow-moving eelworms can reoccupy the vacated territory.

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# CE FIELDS

## MILITARY SCIENCE

### British "Heavies" Carry Less Than Our Light Tanks

**B**RITISH heavy tanks carry considerably less armament than American tanks classed in the light category, if descriptions reaching this country are correct. According to information received in Washington, the British "heavy," a 25-ton vehicle, carries a two-pounder cannon and one machine gun, mounted side by side in the same turret. The American light tank, weighing only ten tons, carries a similar cannon and four machine guns.

Our new medium tank, weighing three tons more than the British "heavy," has a 75-millimeter cannon in addition to a two-pounder (37-millimeter) anti-tank gun and four machine guns. Two of the latter are of the standard rifle caliber (.30) and the other two are the heavier .50-caliber pieces. This array is by far the heaviest armament carried by any tank in the 25 to 30 ton class.

Commenting on the light armament of the British 25-ton tank, one ordnance officer here suggested that the British authorities may possibly be suppressing information about part of the armament, for reasons of their own.

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## ARCHAEOLOGY

### Oldest Wooden Building In Thick of Mountain War

**C**HINA'S most venerable wooden building—a Buddhist temple which has stood wars and weather for more than 1,000 years—is in a mountain fighting zone of Shansi province, and fate of the important old building is unknown.

So reports the discoverer of the temple, Dr. Liang Ssu-ch'eng, who was thrilled over his achievement of identifying the extreme age of the wooden building in 1937. His photographs and drawings made on the spot may now be the only records of the building left, though he hopes not, Dr. Liang writes, (*Asia*, July) telling in English of his discovery and its historic significance.

Dr. Liang is technical director of the Institute for Research in Chinese Architecture, and for nine years he has investigated ancient monuments in his country.

The Chinese date found on a column in the temple hall corresponds to 857 A.D., which is 127 years earlier than the oldest wooden structure previously found in China.

Of special interest is the discovery that a woman donated the temple. Among giant clay images of deities in the temple was identified the humble life-sized figure of a woman. Monks had assumed this mortal among the gods to be Empress Wu, but Dr. Liang found on the temple beams evidence that she was "Donor of the Hall of Buddha, Woman Disciple Ning Kung-yu."

The ancient wooden building escaped modern fame and recognition because it was on the outskirts of the sacred mountain Wu-t'ai Shan, where fashionable people did not care to go and where the monks were poverty-stricken.

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## GENERAL SCIENCE

### Soviet Scientists Drop Research for Defense Work

**P**EACETIME research programs have gone by the board in the USSR, as Soviet scientists throw themselves into defense work, Prof. Alexei N. Bach, director of the Biochemical Institute of the Russian Academy of Sciences, states in a radio report received from Moscow.

Two months ago, Prof. Bach relates, a program of new projects in research was laid out. "The work submitted included both practical proposals and a number of outstanding works in the sphere of general, theoretical problems," he says. "Now we are making a fundamental change in the entire character of our work and are placing our scientific research work directly at the service of our country's defense."

Of the task facing the Institute which he directs, Prof. Bach reports:

"The urgent state task facing the Institute during the war is aid to collective farms and state farms to harvest the grain and vegetable crops in time to help the state prevent the grain and potatoes from going bad and thereby to ensure food supplies to our army and peoples. We placed our proposals before the State Defense Committee and are pressing for all Soviet scientists to be called on to work for defense."

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## MEDICINE

### New Emergency Kit For Blitz-Born Babies

**A** NEW kit for assisting into the world blitz-born babies or those born during other catastrophes such as fire, flood or tornado, has been designed by the Maternity Center Association of New York. The first of such kits has gone to England with the Harvard-American Red Cross Unit for a test under blitz conditions.

The kit is designed to be used where all facilities have been destroyed and the mother must have her baby without even the barest necessities of roof or bed or other furniture at a time when neither water, heat nor light may be available, much less ambulance service to a hospital.

Inside the light fiber board carrying case, such as salesmen use for samples, is packed everything from blankets for mother and baby and sterile obstetrical supplies to a chemical hot water bottle, a tube of bouillon and a comb for the mother. The entire kit weighs 20 pounds, is waterproof, and costs about \$20. The two sections of the carrying case when emptied may be turned upside down and placed side by side to serve as a table. The towel in which the sterile supplies are packed provides a sterile cover for this table. After the baby is born, the carrying case becomes his bassinets by fitting one section inside the other. The straps which hold the case together before it is used make it easy to carry baby in his bed to a place of safety.

The first thing the doctor or nurse-midwife finds on opening the case is a set of instructions with clear drawings so that the kit can be easily used even if it has never been seen before. The top article in the kit is a blanket to wrap the mother. Below this are the chemical hot water bottle with directions for its use, a Sterno stove with sauce pan for heating the bouillon for the mother if she needs it, a thermos bottle filled with distilled water, a flashlight, and three packages in paper bags containing: the sterile obstetrical supplies; shirt, binder, diapers, safety pin and flannelette square for the baby; and such miscellaneous items as shaving soap and paper towels for hand washing, silver nitrate ampoules for baby's eyes, vaseline, a nursing bottle with extra nipple, a night-gown and comb for the mother, a pad, rubber sheeting and a teaspoon.

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