

GENERAL SCIENCE

Translate Russian Papers for U. S. Scientists

➤ RUSSIAN SCIENTIFIC and technical publications have been translated in Israel under United States Government contract. They were paid for with money Israel spent on U. S. farm surpluses—money the United States had agreed to spend in Israel.

The U. S. also has translation projects underway in Poland and Yugoslavia. The three programs will provide 89,000 pages of material originally published in languages unfamiliar to American scientists. The contracts were made by the National Science Foundation. The Department of Commerce will sell the translations for about one cent a page.

• Science News Letter, 78:344 November 26, 1960

PHYSIOLOGY

Fat Women Less Active Than Fat Men

➤ FAT WOMEN are even more easy-going and more inactive, physically, than fat men, Drs. Anna-Marie Chirico and Albert J. Stunkard of the University of Pennsylvania School of Medicine, Philadelphia, report.

They matched the physical activity and mental attitude toward activity of 25 obese men and 15 obese women against their non-obese counterparts in age, occupation and socioeconomic background.

Daily activity measured by a mechanical pedometer showed that obese women walked an average of 2.0 miles per day as compared with 4.9 miles per day for non-obese women. Comparable figures for men were 3.7 and 6.0 miles per day.

At the same time fat women were much more passive, when compared to normal-weight women, than were fat men compared to normal-weight men.

The physicians conclude in the *New England Journal of Medicine*, 263:935, 1960, that "the physical activity of many obese women is so severely limited that even small increases might favorably alter caloric balance."

Decreased physical activity may play a part in the obesity of women, but it appears to be less important in that of men.

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PUBLIC HEALTH

Self-Dosing and Fad Diets Can Have Harmful Effects

➤ HARMFUL EFFECTS of liquid formula diets and of self-dosing with vitamins A and D were stressed by Dr. Stanley A. Tauber of the Albert Einstein Medical Center, Philadelphia.

Dr. Tauber also cautioned against acceptance of statistics supporting the low-cholesterol, or fat-free diets, or those high in unsaturated fats sometimes recommended in treatment of hypertension or arteriosclerosis.

Long-range effects that such major changes in diet might have on the body's

metabolism should be considered by physicians, he told the American College of Gastroenterology meeting in Philadelphia.

Such unrealistic dietary practices as limiting water or salt intake purely for the purpose of reducing weight in an otherwise healthy person defeat the most important aim of nutritional therapy.

"It is unlikely," he said, "that a patient who loses weight on a liquid diet will then . . . suddenly and miraculously begin to eat a normal, wholesome, well-balanced diet and maintain the weight loss."

Dr. Tauber said the patient may suffer harmful effects of repeated alternating gains and losses of weight from going on and off the liquid diet. Even though the purely liquid formula may be nutritionally adequate, doctors should not condone these fad diets, he warned.

Although standard multivitamin preparations on the market today do not contain excessive quantities of any particular vitamin, there are individual vitamins such as A and D on the market in capsules of 50,000 units or more. Both these vitamins, he said, can produce toxic effects if taken without medical supervision in large enough doses over a long period of time.

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AERONAUTICS

Military Computer For Airborne Use

➤ A FAST MILITARY COMPUTER has been developed for airborne use. It occupies only six and a half cubic feet, or the equivalent of a table-model television set, and is completely transistorized.

The speedy new data processor has application to "fire control, space guidance, navigation and electronic counter measures control," Dr. Patrick Conley of Westinghouse Electric Corporation's air arm division in Baltimore, Md., said.

Applied to multiple target-tracking systems, the computer would take the information provided by radar or some other "sensing device," correlate the information and interpret it for use by a weapon system.

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NUTRITION

Nigerians' Nutrition Improved by Peanuts

➤ DIETERS in the United States try to cut out in-between-meal snacks of rich foods such as peanuts, but a nutritionist at Cornell University in Ithaca, N. Y., has just returned from Nigeria, where she spent a year encouraging peanut snacks.

Working among the 18,000 natives of Awo Omamma, Nigeria, Prof. Hazel M. Hauck sought an inexpensive protein booster for the ill-fed people. She learned skinned peanuts and cowpeas were enjoyed as snacks and were cheap.

So she taught the natives to buy the nuts green, roast them and eat them in greater quantity with the riboflavin-rich skins on. She also developed a way to use peanuts and cowpeas in soup.

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IN SCIENCE

PHARMACOLOGY

Anesthetic Mouthwash Better Than Penicillin

➤ CHLORASEPTIC, a new anesthetic mouthwash, has been reported more effective than penicillin after studies at the Veterans Administration Hospital in Tuskegee, Ala., and at Howard University in Washington, D. C. It is used as a gargle for throat infections as well as for pain following dental extractions.

The chemical constituents of Chloraseptic solution are phenol (less than 1.4%), sodium phenolate, menthol, thymol, sodium tetraborate, glycerin and chlorophyll. The action is derived primarily from the phenolic salts, researchers say.

Dr. Bertram Blum, associate visiting oral surgeon, City Hospital, Elmhurst, N. Y., said in the *New York State Dental Journal*, Nov. 1960, that he found no side effects when using Chloraseptic.

He said the mouthwash is successful in relieving postoperative discomfort in 97% of 175 dental patients studied.

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ROCKETS AND MISSILES

Radars Used to Study Hypervelocity Missiles

➤ RADAR TRACKING of a speeding object's re-entry into the earth's atmosphere is being studied using six-stage rockets fired from Wallops Island, Va. Three stages are used to hurl a space vehicle to nearly 200 miles, the other three send it earthward.

Dr. Glen F. Pippert of Massachusetts Institute of Technology's Lincoln Laboratory reported on research aimed at solving problems of defense against ballistic missiles and improving methods of locating and communicating with homeward-bound space vehicles.

When the five-inch sphere carried in the space vehicle is rocketed earthward, it attains hypervelocities. The sphere leaves in its wake a fiery trail of electrified gases for the scientists to probe and test with radar and optical devices.

When an object with hypervelocity re-enters the atmosphere, the air is heated to between 5,000 and 10,000 degrees centigrade. (The sun's temperature is 6,000 degrees at the visible surface.) An ionized gaseous sheath is formed and left in the object's wake. This plasma is being probed and tested as part of the Lincoln Laboratory's re-entry research, Dr. Pippert reported to the Northeast Electronics Research and Engineering meeting in Boston.

All known communication, detection and tracking techniques are affected by the drastic changes that occur when a vehicle from space re-enters the atmosphere.

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CE FIELDS

PHYSIOLOGY

Menstruating Women Found Accident-Prone

► WOMEN ARE MORE accident-prone during menstruation and the four days preceding, Dr. Katharina Dalton of University College Hospital, London, England, has found.

Of 84 regularly menstruating women involved in accidents, 44 (52%) were in the premenstrual or menstrual phase of the monthly cycle, her study showed.

Staying at home during the "dangerous" days has little or no effect on cutting down the chances of accident. Just as many injuries occurred at home as on the job or while traveling.

Even if a woman is not directly the cause of an accident, she is still more likely to be injured as an innocent bystander during the few days she is menstruating, Dr. Dalton reports in the *British Medical Journal*, Nov. 12, 1960.

Previous studies show that women are more lethargic and slower to react during menstruation and the premenstrual period. They are more forgetful and tend to be less punctual. Intelligence test scores drop during this period, but mechanical performance and practical judgment are not influenced.

Dr. Dalton also found that women who have had an artificial menopause, such as hysterectomy, are more accident-prone than those whose menopause was natural.

As a result of her study, the doctor questions the wisdom of giving tranquilizers for premenstrual tension, a practice that may increase accident-proneness at the "most dangerous time of the menstrual cycle."

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TECHNOLOGY

Eavesdropping Doomed By "Security Phones"

► A PORTABLE ELECTRONIC VOICE scrambler used with a standard telephone system can prevent listening in, but the cost of privacy is high.

"Security Telephones" (patent pending), used in pairs and costing over \$200, can assure absolute privacy even if your phone is part of a party-line, a series of extension phones or is connected to a switchboard whose operator is curious.

The telephone security unit was on display in Washington, D. C., at the 67th annual conference of the International Association of Chiefs of Police. It converts the human voice into incoherent jargon that cannot be understood unless restored to normal speech by means of a second security instrument. The second instrument, attached to the earphone of the listener, unscrambles the voice message.

An advantage of the security system is that it is always ready for immediate use because it is transistorized and transistors do not require a "warm-up" period.

A unique feature is the handle, which permits it and the telephone to be held by one hand. Because it is portable, the unit can be used on pay phones, private phone and hotel phones without attracting attention. No electrical connection is required. And it can be used for long distance.

The security telephones are paired by code and only when two phones are coded alike can conversations be understood. The system also makes it impossible for a third party to identify the voices of the speakers using it.

Predictions are that widespread use of the security phones will frustrate the "party-line eavesdropper" and take away from the company switchboard operator her now secure title of "best-informed."

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NUTRITION

Cheaper, Better Food In U. S. Than Elsewhere

► THE AVERAGE American family is eating more good food for less money than are families elsewhere in the world, research at Cornell University, Ithaca, N. Y., shows.

Prof. Herrell DeGraff of the Graduate School of Nutrition at the university reported that the typical family of the world spends 60% of its productive efforts for food. In the United States the typical family gets a better diet for less than a quarter of its disposable income. The food supply in the U. S. is superior because great scientific contributions have been made in food production, processing and distribution.

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EDUCATION

U. S. Education Office Aids Science Career Planning

► TO BECOME a space scientist or a weather expert, take all the high school science you can get, plus lots of college chemistry or physics or both.

This advice comes from the Bureau of Labor Statistics and the U. S. Office of Education in a free pamphlet for students, "Science and Your Career."

Science careers requiring various amounts and kinds of high school, vocational school, college or postgraduate training are listed in this pamphlet, which is designed to encourage students to make informed and adequate plans for their education and future careers. Specific reference is made in each case to detailed information presented in the U. S. Department of Labor's "Occupational Outlook Handbook" and in reprints covering each career specialty.

Reprint leaflets on such fields as architecture, chemistry, dietetics, sheet metal work, physics, printing, teaching, etc., are available at prices ranging from five to twenty cents a copy from the Superintendent of Documents, Washington 25, D. C.

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PSYCHOLOGY

Sight of Artificial Mother Rewards Ducklings

► SIGHT OF an artificial substitute mother can be used in place of food or water as a reward when teaching ducklings, Dr. Neil Peterson, Harvard University psychologist, reports in *Science*, 132:1395, 1960.

He found that after ducklings had learned to follow a moving yellow cylinder during the impressionable early hours of life, a type of learning called imprinting, they could be taught to peck on a Plexiglas key when rewarded by a sight of the yellow cylinder "mother."

In one experiment, the ducklings were rewarded after ten pecks when the key was lighted. In a second experiment the key was dark and the ducklings were rewarded only after they had not pecked at the key for a minute. After four hours of training on these two experiments, the ducklings learned to peck at the key only when it was lighted and stay away from it when it was dark.

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AERONAUTICS

Jet Noise Can Produce Cracks in Plane's Metal

► JET NOISE, which irritates passengers and persons on the ground, can also produce cracks in a plane's metal skin.

This problem is being studied intensively by an engineering professor at the University of California, Los Angeles, as a basic first step in overcoming the problem.

After the propulsive jet of gas has left the engine, it fans out and mixes with the atmosphere, creating violent turbulent eddies that radiate sound waves, says Prof. Alan Powell, who is investigating aerodynamic noise in a special laboratory on campus.

For present jet airliners, the impact of the noise and accompanying vibrations is strongest on the flaps and then on the middle-rear part of the fuselage. The latter fact is one reason that the first class compartment in jet planes has been switched to the forward part of the plane.

So far, sound-induced vibrations that cause acoustic fatigue have not caused any major accidents, but they have resulted in numerous cracks in the plane's metal skin and the loosening of rivets. As jet engines become more powerful, the problem will grow increasingly important, says Prof. Powell, who started his research ten years ago in his native England.

Since the jet noise level depends more on the velocity of the jet stream than on its diameter, Prof. Powell hopes to see the introduction of engines having larger but slower jet streams, which could give the same thrust with less noise.

In the future, Prof. Powell believes, the noise factor must be taken into account in the preliminary design of a plane and its engines, and not after the first cracks show up or passengers start complaining.

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