

AGRICULTURE

Hordes of Grasshoppers Due To Be Slaughtered

➤ GRASSHOPPERS ARE due to be slaughtered in great hordes this year. Across the rangeland and plains of the western states, it is open season in the yearly battle to cut down this insect horde at the best time—before the little grasshoppers have grown into big ones.

Forewarned of the danger by the Department of Agriculture, wheat ranchers and cattlemen are loading their spraying tanks with deadly poisons. For the first time this year, aldrin, one of the very new synthetic organic insecticides, will be used extensively in the control contest. Chlor-dane, toxaphene and, in certain regions, benzene hexachloride, are other chemicals effective against the young grasshoppers.

Areas where grasshopper damage to crop and rangeland will be most heavy have been spotted by the Department's division of grasshopper control in Denver. On their specially prepared map, hard hit regions show up as red, blue, yellow or green spots in 20 of the 48 states.

The map shows that aggressive control effort will be needed from Oklahoma north to the Canadian border, particularly including eastern Colorado, western Kansas, Nebraska, North Dakota, South Dakota, Montana and Wyoming.

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MEDICINE

"Bags" Under Eyes Not Necessarily Disease Sign

➤ MANY PEOPLE are often worried because they have "bags" under the eyes. The condition is often seen in elderly persons. It apparently has not been made the subject of any special study by medical men and does not have any specific name, according to a discussion of it in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (March 17).

The condition is not necessarily due to kidney trouble or heart disease, although it may be seen in such illness and also in cirrhosis of the liver when there is a great retention of fluid. It is not necessarily a sign of debauchery and dissipation, either.

The condition sometimes runs in families, one authority points out. The condition seems to come and go, or the size of the bags varies with the season and the time of day. Allergy may be a cause, and if the bags get worse in fall and winter, food allergy may be suspected. Fatigue at the end of the day or a "rundown constitution" may aggravate the bags, especially in elderly persons.

The tissues of the lower eyelids are normally so loose and full of blood vessels that even slight changes in muscle tone, in the state of the blood vessels, in the elasticity of the skin and other factors re-

lating to the person's general condition may lead to local stagnation of blood in the blood vessels and to swelling of the tissues under the eyes. The wasting of skin and tissues under the skin which comes in old age may play a part in causing bags in the elderly.

If the bags are due to an allergy to food, drugs or cosmetics, staying away from the causative substance should clear up the trouble. No specific remedy is suggested in the medical journal discussion.

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GEOLOGY

AEC Test Wells Shed Light On Ground-Water Amounts

➤ TEST WELLS drilled for the Atomic Energy Commission's Brookhaven National Laboratory have shed new light on ground-water movement in Suffolk County, Long Island. They have also revealed one new species of the tiny one-celled animals known as foraminifera.

The AEC routinely checks condition of ground water at all its installations just to make sure there are no leaks of radioactive materials, though to date they have never found any. As with the Brookhaven tests made public recently, these ground-water surveys are usually made by the Geological Survey.

The tiny one-celled animals leave a limy shell when they die. Over a period of time, these shells form the clays through which one must usually dig to get to artesian water. These shells are believed to have been deposited in the geologic formation known as Gardiners clay about 25,000 years ago.

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INVENTION

Improved Paints Contain Soybean Oil, Dry Rapidly

➤ IMPROVED exterior paints, on which a patent was issued by the government, contain soybean oil as the principal oil ingredient but do not remain tacky as do earlier soybean paints. These new paints have also improved drying qualities, color retention and durability.

The inventors are Arthur J. Lewis, Helen A. Moser and John C. Cowan, all of Peoria, Ill. They received patent 2,550,703. Rights are assigned to the U. S. Government as represented by the Secretary of Agriculture.

The soybean oil used is cleared of extraneous matter. The use of calcium oxide is responsible for the improvements in the paints. The calcium oxide is added as a pigment component in amounts from 4% to 10% by weight of the pigment. This small amount of calcium oxide is not sufficient to cause early paint-coating failure by cracking and checking.

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IN SCIENCE

INVENTION

Nose Rest for Face-Down Sleeping and Sunbathing

➤ NOSE-DOWN SLEEPING is possible with a "face-rest" on which the government has issued a patent. It is a circular frame with a cloth upper surface that will hold the face a little distance above the pillow. The fabric top covering is shaped to fit the face. In its center is a hole for nose and mouth through which the nose projects to get the air that freely circulates between pillow and face.

Inventor Anne C. Costello, of Boston, received patent 2,551,727 for this device. A special use is at the beach when a sun-tan on the back is desired. It is also usable when a back-massage is being given, and again when a person wants to recline face downward to relieve a pain in the stomach.

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PSYCHOLOGY

Antihistamines Cause Lazy Feeling But Not Inefficiency

➤ MANY A person taking an antihistamine drug for hay fever or in the hope of relieving symptoms of a cold has complained it made him feel too sleepy, tired or lazy to work efficiently.

Psychological tests, however, tell a different story. Only one out of a battery of seven tests showed any relation between performance and a tired or sleepy feeling. Drs. Carney Landis and Joseph Zubin of the Psychiatric Institute, Columbia University report.

They gave the tests to 72 normal persons who took an antihistamine, a sugar pill and a sleeping medicine pill on alternate days. The antihistamine was thonzylamine, sold under the trade names of Neohetramine, Anahist and Resistabs. The sleeping medicine was phenobarbital. The pills all looked alike, none of the persons tested knew which was which, and none of the persons giving the test knew which person had had which pill.

On two tests, tapping and determining when a flickering light became steady, efficiency was less when the persons had taken phenobarbital, no matter whether they felt sleepy or peppy.

No statistically significant changes in efficiency were produced between the sugar pills and the antihistamine in any of the seven tests.

Details of the experiments are reported in the JOURNAL OF PSYCHOLOGY (April).

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E FIELDS

TECHNOLOGY

Need Research in Coal As Fuel And Raw Material

► RESEARCH IN the field of coal usage is as important as research in mining methods, the American Mining Congress meeting in Cleveland was told by Dean A. A. Potter of the engineering school of Purdue University. The research needed includes coal as fuel and as raw material for chemicals.

"The United States is fortunate in having within its borders approximately half of the world's known supply of bituminous coal, a resource indispensable in meeting the fuel demands of the most highly industrialized nation of the world for steel, power, heat and chemicals," he stated. "An effective and prosperous coal industry is absolutely necessary to our welfare and national security."

Bituminous Coal Research, Inc., of which he is president, expects to have available for commercialization this year efficient coal heating stoves, a magazine warm air furnace, a heating boiler with magazine feeding and a down-jet coal range with close temperature control, he said. It also hopes to have ready for field testing within a year a completely automatic household stoker with bin and mechanical ash disposal.

Research in which much work remains to be completed includes a study of coal as a raw material for chemicals, drugs and fertilizers, and the production of gas. Disposal of fly ash and studies in preventing air pollution are also important.

"In the interests of national security," he added, "we must develop a practical and economic means for converting oil fired residential and industrial equipment to coal."

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PHYSICS

Hydrogen Showers Play Part in Auroral Displays

► SHOWERS OF charged hydrogen particles, protons, bombard the earth's outer atmosphere to play some part in auroral displays. The brilliant light of these "northern lights" comes from atoms in the high atmosphere which are highly excited. The cause of an aurora is not known in detail.

Additional evidence that proton bombardment plays a part is put forth by Dr. C. W. Gartlein, physicist at Cornell University. Last fall he aimed two spectrographs, instruments for separating light into the various wavelengths in a rainbow-like

fashion, at the same auroral display. One instrument was in Ithaca, the other in Arnprior, Ontario, and by telephone he made sure that the two were aimed at the same part of the same arc of the aurora.

From the change in the spacing of the wavelength lines of the spectrograms taken at the two stations, Dr. Gartlein believes that hydrogen particles were smashing into the atmosphere, that their velocities were, at the highest, about 840 miles per second. He concluded that the particles were protons because the earth's magnetic field had a strong influence on the shifting of the spectral lines.

Dr. Gartlein reports his observations in the *PHYSICAL REVIEW* (Feb. 1).

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INVENTION

Inexpensive Smokeless Stove For Small Homes Patented

► A SMOKELESS stove for small homes which is simple, easy to use, economical on fuel and inexpensive has been granted a government patent. It is a coal-burner employing a down-draft principle to consume the fuel and the smoke that often comes from bituminous coal.

Its fire box contains a coking zone and a coke-burning zone, a combustion chamber in communication with but separate from the zones, and a combustion chamber extending partially inside and partially outside the fire box. This insures the burning of combustible vapors arising from the volatile fuel.

The inventor is Prof. Julian R. Fellows of the University of Illinois, Urbana, Ill., who has spent many years in the development of smokeless stoves and furnaces. He received patent 2,549,778. Rights have been assigned by him to the university.

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MEDICINE

Goiter Remedy Stops Tobacco Virus Growth

► A CHEMICAL that has been used as a remedy in some kinds of goiter can stop the growth of tobacco mosaic virus in tobacco leaves, Drs. Barry Commoner and Frank Mercer of Washington University in St. Louis reported to the American Cancer Society.

The chemical is called thiouracil. A related chemical, uracil, is a basic part of the nucleic acid in the virus. The two are enough alike, apparently, so that thiouracil can jam the chemistry of virus multiplication when it is fed to the virus growing on the plant leaf.

This jamming effect of thiouracil can be counteracted, the St. Louis scientists found, by giving the leaf an added dose of uracil.

Further studies of the chemistry involved and its implications are under way.

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MEDICINE

Patch Up Windpipe With Wire Mesh Reinforced Grafts

► SKIN GRAFTS reinforced with wire mesh can be used successfully to patch the windpipe and bronchial tubes when tuberculosis, injury or cancer requires removal of a section of either bronchial tube or windpipe, Dr. Donald L. Paulson of Dallas, Tex., reported at the meeting of the National Tuberculosis Association in Cincinnati.

This kind of patch "provides a living scaffold" for new lining tissue of windpipe or bronchial tube to grow on. One such patch, or graft, in a bronchial tube survived with little change for a year, Dr. Paulson reported.

The patches have meant the saving of lung function and even of life.

Skin for them is taken from the patient's back. The frame for the patch is made of stainless steel wire or tantalum mesh.

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TECHNOLOGY

Improved Machine Lights To Replace Miners' Lamps

► THE FAMILIAR lamp on the miners' cap will probably long continue to be the principal light at working faces in mines but machine lights and floodlight units are coming into use and promise to become more widely employed when better types are available.

This is the opinion of C. M. Crysler and G. F. Prideaux, of the General Electric plant at Cleveland, expressed at the American Mining Congress meeting in Cleveland. The cap lamp of today is a vast improvement over earlier types, they stated, and new models are superior products.

Other lights used at the face area are machine lights but their designs and placement need considerable further study. The bulbs used must have rugged filaments because they must withstand considerable shock and vibration of mining machines. Permissible portable floodlights would be particularly useful if suspended as close to the working face as possible so that direct light will not have to penetrate dust caused by cutters and loaders.

A problem in lighting the working area in a mine is the dust that quickly collects on cover lenses of machine lights which greatly reduce their output. Elimination of dust is an important factor in improving seeing at the face areas, they stated.

They suggested that mine operators make the surfaces in working areas white. This would improve lighting conditions by reflection back and forth. Dark objects, such as machines, lumps of coal, men and tools, would stand out against a white background. Greater safety would result.

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