

the military forces brought in for atomic training but they had a closer view than any but the military and the AEC experts. Not since Bikini had reporters had such mushroom cloud ringside locations.

The energy unleashed by the atomic bomb is large compared with the power that runs our modern civilization. The plutonium in an atomic bomb liberates through fission nearly twenty million times as much energy as the explosion of an equivalent weight of TNT. The immense power of Boulder Dam produced during a month will be equalled approximately by an average atomic blast, and the April 22 blast was larger than average.

To keep these man-made energy sources in proper perspective, we must recall that the energy of a nominal atomic bomb is about the same as that of the sun's rays

falling on about a hundred square miles of ground during an average day. A strong earthquake has as much energy as a million atomic bombs.

Shown on the cover of this week's SCIENCE NEWS LETTER are two photographs taken during the Operation Big Shot atomic bomb burst. On the left, the fireball rises into the air. The smoke streamers to the left of the fireball are from measuring rockets. On the right, observers watch from a safe distance as the fireball of the atom bomb dissolves into a doughnut-shaped ring, colored a luminous white tinged with yellow and pink. The yellow on the west side is from the nitrous oxide, which is an expensive form of nitrogen fixation. The pink on the east side looked like the rose-colored strontium flame, but it may have been a refraction effect.

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the mirrored surface, the relative humidity of the air over the grain is easily found.

Apparently this hygrometer works with almost any grains or grain combinations, Dr. Ives has reported. It can help the farmer judge when to start work with a field baler, hay chopper or combine and when it is safe to stop running his hay or grain drier. Accuracy of the described instrument is within one-fourth of one per cent of the moisture in the grain.

The instrument is not on the market now, but Dr. Ives and the Institute hope that some manufacturer will soon start producing it.

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AGRICULTURE

Less Grain Spoilage

► LESS GRAIN spoilage during storage is foreseen through the use of a glass-fruit-jar, moisture-telling device developed at the Inter-American Institute of Agricultural Sciences in Turrialba, Costa Rica.

Molds of one kind or another often develop on grains being stored. If the humidity is high, the molds may develop within a few days, and as little as a 10% drop in the moisture content of the air surrounding grain may make the difference between a storage period of about a week or a year or more.

Now Dr. Norton C. Ives has developed a quick indicator, easy for farmers to use, that will tell in a hurry just what is the moisture content of the air around grain in storage.

The bottom half of a two-quart fruit jar is filled with a sample of the grain being tested. Time is then allowed for the air above the sample to reach equilibrium with

the moisture in the grain and surrounding air spaces. This takes at least half an hour, but the reading for moisture content can be made in about three minutes.

The fruit jar has an especially built top which is actually a dew-point hygrometer, working on the same principle as the instrument used by meteorologists to tell the amount of moisture in the air.

A liquid with a low evaporation point, such as acetone, often an ingredient of nail polish removers, is poured into a thin metal tube in the special cap. Air is then forced through this refrigerant to hasten evaporation. Part of the outside of the thin metal refrigerant tube is chromium-plated and mirror-polished. It thus reveals the instant when dew begins to form.

A precision thermometer is placed in the refrigerant and another in the grain. From the difference in these two temperatures at the time when dew began to form on

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