

PUBLIC SAFETY

Loose Clothes Protect

➤ APPROPRIATELY, IN Las Vegas, calling itself the world's biggest gambling center, the four of spades and the four of hearts turned up in a surgeon's report to the thousand or more civil defense workers there to see detonation of a nuclear device.

The surgeon, Dr. Herman E. Pearce, professor of surgery at the University of Rochester, Rochester, N. Y., told of exposing these two cards and a white card to heat as intense as that of a "nominal" nuclear weapon. Object of this and his other experiments was to find how best to protect victims of such weapons from the heat effects, which could be just as deadly as the radiation.

At one distance from the heat source, the spades all burn but the hearts and white card did not. At a closer distance, the spades and some of the hearts burned but some hearts and some white cards came through all right.

This, like some other experiments, showed the importance of color for protection against the heat effects of nuclear weapons.

Layers of clothing, as well as light, or even better, white color give added protection. Two layers of cloth give much less protection than four. With six layers, there would be such great protection from the heat, or thermal, effects that survivors would

escape completely from these dangers, "to be killed by something else," Dr. Pearce declared.

The thermal effects from a nominal nuclear weapon or device come from: 1. The initial flash of very high intensity energy lasting only two-hundredths of a second. 2. The enlargement of the fireball.

The maximum burning lasts around four-tenths of a second and is complete by six-tenths of a second. These burns, because they char the skin, may look worse than contact burns, such as those from flames or steam. But "as a general statement," Dr. Pearce said, they may be less deadly than contact burns, although they will kill if they cover enough of the body surface.

Modern feminine styles of clothing, he said, would not give much protection against the burning effects of nuclear weapons. Clothing that fits tightly against the skin is not very protective.

For best protection, he advised layers of loose-fitting, light colored or white clothing.

Even a sheer stocking would be better than nothing. Some kinds of nylon, he said, would give protection. But some fabrics are flammable and the intense heat of a nuclear device might cause them to burst into flames on the wearer.

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LOOKING INTO METAL — Invisible infrared radiation is used in this modified snooperscope to investigate the structural properties of silicon. Dr. William C. Dash, General Electric Research Laboratory physicist, places silicon in the light beam from an incandescent lamp, but of the total illumination only the infrared passes through, and is converted to visible light by the 'scope.

● RADIO

Saturday, May 14, 1955, 5:00-5:15 p.m., EDT
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Mr. William C. Foster, president, Manufacturing Chemists' Association, and Mr. Cleveland Lane, assistant to the president, Manufacturing Chemists' Association, Washington, D. C., will discuss, "A Better America Through Chemical Progress."

ASTRONOMY

Moon Was Formed At Low Temperature

➤ THE MOON was formed at a low temperature and there has never been sufficient radioactive material there to warm it enough for melting, Dr. Harold C. Urey of the University of Chicago told the National Academy of Sciences meeting in Washington.

Evidence for this is the moon's bulge of about six-tenths of a mile which points toward the earth, he said. If the moon had as much radioactive material as has been thought, Dr. Urey pointed out, the bulge would have long ago smoothed out.

Scientists estimate the moon's radioactive material from analysis of the cosmic fragments that fall to earth as meteorites. These estimates are about three times too high, Dr. Urey believes. The lower values for abundances of potassium, uranium and thorium he suggested would account for the high rigidity of the moon.

The new, lower values would also account for the uniform composition of Mars, he said.

If the figures for abundances of radioactive materials are not reduced at least three times, Dr. Urey pointed out, one-half the outer crust of the earth would have melted in the last 500,000,000 years. This, he said, "obviously has not happened."

Science News Letter, May 7, 1955

CHEMISTRY

Snooperscope "Sees" Through Silicon Crystals

➤ A MODIFIED snooperscope is being used to "see" through silicon crystals, spotting imperfections produced in manufacturing transistors, rectifiers and other semi-conducting devices.

Polished silicon has a shiny metallic appearance and is not transparent to visible light. Infrared, or heat radiation, passes through it and is changed into visible light by the modified snooperscope, revealing the crystal structure, scientists at General Electric Co., Schenectady, N. Y., have found in their research.

When silicon is alloyed with aluminum, gold or other metals, the region around the alloy is seen to be highly strained. Study of such markings helps to control the quality of commercial silicon devices.

Science News Letter, May 7, 1955