

MEDICINE

Ultrasonics Heals Wounds

► **ULTRASONICS**—sounds that cannot be heard by the human ear—can heal wounds, clear up infected sinuses, relieve arthritic pain and treat acute asthma. They have even been used with success in an Army hospital to relieve pain arising from amputations, scars and neuromas.

These medically beneficial sounds are produced by the same type of mechanical vibrations that produce such familiar sounds as the boom of a cannon, the ringing of a telephone or the sound of the human voice. The difference is that the familiar sounds we hear seldom vibrate at frequencies higher than 20,000 cycles per second whereas ultrasonic vibration may be 100,000 or several million cycles per second.

Nearly all medical ultrasonic equipment has been designed for clinical use at one million cycles (one megacycle). Sonic energy at one megacycle has some of the characteristics of light—it may be reflected or refracted. It can penetrate even more than light as it can travel through solids and liquids.

However, an important feature of medical ultrasonic energy is that it will not pass through air. Therefore, to be used with the most benefit in healing, it must be applied by means of a transducer directly to the surface of the skin of the area to be treated.

Areas too sensitive to permit direct application of the transducer are submerged in water. Then the treatment can be given without any pressure or contact that might cause pain to the patient, because of the ability of the energy to pass through water.

At the Second International Conference of Ultrasonics in Medicine held in Washington, D. C., 500 members and guests heard Dr. David Rubin, associate clinical professor of physical medicine and rehabilitation of the University of Southern California School of Medicine, describe the successful use of ultrasonic therapy on amputees whose stump pain before treatment made the use of artificial limbs an agony. After a few treatments with the inaudible sound, the pain was sufficiently relieved to allow full use of the artificial aids. He also

PUBLIC HEALTH

Radiation Damage to Minds

► **MENTAL RETARDATION** and loss of memory may result from long-term exposure to radioactive fallout or other sources of low-dose levels of radiation, Soviet scientists say.

Soviet radiobiologists and psychologists claim that their experiments with dogs show that after such exposure, the animals do not learn as readily and may forget recent experiences.

The Soviet study was reported at the first International Symposium of the Response of the Nervous System to Ionizing Radiation, held at Northwestern University's Medical School in Chicago.

Both Soviet and American scientists agree that the nervous system is affected by radia-

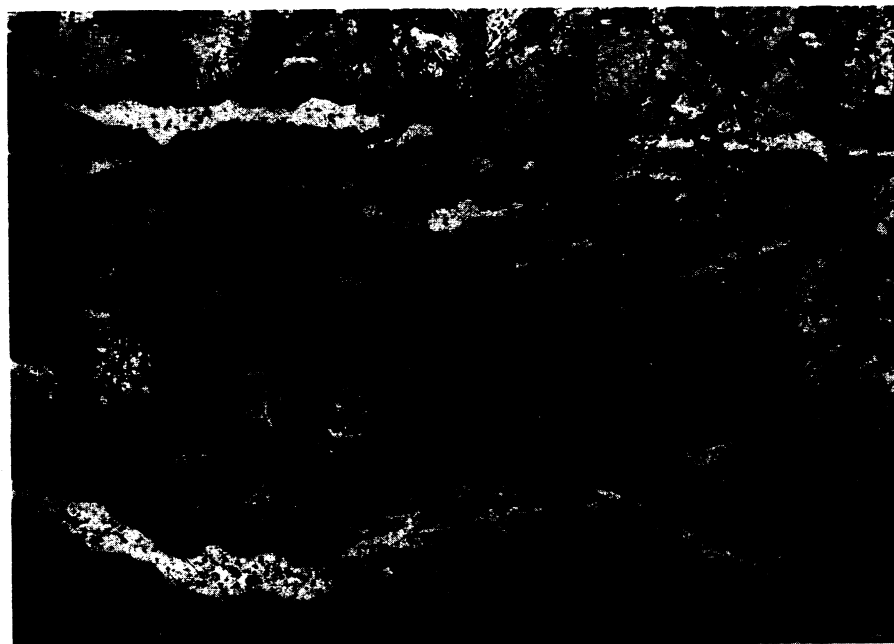
tion. They differ, however, on the extent of low-level radiation effects on this area.

United States scientists, as well as most Western world researchers, believe that the nerve tissue (compared to bone marrow and connective tissue) is more resistant to radiation and is not structurally altered at low-dose levels.

The Russians do not claim to have evidence of structural changes at low-level exposures. They do claim that radiation alters metabolic processes in nerve cells. They believe their low-level experiments with the dogs is evidence of altered metabolic processes.

About 300 of the world's leading scientists concerned with the effects of radiation on the nervous system participated in the Symposium. They included representatives from the U. S., USSR, Mexico, South America, Western Europe and Japan. The Symposium was sponsored by a \$25,000 research grant from the U. S. Public Health Service and the U. S. Atomic Energy Commission.

• Science News Letter, 78:183 September 17, 1960



COESITE MAGNIFIED—A photomicrograph shows sheared Coconino sandstone, containing coesite, magnified about 30 times. The sandstone appears grey whereas the coesite is contained in the dark matrix. The first two discoveries of coesite, a rare form of silica, were made by U. S. Geological Survey scientists recently.

GEOLOGY

Coesite Discovered In Bavarian Crater

► **COESITE**, the dense and highly stable form of silica not known to occur naturally on earth before it was recently collected and identified by U. S. Geological Survey scientists at Meteor Crater, Ariz., has now been recognized in rock specimens collected near the rim of Germany's famous Rieskessel in Bavaria, by Dr. Eugene M. Shoemaker, Survey geologist. Dr. Shoemaker regarded the original find in Arizona as conclusive evidence that the crater resulted from a collision between the earth and a sizeable meteorite.

The new find means that there are now two places known on earth where coesite occurs in nature. It strengthens the contention of certain German geologists that the Rieskessel was a meteor impact crater. (See story SNL 78:25, July 9, 1960.)

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