TECHNOLOGY

Photograph Body's Interior

See Front Cover

➤ A CAMERA especially designed for doctors and dentists to photograph interior parts of the body cavities, such as ear, nose, mouth and throat, has been perfected at the U. S. Air Force School of Aviation Medicine, Randolph Field, Tex.

Small and compact, it is known as an endoscopic or internal camera. It was invented by Capt. Harry R. White, research photographer at the school.

Some of the standard instruments found in a doctor's office for looking into body cavities can be attached to the camera as accessories. By funneling light through these instruments, interior parts of the anatomy are illuminated and photographed through a small, adjustable lens. Black and white, color, and infra-red pictures can be made.

Operating at speeds from time exposure down to one-thousandth of a second, the unique camera can record both plus and minus magnification on standard 35 mm. film by use of an adaptor lens. Its shutter and film moving mechanism were extracted from a 35 mm. standard type camera, thus eliminating some research problems and expense of making the parts. Shown on the cover of this week's SCIENCE NEWS LETTER is the exterior portion of an eye photographed with this inside-body camera.

Housed in an aluminum case, the camera is equipped with a safety glass light port. This permits the free flow of light and at the same time shields the patient from possible injury in case of flash bulb explosion.

An attachment lens to the camera—the only one of its kind in existence—permits a wide variation of focal length, while an adjustable arm, or extension, places the lens within inches of the area to be photographed. By use of a standard inspection mirror, found in every doctor's office, the back side of teeth can be photographed as readily as the exterior portions.

Science News Letter, December 1, 1951

GEOPHYSICS

Marble Cake Structure

➤ THE EARTH'S crust under the continents is more like a marble cake than a layer cake.

This conclusion is reported by Dr. M. A. Tuve of the Carnegie Institution of Washington to the American Philosophical Society after a study of more than 250 shots, each using one ton or more of explosives, which were provided by the Navy and mines and quarries.

He and his colleagues challenge the prevalent idea that the deep rocks under the top sediment of continents are divided into fairly even, regular layers. About 2,000 observations were made to examine structures down to 40 miles depth.

When only a few observations of an explosion were used, the records were deceptively like those from earthquakes. When they used many of the explosive shots in their calculations, however, and compared values found at different stations, they discovered that the shock waves did not travel in layers as previously pictured by earthquake investigators. Instead, there was an interference effect, caused by the "marble cake" structure of the interior.

Records at fixed locations from a few shots or a few earthquakes would mislead anybody into thinking the interference pulses came from distinct buried layers, but this picture was disproved by moving the shots and using portable seismic equipment.

Physicists learn about the deep structure of the earth by studying and comparing earthquake records. Dr. Tuve and his colleagues believe that their recent investigations have shown that the layer cake structure is much too simple a picture of the rock pattern deeply buried under continents as a remainder of bygone epochs of mountain buildings.

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GENERAL SCIENCE

Planetarium Built in USA To Be Installed in Uruguay

➤ URUGUAY IS to have the first large planetarium in South America. It will be located in Montevideo, at the new Science Museum being established there.

The planetarium, elaborate instrument for projecting stars and other celestial bodies upon a large dome, is being built in the United States by Spitz Laboratories, Inc., Philadelphia. It will be the first large planetarium made and shipped from any foreign country except Germany.

"Our large planetarium," stated Armand N. Spitz, president of Spitz Laboratories, "has been designed to equal or exceed the performance of instruments such as are in use in Philadelphia, New York, Chicago, Pittsburgh, Los Angeles and Chapel Hill, N. C."

The basic principles of this instrument differ in many respects from those of the German Zeiss planetarium, Mr. Spitz reports. Designed especially for increased effectiveness of illusion and ease of operation and maintenance, Mr. Spitz reports that the initial cost of his design is half the pre-war price of the Zeiss.

Until four years ago, when Mr. Spitz introduced a portable planetarium, the Zeiss Optical Works of Jena, Germany, was the only commercial manufacturer of planetaria.

Science News Letter, December 1, 1951

TECHNOLOGY

Ocean-Sounding Device Accurate in Deepest Water

➤ OCEAN SOUNDING becomes more accurate with an improved type of echo-sounding equipment which will give accurate readings of depths down to 6,000 fathoms, or 36,000 feet. The new equipment is a product of Edo Corporation, College Point, L. I., N. Y., and was developed for the U. S. Navy.

Echo-sounding involves the use of sound waves emitted underwater from the hull of a vessel which travel to the bottom of the ocean and are reflected back. Special equipment to send out powerful sound waves and pick up the echoes is required. Depth is determined by the interval of time required by the wave to reach the bottom of the ocean and return.

The echo-sounding apparatus consists of two units, a transducer which transmits and receives signals from the bottom of the ship, and the main electronic unit located on the bridge or in the navigating room.

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