Plastics for packaging

This unit of "THINGS of science" exemplifies the power of applied science to produce useful new materials. Its specimens of cellophane, of cellulose acetate, of ethyl cellulose sheeting, of pliofilm, are plastics recently developed in this country for the packaging industry.

Many of these plastics are now rapidly becoming "museum pieces" because of the war. The producers of THINGS of science collected specimens over a period of months, especially for the plastic unit.

An explanation of the processes of manufacturing cellophane, ethyl cellulose sheeting, and cellulose acetate sheeting, and of the process for printing cellophane; descriptions of pliofilm, of a bottle band made of Sylphseal, and of a sausage casing; and many suggested experiments complete this unit of THINGS of science.

As in all units of THINGS of science, this unit contains specimens of scientific material to be examined, studied, and enjoyed. Museum-style legend cards are supplied for each science object; a brief, clear explanation of the entire contents is included with suggested experiments. This service is under the sponsorship of Science Service, the nonprofit institution for the distribution of scientific information.

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MEDICINE

Frame Helps Backache

Shaped to fit and support the back and covered with firm but resilient surface, it provides comfortable sleep, permits complete relaxation which banishes pain.

➤ A RELAXING FRAME that gives backache sufferers a good night's sleep and helps banish pain in daytime hours by teaching relaxation was announced by Dr. A. W. Schenker and Dr. William Bierman, of New York, at the American Congress of Physical Therapy in Pittsburgh.

Many a patient with backache from arthritis or some other cause sleeps with boards between his mattress and bed spring to gain relief from his backache, though shoulders, hips or other parts of the body may be sore from the hardness of the bed on boards.

"The boards are doing a most valuable service," the New York doctors stated, but pointed out that they meet the situation only partially.

The relaxing frame which they devised is shaped to fit and support the back along the vertebral column when the patient is lying in correct position for complete relaxation. It fits over a resilient surface, such as a coil spring bed or an inner spring mattress, and is covered with a thin, firmly yielding substance such as foam rubber to avoid pressure on hard, bony surfaces.

When the patients first see the frame with its "hills and valleys" they often ask how anyone can possibly sleep on it.

"The answer," the doctors stated, "is simply that whoever has slept on it has done so more comfortably than ever before."

Patients accustomed to lying on their sides find the hills and valleys of the frame to some extent approach the lateral curves of the body. All patients, however, are told to train themselves to sleep on their backs, which the doctors declare is the only position in which complete relaxation is possible.

The relaxing frame for sleeping is used with other methods of treatment according to the patient's need. Basis for the frame is that pain brings on a spasm of muscles in the involved area in order to hold the painful part still. With the disappearance of the pain, relaxation of the involved muscles occurs. But, conversely, any means, such as heat or drugs or correct positioning of the joints, which enables the muscles to relax will abolish or at least diminish the pain.

A patient with insomnia for 10 years as well as others with backache from various causes have been helped to sound sleep at night by the use of the frame, the doctors reported.

Science News Letter, September 19, 1942

PHYSICS

Rubber Behavior Studied

➤ PHYSICS SUPPLEMENTED chemistry in a search for causes of the stretchy, bouncy behavior of rubber, at the meeting when a group of physicists from Notre Dame University presented three papers before the American Chemical Society in Buffalo. The chemists remembered the classic contributions of a former colleague from the same university, the late Father Nieuwland, pioneer in the creation of synthetic rubber, as they listened to the presentations of Dr. Eugene Guth, Dr. S. L. Dart, Dr. R. L. Anthony and Dr. L. E. Peterson, together with Dr. H. M. James of Purdue University.

The picture they gave was one of a curious substance that has some of the behavior features of a solid, some of a liquid, and some even of a gas. Explanation is to be found, the speakers suggested, in the shape of the individual rubber molecules, which are long, spiral, wormlike affairs that hook their coils together like tangled springs.

One of the gas-like properties of rubber is its curious sudden rise in temperature when it is stretched, and its cooling when it contracts. This can be tested by anyone, merely by touching the lips to a quickly stretched rubber band. The Notre Dame scientists have made a quantitative study of this strange temperature effect in rubber, with sensitive scientific instruments.

Science News Letter, September 19, 1942