

## DECOMPRESSION SICKNESS

### Early detection method

The bends, or decompression sickness, afflicts divers when they return to the surface too rapidly. When submerged, a diver breathes gases under high pressure, which causes the gas to dissolve in his tissues. As he returns to the atmosphere, if the pressure of the gas is lowered too quickly, tiny bubbles form in the blood stream, blocking capillaries and causing anything from pain in the joints to paralysis and death. These symptoms are the only current way of detecting decompression sickness.

A technique for detecting bubbles' initial formation is being developed by TRW Systems Group in Redondo Beach, Calif., under a contract with the Office of Naval Research. If it can be applied to divers, it will give early warnings to slow down decompression before dangerous symptoms appear.

The device employs acoustic-optical imaging techniques based on the interaction of sound waves passed through the body, with light waves from a laser.

According to Lt. Richard Buckles of the Naval Medical Research Institute in Bethesda, Md., in preliminary tests, bubbles in the legs of hamsters have been imaged by the technique.

## TUMORS

### New antigen discovered

An antigen recently discovered in both malignant and benign tumors may have significant implications as a diagnostic tool because of its widespread occurrence, reports Dr. E. M. Edynak of the Departments of Surgery and Pathology of the University of Pennsylvania in Philadelphia.

The antigen belongs to a newly recognized class known as fetal antigens, which are active during fetal life, repressed during normal adult life, then reactivated during malignancy. The physicians found the antigen in 98 of 143 solid cancers, including breast, colon, ovary, kidney, parotid gland and sarcomas of muscle, liver and nerve, in 15 of 20 benign tumors, and in human, calf, pig, dog and cat fetal blood. The antigen was never found in adult sera of these same species. On the other hand, it was not found in any of 107 normal human tissues, though it was detected in 2 of 55 specimens from nontumorous disease.

## PERNICIOUS ANEMIA

### New test is easier

The Schilling test, commonly used to detect pernicious anemia and other forms of vitamin B-12 malabsorption, involves administering labeled B-12, followed by a flushing dose of nonradioactive B-12. For the next 24 hours all urine passed is collected and the amount of B-12 ascertained.

The test has certain disadvantages, however: The completeness of the 24-hour urine collection is critical, and a follow-up test after a three-day interval must be performed if the first test shows abnormal absorption. The second test must be administered with a dose of hog intrinsic factor, a substance lacking in patients with perni-

cious anemia, given because it is necessary in absorption of B-12. The factor causes allergic reaction in some patients.

A new test called DICOPAC, designed by researchers of the United Kingdom Atomic Energy Authority in London, speeds diagnosis by requiring only one administration of capsules, one injection and one urine collection. Human gastric juice replaces hog intrinsic factor.

With the DICOPAC test, two capsules are first administered. One contains cyanocobalamin labeled with cobalt 58, the other cyanocobalamin labeled with cobalt 57 bound to human gastric juice. Only one urine collection—after 24 hours—is made following the flushing dose of the unlabeled vitamin. Thus the need for repeated and complete collection of urine during the 24-hour period is eliminated.

The excretion ratio of each of the two isotopes confirms or excludes pernicious anemia, the British researchers say.

## ORTHOPEDICS

### New brace speeds healing

A new cast-brace that bends at the knee heals legs in half the time as conventional, more rigid casts. According to Dr. Vert Mooney of the University of Southern California School of Medicine in Los Angeles and Rancho Los Amigos Hospital in Downey, Calif., the brace is an extension of established theories about getting patients to walk with fractures and getting patients moving soon after surgery.

Dr. Mooney, originator of the device, explains that with the cast the bone receives only slight pressure as the patient walks because the weight of the leg is supported by the cast. The physician used the cast on 200 patients who had an average healing time of 14 weeks. In another group of 50 with conventional casts, the average healing time was 25 weeks.

## PANCREATITIS

### Animal test procedure

Alcoholic pancreatitis, also known as drunkard's pancreas, is treated by withdrawal of alcohol, proper diet and surgery, where all or part of the damaged pancreas is removed. If patients are given drugs to relieve pain, addiction to them can occur.

Ascertaining the relationship between alcohol and pancreatitis, however, is difficult because animals don't like alcohol and refuse to drink it. Injecting alcohol into the blood stream to induce pancreatitis has been equally unsuccessful.

To overcome this problem, Drs. Jorge Cueto and Bernard Zimmerman of the West Virginia University Medical Center inserted a tube in the stomachs of dogs and fed them large doses of alcohol and a good diet for 18 weeks.

The physicians report that alcohol in the stomach does produce early, mild, alcoholic pancreatitis. According to Dr. Cueto, most of the changes seen in human pancreatitis were duplicated in the dogs. Enzymes were increased in the blood, fats in blood serum were increased, red blood cells were destroyed and mild, microscopic changes could be seen.