

MEDICINE

Aids to Cancer Detection

Two techniques which may simplify and make possible more accurate diagnosis of this disease while still in the early curable stage, have been reported.

► **TRANSPLANTING** human tissue to the eye of a guinea pig and extracting bone-marrow from human hip bones may help detect cancer while it can still be cured.

"Precancerous" growths, such as malignant warts or moles, are easily distinguished from those in the later spreading stage, the condition known as metastasis, by the guinea pig test, Dr. Harry S. N. Greene, of the Yale University School of Medicine, explained in the *AMERICAN MEDICAL ASSOCIATION JOURNAL* (Aug. 14).

He terms the procedure "simple" because cancer tissue survives transfer from one species to another. Non-cancerous tissue will not grow after it is transplanted.

If the cancer is far removed from the parent growth, as in metastasis, the way the transplanted tissue grows in the guinea pig's eye gives a clue to where it started in the body, Dr. Greene said.

"Hidden" cancer may be discovered by the new procedure of extracting bone mar-

row from the hip, Dr. Michael A. Rubinstein, of the Montefiore Hospital, New York, reported in the *A. M. A. JOURNAL* (Aug. 7).

The new procedure is easier, safer, and better suited for repeated use than the standard method of drawing marrow from the breast bone, a study of 216 patients indicated.

Cancerous cells were discovered that failed to show up when the standard procedure was used, Dr. Rubinstein said. He pointed out that it also was helpful in determining the spread of cancer to the bone.

Another advantage is that the bone marrow may give the first positive indication of cancer in a hidden location when X-ray films fail to do so.

Dr. Rubinstein said that this new technique can be used to diagnose leukemia, multiple myeloma, anemia, Hodgkins disease, cirrhosis of the liver, sprue and kidney diseases.

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ENGINEERING

Oil Drilling Easier

► **DRILLING CREWS**, boring more than 10,000 feet deep in oil fields, will have lighter work in the future. Automatic equipment, developed by the Humble Oil and Refining Company of Houston, Texas, is responsible. It makes the drilling job easier.

A derrickman, seated with only a control handle to operate, directs remote control power tongs to make up and break out drill pipe and bits. This is an important feature in Humble's Rig No. 30, a newcomer to the oil fields. Also it provides greater safety as well as reducing fatigue of the drilling crews.

The need for powered machinery to do work formerly done largely by human power became necessary with the deeper wells now being drilled which extend from 10,000 to 18,000 feet into the earth. More power is required for hoisting long strings of pipe and the weight of the drilling equipment.

Deep-hole experience taught oil operators that heavy powerful rigs were not the only requirement for deeper drilling. The higher costs involved demanded equipment vastly more efficient. Other devices have been developed to give this greater efficiency.

The bits used in drilling require more or less frequent replacement with resharpened tools. Pulling a bit and its stem, par-

ticularly when they extend nearly two miles below the surface, requires much time and labor. Harder formations found at depths reduce bit life rapidly. More frequent round trips to the surface must usually be made as the bit goes below 10,000 feet. The Humble rig lessens the time required for bit changing as well as easing the work of the drilling crew.

Most of the physical effort of making round trips for the bit and stem and drill pipe connections has been eliminated by the remote-control power tongs and what is called a pipe-racker. The derrickman and tong operator control this equipment from comfortable seats. Although the speed of pulling one stand with the new equipment is only a little greater than is possible with conventional hand operation, the speed can be carried on indefinitely without the slow-down that accompanies other methods due to workman fatigue.

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ASTRONOMY

Russian Document Gives Positions of Asteroids

► **COPIES** of a document, written wholly in Russian, giving the expected locations of over 1,500 objects whirling through

space, have arrived in America from Leningrad.

Far from being a military timetable, this is the latest astronomical publication of the U. S. S. R. Laborious computations by perhaps 40 Russian experts, from Kiev to Kasan, give the time and orbits when the known asteroids (little "earths" from 400 to 10 miles or less in diameter) will arrive opposite the sun and thus have a chance to be observed through telescopes.

Leningrad's Institute of Theoretical Astronomy, directed by Dr. M. T. Subbotin, took over from the Germans the international task of issuing this information to the world's observatories. The present tables, known to have been received at Harvard Observatory and the U. S. Naval Observatory, among American institutions, are written in Russian except figures and the names of the asteroids.

Soviet astronomers in issuing the new tables have immortalized Tito by giving his name to a hitherto unassigned asteroid, number 1550. And number 1554 has been christened Jugoslavia, both presumably before the recent political differences between Tito and the Kremlin. Almost every country has an asteroid named for it: 232 Russia, 916 America, etc. Famous men have their names attached to asteroids, as in the cases of 742 Edisona, 904 Rockefelleria, 932 Hooveria. And there is 993 for Dr. F. G. Moulton of the American Association for the Advancement of Science, and 1123 for Dr. Harlow Shapley of Harvard Observatory.

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POWER TONGS—Rotary helper watches with hands on hips as the remote-control power tongs, controlled by the operator, "hand" a stand of five-inch drill pipe to lower pipe-racking arm. The pipe weighs nearly a ton.