RADIOACTIVITY IN INDUSTRY—Mechanical hands are at work in the atomic radiation laboratory at Esso Research Center, Linden, N. J., where world's most radioactive piece of material produced for peacetime use is now installed. The radiation source is in the form of 13-inch cobalt metal pipe, shown here in dummy form.

METALLURGY

Thermal Barrier Recedes

➤ SCIENTISTS HAVE pushed back the thermal barrier in jet engines a few more notches with a new high temperature alloy containing added percentages of rare earth elements.

The method improves the strength of one of the best high temperature metals, a cobalt-base alloy, researchers at the Naval Research Laboratory, Washington, have reported.

Rupture strength, stretching strength and creep rate were all improved, even for temperatures as high as 1,700 degrees Fahrenheit, they found.

One of the major problems of designers of parts for high temperature engines, such as jets, is failure of parts in contact with the fiery combustion gases. Use of extra rare earth metals in the alloy, described at the meeting of the American Society for Testing Materials in Atlantic City, N. J., may help solve such problems.

Rare earth elements are really not rare at all. They are a group of metals that are difficult to separate and that do not fit neatly into chemists' charts. Dr. J. R. Lane and J. E. Breen, who reported the work, used misch metal, a mixture of rare earth elements rich in cesium and lanthanum.

The new alloy might be used for turbine blades in jet engines and gas turbines.

The scientists found that rupture life improved as more rare earths were added. This held true at all temperatures and stresses tested. They explained that the rare earths act as a strong deoxidizer and scavenger in the alloy and increase the strength of the basic metal.

Science News Letter, July 9, 1955

GEOGRAPHY

Everest Climber Plans Trip to South Pole

➤ SIR EDMUND Hillary, who climbed Mt. Everest two years ago, hopes to reach the South Pole with the British Commonwealth Trans-Antarctic Expedition in 1956-57.

Sir Edmund is in Australia for discussions about supplies and equipment needed for the Trans-Antarctic Expedition. He is making a lecture tour of South Africa, and will return to London July 31 for the publication of his autobiography.

The New Zealand Government has allocated $125,000 for the expedition. Its main task will be to set up a base on the Ross Dependency and to lay bases out on the polar plateau toward the South Pole.

Science News Letter, July 9, 1955

PSYCHIATRY

VA Probes What Is in TB Patients' Heads

➤ WITH THE aim of improving the chances of tuberculosis patients for recovery, the Veterans Administration is making a psychologic and psychiatric study of patients in 14 of its 21 TB centers and in many of its other hospitals with TB wards.

The fate of tuberculosis patients depends more on what is in their heads than on what is in their chests, the great medical teacher, Sir William Osler, once declared.

What the patients think and feel leads to the serious problem of irregular discharges, that is, patients leaving hospitals against medical advice before their treatment is complete.

Emotions and personality factors may affect body functions in such a way as to reduce resistance to tuberculosis. This can interfere with the healing process. VA scientists will explore this problem also.

They will try to develop methods of teaching relaxation to patients, so they can get maximum rest in bed and thus give their lungs a better chance to heal.

One of the chief worries of TB patients is a satisfactory job after discharge, one that they may fill without danger to their health. VA counseling psychologists, through early interview and the use of vocational tests, can reassure these patients of their employability and identify their special interests, skills and aptitudes.

The staff then can arrange with rehabilitation workers for exploratory work experience prior to the discharge of patients from the hospital.

Science News Letter, July 9, 1955

PLANT PATHOLOGY

Plant Virus Stopped By Chemical in Seed

➤ VIRUS DISEASES in plants may be kept from spreading from one generation to another by an inhibiting chemical inside the plant seeds.

Tobacco mosaic and cucumber mosaic viruses mixed with chemical extracts from seeds of tobacco and cucumbers either did not attack at all or did relatively little harm when inoculated into healthy plants, N. C. Crowley of the Waite Agricultural Research Institute, Adelaide, Australia, has found.

The rarity of seed transmission of plant virus diseases, particularly of some which are highly infectious, has been a long-standing problem for scientists. One theory held that viruses were limited to the vascular tissue of plants and could not move into the embryo.

The demonstration of inhibiting chemicals in the plant seeds may help explain this barrier to inheriting virus diseases.

Chemical analysis showed the inhibiting chemicals to be protein in nature, the scientist reported in the *Australian Journal of Biological Sciences* (Feb.).

Science News Letter, July 9, 1955