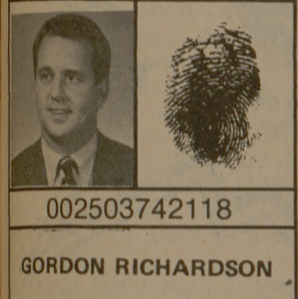


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HERE FOR COMBAT BALL—'Ivy Peebles' Medicine Show, a talented troupe from Baton Rouge, La., will play for Army ROTC cadets and their dates at the Combat Ball Show, which begins at 9 p. m. Friday.

Nuclear Search for Gold
Prospecting by Activation Analysis

University researchers are perfecting a nuclear technique which may take the "guess work" out of finding gold and other valuable metals.

In short, they propose prospecting with the atom.

The technique employs activation analysis, a procedure in which materials are made radioactive by bombarding them with neutrons. The nuclei of the atoms absorbing these neutrons become "activated" through transformation to radioactive isotopes. When the isotopes disintegrate, they give off a unique pattern of radiation at a unique rate and can be identified swiftly and positively.

Dr. Richard E. Wainerdi, associate dean of engineering and head of Activation Analysis Research Laboratory, noted activation analysis can be used to identify the elements in almost any material, including rocks, soils and ore samples.

Using a large reactor, activation analysis can determine the

presence of gold, for example, if there is as much as seven parts of the precious metal in one hundred billion parts of the total sample.

In addition to being sensitive, activation analysis often doesn't require the lengthy sample preparation of standard wet-chemical methods. Also, activation analysis is a non-destructive method; samples can be rechecked at any time.

A&M engineers and scientists, working with the Sandia Corp. in Albuquerque, N. M., have developed a portable activation analysis unit weighing only 30 pounds. It is designed for lunar or other planet exploration but could prove to be a valuable tool here on earth.

Their earth-bound system also is highly automated, encompass-

ing a special purpose computer routine for the rapid processing of geochemical data.

Dr. Wainerdi said the activation analysis team initially verified its techniques by studying rock samples from a Llano County area in which geologists had explored for many years. The nuclear techniques produced analyses essentially matching those obtained by traditional methods.

Switching from a familiar area, the group later studied a region of the Philippines with the aid of a Philippine graduate student and in cooperation with the Philippine government. In analyzing samples, they identified a gold and possibly a cobalt province in northern Luzon. Expansion of existing mining operations in the area is a possible result.

The group headed by Dr. Wainerdi is now receiving samples from one of the world's most highly mineralized regions, an area east of South Africa's Drakensberg Mountains. The area is rich in gold, diamonds, copper and other minerals.

Activation analysis has possible use in exploring the ocean floor, Dr. Wainerdi added. The group has found it can distinguish between different regions of the Gulf of Mexico, based on the variety of chemical composition of sediment samples. The study was conducted jointly with A&M's Oceanography Department. Dr. Arnold Bouma headed the oceanography group.

Activation Analysis Research Laboratory also has initiated chemical analysis of sediment samples recovered during the Deep Sea Drilling Project, which is being conducted by Scripps Institution of Oceanography for the National Science Foundation. Some of the more than 1,000 samples analyzed to date were recovered from water more than three miles deep. Dr. W. E. Kuykendall Jr. and B. W. Hoffman headed the project.

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Aero Senior Proposes Power Adaptation for Space Flights

Adaptation of a turbogenerator power system employing concentrated solar energy for all types of space flight missions has been suggested by an aerospace engineering major.

Charles H. Hill points out that design of a directional solar reflector would enable use of the system for an earth orbit mission or a space probe, perhaps a planet fly-by, as an auxiliary power system.

The senior from Moody outlined his ideas for the design of such a system in a seminar course report for Dr. Charles A. Rodenberger.

Use of solar energy is not new, Hill noted.

Solar sails have been proposed, but their weight is too great for the amount of thrust obtained. Harnessing solar power in batteries has been used in satellites, but battery weight is undesirable, he said.

"The most promising method is a solar reflector which would focus the sun's rays on a heating element," Hill reported. Propel-

lant could be heated for expulsion or a closed fluid loop obtaining power through vapor generation might be employed.

"My design mounts the solar collector on a support from the side of the craft," Hill explained. "It could tilt and swivel to virtually any angle. If the sun's rays were coming from the opposite side of the probe, the spacecraft could merely be rotated about its longitudinal axis to expose the collector once more."

He pointed out that the solar reflector-powered turbogenerator would supply decreasing amounts of energy in operation toward the solar system's outer planets.

Turner, '29, Chosen Man-of-the-Year

Federal Highway Administrator Francis C. Turner, a 1928 graduate, has been named Man-of-the-Year by the International Road Federation.

Turner is only the second American to receive the award initiated in 1951 by the world-wide federation.

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