NATURAL RESOURCES

Atomic Resources Good

➤ THE UNITED STATES has reserves of fissionable materials that far exceed scientists' previous expectations, according to a U. S. Geological Survey report.

The study, which represents 12 years of research by the Geological Survey and the Atomic Energy Commission, is chiefly concerned with the geology of uranium and thorium and prospecting methods.

Called Professional Paper 300, the report includes 89 reports by 133 scientists, compiled by Lincoln R. Page and Harriet B. Smith of the Geological Survey and Hobart E. Stocking of the Atomic Energy Commission. About 75 of the reports were presented in Geneva at the 1955 U. N. Conference on Peaceful Uses of Atomic Energy. The remainder are presented for the first time in Professional Paper 300.

One report in particular, "The Analytical Chemistry of Uranium and Thorium," by Dr. Frank S. Grimaldi of the Geological Survey, is expected to be highly useful in speeding up analysis of ore samples.

Dr. Grimaldi, who is known for his research in analysis of rare elements in trace amounts, says his study is "a product of many men's efforts."

The work shows several fast methods of mineral extraction.

"Drill companies can not afford to wait for long periods between drillings," Dr. Grimaldi says. "A method had to be developed to isolate thorium selectively and rapidly."

Dr. Grimaldi reports a fast way of extracting thorium from solution with a solvent. Uranium isolation with fluorescent analysis, a development in which Dr. Grimaldi pioneered, is also described.

Concerning the U. S. atomic resources, the report shows:

Uranium minerals and uranium in unidentified form exist in nearly all types of rocks in the U. S.

Almost all domestic production comes from the Colorado Plateau of Colorado, Utah, Arizona and New Mexico, and from Wyoming, South Dakota and Washington State. From July, 1953, to January, 1954, 80% of domestic yields came from the Colorado Plateau.

In eastern United States, uranium is widely distributed in Chattanooga shale in Tennessee, Kentucky and Alabama, in land pebble phosphate deposits in Florida, and in a variety of rocks in North Carolina, New York, New Jersey, Pennsylvania and New Hampshire. In the Midwest minor occurrences are known in Missouri, Arkansas, Michigan, Kansas and Oklahoma.

Science News Letter, July 21, 1956

BIOCHEMISTRY

Make Synthetic Hormone

➤ SCIENTIFIC PUBLICATION of the success of Nobelist Vincent du Vigneaud of Cornell University Medical College in making lysine-vasopressin means more than fulfillment of a prediction.

It means more than the addition of another synthetic hormone to the arsenal of new drugs to be used in the battle by doctors against disease.

When Dr. du Vigneaud and his research team synthesized oxytocin in 1953, they announced a tentative structure for lysine-vasopressin as well, although efforts to make the second chemical had at that time yielded little of the active material.

Lysine-vasopressin when administered to patients raises the blood pressure and acts as an antidiuretic. Oxytocin speeds uterine contractions during childbirth and releases milk in the mammary glands. Both chemicals are natural products of the posterior pituitary glands.

Dr. du Vigneaud and his assistants made the first synthesis of hormone material identical to that obtained from these glands.

Production of lysine-vasopressin by three different routes, described in the *Journal of the American Chemical Society* (June 20) by the Cornell group, shows their mastery of chemical techniques that can produce other combinations of linked amino acid structures. Such structures play a fundamental part in life processes.

Taking part with Dr. du Vigneaud in this research are M. Frederick Bartlett, Albert Johl, Roger Roeske, R. J. Stedman, F. H. C. Stewart and Darrell N. Ward, all of the Department of Biochemistry, Cornell University Medical College, New York City.

Oxytocin, the first polypeptide hormone to be made synthetically, consists of eight amino acids, linked together into a series of ring structures in the molecule. Vasopressin has similarly been made of eight amino acids, some of them different from those in oxytocin.

Lysine, one of the amino acids built into the synthetic hormone now announced, was found by Dr. du Vigneaud's group in the natural hormone obtained from hog glands. In glands obtained from beef, the chemists found a different amino acid, arginine, in its place.

Research into the differences in products caused by such substitution of one group for a similar one is an important field in the chemistry of living matter.

It is aided by general methods of combining amino acids, such as those now described by the Cornell University group.

Science News Letter, July 21, 1956

TECHNOLOGY

Air Conditioned Clothes Change With the Mercury

➤ AIR-CONDITIONED CLOTHES designed to keep the wearer cool in the summer and warm in the winter have been produced in London.

The all-season garments are made from textiles treated with aluminum flakes suspended in resin. Linings of the material make lightweight coats that resist cold winds and, at the same time, adapt to the temperature when worn indoors.

Science News Letter, July 21, 1956

SCIENCE NEWS LETTER

VOL. 70 JULY 21, 1956 NO. 3

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 7-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283) authorized February 28, 1950. Established in mimeographed form March 13, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Reader's Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation, Advertising Representatives: Howland and Howland, Inc., 1 E. 54th St., New York 22, ELdorado 5-5666, and 435 N. Michigan Ave., Chicago 11, SUperior 7-6048.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.