SO. UTAH'S RARE METALS

There are significant deposits of titanium, zirconium, thorium, and other rare metals in ancient beach sands of Cretaceous age in south-central and southern Utah. According to U. S. Bureau of Mines R.I. 5860, by V. T. Dow and J. V. Battye, sixteen deposits are known in the region. It is estimated that there are over 1,043,000 tons of material with an average of 17.98% titanium oxide, 5.67% zirconium oxide, and 0.09% thorium oxide.

Beneficiation tests conducted by the Bureau of Mines indicate that the material can be concentrated and separated into titanium and zirconium products meeting market specifications. The sands are radioactive and dark-colored, and contain the heavy mineral ilmenite, anatase, leucoxene, magnetite, zircon, monazite, garnet, and tourmaline, cemented with hematite and calcium carbonate.

The deposits investigated are in the Emery, Henry Mountains, Escalante, and Kaiparowits Plateau areas of Emery, Garfield, and Kane Counties. The maximum concentration of titanium oxide reported is 25.3%, whereas the maximum of zirconium oxide is 18.1%. The maximum concentration of thorium oxide is 0.09%.

(Continued on page 12, column 2)
The Utah Geological Survey recently canvassed various universities and governmental agencies for reports of scheduled summer activities within the State. Although by no means complete, the information obtained from the canvas is plotted on the facing map, with numerical references listed below. Summer projects of the Utah Geological Survey are indicated by an asterisk (*).

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This issue of the Quarterly Review is devoted primarily to a compilation of the 1964 publications dealing with the Utah mineral industry. The Utah Geological Survey gratefully acknowledges the assistance of the University of Utah Engineering Library staff, under the direction of Miss Edith Rich, in the compilation of the data contained herein. It has been our goal to make this listing as complete as possible; and if the reader is aware of any other pertinent publications which do not appear in the list below, please call them to our attention.

The 1964 publications are listed first by author alphabetically, and then by subject classification. For this publication the Survey has reduced the subject listing to cover only those areas of economic consideration. However, a complete index of publications, by subject, is on open file in the Office of the Survey, 103 Civil Engineering Building, University of Utah, Salt Lake City, Utah.

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### RECENT PUBLICATIONS

Since February the following publications have been printed and are available from the Utah Geological Survey, 103 Civil Engineering Building, University of Utah, Salt Lake City, Utah.

Map 19-Geologic Map Index of Utah by Lehi F. Hintze and Leona Boardman. Compiled by Dr. Lehi F. Hintze, this index, published in 2 sheets, supersedes the outdated Boardman map. Not sold separately, Sheet I contains numbered outlines and references for maps on scales of 1:250,000 to 1:2,500,000. Sheet II contains those maps on scales of 1:600 to 1:250,000. Price $1.00 per set.


### IN PRESS

Special Studies 10 - Foundation Characteristics of Sediments, Salt Lake Metropolitan Area, by Robert A. Bauman. This bulletin was compiled from foundation records with the cooperation of Salt Lake's civil engineers and architects. 40 pages, 6 illustrations.

Special Studies 12 - Hydrothermal Alteration and Mineralization in the Staats Mine and Blawn Mountain Areas, Central Wah Wah Range, Beaver County, Utah, by James A. Whelan. This study centers around an area that is potentially important for its highly kaolinized, and alunitized mineralization. In the past it has yielded a minor production of fluorspar and uranium ores.

### LEGISLATION AFFECTING THE MINERAL INDUSTRY

The 1965 biennial legislature of Utah convened January 11, and adjourned March 11, 1965. In the interim it passed the following bills of interest to the mineral industries:

- **SB 3** implementing the freeport constitutional amendment approved by Utah voters last fall.
- **SB 80** to exempt fuel made from bituminous sand from State Motor Fuel Tax.
- **SB 107** to exempt from royalty payment the first 200,000 barrels of oil commercially produced from oil shale on state lands.
- **SB 127** to correct a tule defect concerning mineral rights and removing necessity of periodic filing to protect rights.
- **SB 139** permitting use of oversize trucks on designated highways to assist in development of phosphate industry in eastern Utah.
- **SB 144** requiring operator of oil and gas operational units to collect ad valorem taxes from fractional interest holders.
- **HB 16** creating a State Industrial Promotion Commission and appropriating $500,000 for its operation.
- **HB 27** authorizing counties to establish and finance resource development committees.
- **HB 68** increasing the present 4% rate for the franchise tax to 6% on incomes after December 31, 1964. Originally, the Governor had proposed elimination of the deductibility of federal income taxes, which was considered to be equivalent to a new rate of 7%. This procedure was thought to be rigid, not permitting a lower rate if one were possible. Also it was thought that disallowance without a rate change might be confusing to future legislators in comparing Utah's rate to rates in other states. The legislature accordingly adopted a rate change policy.
- **HB 81** increasing the individual income tax. Old rates were 1% of first $1,000 of taxable income, progressing by an additional 1% in steps of $1,000 up to 5% on income above $4,000. New rates start at 2% on first $1,000 and proceed to a new high of 6½% on incomes in excess of $5,000. New rates are effective on income after December 31, 1964. The Utah State Tax Commission has announced higher withholding rates. A little "Hoover Commission" measure was also passed to review government operations.

### RARE METALS

(Continued from page 1)

Uranium in some deposits is high. The report suggests that there might be commercial concentrations of other rare metals in the sixteen known deposits. The possibilities of finding additional heavy mineral deposits in Utah should be excellent, as Cretaceous sandstones crop out over wide portions of northeastern, eastern, and southern Utah.

### EHRHORN TO HEAD MINING ENGINEERS

The Utah Geological Survey joins with mining men everywhere in extending their congratulations to Jack M. Ehrhorn, newly elected President of the Society of Mining Engineers. This new position culminates a long history of active participation in the western mining industry and the Society of Mining Engineers. The Survey is especially proud of Jack Ehrhorn, for he also serves as Chairman of the Survey's Advisory Board.