

large-scale production of the light-weight metal magnesium, only  $\frac{2}{3}$  as heavy as aluminum and  $\frac{1}{4}$  as heavy as iron, from Washington State's magnesite deposits at a cost of possibly less than 8 cents per pound using the cheap Grand Coulee power. The present market price of magnesium metal made from salt brines in

Michigan is 28 to 30 cents per pound. With lower prices for magnesium metal free from chloride inclusions it would be used more widely in airplane construction, railway cars, automobile and any sort of equipment that has to be transported as a dead weight.

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## GEOLOGY

## Huge Hole in Cuba Supplies Much of Nation's Manganese

**D**URING the Spanish-American War one of Teddy Roosevelt's Rough Riders kicked a piece of ore in Cuba and began a chain of events which today sees Cuba supplying a large share of the American steel industry's needs of strategic manganese.

The whole story of the Cuban manganese industry and its role in the economic fortification of the great American steel industry was told at the meeting in New York of the American Institute of Mining and Metallurgical Engineers by F. S. Norcross, Jr., engineer and president of the Cuban Mining Company.

Out of the kick of the Rough Rider's

foot have come great holes in Cuba—the largest a half mile long and 1,000 feet wide—which are the strip mine pits where manganese ore is dug out of the earth.

Averaging from 17% to 18% metallic manganese in content, the Cuban ores are refined and concentrated to bring them up to ferromanganese grade for use in steel making which requires 48% manganese or better.

During the years from 1936 through 1938 the steel plants of the U. S. required about 736,000 tons annually of high grade ore from foreign sources. The 1938 Cuban production was 131,000 tons.

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## MILITARY SCIENCE

## Expansion in Naval Research In New Appropriation Bill

**T**HERE is a new deal for research in the Navy and at the top of the pile and coordinating center in the new set-up is the Naval Research Laboratory at Anacostia, just outside Washington.

Famed inventor Thomas Edison fathered the electric light, the phonograph and the new Secretary of the Navy, Charles Edison. And the same research spirit which fostered Edison's great inventions appears unwritten between the lines of testimony at committee hearing on the 1941 Naval Appropriations Bill which has just been reported to the House.

A greatly increased staff of scientists, new research equipment and buildings and a recommended budget increase of about \$300,000 yearly for research expansions alone, are among the highlights of the report.

Key step in the new research shakeup

has been the transfer of the Naval Research Laboratory from the Navy's Bureau of Engineering to the office of the Secretary of the Navy. This makes the research laboratory a peer of the Navy's other bureaus instead of a tolerated offshoot of the nation's nautical family tree.

Cold figures tell the story.

|                                   |                |
|-----------------------------------|----------------|
| 1940 budget for naval research .. | \$370,000      |
| 1941 budget requested .....       | \$754,130      |
| 1941 budget recommended .....     | \$653,350      |
| Net gain .....                    | over \$283,000 |

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## ARCHAEOLOGY

### Here's One Wartime Saving; No \$25,000 Suits of Armor

**O**NE thing is cheaper in modern war. No king, dictator, or general is inspecting troops in a suit costing \$25,000.

A metal outfit which cost a 16th century French king—or his subjects—some-where around this fabulous sum has been acquired by the Metropolitan Museum of Art in New York. The harness, as armor experts call such a metal suit, is complete from closed helmet to steel shoes, and almost every inch is richly ornamented. Curator of Armor Stephen V. Grancsay suspects that the man who wore it was King Henry II.

The suit cost as much as a military campaign, comments Mr. Grancsay.

Never intended to stand fighting wear, the harness shows America a military dress suit de luxe, of the days when armor was really ornate.

"It was made," says Mr. Grancsay, "to



## FIT FOR A KING

*Estimated to have cost \$25,000, this royal armor shows what a well-dressed 16th century French king wore when he appeared in public after a battle. It is the only complete embossed armor in America. Europe has only five equal to it.*