

METALLURGY

Silverless Coins Lighter

The proposed new silverless coins consisting of a copper core sandwiched between a copper-nickel alloy would be lighter and stronger than coins now used—By William McCann

➤ **ALTHOUGH PEOPLE** will still probably spend their money at the same rate, their pockets will be a little lighter if President Lyndon B. Johnson's proposed silverless dimes and quarters get Congressional approval.

The new coins, as recommended by the President, would be made of a 75% copper-25% nickel alloy sandwiched around a pure copper core. They would weigh seven percent less and wear tests have indicated they would last "considerably longer" than the 25-year life-span of the ones now in circulation.

A dime now in use weighs .088 of an ounce, while a quarter weighs .219 of an ounce. A proposed dime would touch the scale at .079 of an ounce, while a quarter would be .198 of an ounce.

The metal sandwich comes closest to satisfying all criteria for a new material to replace the traditional coinage alloy, which contains 90% silver and 10% copper, according to a recent report by a team of metal experts at Battelle Memorial Institute's Columbus, Ohio, laboratories. Continued use of the silver-rich alloy could deplete the Treasury's stock of silver in a little more than three years on the basis of current demand.

The metal sandwich will have almost the

same appearance as the present coins, the report notes. It will have one distinguishing feature, however—a copper edge, which is expected to make counterfeiting more difficult.

The electromagnetic characteristics of the proposed coins would duplicate those of the 90% silver coins, permitting their use in the nation's some 12 million coin-operated machines. The new dimes and quarters would also have the familiar "ring" that can be heard when loose change bounces on a counter or floor.

President Johnson, who warned recently that silver is becoming too scarce to be used as money, also recommended that the silver content of half dollars be reduced from 90% to 40%. This means the half dollar would be .035 of an ounce lighter.

The Battelle report pointed out that a definite, though temporary, limitation of the new copper-nickel coins is the fact that the U.S. Mint does not presently have the facilities for producing the multi-layer composites and would have to purchase strip or reroll bars from outside sources. It is believed, however, that mint processes can be adapted to manufacture the coin sandwiches without difficulty.

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Eastern Air Lines

SILVER RECLAIMED—Assistant chief inspector Wade Tibbetts of Eastern Air Lines' maintenance quality control department weighs shards of 94% pure reclaimed silver.

MINERALOGY

Two New Methods Found To Increase Silver Supply

➤ **SILVER**, which has been becoming so scarce that the Government has been thinking about taking it out of quarters and dimes, is now being tapped from two surprising new sources.

Black calcite, a common mineral once considered worthless, may be a new significant source of silver, three mineral researchers have reported. D. Foster Hewett and Arthur Radtke of the Geological Survey's Menlo Park, Calif., offices, and C. Taylor, Stanford University, Stanford, Calif., reported that in recent spectrographic studies black calcite has often been found to contain rich quantities of silver invisible to the naked eye.

The mineral was thought by miners and earth scientists to be just another "gangue" (worthless) mineral, although many silver miners of the West in the late 1800's considered its presence to be a guide to silver ore.

By dissolving the calcite in several common acids, the manganese oxide in samples from districts in Utah, Nevada, Arizona and New Mexico was extracted and found to contain 200 to 1,500 ounces per ton of silver.

The researchers reported their findings in the American Mining Congress Journal, June 1965.

Some other silver-saving scientists are a group of Eastern Airlines technicians who are busy "mining" silver right at the Miami International Airport.

Large quantities of film are used daily in making inspections of aircraft structures and engine interiors with X-ray equipment and radioactive isotopes. The X-ray film is used at the rate of over 4,000 square yards a month and, as for all film emulsion, its coating is a silver bromide compound.

The tiny amount of silver, which was usually washed down the drain during the developing process, is now being reclaimed. Now the used developing fluid passes through a recovery unit where the silver is extracted from the solution by electrolysis and deposited on two steel discs. When the discs are well-covered with silver, they are removed.

Eastern is now "mining" 94% pure silver at the rate of about five troy pounds per month, it is reported.

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TECHNOLOGY

Wheels Test Rails For Dangerous Cracks

➤ **SIGNAL-SENDING** wheels are chugging along thousands of miles of railroad hunting for dangerous cracks in the tracks.

The special wheels are equipped with tiny transducers that beam ultrasonic sound waves into the rails.

The new technique is the first truly automatic system for detecting flaws in railroad tracks, reported Gerald Cowan, engineer for Sperry Rail Service, Danbury, Conn., to the Society of Nondestructive Testing.

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