

GENERAL SCIENCE

Deduction of Medical Bills

The cost of keeping Americans healthy and productive should be deducted from income taxes just as deductions are made for maintaining machines.

► ALL MEDICAL EXPENSES should be deductible from income taxes not just the percentage now allowed, a noted economics professor urged.

Cost of keeping the millions of humans in this country healthy and productive should be handled in the same way as the expenses of maintaining and repairing our millions of machines, he said.

Human depreciation is as important to the U.S. economy as machine depreciation, Dr. Harry I. Greenfield of Queens College, New York, told a session of the American Association for the Advancement of Science meeting in Cleveland.

The money spent for maintaining health should therefore be deducted not only from income, but also in computing the capital Gross National Product, he added. The GNP, as it is abbreviated, is a measure of the country's economic health.

Dr. Greenfield would, moreover, like to have "something in the income tax scheme" to allow for human depreciation because of decreasing productivity due to age.

This would be like the oil depletion allowance or the write-off allowed for research and development which sometimes does not result in any tangible product.

It would also mean, in effect, that when a baby is born an account is set up to cover

keeping him healthy and productive throughout his life. In Dr. Greenfield's view, higher education should be considered part of productivity in later life, since the "mind can be equally as productive as human hands."

To support his theory concerning the GNP, Dr. Greenfield recalculated what the GNP would have been during the last generation if medical expenses had been deducted. When adjusted for population and price increase between 1934 and 1960, the GNP rose 110% per capita; medical spending however on the same basis increased 167%.

Calculating the GNP without deducting medical expenses although deducting machine depreciation, gives a false view of the economy, Dr. Greenfield charged. This could be likened to writing checks on a bank balance that has not been accurately computed for a person. Such checks would then bounce.

The Government now partially subsidizes medical care by allowing an income tax deduction of expenses totalling more than 3% of a family's income. The country's economy would not be harmed if all health costs were deducted both from income and GNP, Dr. Greenfield believes.

• Science News Letter, 85:22 Jan. 11, 1964

SPACE

Goal For Moon Same

► THE BIG SPACE GOAL of putting Americans on the moon in this decade appears intact, as the brunt of economy cuts by the National Aeronautics and Space Administration falls on the more scientific projects.

President Johnson smashed rumors that the moon target date would be moved into the 1970's. He said he plans no major change in the space program.

However, the cuts probably will postpone the men-on-the-moon shot, originally set for early 1968, to some time in 1969. NASA is expected soon to reset the date officially.

The major cause is the hold-up expected in construction of the "bug" in which two astronauts are to ride to the moon's surface.

After Congress sliced \$600 million from NASA's requested \$5.7 billion budget for the current fiscal year, the agency froze hiring of new workers for the moon landing craft and other prime projects. That policy is expected to thaw some in this month after NASA has figured out its savings from cut-backs in scientific projects.

NASA already has eliminated six test flights of the big Saturn I booster and five Ranger spacecraft which were to land in-

struments, including earthquake detectors, on the moon.

Four simpler Rangers, designed to take high-resolution photographs before crashing into the moon, are still scheduled for 1964 launchings.

The first of the picture-taking Rangers was to have been launched in December, but defective electron tubes caused postponement of flight until early this year.

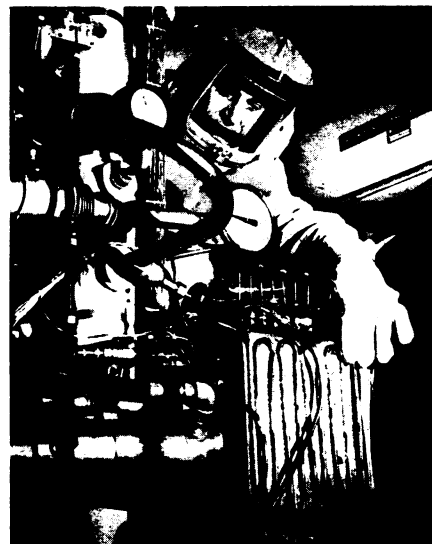
Other cuts are expected in the two Mariner unmanned spacecraft being built to visit Mars in 1965. Their size and the number of experiments they will carry is expected to be reduced.

Meanwhile, Project Gemini, the next rung in the ladder to the moon, was given a big lift by a recent successful firing of a Titan II rocket—the same type to be used in the Gemini two-man flights.

The mighty Titan II, which already has proved itself as an intercontinental ballistic missile, flew a perfect trajectory more than 5,000 miles carrying Gemini test equipment.

The target date for the first two-man Gemini flight is still late 1964.

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Martin Company

MAGNETIC GENERATOR—A technician adjusts the output valve of a magnetoplasmadynamic generator that could revolutionize the generation of electricity (See story below). The box-like MPD generator extends through powerful magnets at lower right. Electricity is tapped from seven electrodes on top of the generator.

ENGINEERING

New System Announced For Generating Electricity

► A SCIENTIFIC BREAKTHROUGH which could make possible a revolutionary system of generating electricity has been achieved.

Continuous power generation by a magnetoplasmadynamic generator was demonstrated by scientists of the Martin Company, Baltimore. This verifies the principle of magnetically induced non-equilibrium ionization of gas.

The principle, called MPD for short, could lead to a more reliable and economical method of producing electricity than any in use today. Generators employing the MPD principle can be developed to produce electrical power for Navy ships, spacecraft, lunar bases and even entire cities.

An MPD generator produces electricity by shooting an ionized gas—a gas that conducts electricity—through a magnetic field. It begins its cycle of operation at a helium pump which moves the gas through the system.

In non-equilibrium ionization, free electrons in the gas are at a higher temperature than the gas itself, thus increasing the conductivity. This makes continuous operation of an MPD generator possible at low gas temperatures compatible with existing materials.

A practical, operating MPD generator would use a nuclear reactor to heat the gas, expanding it through the system. Its only moving parts would be in pumps and valves necessary to control gas circulation.

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