

and precious-metal content stamped on the back. Each piece will be serially numbered and matched to the remaining two in the set. No other set will carry that number.

Each sculpture in the Olympic set measures 24 mm x 40 mm (the exact dimensions of the actual postage stamp), and 1.5 mm in depth. The gold set contains 2¼ troy ounces of 24 karat gold; the silver set contains 1½ troy ounces of .999 fine silver. The bronze set (a special formula is used to achieve its rich burnish), also contains 1½ troy ounces.

The sets are available by mail order from the Canada Post Office in Ottawa up to August 7.

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### **New advanced smelting furnace**

With an eye to greater conservation of energy and improved steelmaking, a shaft-electric smelting furnace has been developed by the Department of Energy, Mines and Resources and a contract has been awarded to Atlas Steels Company of Welland, Ontario, for the next stage of its development under industrial conditions.

Developed principally by G.E. Viens, R.A. Campbell, G.N. Banks and G.V. Sirianni of the Mines Branch, the new furnace offers four distinct advantages over existing smelting furnaces.

First, and most important, the addition of a shaft-furnace as a pretreatment unit for an electric smelting furnace makes it possible to use the electric furnace off-gases within the over-all smelting process, amounting to an energy saving of approximately one third.

Secondly, the electric-furnace off-gases can be augmented by the addition of a fossil fuel such as natural gas or oil to replace more of the electrical energy when this is desirable. The degree of this replacement can be altered to take advantage of changes in the supply or relative prices of electrical energy and fossil fuels.

Third, cheaper and easily accessible coal is the preferred source of carbon for this unit rather than the more expensive coke that is required for blast-furnace smelting.

Fourth, the shaft furnace acts as a filter for the gases from the electric furnace, collecting much of the fume that is generated in this part of the

unit minimizing the pollution problems that are often associated with smelting operations.

The primary aim of this project, which began about ten years ago, was the development of an iron-smelting process that would use pelletized iron ore as feed material, and which could be operated economically in smaller units than is possible with blast furnaces. It was expected that such a unit would be particularly applicable in certain parts of Canada, where there are small or medium-sized steel plants located in areas where the population density will not support large integrated steel works.

Although the project has attracted some industrial interest from its inception it has been only during the past year or two that this interest has become keen, owing largely to the increasing scarcity and cost of steel scrap and energy, as well as the growing awareness of industrial pollution problems.

This increased industrial interest in the project has led to the awarding of a contract valued at \$303,314 to Atlas Steel Co., a division of Rio Algomina Mines Limited, for the modification of one of the company's steel-smelting furnaces into a shaft-electric melting furnace, and for the operation of this unit for six weeks to determine the throughput capability of this unit, which can be operated at power levels six times higher than the laboratory unit.

The Atlas furnace is scheduled to begin operation late in 1974, meantime several additional tests will be performed in the Department's Mines Branch unit this summer.

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### **Railways to increase freight rate**

Canadian railways will increase their agreed-charge freight rates by 15 per cent effective September 1, a rise that is more than double the average annual increase in these charges over the past five years. (Agreed-charge rates are contract rates negotiated between shippers and the railways for a minimum of one year. By guaranteeing a certain volume of rail traffic, the shipper qualifies for a rate much lower than normal commodity rates. Normal commodity rates have been frozen since last year.)

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### **Federal assistance to 1978 Games**

Health and Welfare Minister Marc Lalonde has announced that the Federal Government will pay one-third of the capital facilities necessary for the 1978 Commonwealth Games in Edmonton, Alberta, up to a maximum of \$12 million. At present, these facilities are estimated at some \$31 million and the Federal Government's share of more than \$10,300,000 could be increased if necessary, to cover probable increases in costs. The Government of Alberta and the City of Edmonton have indicated their willingness to cover the other two-thirds.

The Minister also stated the successful staging of the Games required assistance from a number of federal departments and agencies such as National Health and Welfare, National Defence, Solicitor General (RCMP) and CBC. Current estimates show that these services will cost the Federal Government another \$8 to \$9 million.

The total federal contribution will therefore add up to about \$20 million.

The Commonwealth Games are a major international event in which Canada has traditionally done well. At the Games in Christchurch, New Zealand, last winter, Canadian athletes achieved their best performance by winning 25 gold medals.

Facilities at present contemplated for the 1978 Games include a 40,000-seat stadium, an international-size pool and a velodrome, as well as improvements to existing facilities.

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### **Gross national product**

Gross National Product in 1973 rose by \$15.3 billion or 14.8 per cent over that of the previous year to reach a level of \$118.7 billion. With inflation removed, GNP showed a real growth of 7.1 per cent, the highest rate in any year since 1956. Consumer expenditures on goods and services were up \$8.8 billion. In real terms the rise of 8.6 per cent was much higher than in any year since 1955. Investment in plant and equipment increased by 18 per cent, following six years of relatively low outlays. Personal income at \$93,418 million increased 14.1 per cent, while personal disposable income at \$75,667 million was up 14.2 per cent.