

## FEDERAL EMPLOYMENT

The Federal Government had 378,986 employees on December 31, 1970, compared to 368,967 two years earlier. October-December payrolls increased to \$771.3 million from \$653.3 million in 1968. Employment in departments and departmental corporations increased to 243,006 from 230,154; payrolls rose to \$466.9 million from \$389.3 million. In all other corporations and agencies, employment decreased to 135,980 from 138,813, while payrolls increased to \$304.3 million from \$664.0 million.

## LABORATORY WORK, NATIONAL RESEARCH COUNCIL

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Current developments in this area include a ridged-waveguide glueline dryer used in the manufacture of business forms, a multiple-ridged-waveguide for use in processing wieners and sausages, an instrument for monitoring content at the output of a continuous butter-making machine, a microwave dryer for 9.5-inch-wide photographic film, a "single-sided" moisture sensor for use on continuous web materials and a "single-sided" applicator for drying of such materials.

The Division's entire program in microwave heating is being conducted in close-co-operation with industry, through Canadian Patents and Development Limited, and shows considerable promise in many areas of industrial processing and manufacturing.

## NEW SOURCE OF PROTEIN

At the Prairie Regional Laboratory in Saskatoon, attempts are being made to increase the production of field peas as a source of protein.

An analysis of the predominant varieties of field peas grown in a number of areas in Western Canada showed that these samples average 24 to 25 percent protein and contain about 55 percent starch. There were significant variations with stations and with years and a significant variation with variety, indicating that higher protein types can be developed.

Nutritional studies at the University of Saskatchewan showed that peas were an adequate protein supplement in swine rations without additional methionine. However, feeding a pea-protein-concentrate to mice gave inferior results because of the methionine deficiency. This was corrected with the addition of methionine.

Collaborative work in the area of human foods

from pea-flour or pea-products also is under way. This includes incorporation of pea-flour or protein-concentrate into bread and spaghetti and the preparation of textured meat analogues from the protein-concentrate.

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## WIND-LOADS

A new technique for measuring the effect of wind on high-rise buildings has been developed jointly by the National Aeronautical Establishment and the Division of Building Research. Tests using the technique indicate that existing low-speed aeronautical wind-tunnels can be successfully adapted for study of surface wind effects in and around building structures.

Slab-like high-rise buildings deflect part of the wind and in so doing push it downward, increasing pedestrian discomfort, for example. Wind-speed increases with height and people on the top floor of a 600-foot building may feel some sway in winds of 60 miles an hour. More important, high winds can cause structural damage to high-rise buildings and local failures - cracking of walls, plaster and outside cladding. Because of the increasing number of high-rise buildings now being constructed, engineers, architects, builders, glass-manufacturers and others have never been so concerned over wind-loading as they are today.

The first stage of this research involved wind-pressure measurements on buildings in Montreal of 33 and 45 storeys in height. These measurements serve as a basis for the evaluation of the results of wind-tunnel studies and for analytical methods of determining wind-loads on tall slender buildings.

The second stage of this research will be to develop the wind-tunnel as a tool or design aid for investigating the whole range of problems stemming from wind effects on high-rise buildings. The wind-load information obtained in the studies will be of major value in the future design of such buildings and their location within a community.

The Division of Building Research also is developing a method for predicting the conditions that will prevail in a building if a particular size and type of air-conditioning is installed and operated on a given schedule. This information will be of immediate use to designers when they are selecting air-conditioning equipment. The work also is the first stage of a long-range program to develop improved methods for predicting the annual energy requirements for heating and cooling buildings.