



Looking up the furnace flue at the baffle.

Professor Fernbach and his students at Ryerson first designed and developed a novel calorimetric laboratory — probably the only one of its kind in the world — and then a number of commercially unavailable measuring instruments.

Testing has already resulted in the redesign and modification of many units. For example, the blower and heat exchanger system and the strategy of baffling the combustion system were modified on one model to increase heat extraction; modification of another led to an increase in over-all efficiency without a significant loss of heat capacity. On another model, although redesign did not increase efficiency significantly, the company was able to reduce its manufacturing costs. Finally, one unit was dropped from the Lakewood line and replaced by a full baffle-style stove.

The fireplace insert was developed to change an inefficient fireplace into an efficient airtight wood stove. The stove has a removable baffle to facilitate cleaning of the chimney down to the firebox. Preliminary testing revealed smoking at the first combustion cycle and this has now been overcome by changing the size of the baffle and repositioning it. Further studies are being carried out to increase the combustion efficiency of the stove and the heat-transfer efficiency.

"From the very beginning, we have viewed ourselves as being in the heating business," says Mr. Logue. "Although we have limited ourselves to wood-burning products, we are trying to expand our product line into other areas.

We are now preparing to market an industrial wood-burning furnace.

"In the rush to meet demand, manufacturers of wood-burning stoves have produced less than ideal products. But, with financial assistance from NRC," Clyde Logue concludes, "Lakewood has been able to solve some of its problems through research, resulting in both modification and redesign to increase efficiency, decrease chimney creosoting, and reduce pollution."

(Article by Joan Powers Rickerd from Science Dimension 1982/5/6.)

Management of radioactive waste

Energy Minister Jean Chrétien has announced a new federal initiative to deal with low-level radioactive waste in Canada. The Cabinet approved the establishment of a low-level radioactive waste-management office to carry out federal responsibilities in this area, said Mr. Chrétien.

Low-level radioactive waste is produced in research facilities, in hospitals, in industrial plants and in nuclear electricity generating stations. It excludes the high-level waste from irradiated nuclear fuel and the tailings resulting from uranium mining and milling.

The federal government, through Atomic Energy of Canada Limited (AECL), already has a separate research program for the disposal of irradiated fuel waste from nuclear power stations. Minister of State for Mines Judy Erola has announced an expanded program on uranium mill tailings research managed by the Canada Centre for Mineral and Energy Technology Laboratories of the Department of Energy, Mines and Resources.

Through these two programs, and the new office, the federal government is actively addressing all aspects of the problems of management and disposal of radioactive wastes in Canada.

The mission of the new office is to ensure that means are made available for the permanent passive disposal of low-level radioactive waste in Canada. At present, most wastes of this kind in Canada are in safe storage under supervision and, although this storage can be continued for many years, permanent disposal will eventually be required.

User's responsibilities

The primary responsibility for the management and disposal of wastes, in-

cluding financial responsibility, will continue to rest with the user or producer of the wastes. However, at this time there are no facilities licensed for the permanent disposal of such wastes so that users are unable to fulfil their obligations through to the disposal stage. There are also some "historic" low-level radioactive wastes in Canada for which no user or producer can now be held responsible.

The first priority of the new office will be to find ways of resolving the historic waste problems. This will be paid for largely by additional federal funds, as the ultimate responsibility for wastes derived from the nuclear fuel cycle or from the explicit use of radioactive properties is accepted by the federal government.

The new office will ensure that a collection, treatment and safe disposal service is available on a commercial basis, and in this role it is expected to become financially self-supporting.

Canadian brain operation saves an Australian student

A hospital half way across the world in a place he had never heard of has given a future back to an Australian engineering student.

Jonathan Vincent, 20, was in perfect health until October when persistent, severe headaches began to bother him. A brain scan and tests arranged by his father, a doctor, showed a giant aneurysm — a ballooning of the basilar artery, one of the most difficult spots to get at in the human brain.

Doctors were blunt, saying Vincent had a 30 per cent chance of dying on the operating table. If he chose not to have surgery, he might have up to two years before the aneurysm would burst and kill him.

The family's neurosurgeon recommended the internationally known neurosurgeon he had trained under, Dr. Charles Drake, at University Hospital in London, Ontario.

Paul and Kerry Vincent brought their son to Canada and on November 24, a day Kerry Vincent "can't begin to describe", Jonathan underwent two operations. The first took five-and-a-half hours. Complications developed, requiring a second three-hour operation later that day. The operation cured him. The aneurysm has been corrected and a week later Vincent returned home.

"We couldn't have a more wonderful Christmas present," says Kerry Vincent.