

The University's role in Canada's

On Ottawa's Elgin Street, about five minutes walk from the Parliament Buildings, is a graystone cubic building. It's set inconspicuously in the capitalist's 'tourist centre', near theatres, art galleries, convention centres and the Chateau Laurier.

Over the main entrance to the five-storey building, in small lettering, is the inscription: Department of National Defence.

Inside the main door, the only door visitors are permitted through, is a booth partially enclosed in glass behind which sit three uniformed men. One of them demands the visitor's business.

If the visitor is there on business, he must call the office he wishes to visit, and wait for an escort to take him there. Before he and his official escort can leave the foyer, however, they both must sign a visitors' register.

The visitor is taken straight to an elevator by his escort and whisked to his floor of business. On emerging from the elevator, the visitor is faced with another guard who makes him sign another register. The visitor, having been given a pin inscribed 'Escort Required', is then ushered into the office he is visiting.

After the meeting, the guest is escorted back to the elevator, the elevator operator is told to take him to the ground floor, and the visitor is watched as he leaves the building.

The following story tells why Canada's defence personnel maintain such a tight security force, and who benefits from the Defence Department's silent invisibility.

The Canadian Department of National Defence, to those Canadians aware of its existence, is always associated with peace-keeping—Cyprus, the Middle East, Germany, and here at home.

But under the smokescreen of an international image as peace-keeper, Canada's defence experts (most of whom have backgrounds in, and still maintain connections with, large corporations and Canadian universities) have built a booming war industry.

Incredible? During the past 12 years Canada has jumped to the Number Five position in the world as an international arms exporter. And today Canada spends more on defence projects, on a per capita basis, than the United States does.

With no war to draw attention to it, very few Canadians are aware of their country's war machinery. Almost none of our academic community know that the Defence Research Board (ever hear of it?) is sponsoring research in every Canadian University with an enrolment over 2,500 students.

To defence analysts, the line between defensive and offensive weaponry and warfare research is a very tenuous delineation. Universities and industries (most of them American-owned subsidiaries incorporated under the Canadian law) are currently studying, designing and testing weaponry that runs the gamut from chemical and bacteriological to atomic.

This military effort, in the name of peace, is directed and organized by the Defence Research Board. Research remains under the board's jurisdiction until a finished product is finally marketable. Salable products in the past have included commodities of war ranging from chemical defoliants to green berets to airplanes.

After the defence research people have done their work, the Department of National Defence, operating under defence-sharing plans with NATO countries and special agreements with the U.S. steps in and pushes the products to nations with more immediate military needs.

It's a lucrative business and an invisible one. The Canadian war machine is, in essence, a closed corporation with interlocking directors who link the major universities to large corporations, and then link both these groups to the Defence Research Board.

The administrative interlockings among industry, government and the universities is a basic element in the structure of our society. And institutions with complimentary functions and integrated administration are built to enable the most efficient operation of the capitalist political-economic system.

Industry, government and the universities are operated in the interests of the same class, so there are no contradictions—from their viewpoint—in the close functional co-operation that springs up in areas such as defence research.

Defence research and contracting (done both by universities and industries) is always shrouded in secrecy. Tight security is a necessity, and thousands of dollars are spent on public relations as each separate part of the war machine tries to keep its image shining.

Occasionally the veil slips. Back in 1956, for example, after a rare security leak, Prime Minister Lester Pearson admitted publicly that Canada was selling arms to both sides in the Israel-Egypt conflict. And occasionally, since the Vietnam War escalated in 1965, word gets out about some new Canadian discovery being pressed into service in Indochina.

These leaks, however, affect only a particular government or an industrial contractor that relaxed its security at the wrong moment. The Defence Research Board, the co-ordinator of the industry, never steps out of line or takes sides in any dispute: they have work to do.

What is the Defence Research Board? Back in 1916 the National Research Council was created by the Canadian government because of a necessity for war-time technology and scientific research. For the next three decades it maintained a high percentage of military research at the expense of industrial research in the civilian sector of the economy. After the Second World War ended, the National Research Council began a trend towards basic scientific research and its applications in an industrial peace-time economy. At this time other research agencies began to spin off from the parent body.

In 1947 the Defence Research Board (DRB) was set up as an autonomous research body by a group of National Research Council personnel who had participated in scientific and technological services related to the war effort. In theory it was then answerable only to the government of Canada through the Department of National Defence.

In practice today, however, it is also to some degree answerable to its own board directors, many of whom have come from corporations receiving large amounts of industrial research and industrial contracting money from DRB. It's a tightly-knit family with a hand-ful of companies, the federal treasury and, to a lesser degree, most Canadian universities, sharing the spoils.

The spoils that come to the universities are mainly research grants (for basic scientific research) with a smaller portion of 'contracting' (the term used when DRB wants a specific design or item produced by some scientist (usually a professor) which binds the scientist to come across with the goods).

Research in the universities is a chancier operation for DRB. Scientific research is always a risk investment (defence research is not value-free science—it is science serving corporate and military needs). But the defence experts, with their corporate allies, have done well: for every dollar they have spent on research, they are netting about \$25 in arms sales.

The universities are, for the most part, unaware of the end result of the research they do for DRB. Almost all research done in Canadian universities is basic scientific research. The applied research is generally done in one of DRB's seven private research institutions which are spread across Canada, or by private companies. But there is no mistaking the universities' complicity in Canada's massive war machine. They willingly do the spadework for all the defence projects in this country, and they supply the necessary resources, human and technological, for the efficient running of the machine.

Besides giving research grants and contract monies to the universities, DRB supports universities in one other way: by giving annual grants to specific scientific institutes within various Canadian universities. These institutes will be discussed later.

Since the board was formed in 1947, it has spent \$40 million on research in Canadian universities. About another \$10 Million has been spent on university contracting during that period.

Where has the money been spent? All across the country—from Memorial to the University of Victoria. The lion's share has gone to the bigger universities, especially McGill, University of Toronto and the University of British Columbia.

Other major recipients of defence research monies are the universities of Alberta, Calgary, Manitoba, McMaster, Saskatchewan, Waterloo and the Royal Military College. In 1970, there were 36 Canadian universities who did work for the DRB.

What does DRB spend their money on? Consider the following field of study (some of which appear to be civilian studies but are not—anything DRB studies is directly connected to military strategy in which they are doing research this winter:

Chemistry. The main trends of research in this field are toward fluorine compounds, nitrogen compounds, radiation chemistry, and the affects of shock waves on various chemicals. Radiation chemistry is being studied at Memorial University,

University of Alberta and University of Waterloo. Other chemical studies are scattered around the country.

Entomology. Another area of intrigue: what DRB seems to be looking for here is a better pesticide. New poisons are being developed and their affects on "insects of military importance" are being studied. Insects are more valuable as carriers of viruses than as guinea pigs for the same viruses. New pesticides are being studied at University of Alberta; control of cluster flies (like mosquitoes or black flies which operate in clusters and can be studied in groups) is under study at Western Ontario and McGill.

Bacteriology. We're still in the horrific area of chemical and biological research. Research projects include a study of bacteria under physical stress (being carried out at McGill), and identification studies of virus agents (University of Ottawa).

Human resources. This is an area of fairly general human studies, psychological and sociological. Among the more interesting projects are studies pertaining to the leadership process (Royal Military College), punishment capability (McMaster) and the effects of rewards on performance (Carlton).

Medicine. DRB does extensive medical research in many universities, the most notable being York University and the University of Toronto which is a major recipient of defence money. The key areas of study are toxicology, radiation effects, Arctic medicine, underwater medicine, and aviation medicine.

Engineering (Structure and materials). This sphere of research is one of the few areas of applied military research. Studies are being carried out on ship hulls, airplane metal fatigue, and various stresses and corrosions of materials.

Engineering (mechanical and electrical). Under this heading comes the more dramatic research — bombs and rockets. The defence experts never refer to bombs and rockets, of course, preferring to use more delicate and precise scientific jargon. Among the projects: detonation in explosives (Calgary), slurried explosives (Queen's), response of thin dome-type shells to dynamic loading (Calgary), and electromagnetic detonation research (Carleton).

Political Science. Why would a military research agency be involved in studying political science? It's a necessity the experts argue, for any nation involved in warfare and weaponry research to study local and international attitudes and factors involved in disarmament policies (Queen's); to study the possibility of continental defence (Laval). One researcher is even studying people and institutions who do research on research (British Columbia).

Special Studies. The two big fields of special study in Canadian defence are lasers (DRB is internationally recognized as a leader in laser research) and the interrelations of plasma and fluid dynamics (this has application to space research among other things). The military possibilities have not yet been fully explored in these areas, but DRB is confident that they are on the verge of major breakthroughs in warfare research.

This list (which is not complete: there are too many projects to list them all) is a good indicator of research policies within the Department of National Defence. Chemical and biological warfare is still consideration, as is atomic warfare. New areas of exploration are submarine and Arctic research.

The single biggest field of study is aerospace technology and aviation. The field, not surprisingly, also pays the highest dividends: the bulk of the millions that Canada earns through arms sales comes from the aircraft industry.

DRB is so interested in airplanes and aviators that they started an institute of aerospace studies at the University of Toronto back in 1951. They gave grants totalling \$ 2.3 million until 1968 when they phased out direct support. The Aerospace Studies Institute is, according to a DRB spokesman, of general interest to joint NATO defence. The institute has done joint space research with the American space program.

Another such institute — McGill University's Institute of Aviation Medicine Research — has been supported (and still is to the tune of \$50,000 a year by the DRB.

There are other university institutes, though not in the aerospace field, that have received Defence Research Board grants during recent years. One of them is the Nuclear Reactor at McMaster University,