

war industry : silent accomplice

DRB gave \$50,000 a year until 1968 to McMaster's nuclear studies program. It was supported heavily during the 1960s when Canada's defence experts felt it was suicide not to have personnel trained in the use of nuclear energy.

Another is the Institute of Upper Atmospheric Studies at the University of Saskatchewan. The studies done by DRB there (direct support was again phased out in 1968) revolved around ionized particles in the air that often garbles radio transmission. The defence people were interested in the possibilities of being able to jam lines of electronic communication.

The final two institutes do research of a more general and basic nature. The Lady Eaton Laboratories at McGill study microelectronics and the Universite de Montreal has an Institute for Mathematical Research. Both institutes have had considerable financial support from DRB.

All these technical institutes, whether or not they continue to receive annual DRB grants, still receive a large number of specific research grants and contracts from the defence research coffers. This is where up-and-coming defence personnel learn the tricks of the trade.

Despite this massive industry that DRB has built

to do further applied research to check that the information that they have paid for is really what they wanted. To do this they have to apply the basic research to the military problems that necessitated the original study.

Some of the research projects are earmarked for application before they are finished. The file card on each research project is coded with a call number and a lettering that corresponds to one of the seven private research establishments that DRB owns. It is at these establishments that the classified research gets done.

"After all," said a DRB spokesman, "we could never do classified research at universities. Suppose somebody got blown up by an explosive?"

Suppose, indeed. Have to keep up the public image.

So the basic information, gleaned from Canadian universities, is shipped to one of the research establishments, far from the attention of the mass media and the people of Canada. Now the research becomes overly military: the singular purpose of these establishments is to convert the basic scientific information into weaponry and warfare—either for use at home or for sale to some warring neighbour.

Two of the establishments, one in Dartmouth, N.S. and the other in Esquimalt, B.C., primarily study naval applications of the university research, in addition to doing research of their own. Of paramount importance to these institutes are surveillance, submarine detection, and tracking in undersea warfare. Two others, in Shirley Bay, Ontario and in Ralston (Suffield), Alberta, received little or no public attention. There is as far as the defence people are concerned, a good reason for this quiet invisibility: these two research establishments handle the scariest research in modern day warfare. The scientists there are Canada's foremost experts in chemical, biological, and nuclear weaponry.

Why is Canada so involved in chemical and bacteriological weaponry research?

There are two reasons: first, Canada was one of the first countries to explore the military possibilities of this type of warfare and has an international reputation as being a pioneer in the field. Second, nerve gases, chemical defoliants, non-lethal gases, and viruses are saleable commodities with an immediate market in the United States' was in Vietnam.

While research is done at both Shirley Bay and Ralston, the actual testing of these weapons is done near Ralston (The research establishment there, code-named 'Suffield', includes a 1,000 square-mile testing ground). Weapons tested there, including defoliants, crop-destruction agents, insecticides and non-lethal gases, have already been used in Vietnam.

Any every time Canada sells weapons, the university research is paying off for DRB. War is good business.

Two of the other three research establishments, at Ottawa and Downsview (just outside Toronto), study current problems in the Canadian armed forces. Among the projects now being done are studies of human capabilities and limitations, plus other behavioral studies.

The final establishment, at Valcartier, Quebec, again lasers, armaments, surveillance equipments, explosives, and they do weaponry systems analysis.

From these seven defence research establishments come the finished weapons, ready to be mass produced and sold.

At this point, the 2,500 employees of DRB have performed their functions well: the ultimate decisions involving contracting (for mass produced weapons) and selling, rest with the actual board members of the Defence Research Board.

The actual board is split in two parts: ex-officio members (government representatives) and appointed members who represent universities and industries. These men are very powerful: they decide what research should be pursued and which universities and what industries receive defence contracts.

Not surprisingly, there is a substantial amount of patronage toward the institutions these men represent.

Board members at present include high administration officials from University of Winnipeg, University of Saskatchewan, Universite de Montreal, and Laval University.

Industrial representatives include or have

included directors of de Havilland Aircraft of Canada, ATCO (Calgary), Canadian Westinghouse, and RCA Victor Company of Canada.

Most corporations receiving Canadian defence contracts are foreign-owned and controlled, with the bulk of them in the U.S. and others scattered around Britain and Western Europe.

Among the major contractors are General Electric, Westinghouse, Hawker-Siddeley, Litton Industries, Bendix, Sperry Rand, and General Dynamics (America's biggest defence contractor). All business with these companies is done, of course, through their Canadian subsidiaries.

Most of these corporations do research, design, and massproduction in the electronics and aerospace industries. The more overt weaponry contracting is done through crown corporations like Atomic Energy of Canada Limited and Canadian Arsenal Limited.

The research done and the weapons produced, the final step for the Department of National Defence and the rest of the government is to find a country at war who needs a stockpile of arms.

The days of smuggling guns to banana republics is long gone. Today, in the sophistication of power-bloc warfare, there are treaties and alliances and defence-sharing programs that are socially acceptable.

The two main markets for Canada's military experts are NATO and the United States.

In 1970, Canada made over \$400 million by selling arms to other countries.

The Defence Production Sharing Agreement signed by Canada and the U.S. in 1959, while touting mutual defence for the protection of North America, binds Canada to American foreign policy, Canada, is, as Canadian defence analyst William Cobban, says, a contracted appendage of the American military machine.

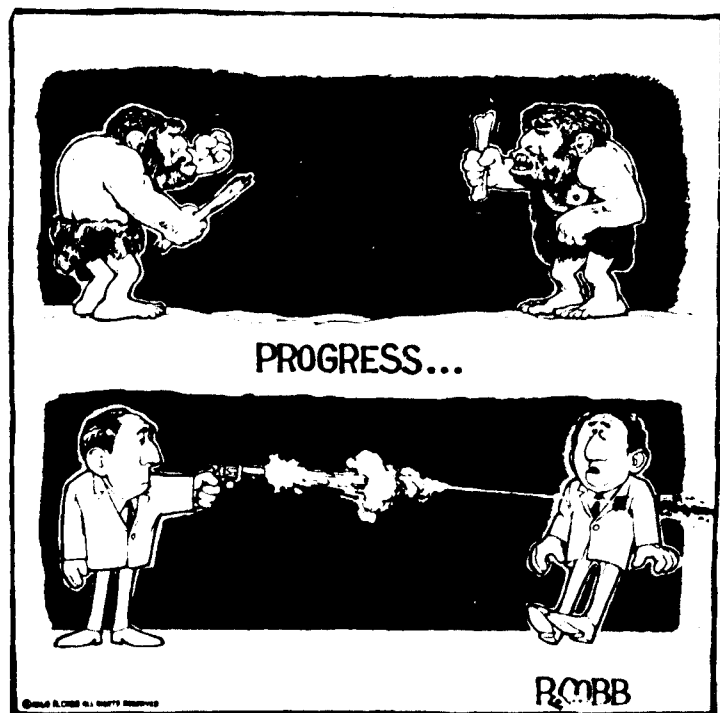
How this agreement works is quite simple. The U.S. is fighting a war, so they need certain weapons. Under the Defence Production Sharing Agreement, there is very little duplication of work. For example, Canada is a specialist in chemical and bacteriological warfare.

If the Pentagon needs a new chemical defoliant, they get in contact with Canadian defence experts who get to work on perfecting the defoliant and then sell it back to the U.S. Or if the Americans have developed a new nerve gas, then they occasionally bring it to Defence Research Establishment Suffield (in Alberta) and have it tested by Canadian scientists on Canadian soil.

So the Pentagon orders weapons, DRB produces them, and people die in Vietnam. And this vicious cycle is supported and endorsed, directly and indirectly, by Canadian universities.

It makes one wonder about the purposes of universities. The ivory-tower concept of value-free science, of research in the name of humanity, is a thing of the past.

Canadian universities serve a military-industrial complex based mainly in the U.S. This complex has two basic aims: to keep down any threat to the established order at home (particularly in Quebec), and to provide any equipment to anybody as long as there are profits to be made.



up, around Canada's booming business in other countries' wars, there are a few other areas that the defence scientists would like to explore. Among them:

Sociology. The Department of National Defence is proud of what it calls "disciplined mobility" when it was called into help with domestic problems (troops were mobilized during the Montreal police strike, during the 'Quebec crisis' last winter, and during the Kingston Penitentiary riot). Drb is now looking for universities interested in studying crowd control, group decision-making, analysis or organizations and control of dispersed groups.

Systems Analysis Drb is also interested in initiating university studies in the mathematics of combat, and in games theory applicable to military situations.

Environment (political and social). The final area of interest to defence experts is historical and geographical analysis of war and war potential. This includes a study of domestic and international hot-spots; a survey of the public's attitude toward the Department of National Defence; and studies of riots and insurgency, and maintenance of law and order.

What happens after the university research project is completed, after DRB has filed away their new-found information and the graduate student has published his thesis and spent his research grant?

The basic research now has to be applied. The military and business interests take over at this point; the research investment is about to pay off in dollars and cents. The war machinery swings into full gear; the university has served its purpose, now there's money and power to be gained.

But first, the Defence Research Board may want