OUR WAR PRODUCTION

more dramatic research – bombs and rockets. The defence experts never refer to bombs and rockets, of course, prefering 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 a 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. This 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 pased 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. DRB gave $50,000 a year until 1968 to McMaster's nuclear studies program. It was supported heavily during the 1960's 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 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 wer 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 study of future international alliance possibilities; a survey of the public's attitude toward the Department of National Defence; and studies or riots and incurgency, 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 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 estalbishments that the classified research gets done.

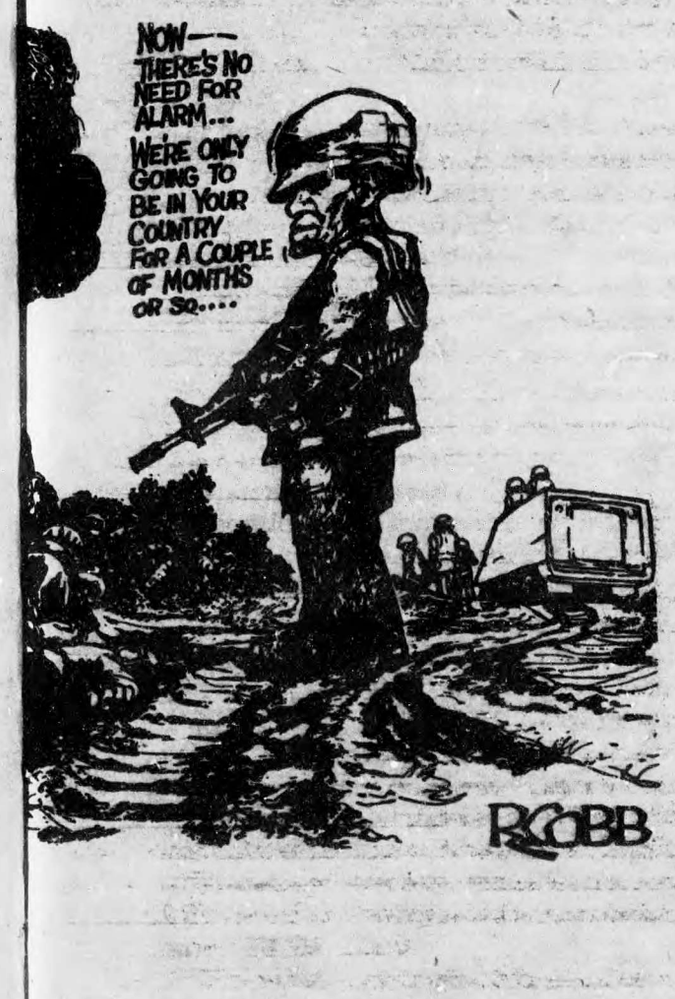
"After all," said a DRB spokesman, "we could never do classified research at universities. Suppose somebody got blown up by an explosive?"

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 overtly military: the singular purpose of these establishments is to convert the basic scientific information into weaprony and warfare – either for use at home or for sale to some warring neighbor.

Two of the establishments, one in Dartmouth, N.S. and the other iin Esquimalt, B.C. primarily study naval applicaitons 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, receive 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.



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