

US Office of Naval Research

More money means more trouble

Washington

THE US Office of Naval Research (ONR) celebrates its fortieth anniversary this year, but its biological research managers have their eyes to the future. The \$40 million spent this year by ONR's life sciences directorate supports some of the most long-term basic research in the federal budget. But as the federal budget for military research has increased in recent years in relation to the civilian budget, the role of ONR seems to be changing. It plans to support more training and education as well as research. Some academics have misgivings.

Almost all the life sciences research supported by ONR (about 15 per cent of the total) is carried out under contracts with universities. ONR uses the newest techniques of molecular biology and biotechnology to produce protein adhesives, deuterated lubricants and other surfactant molecules. Priority research topics include enzymes from organisms that inhabit extreme environments, the interplay of the central nervous system with immune function and the modelling of neural circuits with the aim of understanding "biological intelligence".

ONR selects among research proposals at least partly by independent review. All the bioscience research is unclassified. But there the similarity with a civilian research agency ends. In the words of Dr Steven Zornetzer, associate head of ONR's life sciences directorate, research supported by ONR "should have, or could have down-the-line" applications for the US Navy. That condition is one of the reasons behind a recent controversial ONR decision to close its Naval Biosciences Laboratory at Oakland, California. It has also caused dissent at the Massachusetts Institute of Technology (MIT), where biology faculty have voted once to refuse up to \$4 million per year of ONR support for a new biotechnology training programme.

The Naval Biosciences Laboratory, managed by the School of Public Health of the University of California (UC) at Berkeley, had a total budget of \$5.7 million in 1985 (mostly from ONR) and a staff of about 100. Research there focuses on gene expression in different systems and on "slow" viruses. In 1984, the School of Public Health and the laboratory together inaugurated a molecular parasitology research group, headed by acting laboratory director Dr Nina Agabian, which grew rapidly and now represents about half of the laboratory's staff. But, despite "extraordinarily high marks" at a May 1985 external review, Agabian says that the laboratory was told abruptly last September that the site must be vacated by Septem-

ber 1987. Feelings are still running high.

ONR cites two reasons for the decision. First, the converted Second World War barracks that house the laboratory are outdated, and modification would not be cost effective. And, second, molecular parasitology with potential medical applications should be the responsibility of the US Army rather than ONR in accordance with an inter-service agreement that the army should support infectious disease research. Agabian's group now expects to be rehoused in a new building as part of an inter-campus parasitology effort with UC San Francisco. The relationship with ONR seems over.

The navy clearly had reason other than mere lack of interest in the laboratory's dominant research area for its decision. The laboratory's contractual position is unusual (although not unique). Other non-competitive research contracts were modified at the same time.

Worries that basic research may be skewed towards military objectives underlie in part the vote by MIT's biology faculty last month not to apply to ONR for support for its planned biotechnology training programme. ONR announced last January that (together with the Defense Advanced Research Projects Agency) it proposed to spend an additional \$25 million in fiscal year 1986 on 5-year block research grants worth up to \$4 million. The increase represents ONR's share of the Pentagon's University Research Initiative, which comes on stream this year. One of the eligible grants, for marine bioengineering, would support graduate student research training in molecular biology of marine organisms, with special reference to bio-fouling and drag reduction.

MIT's plans for an interdisciplinary biotechnology training programme had been held up by lack of funds so that the new ONR grant seemed a godsend. But the biology faculty objected to applying (albeit at a poorly-attended meeting), although the other faculties that would be involved have raised no objection. The biology faculty is expected to reverse its decision in a second vote this week.

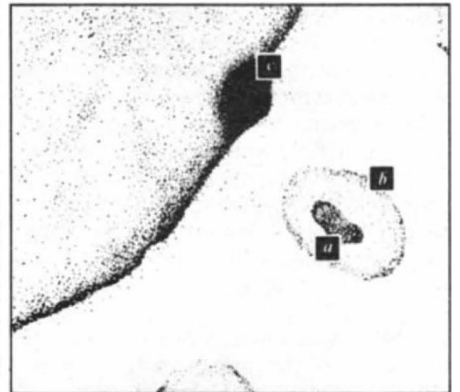
ONR already supports some researchers in the MIT biology faculty, but opponents of ONR support distinguish between individuals who accept specific ONR research grants and MIT as a whole accepting that a whole course should be supported ultimately by the Department of Defense.

Dr Maury Fox, chairman of the biology department, who does not oppose the idea that ONR might support the course, would also prefer educational programmes funded by non-military sources.

No help on AIDS

THE illustration below is the only one in a full-page advertisement headed ARE YOU AT RISK FROM AIDS? which was placed by the Department of Health and Social Security in British newspapers last week. Its caption runs: "a, AIDS nucleoid containing the biological message to cause damage (*sic*). b, Lipid membrane (very fragile). Packages virus and allows movement between cells. c, T helper cell/white cell."

The text of the advertisement, which is admirably expressed in plain English, does not mention nucleoids, lipids, virus packaging, T helper cells or white cells. Asked



why such an enigmatic illustration and confusing legend should have been allowed to mar an otherwise excellent message, a spokesman for the department said it was included to relieve the monotony of the text. Asked what a nucleoid was, she came back with the definition "a granular or fibrillar substance in certain erythrocytes which resembles a nucleus". That is indeed one dictionary definition (for example McGraw-Hill Nursing Dictionary). But the appropriate definition is "A term used by electron microscopists to describe the electron-dense centrally placed region observed in certain viruses" (*A Dictionary of Virology*, Blackwell). □

Fox believes, however, that that is a matter for national policy and "I'll have to live with it". Others are unconvinced. Frank Solomon, assistant professor of biology at MIT, opposes ONR block grants and believes the Pentagon would not hesitate to classify "biosludge" research that turned out to have important weapons applications. And he is opposed in principle to the military supporting and controlling a larger proportion of US basic research, selecting topics on other than exclusively scientific merit.

Others fear that the "increased collaboration with ONR" mentioned with the grant prospectus might increase opportunities for military direction of the work. Whatever the outcome of the MIT debate, similar questions may be asked on other campuses as defence research dollars spread further.

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