on the major projects outside the Navy research establishment. The corps of civilian scientists engaged in research for the military was fairly small and the personal character of the wartime relationships had a formative influence on the postwar research system.

For example, the question of whether ONR should provide research support to institutions or to individual scientists was apparently decided almost automatically in favor of individuals. "It was definitely influenced by acquaintanceships," says Old. "You didn't pick Carnegie Tech, you picked Fred Seitz."

The decision to support graduate students through research grants was made on the same grounds. "We knew the top professors." One of them would be asked what he thought was of interest in the way of research projects. "If he hired a couple of people it was OK."

What might have been expected to be a sticking point with Navy officials—classified research—proved not to be a problem. "Publication was not a big issue with Navy brass." Classified research could be done in Navy laboratories and university scientists brought in for summer studies under classified wraps.

If Navy officials were amenable to the idea of ONR, its proponents still had to steer it to what they considered the right berth in the Navy bureaucracy. For the Bird Dogs and their allies, the essential thing was to give the office the freedom to concentrate on long-term issues. If ONR were to be put under the control of the Chief of Naval Operations, for example, they were sure it would be submerged in dealing with immediate problems.

Four founding principles, therefore, were advanced for it: ONR must have a budget of its own, it should report to the Secretary of the Navy through an assistant secretary for research, it should have a flag officer as chief, and the Naval Research Laboratory should become ONR's in-house laboratory. When the legislation creating ONR was passed in August 1946, most of the grand design was included in the bill, although it took until 1959 and sputnik for an assistant secretary for research to be installed in the Pentagon.

ONR did get off to a flying start. What made that possible and gave ONR crucial momentum, says Old, was that some $40 million in unspent wartime project money was shifted to ONR's account to fund research.

The ONR system became the acknowledged model for federal funding of basic research not only for military research agencies but for the National Science Foundation, which won its own legislative charter in 1950, and the National Institutes of Health, which experienced major growth in the later 1950's. But in one major respect these civilian agencies diverged from the model—peer review.

ONR's current director Marvin K. Moss says that the agency has "no mandatory peer review." Because ONR was established to support the Navy's mission, it has a more difficult job than NSF, says Moss. It must support the best science, but also the best science that is relevant to the Navy.

ONR relies heavily on "state-of-the-art scientists to manage the program," says Moss. When a scientific officer, as he is called, joins ONR, he is expected not only to know the field he will be responsible for, but to be active in it, for example, by continuing to publish. ONR gives considerable authority in research selection to its scientific officers, but they work within a system designed to ensure that decisions on research funding meet ONR's dual criteria.

To establish relevance, ONR systematically consults fleet needs documents generated by operating units of the Navy. Also influential are a network of 14 National Academy of Sciences panels, which meet periodically to review the ONR program and make recommendations on opportunities for research in particular disciplines. This is peer review, but in an advisory style.

ONR remains a relatively small operation with about 100 scientific officers at headquarters. The big increase in military R&D funding during the Reagan Administration has not affected the ONR budget dramatically. For the current year, the budget is $365 million. ONR officials say that in terms of current dollars this amounts to less than the agency received in 1965. And because of the impact on costs of the sophistication of research equipment, the budget now may finance only 50% of the research "effort" it did then. ONR also manages $150 million in research projects funded by the Defense Advanced Research Projects Agency and the Strategic Defense Initiative.

The focus of ONR's anniversary symposium was mainly retrospective. ONR-sponsored research has figured prominently in advances in many fields of science and the agency claims credit for backing major developments, for example, in computers, lasers and masers, and deep-diving submersibles. On the program as living testimony were Nobel laureates and sometime ONR grantees Charles H. Townes (Physics, 1964), Kenneth Arrow (Economics, 1972), Leon Cooper (Physics, 1972), and Herbert Simon (Economics, 1978). Also on hand was the Naval Research Laboratory's resident Nobelist, Jerome Karle (Chemistry, 1985). ■ JOHN WALSH

Elections Bring Some Financial Relief for British Scientists

The British government, sensitive to increasing criticism of its parsimony toward both science and higher education, has decided to loosen the purse strings. In his autumn economic statement, delivered in London last week, the Chancellor of the Exchequer, Nigel Lawson, announced that the government's grant to the five research councils financed through the Department of Education and Science will be increased by close to 7%, to a total of $950 million, for the financial year 1987–88.

Previously the government had only been intending to increase the science budget by 2.4%. The new generosity, which comes soon after the publication of two reports claiming that financial stringencies have led to a decline in both the quantity and quality of British science (*Science*, 31 October, p. 538), means that spending on science will increase considerably more than the anticipated inflation rate of 3%.

Lawson also had good news for British universities, announcing that they can expect about $80 million more than they had been anticipating for the financial year that starts next April. There will also be an extra $9 million to cover equipment costs.

The increased spending on research and universities is part of the Conservative government's decision to raise public spending across the board by 1.5% next year. Opposition groups claim that the change in strategy is based primarily on election politics; a general election must be held in 1988.

Nevertheless, the increases have been widely welcomed in the research community, particularly since they come at a time when a dramatic fall in the value of the pound compared to other European currencies has substantially raised Britain's contribution to international scientific projects. Its annual contribution to the European Laboratory for Nuclear Research (CERN) in Geneva alone is expected to be almost $30 million higher than had previously been budgeted, for example. ■

DAVID DICKSON