plexity, and, for the military, complexity's not-so-distant cousin, chaos. In the past 20 years, the electronic communications links throughout the different levels of the U.S. military establishment, as everywhere else, have grown enormously. In addition, there has been an explosive increase in the amount of computing at every level, including that of individual weapons systems, theater combat commands, and the National Military Command Center in the Pentagon. For the battlefield alone, the Army currently has 150 computerized systems under development. The result has been a vast increase in the available amount of tactical and strategic data. Quality, however, is another question. As one Pentagon official put it at one of the meetings, the systems have "helped us to know a lot of things we don't need to know, but they have not helped to define what we need to know."

Put another way, the question is whether the traditional reductionist approach to understanding can make workable such a "holistic" challenge as a worldwide U.S. military command and control system.

The question may sound theoretical to the point of uselessness, but it is prompted by some very down-to-earth considerations. The Soviets, for a variety of technological and cultural reasons, rely on a much more centralized command structure than the one used by the U.S. military, and the difference has Pentagon officials worried. The sponsor of the meetings with the academics, for instance, was the Pentagon's Office of Net Assessment, which seeks to determine how U.S. forces would compare with those of the Soviet in a variety of potential conflicts. According to Andrew Marshall, director of the office, the key concept behind Soviet command and control is to ensure strict compliance of subordinate combat units with the planned operation. The individual ship, plane, or tank is not expected to fight on its own initiative. In fact, they do not have the full instrumentation to do so. In each case a unit with several assigned weapons systems is directed in action by a commander who has available to himself the control mechanisms which in the U.S. military are on each individual weapons system.

One problem for the U.S. military, according to John J. Ford, a Washington-based consultant who helped organize the meetings between the academicians and the Pentagon, is "to find the means of orchestrating the cacophony now rampant in the U.S. command-control

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Progressive Case Fallout Has a Long Half-Life

A year ago, the government dropped its efforts to prevent publication of a *Progressive* magazine article that allegedly divulged H-bomb secrets (*Science*, 5 October 1979). But repercussions of the conflict lingered on.

In early September the Justice Department informed the *Progressive* that there would be no criminal prosecutions or contempt-of-court proceedings as a result of the case. For at least one government scientist, however, the *Progressive* case is not over. A theoretical physicist at Lawrence Livermore Laboratory, Hugh DeWitt, is still trying to counter sanctions imposed on him by the lab for actions related to his participation in the case.

DeWitt requested a grievance hearing, now scheduled to begin on 29 October, to ask for removal from personnel records of a "notice of warning" which he views as a serious threat to his career. Officials at the nuclear weapons laboratory, after formal investigation, made the decision to issue the notice on grounds that DeWitt disregarded security regulations.

DeWitt became involved in the *Progressive* case when he was asked by the magazine's editors in March 1979 to serve in an expert witness capacity. In subsequent months he provided three affidavits of technical comment.

The laboratory's objections to DeWitt's role center on two incidents involving the affidavits in which the lab contends that DeWitt's actions could have resulted in classified information being divulged to unauthorized persons. In the first case, in March 1979, the allegation is that DeWitt allowed access to such information to three persons who lacked proper security clearance—a typist, a *Progressive* editor, and a person who delivered the document to the court in Madison, Wisconsin. DeWitt says he believed that the information was not classified and was available to the public.

The second incident occurred the following May under circumstances in which DeWitt, under a deadline, was attempting to send an affidavit to Department of Energy (DOE) headquarters in Washington for a decision on its classification status. DeWitt is accused of taking the document to be transmitted by scrambler telex before it had been properly marked as classified, thereby disregarding the instructions of his superior. A report by the lab concluded that no classified information was compromised.

Laboratory officials conducted a formal investigation of the incidents last fall and winter and in March issued the formal notice of warning, a serious administrative action, which specified that another significant violation of the rules by DeWitt could result in his dismissal. Later, DeWitt was given a rating of "marginal and unsatisfactory" in a regular performance evaluation, but the rating was later raised to "satisfactory, second half."

DeWitt was also tangentially involved in a separate incident stemming from a letter written in the spring of 1979 by four scientists at Argonne National Laboratory in which they criticized government actions in the *Progressive* case. A DOE decision that the letter contained classified information coincided with DeWitt's sending a copy to a California man interested in the case. DeWitt's attempt to retrieve the letter was unavailing and material from it was published in a newspaper. This incident led to newspaper reports that the Justice Department was inquiring into allegations that government scientists at Argonne and Livermore were leaking classified information.

This in turn prompted congressmen, including Representative Paul N. McCloskey, Jr. (R-Calif.), to express concern that the government was using threats of criminal prosecution to muzzle scientists.

Along the way, DeWitt has been backed on various points by declarations of interest and support from several members of Congress and organizations such as the American Physical Society and Federation of American Scientists. He also says he has been given a sympathetic hearing by officials of the University of California, which is the contractor for Livermore. In the grievance hearings, which will be held under university rules, legal assistance for DeWitt is being provided by the California State Employees Association with which the professionals' union at Livermore is affiliated.

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Among those familiar with DeWitt's predicament and the troubles others encountered during the *Progressive* case, there seems to be a general feeling that part of the problem, at least, is that procedures for handling classified information in the nuclear energy sector, which date from the mid-1950's, no longer fit present circumstances.

A Century After, a Huxley Back at Royal Society Helm

The next president of Britain's venerable Royal Society is expected to be Sir Andrew Huxley, professor of physiology at University College, London, and a Nobel Prize winner. The 800 plus fellows of the Royal Society will vote on it on 1 December, but the choice of Huxley as the nominee of the society's governing council is regarded as tantamount to election.

Huxley shared the 1963 Nobel award for medicine or physiology with fellow Britain Sir Alan Lloyd and Sir John Eccles of Australia for work on the transmission of nerve impulses. Huxley's grandfather, Thomas Henry Huxley, the great exponent of Darwinism, was president of the Royal Society from 1883 to 1885. Andrew Huxley's half brother, the late Julian Huxley, biologist and first director-general of UNESCO, was also an F.R.S.

North Carolina's School for Science, Math All-Stars

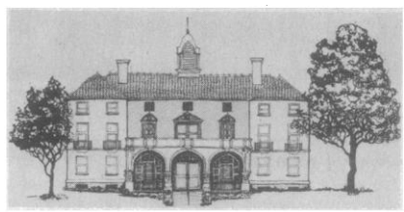
North Carolina has made an enterprising public effort to bring the benefits of science and high technology to the state by creating the Research Triangle. It now stakes a claim to establishing the first public, residential high school for highly able students in science and mathematics.

The state-supported North Carolina School of Science and Mathematics (NCSSM) opened in September in Durham with 150 juniors selected from high schools throughout the state. Enrollment in the 2-year school is scheduled to rise eventually to 900 juniors and seniors.

Chief sponsor of the school is North Carolina Governor James B. Hunt, Jr., who views it both as a training ground for leading scientists and mathematicians and as a place to develop teaching methods to improve science and math instruction in all the state's schools.

The state legislature in 1977 appropriated $3.3 million for a year of planning and the first year of operation of the school. Durham County made a gift of a former hospital for the campus of the residential school. The facility has 15 buildings on 27 acres. A campaign is now in progress to raise funds from foundations, private individuals, and business for renovations, construction of new facilities, and financing of new programs.

The school offers a full range of courses for 11th and 12th graders but



emphasizes expanded course offerings in science and mathematics. Every student will, for example, be expected to take at least one course in biology, chemistry, and physics that will prepare the student to qualify for college level advanced placement examinations. High fliers will be able to take courses at Duke, North Carolina State, and the University of North Carolina, the academic anchors of the Research Triangle.

In selecting the first class, nominations were obtained not only from school sources but from civic and community organizations and church groups. As part of the application procedure, candidates were asked to take the Scholastic Aptitude Test in 10th grade, and those invited to Durham for interviews were given exams designed to test math reasoning ability. Final choices were made by considering a variety of factors including breadth of interests and activities. There were about 900 applicants for the 150 places. The first class is divided about evenly between the sexes and has a 15 percent representation of minority students.

Currently, the school has a full-time faculty of 15, nine of whom have doctorates. The director is Charles R. Eilber, whose experience has included a period as director of the Interlochen Arts Academy in Michigan, a school for students talented in the arts.

Full costs of education and living expenses at NCSSM are defrayed by the state, but students are required to put in 8 hours of work a week, 5 hours on housekeeping or office tasks, and 3 on community service work such as tutoring in elementary schools or reading to the blind.

Students at the school have vigorously confirmed the old stereotype about interest and talent in music going along with ability in science and mathematics. School officials admit they hadn't bargained for the intensity of the interest. More than half the students are involved in the school instrumental ensemble or chorus. No less than 34 signed up for an elective class in music theory. Prodded by student demand, the school has requested an appropriation for instruments.

The school opened with little fanfare, but a week of activities involving science dignitaries, leading up to a speech at dedication ceremonies on 11 October by Secretary of Education Shirley Hufstedler, should attract some attention and not hurt Governor Hunt's campaign for reelection.

Palm for Prescience To Wolf Foundation

Anticipating the choice of Nobel Prize winners is a source of pride among those associated with certain well-known, lesser scientific prizes (*Science*, 17 October). Three such in biomedical research are Columbia's Louisa Gross Horwitz Prize, the prizes awarded by the Wolf Foundation in Israel, and the Albert Lasker awards. This year, only one of these prize-givers, the Wolf Foundation, can claim previous picks of the new Nobel laureates.

On 10 October the Nobel Foundation announced that its 1980 prize for physiology or medicine would be shared by Baruj Benacerraf of Harvard, Jean Dausset of St. Louis Hospital, Paris, and George Snell of Jackson Laboratory, Maine. Wolf got two out of three—Dausset and Snell—with its first group of prizes awarded in 1978.

John Walsh