

sage. All other solar technologies, including wind and photovoltaics, will remain with the bulk of ERDA's fossil and nuclear programs in the energy technology group.

Since the energy technology group will administer one-quarter of the new agency's funds, the choice of its assistant administrator will be an important one. If the position were to go to a recognized nuclear power advocate—the name of ERDA's breeder chief has been suggested—the choice would give nuclear interests influence in two key positions.

Names that have been suggested as possible nominees for other assistant secretary posts are Hazel Rollins, now head of conservation at FEA, for the conservation slot; Les Goldman at FEA for the head of resource applications (Goldman now directs the FEA fossil fuel program); and James Liverman, who is now head of environment at ERDA,

for the assistant secretary for environment.

These four assistant secretaries, along with the assistant for defense programs, who will manage all the nuclear weapons development now done by ERDA, and the director of the Office of Energy Research (*Science*, 13 August), will make up the five-core programs managed by the undersecretary—in DOE jargon they are to be called "outlay programs." The additional three assistant secretaries will be for policy and evaluation, international affairs, and governmental and public affairs.

Congress gave Schlesinger power to organize the DOE virtually any way he wanted when it sent the DOE bill out of conference in late July, and since then he has informed only a few key committee chairmen of his plans. The timing of the White House's final decision-making on the plan was such that it was completed

before most of Congress returned from the August recess. But some of those few members in town bridled last week, and Senators Haskell (D-Colo.) and Hart (D-Colo.), along with Representative Jeffords (R-Vt.) and Ottinger (D-N.Y.), challenged the new DOE plan, and its treatment of solar energy in particular. More opposition may be expected in the coming weeks, as the Senate passes on the various nominees.

Perhaps the biggest question now is how much the White House staff, Schlesinger, and O'Leary will act to counteract the program structure of the department, which seems set up for business as usual, albeit with an accelerated coal program. As the creation of a president who put solar energy panels on his inaugural reviewing stand, the new department is noticeably lacking in emphasis on alternative and renewable energy sources.—WILLIAM D. METZ

Science in Europe/The Antinuclear Movement Takes Hold

Five months after the announcement of President Carter's nonproliferation policy, the common wisdom in this country is that Europe has hardly wavered in its rush toward nuclear power. The cry that "Europe will do what it wants whether the United States builds a breeder or not" is often heard from American nuclear interests, with apparent justification as the State Department has shown little visible progress in negotiating new agreements and some signs of retreating from its original goals.

But popular protest against nuclear power has reached a pitch in Europe that would be barely imaginable today in this country, and the political strength of the antinuclear forces has become formidable, not only in Sweden where nuclear power was a pivotal issue last year, but across the continent. West Germany's research minister recently predicted that that country's two ruling coalition parties will vote for a complete moratorium on nuclear construction when they meet this fall, and some observers predict that any moratorium contingent on creation of a waste disposal site could last up to 12 years. Beyond public opposition, the plutonium breeder is running into trouble in Germany for many of the same reasons it has in the United States; program delays, safety concerns, and cost overruns threaten to undermine the claim that it can one day become an economically competitive energy source.

Nuclear opposition is far from being a single-issue movement in Europe, as groups of many political persuasions embrace it for their own reasons. But as the following report by Nigel Hawkes details, the Carter administration policy is not the only thing holding back nuclear power in Europe.—W.D.M.

After Europe's biggest and bloodiest antinuclear demonstration (one dead, more than 100 injured) at the site of France's first commercial fast breeder reactor, the antinuclear groups face some difficult decisions. The violence of

the last weekend in July, when more than 20,000 demonstrators battled with 5000 French riot police at Creys-Malville, near Lyon, has played into the hands of the French and German governments, who like to portray antinuclear

campaigners as extremist misfits more interested in attacking the structure of the state than in opposing nuclear power.

This charge is particularly damaging in West Germany, where the terrorist and anarchist fringe is again active. It was the same weekend as the Creys-Malville demonstration that a West German banker, Herr Jurgens Ponto, was shot dead by terrorists at his home near Frankfurt. And although some of the violence at Creys-Malville can be laid at the feet of the French riot police, there is no doubt that the taint of extremism is damaging the antinuclear cause.

The week after Creys-Malville, the German antinuclear groups took stock and named their next two targets—a nuclear site at Phillipsburg, near the French border, and the site at Kalkar, on the Rhine, where Germany's own fast breeder prototype, the SNR-300, is being built. To try to avoid violence, both these demonstrations will be preceded by an attempt at public education; demonstrators will be lectured on the facts behind the antinuclear campaign and urged to avoid violence at all costs.

Good intentions, however, are unlikely to be enough. While the environmental and antinuclear groups may be able to control their own supporters, they will find it more difficult to shrug off the revolutionary and anarchist groups who have attached themselves to the cause. It was one of these groups, a so-called "commando" unit led by Germans, that has been blamed for sparking off the Creys-Malville violence. Wearing helmets and

wielding clubs, this group charged the police lines, throwing stones and gasoline bombs. The police responded with tear gas grenades and smoke bombs, spreading the violence to the main body of the demonstrators.

The Creys-Malville demonstration was notable on two counts in addition to its violence. It was directed at the world's first commercial fast breeder reactor, and it was international, with

many thousands of Germans, Swiss, and Italians joining the French. Creys-Malville is the site for Super-Phénix, a 1200-megawatt breeder based on France's Phénix prototype and largely paid for by France but with minority German and Italian interests.

Fast breeders are likely to become a priority target for the antinuclear groups both because they are newer—and therefore less familiar to the public—and be-

cause they necessarily involve the recycling of spent nuclear fuel and hence the plutonium economy. There have already been the first stirrings of a campaign in Britain against building a commercial breeder (the decision is likely to be taken next summer) and the German decision to demonstrate at Kalkar indicates the same trend.

The effect of the Creys-Malville battle has not been particularly helpful to the

Psychologists Back Women, Chuck Magazine, Gear up for NHI

The American Psychological Association (APA) has decided to put its meetings where its mouth is and has voted not to hold future conventions in any state that has not passed the Equal Rights Amendment.

Last January the APA's council of representatives endorsed a resolution to that effect. It went further at its annual meeting in San Francisco in August, by voting to cancel existing letters of agreement with three cities—Atlanta, Las Vegas, and New Orleans—if in those states the legislatures have not passed ERA by the spring of 1979. After 3 hours of discussion, the council overwhelmingly supported the action, despite warnings from APA's lawyers that the organization is vulnerable to up to \$21 million in lawsuits from the three cities for breach of contract.

The APA is the first major organization to take such action on behalf of women's rights. It has canceled contracts for principles twice before—with Miami in the early days of the civil rights movement, and with Chicago following police brutality at the Democratic convention there.

Women psychologists, who comprise 27 percent of APA's 27,000 membership, spearheaded this year's action, but it had overwhelming support from the rest of the membership, including Nicholas Cummings, who will assume presidency of APA in January of 1979, the year the Atlanta convention is scheduled.

Cummings, who delivered an eloquent speech at the meeting, told *Science* he hadn't made up his mind until the night before, when a group of women came by asking him to sign a petition to boycott Atlanta. "I agonized all night," he said. "If I signed I would have to resign as president if they held the meeting there. I would not want to go to a state where my colleagues are not considered equal. I might even have to lead a counter-convention." But, he added, "the business interests in Atlanta ought to be able to swing it. Rural legislators may not understand ERA but they understand money."

Current APA president Theodore Blau is optimistic that in Atlanta, at least, ERA will be passed in time for the convention to proceed. "We want to go to Atlanta," he says. "It's a fantastic city. The mayor is a lovely person. We see ourselves as joining Atlanta in attempting to get ERA through the legislature." The bill only failed in Georgia by three votes last time around.

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While the APA was boldly risking its money on contract-breaching, the council surprised many by deciding not to

go ahead with publication of a new magazine, called "Psychology," which was to be a slick quarterly aimed at both professional and lay readership. The organization put a lot of money into a pilot issue that was greeted with enthusiasm last year, but it was decided that the financial risk—the organization stood to lose maybe half a million dollars if the magazine didn't float—was not justified by the potential benefits of spreading more knowledge about psychology to the public.

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Psychology appears to be thriving in any case. Blau characterized this year's meeting, attended by some 14,000 people, as the "best we ever had," although the academic scientists among the membership might disagree with that. In a recent editorial in the *APA Monitor*, Richard Thompson of the University of California at Irvine complained that researchers were being accorded less and less time at the annual meetings and that the association wasn't responsive to their needs.

Although Blau said measures were being taken to rectify the situation, there did appear to be a great deal of emphasis on psychotherapy and related issues at the San Francisco gathering. Partly in anticipation of National Health Insurance, there are many efforts now afoot to evaluate the effects of psychotherapeutic interventions. And professional psychologists have become very aggressive in efforts to alter state laws and licensing procedures to give psychologists parity with psychiatrists.

California psychologist Herbert Dörken reported at one symposium that things were moving right along on many fronts in his state—such as coverage for psychologists under workmens compensation and Medicaid, and the status of psychologists as expert witnesses and in determining mental competency of criminal defendants. Dörken said that the question of hospital privileges for psychologists is now the "last major battlefield." Because of resistance from the Joint Commission on Accreditation of Hospitals and the American Medical Association, psychologists are usually not allowed to commit their patients for psychiatric hospitalization or to treat them as inpatients.

The conflicts between psychologists and psychiatrists over their turf have been fierce in many parts of the country, but Dörken thought the psychologists would eventually achieve their goals—because "we're growing in numbers faster, and we probably have a greater range of relevant skills."—C.H.

antinuclear cause in France. Most of the press, including the Communist newspaper *L'Humanité*, condemned the marchers and supported the police, although some were critical of police tactics. *Le Monde* speculated that an antiecology movement might already be under way in reaction to the environmental campaigns. And even before the march, some supporters had pulled out because they feared that it would be violent.

Since the march, there have been a series of sporadic attacks against property of the French electrical utility, Electricité de France. A gasoline bomb was thrown through the window of an EDF office in Paris, a bulldozer on a construction site was damaged, and EDF offices were invaded by protesters for sit-in's. In counter protest, French electricity workers went on strike for 1 hour, issuing a statement deploring the attacks and saying that EDF staff "will not let themselves be insulted and will not accept working in unsafe conditions."

The Creys-Malville demonstration had been planned for more than a year by the French environmental groups, which have become increasingly vocal and effective in French politics. In the local elections in March, environmentalists standing for office as "Green Candidates" did remarkably well, polling up to 15 percent of the vote in the first ballot in some places. Like such campaigners elsewhere, the French environmentalists are predominantly young, many of them students, and some see them as the natural successors of the young people who brought France to a standstill in May 1968. They are outside the conventional political parties and they have a taste for direct action.

While the violence of the Creys-Malville demonstration was not officially encouraged by the organizers, neither was it condemned. Brice Lalonde of the French branch of Friends of the Earth concentrated his criticism after the event on the local prefect, Rene Jannin, whom he accused of incompetence and xenophobia. The Malville committees which had helped to organize the demonstration affirmed their support for "all the demonstrators, whatever their political persuasion, nationality, or method of action may be."

So far, the German antinuclear movement has proved the most effective in Europe, both in the numbers of demonstrators it can call out and in the delays it has imposed on the nuclear program. The two demonstrations which established the movement as a real threat to the German Government's plans oc-

curred at Wyl, on the Rhine, where demonstrators occupied for many months a site chosen for a nuclear plant, and at Brokdorf, on the Elbe Estuary, where violent clashes between police and demonstrators caused many injuries.

The German groups have been equally effective in their use of legal and planning procedures to block the building of nuclear plants. At the moment no less than eight nuclear plants are being blocked by legal objections, and difficulties in finding a site for the disposal of nuclear waste have been used by one court as grounds for stopping the building of a nuclear plant. The Government, however, has stood firm, declaring that its plan to provide Germany with 45 nuclear plants in the next 10 years is both correct and necessary.

Its convictions will face a political test at the party congresses of the Social Democrats and the Free Democrats later this year. These two parties, which make up the ruling coalition, include some nuclear doubters, and the antinuclear lobbyists will be campaigning at the party congresses to bring more over into the fold.

The fast breeder program is likely to be a key element in the arguments. It is the largest government-funded research and development program in West Germany and is in some disarray. The SNR-300 prototype, conceived in the mid-1960's and justified by some highly optimistic cost projections, is years behind schedule and grossly over budget. Allowing for inflation, the cost of the 300-megawatt reactor has increased fourfold since the first estimates were made in 1965, principally because of extensive changes in the design demanded by the German reactor safety authorities and the electrical utilities.

Since the SNR-300 was designed to be as "commercial" a prototype as possible, the electrical utilities were also consulted extensively on its design, and the changes they introduced further increased costs. According to a study of the SNR-300 which has just been completed by Otto Keck, a lecturer in science policy studies at the University of Ulm, the cost of building the SNR-300 will be 4800 DM (\$2100) per kilowatt installed (prices quoted at the 1972 value of the DM) some eight times greater than a conventional thermal reactor would cost.

Thus the Germans have by a paradox produced a fast breeder which is "commercial" and at the same time hopelessly uncommercial. Keck concludes that the high priority given to the breeder pro-

gram by the German government appears not to be justified, the economic prospects are dim, the benefits of government subsidy doubtful, and the likelihood is that it will be a commercial failure.

Critics of the Keck thesis argue that SNR-300 is not typical of the costs of a large commercial fast breeder, and say that Super-Phénix will cost only 50 percent more than a thermal reactor of the same size. If this target were to be met, then Super-Phénix would be economical on the assumption that uranium costs \$40 a pound and enrichment costs \$90 per kilogram of separative work, figures are not far out of line with present prices.

But Keck doubts that Super-Phénix is in fact fully commercial, in the sense that it could be licensed in the United States, for example. And he suspects that changes needed to make the design licensable would so increase its costs that it would become uneconomic at any foreseeable uranium price.

Arguments of this sort are relatively new on the European nuclear scene but are likely to gain greater prominence as fast breeder programs develop. And although less dramatic than storming the police lines at Creys-Malville, they could in the end prove more influential.

—NIGEL HAWKES

RECENT DEATHS

Louis F. Fieser, 78; professor emeritus of organic chemistry, Harvard University; 25 July.

Harold Glander, 54; professor of mathematics, Carroll College; 20 June.

Jacob F. Golightly, 56; professor of mathematics, Jacksonville University; 4 July.

Carye-Belle Henley, 78; professor emeritus of radiology, College of Medicine and Dentistry of New Jersey; 14 July.

George H. Houck, 75; professor emeritus of medicine, Stanford University; 5 July.

Louis M. Jorgenson, 93; professor emeritus of electrical engineering, Kansas State University; 26 July.

Joseph H. Keenan, 76; retired professor of mechanical engineering, Massachusetts Institute of Technology; 17 July.

Georges Ungar, 71; former professor of biochemistry, University of Tennessee Center for the Health Sciences; 26 July.