STATE AND SOCIETY

Organized Labor Beckons To the Physics Profession

In big-city universities and private research laboratories, the AFL-CIO is mounting a strong drive to gain support from physicists and other segments of the scientific community traditionally opposed to unionism. Meanwhile at Berkeley and other departments, physics teachers who participated in work stoppages have been criticized by many of their colleagues.

Whys and why nots. "When a steamfitter or teamster begins to earn as much money as a PhD physics instructor," says Carl Megel of AFL-CIO, "professional unionism is going to get results." Megel, a former highschool physics teacher and 1954-62 president of the American Federation of Teachers, has just been named executive secretary of the newly founded Council of AFL-CIO Unions for Professional, Scientific and Cultural Employees. The council, representing 17 unions with over three million members (including almost half a million teachers, engineers and scientists), is trying to publicize an attractive image of unionism that will encourage professional scientists to join a "We want to show scientists union. the merits of collective bargaining for higher salaries, guarantees of academic freedom, better working conditions and job security," Megel told PHYSICS TODAY. "We also think the science community could profit from some kind of grass-roots representation in Washington with other labor groups."

Union spokesmen point out that largely through automation, industrial and craft union membership have declined in the last few years. At the same time the number of professional workers has greatly increased. With skilled-labor wages approaching those of teachers and other professionals and with the submergence of scientists into the large body of industrial workers, organized labor believes the time is ripe for a concerted effort to enlist scientists. Thus far only a scattering of industrial physicists are members of locals in such unions as the United

RESONANCES

Extension of the draft act for four years has won overwhelming
Senate approval. The Senate left to the President the
power to carry out his stated object of ending most
graduate-student and occupational deferments. Observers say the House will go along with the Senate and
that current graduate students will probably be liable
to the draft when they complete their MS or PhD.

A \$31 million cut in the NSF budget authorized for fiscal 1968 has been made by the House Appropriations Committee. The \$495 million National Science Foundation appropriation remaining after the cut, if approved by the full House and Senate, will be \$15 million over last year. The reduction, say NSF sources, will force the foundation to retrench some programs in the physical sciences while maintaining NSF growth in the social sciences.

Civil rights is holding up 200-GeV site approval, say many sources.

Rep. Erlenborn (R-Ill.), for example, has charged that the Administration is using the Weston site as a "\$300 million bribe" to coax the Illinois General Assembly to pass a state open-housing statute. Meanwhile a subcommittee of the Joint Committee on Atomic Energy has recommended an intensity of 3 X 10¹³ protons per pulse for the accelerator and a 300-GeV design option.

Auto Workers, American Federation of Technical Engineers and Association of Scientists and Engineering Personnel. "We have to overcome the historic opposition of professionals to unionism," says Charles Cogen, president of AFT. And in a sample of opinion at a recent American Physical Society meeting, PHYSICS TODAY found a general distaste for the idea of unions coupled with recognition of some of its benefits. For example a solid-state physicist from Boston said, "Joining a union doesn't seem quite in the spirit of things, but it might be the only way out economically." And a low-temperature scientist noted, "I don't like it at all. It's against what I stand for as a scientist. But I have a large family, and if the unions displayed effectiveness with the teachers I might be persuaded to join one."

Teacher union. Cogen and other union officials realize that many scientists will judge the effectiveness of unions from any results achieved by the American Federation of Teachers. AFT has more than tripled its membership among college teachers in the past two years. Officials claim that among its 10 000 college faculty members are several hundred physics teachers with big concentrations in New York City, Michigan, Illinois and California. No four-year college, however, has a collective bargaining agreement with a professors' union at this time, though a few junior colleges have recently won such agreements. "The strongest unionists are in the humanities and social sciences departments," says an AFL-CIO organizer. "We get the most heated opposition from the engineering teachers. Physics and mathematics professors are somewhat in the middle and will at least consider the idea."

Thus far AFT has engaged in only a handful of strikes on the college level, the first of which was at St Johns University in 1965. Other recent walkouts include the Chicago junior-college-system strike (which resulted in a collective bargaining agreement for the strikers) and the Berkeley strike. The latter walkout began as a student strike over a war-and-peace issue and was later supported by an AFT local of teaching assistants. The assistants later demanded recognition for their local, and though the strike ended after a few days, discussions between the local and the university are continuing.

Concerning the Berkeley strike, Owen Chamberlain of the Berkeley department told PHYSICS TODAY, "The physics department staff estimates that between 5 and 10% of the physics teaching assistants may be members of the [striking] AFT local 1570. During the strike the teaching in the department was not very noticeably disturbed. The department chairman was aware of two cases of teaching assistants or readers who refused to do their regular work during the strike. and a number of ungraded papers did pile up in one course. There were probably two or three other cases not known to the chairman.

"The general view of the physicsdepartment professors seems to be that a strike is a rather inappropriate weapon in a university environment. The staff is unanimous, I think, in believing that a strike should be used only when it is quite clear that all forms of discussion and negotiation have been exhausted."

Science Cooperation with USSR Looks Bright Despite Vietnam

A high-ranking State Department official has told PHYSICS TODAY that the Russians will probably agree to renegotiate the US-USSR scientific-exchange agreement when it expires at the end of December. This same source noted that despite the Vietnam conflict and internal opposition to the pact both in the US and USSR, the Soviets and Americans are particularly eager to draw into closer scientific co-öperation at this time.

The scientific exchange pacts. which have been renewed four times since 1958, have provided for extended stavs in one another's country of leading US and USSR physicists. Last year a US delegation of low-energy physicists visited facilities in the Soviet Union, and two US fusion specialists spent a total of nine months at the Lebedev Institute in Moscow and the Physical Technical Institute in Kharkov. Currently, two Soviet fusion scientists, D. P. Ivanov and A. I. Yermakov, are conducting experiments at the Princeton plasma-physics laboratory.

What makes State Department officials think the Russians will ratify a new pact is their experience in negotiating the present agreement. Last



PRESIDENT JOHNSON addresses the American Physical Society during its April meeting in Washington, D. C., as presidential science adviser Donald F. Hornig (left) and APS president Charles H. Townes (right) look on.

1062 Instrument Computer

In the twelve years following the introduction of the use of computer memories to measurements such as multichannel pulse height analysis, neutron time-of-flight analysis, and signal averaging, manufacturers have struggled to provide real versatility in a single instrument. That goal has been reached with great effectiveness in the model 1062 instrument computer (1024 or 4096 addresses).

This instrument has an internal organization which departs from the traditional. Instead of the usual "add-one scaler" data register. multiple registers with shift, transfer, complement, and whole number addition capabilities are provided. The rigid read, add-one, write program has been replaced with variable length programs including conditional jumps. All command lines are available to "front end" plug-in units. This structure permits each different measurement type to be made with the highest precision and efficiency: the traditional rigid organization invariably resulted in mediocre, or ever poor, performance in all but one measurement type.

Our line of plug-in units will include capabilities for pulse height analysis, high precision voltage waveform digitizing, histogram measurements, multichannel scaling, and others. The first units available have been designed for precision digitizing and signal averaging, with spectrometer measurements the principal application. Other plug-in units will be announced soon.

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