

Physics Job Market a Little Tighter as Economy Wanes

Reports gathered by PHYSICS TODAY from industrial and government laboratories indicate that jobs for physicists, while still far more numerous than the supply of applicants, are becoming less so. At the same time, academic sources report that the shortage of college physics teachers continues to grow in severity, especially in small four-year institutions.

Analysts of the technical employment situation say that the tightened job market reflects a slowdown in the nation's economy as well as the leveling off of federal research funds. One indicator, the Deutsch & Shea technical-manpower index, reported a drop of 10.5% in demand from last year. Leading industrial laboratories generally reported a stable demand for physicists coupled with an increasing number of applicants. IBM, for example, said, "In all our divisions that hire physicists, no new research facilities are being planned. But the supply of physicists is so much greater that a tight job situation has resulted." Bell Laboratories indicated that while they have no surplus of physics applicants, the hiring is easier for Bell this year than in the past.

Meanwhile the American Institute of Physics placement service reported handling more applicants and fewer employers at this year's Washington meeting of the American Physical Society than last year. In addition, recruitment advertising in PHYSICS TODAY is currently running about 25% below last year. Personnel agencies specializing in physicists said that while the number of applicants has increased about 25% this year, the number of positions available has dropped a little more than 25%. "There are definitely fewer jobs around for the physicists who are looking," noted one agency. "The cutback is most pronounced at the high salary levels. Companies tend to replace older men with younger physicists who have lower salary demands."

Government laboratories reported

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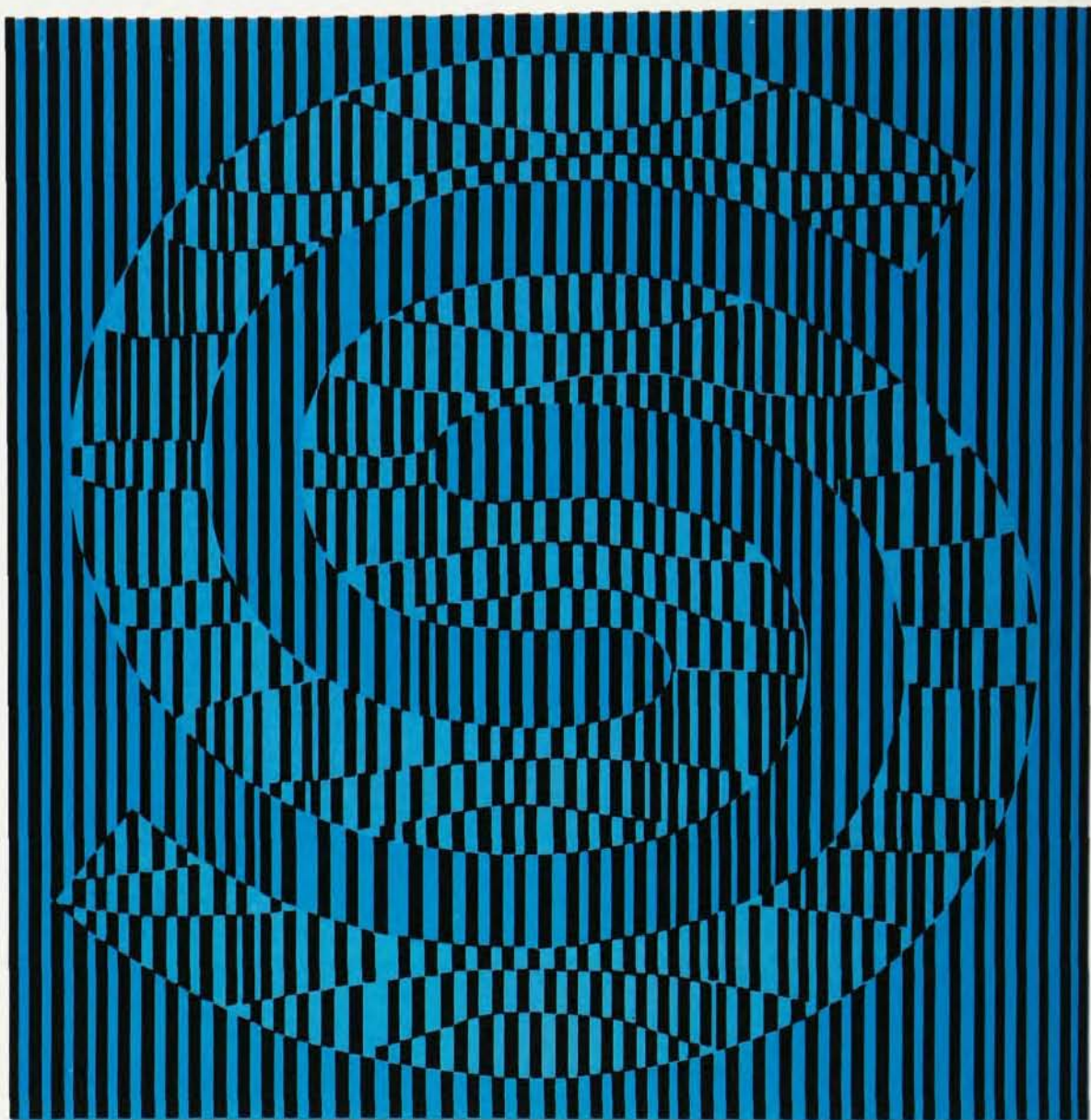
Graduate students are not covered by minimum wage and overtime provisions of the Fair Labor Standards Act, announced the Labor Department. The department said, "Where a graduate student is engaged in original, professional-level research which is primarily for the purpose of fulfilling the requirements for an advanced degree, even though he may be performing such research under a grant . . . we will not assert that an employer-employee relationship exists."

The California State College faculty, object of recent intense recruitment drives by organized labor, have voted not to have any exclusive outside bargaining agent. Participating in the poll were more than 5700 college teachers, 52.3% of whom voted no. The teachers thus appeared to prefer continued representation by the academic senate of the California State College system.

Egyptian President Nasser's voice was identified by physicist Lawrence Kersta from Israeli tapes of a purported plan to save face discussed by Nasser and Jordan King Hussein. Kersta told PHYSICS TODAY he made identification by comparing the tapes with prior recordings of Nasser's voice, using voiceprint identification methods.

that though the number of physics applicants tended to grow over last year, the number of openings averaged slightly less because of budgetary restrictions. Oak Ridge National Laboratory, for example, said, "We have had a very sparse hiring season up till now because we had no money left in our budget. But we expect the Atomic Energy Commission to increase our funds very soon so that we will probably hire as many physicists as we did last year." Brookhaven National Laboratory reported a decrease of about 15% in the number of positions available together with a somewhat higher supply of applicants. And a BNL spokesman noted that this situation probably obtained in the other national laboratories. "Jobs in high-energy physics are quite numerous," he said, "but this is not quite true for nuclear and low-energy physics." Argonne National Laboratory, however, reported that because of their new reactor facility, their demand for physicists had risen some 100%. "Otherwise," said an ANL spokesman, "our demand would be the same as last year. But there are many more applicants."

Academic community and government sources, however, reported that the critical shortage of physics teachers continues unabated. The US Bureau of Labor Statistics, in a soon-to-be-published report, notes a "particular demand for physicists with advanced degrees to teach in colleges and universities Many schools have had difficulty recruiting sufficient numbers of well qualified teachers and this problem may continue in the future." At the same time, the National Education Association reports that 406 colleges and universities reported critical shortages of physics teachers for the current academic year. Only mathematics was more frequently mentioned (by 597 schools). "The shortage of physics teachers has always been chronic and is expected to be so in the future," said an NEA spokesman. AIP education and manpower director Arnold Strassenburg also reported more jobs for physicists in the academic community than people to fill them. "The small liberal arts schools are particularly having more trouble seeking faculty than last year," he noted,



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and observed that well-qualified graduate students are also in short supply. "Very good schools are finding it harder to find good graduate students to maintain their department standards. These first-rate institutions are barely getting enough to fill their quotas with little or no selection of applicants."

Army Tandem Rests in Limbo, Awaits New Marching Orders

Almost a year after an Army-ordered tandem Van de Graaff accelerator completed its acceptance tests, the machine is still resting unused in a Massachusetts vault. Many nuclear physicists have felt increasing concern about future operation of the 15-MeV (Model FN) facility by the Army Materiel Command's Nuclear Defense Laboratory at the Edgewood Arsenal near Baltimore, Md. The scientists, who had hoped a university staff or some other nonprofit organization might run the \$3 million laboratory, fear the present NDL personnel are inadequate to run successfully so complex a facility. The Army, however, discounts this fear and says it is confidently going ahead with the program.

According to physicists involved in the design of the laboratory, the arsenal encouraged the idea for the tandem shortly after the US-USSR test-ban treaty of 1963. "Some people at NDL," says former consultant Kemal K. Seth of Northwestern University, "thought that this would be a good time to put in a request for a big machine that could ostensibly do cross-section measurements needed in weapons development and effects research. They had little expectation of getting the machine. But their timing was good and they were somewhat taken by surprise when one day word actually came that the Defense Department had okayed the purchase."

Another consultant, Jerry Marion of the University of Maryland, notes, "The tandem request document was classified and approved through DOD channels before anybody in the physics community knew anything about it. Once something gets approved by the military, it's damned hard to get it

stopped. I became a consultant with the attitude that even though we couldn't prevent it, we might try to develop something worthwhile."

Seth who had been hired as a consultant to help organize a cross-section measurement program at the Cockcroft-Walton accelerator already at NDL, was now asked to head the design of still another machine. "It was a frustrating job. It took our group weeks to write specs or design some part of the facility, but it only took the commander and the other nontechnical people at NDL minutes to mutilate the work. Often we weren't even told about it."

At the same time, the designers began to wonder who would run the tandem when it was completed. They had thought the machine would be operated by a university or nonprofit group for cross-section measurements and nuclear structure research. It soon became quite clear that NDL had no intention of letting someone other than in-house personnel run their machine. This seemed strange since they had only one physics PhD (in electrodynamics) on their permanent staff, and the consultants asked NDL to begin an effort to obtain young PhD's in nuclear physics who were serving out their tours of duty. Subsequently the arsenal did acquire a few nuclear physicists in uniform. When the advisors indicated that senior scientists were required to direct the laboratory and the transient Army personnel, the Army replied that their young PhD's were fully capable of heading the facility. "But you can't run a laboratory with such people," says Marion. "They are fresh PhD's and just don't have a broad enough perspective to run such a large facility with a \$1.5 million annual operating budget." "We fought over this issue for about a year with numerous frustrations," says Seth. "The Army said that since there were no positions initially, no additional posts would be granted by Secretary McNamara's office."

Meanwhile the tandem design was completed and the machine ordered from High Voltage Engineering Corp. in October 1964. Some two years later the company completed construction at a cost of \$1.953 million. It was thought a fine machine, accelerating 23 microamp of proton beam at 16

MeV. Army officials, however, had not yet decided on the building to house the accelerator. Subsequently NDL representatives went up to High Voltage but refused to accept the machine because of technical difficulties. A second test was successful; the Army accepted the machine and allowed HVEC to use it in development work. Ultimately HVEC got tired of it and asked the arsenal to take delivery. But the Army had not even laid the foundation for the building. Finally, the company dismantled the tandem and stored it in its vault at Burlington, Mass. where it still sits.

During this time, Argonne National Laboratory, who were upgrading their 12-MV EN tandem into a 15-MV FN machine, found that the rebuilding would be delayed because of the lack of certain parts. "Argonne knew that the Edgewood machine was in storage," says Marion. "They asked the arsenal for permission to use the tank from the machine which they would replace long before the Edgewood tandem was in operation. The Army gave Argonne a flat no."

Commenting on the Army refusal, Brig. Gen. William A. Becker of AMC says, "Argonne's best estimate at that time was that their machine would not be available for 15 months. Not anticipating extensive redesign of the shielding facility, the request . . . was turned down because it would be out-of-phase with the installation schedule." Gen. Becker also notes, "It is not our intention to restrict utilization of this research tool to a single military establishment, but rather because of its unique capability, to encourage utilization through the DOD and academic community."

Lt. Col. Shaw of the Edgewood Arsenal told PHYSICS TODAY, "We are negotiating right now with a contractor to go ahead with the building. I'm sure we will hire some additional senior staff to help run the machine. It's hard to say how many."

The two consultants, Seth and Marion, have given up after writing detailed solicited reports to NDL's new head at AMC, Dr. J. T. Thomas. "I myself have slept a lot easier since then," says Seth. And his colleague Marion, "It is my opinion that nothing will ever happen there and that it will just be an infinite sink of money." □