

Polish teachers, Waldemar Gorzkowski and Andrej Kotlicki, and apparently they succeeded in producing a test that did not discriminate against or in favor of any particular country: The ten gold medal winners came from nine countries; only West Germany produced more than one gold medalist.

The experimental problem required the students to measure the velocity of sound in liquids using piezoelectric crystals. The theoretical section's three problems focused on the boiling points of liquids, gravitational forces between three bodies and the properties of electron microscopes.

Gubser had a near-perfect score on the theoretical problems. "I'm really just more of a theorist," he said. "It was my unusually high theoretical score that got me into first place." His background in chemistry also worked to his advantage in solving the first theoretical problem, which involved Dalton's law of partial pressures. (Gubser had turned down an invitation to participate in the US training camp for the International Chemistry Olympiad when he was told he would be representing the American physics team in Poland.)

The following example, the second problem from the theoretical section, reflects the level of proficiency required of the students:

"Three known masses m_1 , m_2 , and m_3 located at noncollinear points P_1 , P_2 , and P_3 interact with each other through their mutual gravitational forces only; they do not interact with any other bodies. Let σ denote the axis through the center of mass of the points P_1 , P_2 and P_3 and perpendicular to the triangle $P_1 P_2 P_3$.

"What relations should be satisfied by the distances $P_1 P_2 = a_{12}$, $P_2 P_3 = a_{23}$, $P_1 P_3 = a_{13}$ and the angular velocity ω of the system (with respect to the axis σ) to allow the shape of the triangle $P_1 P_2 P_3$ to remain unchanged during the motion of the system, i.e., under what conditions will the system rotate around the axis σ as a rigid body?"

The team members

Derrick Bass, who won a bronze medal in the competition, unraveled this problem in a way the Polish professors had not anticipated, with an elegant solution of only seven or eight lines. Bass later revealed that the coordinate system he settled on for the problem was "about the 25th one" he tried. Jason Jacobs, who also won a bronze medal, ran into difficulties with the same question. "He ended up with an equation with no

less than 42 terms," said Eisenkraft. The caliber of the members of the US team is evident both in their work at the Olympiad and in their activities outside physics.

Bass is a junior at North Miami Beach High School in Florida, where he has already taken an advanced placement chemistry course and two years of advanced placement calculus. (These courses are usually offered to junior and senior students only.) He has been honored by the Dade County school board for his achievements in local, state and national math contests, and is an avid reader of science and astronomy magazines.

Jacobs, who now attends Harvard University, chose honors classes in all the subjects in which they were offered at Baldwin Senior High School on Long Island, New York. He has won a long list of mathematics and physics awards, including top honors at the Long Island Physics Teachers Association Competition, and a summer scholarship to Stanford University to study computers. Jacobs was a member of the debate team and the newspaper staff at his high school.

James Sarvis, who was awarded an honorable mention, now attends MIT. During the trip to Poland, Sarvis was in the process of deciding whether to accept a sizable scholarship from the National Security Agency to study engineering at MIT or to study "physics for the love of physics." As a senior at Thomas Jefferson High School for Science and Technology in Alexandria, Virginia, he was a member of the math team, the computer team, the debate team and the Junior Engineering Technical Society team.

Jarvis was also a member of the National Latin Honor Society and was in the Leadership Corps of the Boy Scouts of America.

Jessica Millar, the youngest competitor in this year's Olympiad (she will be 16 in December), fell just short of an honorable mention. A junior at West High School in Madison, Wisconsin, Millar left the Physics Olympiad training camp at the University of Maryland for 13 hours to fly home for Wisconsin's 1989 state track meet, in which she won a gold medal in the 1600-meter race. She plays the violin in the Wisconsin Youth Orchestra, and traveled to Edinburgh, Scotland, with the orchestra for a competition in August.

Gubser is a senior at Cherry Creek High School in Denver, Colorado (a school that produced a bronze medalist in the first Olympiad in which Americans participated, in 1986). Gubser is taking advanced placement courses in French and English, and he plays piano. Because he has run out of physics courses at his high school, Gubser plans to pursue math more aggressively in his senior year, with independent study in linear algebra and differential equations.

The American Institute of Physics organized the funding for the 1989 US Physics Team. Sponsors giving \$5000 or more included AAPT, AIP, The American Physical Society, the AT&T Foundation, Eastman Kodak Company, Ford Motor Company, Hewlett-Packard, IBM, the Office of Naval Research and Xerox.

The XXI International Physics Olympiad will be held 5-13 July 1990 in Groningen, the Netherlands.

—PAT JANOWSKI

SOVIET MAGAZINE FOR HIGH SCHOOLERS TO APPEAR IN ENGLISH

The National Science Teachers' Association has acquired the English-language rights to *Kvant*, a Soviet physics magazine for high school students that has appeared for 19 years. A grant from the National Science Foundation will enable NSTA to publish *Quantum*, a translation of the magazine, for the next two years. The grant "will allow us to initiate publication to see if it's viable," said Bill Aldridge, executive director of NSTA.

Kvant, written by Soviet physicists, contains problems for students to work out, some research articles, occasional news stories, and contests (such as the one whose winners participated in an exchange program

with American students last summer—see *PHYSICS TODAY*, August, page 59). *Quantum* "will be an English-language version of *Kvant*, containing much of the same material with some additional material," said Aldridge.

The American Association of Physics Teachers and The National Council of Teachers of Mathematics are sharing editorial responsibility for *Quantum* with NSTA. Jack Wilson, executive officer of AAPT, notes that the translation will retain the unusual illustrations from *Kvant*, which he describes as strange and wonderful—"Alice in Wonderland stuff."

Sheldon Glashow of Harvard Uni-

versity will serve as physics editor for the translated version, and Robert Thurston of Princeton University as mathematics editor. Edward Lozansky, a Soviet emigré, will be staff editor in Washington. The initial translation from Russian to English will be done in the Soviet Union. Yuri Ossipyan, senior vice president of the Academy of Sciences of the USSR, is editor in chief of *Kvant*.

The magazine has strengthened ties between US and Soviet physics, said Wilson, citing this summer's student exchange program as an example. Aldridge estimates that the initial mailing of *Quantum* will be about 100 000 issues. (*Kvant* has a circulation of 200 000 in the Soviet Union.) It will go primarily to students in advanced placement, gifted and talented high school programs in the US. NSTA also will mail samples to Canada, Australia, some European countries, and Japan.

Physicists interested in subscribing to or contributing material to *Quantum* should contact NSTA, 1742 Connecticut Avenue NW, Washington DC 20009; telephone (202) 328-5800.

—PAT JANOWSKI

GERMANY CANCELS WACKERSDORF, HTGR REACTOR PROJECT

In moves that have international implications, the Federal Republic of Germany is terminating two important nuclear energy projects. After spending the equivalent of more than \$1 billion in four years on construction, the West German government has suspended further work on the reprocessing plant at Wackersdorf in Bavaria, which was intended to treat all spent fuel from German reactors. The government also plans to decommission a prototype 300-MW high-temperature, gas-cooled reactor, having concluded it cannot be operated economically.

The Wackersdorf reprocessing facility has aroused hefty opposition from environmentalists, arms controllers and antinuclear activists (see *PHYSICS TODAY*, October 1986, page 115). Nevertheless, cancellation of the plant represents only a partial victory at best for those opponents who were concerned primarily about proliferation hazards arising from the extraction of plutonium from spent fuels at the plant, and traffic in plutonium to and from the plant. The Federal Republic expects to proceed with recycling of plutonium from spent fuel and has made contingency

plans to have German fuels reprocessed at the French facility at La Hague. The French could wind up treating as much as 500 tons of German fuel rods annually, and the Germans may finance construction of an add-on facility at La Hague.

Germany's high-temperature gas-cooled reactor, designed to provide process heat for industry as well as electricity for home consumption, has been strongly promoted for several decades as an intrinsically safer alternative to the fast breeder.

—WILLIAM SWEET

GOETTEL IS AIP'S CONGRESSIONAL FELLOW IN 1989-90

Kenneth A. Goettel has been awarded the 1989-90 Congressional fellowship sponsored by the American Institute of Physics.

Goettel received his bachelor's degree in geological sciences with high distinction in 1969 from the University of Rochester in New York. He did his graduate work at the Massachusetts Institute of Technology, where he received his MS in Earth and planetary science in 1972 and his PhD in geochemistry in 1975.

From 1975 to 1976 Goettel worked as a research associate in Earth, planetary and geological sciences at MIT, Cornell University and Washington University in St. Louis, Missouri. He was an assistant professor in the department of Earth and planetary sciences at Washington University from 1976 to 1982, when he became a temporary staff scientist for the Carnegie Institution's Geophysical Laboratory in Washington, DC. In 1984 Goettel went to Brown University in Providence, Rhode Island, where he was senior investigator in the department of geological sciences until 1988. He was also a full-time consultant for the Earth sciences department of Lawrence Livermore National Laboratory in 1985-86. Goettel has been with Harvard University's physics department as a visiting scholar since 1986.

In his most recent research Goettel has used diamond anvil cells to examine the properties of materials at very high pressures.

AIP's Congressional fellowship program was established two years ago, and the first fellow was Arthur Charo, who worked for the Office of Technology Assessment in 1988-89. As a member of OTA's international security and commerce program, Charo

contributed to two projects: One concerned the National Aerospace Plane, part of a larger project on advanced space transportation technologies; the other, which he continues to work on, concerns technology for verification of a strategic arms reduction agreement.

The normal expectation is that Congressional fellows will work for members of Congress or committee staffs, but OTA is a Congressional agency, and working in two politically sensitive areas gave Charo ample exposure to the vagaries of political life on Capitol Hill.

—PAT JANOWSKI

ISRAEL DEPORTS PALESTINIAN TO FRANCE

On 27 August, after our September issue had gone to press, the Israeli High Court of Justice (Bagatz) upheld a decision by Israeli military authorities to deport Tayseer Aruri, a physicist at Birzeit University accused of being a member of an illegal organization (the Palestinian Communist Party, which is affiliated with the PLO) and of being an organizer or leader of the Palestinian uprising (the *intifada*). Aruri was one of five Palestinians who had appealed to the High Court in hopes of having deportation orders overturned.

The Aruri case had aroused concern among physicists inside and outside of Israel, and as a result of interventions by a number of human rights groups including The American Physical Society's Committee on the International Freedom of Scientists, the Israeli Physical Society agreed to monitor the case and to report back to CIFS on court proceedings (see *PHYSICS TODAY*, September, page 83). While petitions by physicists and groups representing physicists did not persuade the High Court to overturn the deportation order against Aruri, the interventions may have helped Aruri obtain special consideration after the order was upheld.

Aruri, an advocate of a two-state solution to the Palestinian problem based on mutual recognition by Israel and Palestine, asked to be deported to some third country rather than to Lebanon—the usual destination—because he said he feared being assassinated by rival Palestinians in Lebanon. Israel's government agreed to that request, and he was permitted to fly to Paris at the expense of his family. ■