CONCENTRATES

Science

A power boost for CERN's proton synchrotron to 400 b.e.v. has been approved by the group's council. CERN (European Organization for Nuclear Research) first approved the project in 1971 for a level of at least 300 b.e.v. with option for a pause at 200 b.e.v. to be followed by introduction of superconducting magnets into the main ring. The recent decision means that the ring will be filled with iron-core magnets, and a direct move to 400 b.e.v. will be made without pause.

Pest control emerges as a top topic in U.S.-U.S.S.R., U.S.-China scientific exchange programs. Next month, Moscow and Kiev will host a joint conference on integrated pest management. Selected U.S. scientists, under a travel grant from USDA, will attend the conference and visit Soviet laboratories. Some may stay and work there. In turn, Soviet scientists will visit U.S. laboratories. Meanwhile, six Chinese specialists in insect hormone research are now touring U.S. government research centers, companies, and universities for six weeks. (For more on U.S.-China exchanges see page 11.)

Effect of vinyl chloride on the health of those who have worked with the material is the subject of a survey being administered by the Manufacturing Chemists Association and carried out by Tabershaw-Cooper Associates. Sponsor of the study is a group of chemical companies that handle vinyl chloride. Another study at Industrial Bio-Test Laboratories is determining effects on laboratory animals of long-term exposure to vinyl chloride vapors. The studies will supply data for the National Institute for Occupational Safety and Health.

Technology

Electricity from a "solar sea power plant" might cost less than that from offshore nuclear plants, gasified coal, and other sources, according to scientists at Carnegie-Mellon University. A multidisciplinary group, led by Dr. Clarence Zener, has received a $190,000, 18-month grant from NSF to make a computer-based cost analysis of a potential system to generate power by exploiting temperature differences between surface and deep-lying waters in tropical seas. The proposed closed Rankine cycle system would use a working fluid vaporizing at ocean surface temperatures.

Coal-to-gas test runs have been lengthened considerably, according to the Institute of Gas Technology, Chicago. IGT has increased continuous operation of its Hygas pilot plant from a day or two at a time to more than 100 hours. The plant converts more than 3 tons per hour of Montana lignite into 900 to 1000 B.t.u.-per-cu.-ft., sulfur-free gas at pipeline pressure of 1000 p.s.i.

High-temperature nuclear reactor development has received a boost. Two more utilities—Northern States Power and Pacific Gas and Electric—have joined Gulf General Atomic's high-temperature gas-cooled reactor (HTGR) development program. In another move, a utilities industry group, High Temperature Development Associates, Inc., representing some 50% of power generating capacity in the U.S., has established a research fellowship at the University of California, San Diego, for work related to the advanced concept.

Japan's first nuclear ship sits idle in port more than eight months after completion, as fishermen who fear radioactive contamination of fishing grounds continue to oppose her trial runs. Officials of Japan Nuclear Ship Development Agency, owner of the 2400-deadweight ton cargo ship *Mutsu*, scheduled trials from June 30 in the Japan Sea after canceling original plans to use her home port of Mutsu Bay. But the new plan was also canceled after fishing associations in three prefectures opposed the sailing.

A large solid waste disposal system for Tokyo is being studied by Dashaveyor Co., a subsidiary of Bendix Corp., under a feasibility study contract from the Japan Transportation Planning Association. One concept being considered involves a 35-mile system running about 100 feet beneath the city. Some 13,000 tons per day of waste would be brought to some 23 underground collection stations, where it would be compressed automatically into bales and loaded onto Dashaveyor vehicles for automatic travel to a remote disposal facility.

Passenger cars pollute water. In a more than year-long study, Biospherics, Inc., Rockville, Md., vacuumed sections of Washington area roads, analyzing the debris. It finds that traffic on all area highways, from Washington, D.C., to the Capital Beltway, drops 55 tons of pollutants per day, mostly from private cars. Included are asbestos (from brake linings), rubber (from tires), zinc (from oil and tires), lead (from gasoline), and other heavy metals and nitrogen and phosphorus compounds. Rain washes much of this pollution into the surface waters of the area, the company says.

Sorb-oil is being produced in western Europe. The nonsinking biodegradable material, developed by Seattle-based Innova Corp., absorbs up to 29 times its own weight of oil and is thus marketed for oil spill control and cleanup. Sorb-oil is being made by Isomo in Heule, near Kortrijk, Belgium. Daily output, initially set at 30 metric tons, is expected to rise to 200 metric tons in the next five years. Mitsubishi is licensed to make the product in Japan for Far Eastern markets.

A second new radial tire production method has been developed by Firestone. A year after disclosing a way to make radial tires on conventional equipment, the company says it now can make such tires using just a single, highly automated work station instead of the former two. Part of the new process involves using an expandable steel drum instead of the former central rubber bladder in building the tire.

Licensing of university-developed technology will be the subject of miniforums to be held at a number of universities by Dr. Dvorkovitz & Associates, an Ormond Beach, Fla., technology licensing firm. The miniforums—bringing together industry and university representatives—will be a prelude to the Second Annual International University/Industry Forum in Chicago next February. A just-ended miniforum at the University of Toledo has set the pace for the meetings at schools interested in but unable to attend the first international forum (C&EN, May 14, page 26).

An acid-soluble zirconium oxide is now available from Tafa/Ionarc, Bow, N.H., in pilot-plant quantities. The microcrystalline product is unique in that it dissolves readily in sulfuric acid, Ionarc says. The acid solution yields a disulfato zirconic acid that is water soluble and hence convenient for making zirconium compounds, including soaps for nontoxic paint and ink driers.

A fire-resistant plastic sheet has been developed by Sumitomo Chemical, Osaka, Japan. The company says the material, called Klintate, has a polyolefin resin as a principal ingredient and inorganic constituents imparting heat resistance. The sheet doesn't generate heat or toxic gases when burned, the company says. Expected uses include packaging and medical applications.

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