

Business Briefs

Food Irradiation

Poultry processing clears last U.S. hurdle

The U.S. Department of Agriculture announced Sept. 18 that the final rule governing irradiation of poultry would be published in the *Federal Register* on Sept. 21. This means that the federal Office of Management and Budget has at last approved this technology for control of pathogens like salmonella, listeria, and campylobacter.

Vindicator, Inc., the food irradiator in Tampa and Plant City, Florida, reports it can proceed with the irradiation of chickens within 30 days after publication of the final rule. The chickens will be labeled with the green, international symbol for irradiation along with the words "Treated with Radiation."

While the technology has been available for decades and the U.S. Food and Drug Administration approved poultry irradiation in 1990 after it found that radiation controls bacteria with no hazard to consumers and with no adverse effects on nutritional value, it took a political fight to overcome obstacles erected by the green anti-technology mob—a fight in which *21st Century Science & Technology* quarterly and food irradiation pioneers played major parts—while the big corporate poultry producers sat on their drumsticks.

Labor

Poland plans more layoffs under IMF pressure

As demanded by the International Monetary Fund, the Polish government intends to phase out two-thirds of coal mining and send 12,500 nurses home, in the next round of budget cuts and "consolidation" measures.

According to a report in the Polish daily *Gazeta Wyborza*, the government plan to restructure the Polish steel industry foresees the closure of seven steel mills (Szczecin, Buczczek, Bobrek, Batory, Ostrowiec, Bankowa, and Kosciuszko) by the year 2002, with 80,000 workers laid off. In 1988, there were 200,000 steel workers; in 2002, there would only be 40,000, and production would be only 50% of

that in 1980.

This year's report by the National Accounting Office stated that 80% of the equipment in Polish steel mills is antiquated, that new investments are too costly, and that only two mills, Katowice and Sendzimir, will be modernized. The Ministry of Industry is hoping to get funds for this project from the World Bank and the European Bank for Reconstruction and Development.

Similarly, there is no money for the Polish Red Cross (PCK), which used to be financed by the Ministry of Health, Ministry of Labor, and local governments. According to a law passed in November 1990 which will be implemented next year, the PCK will have to rely on local governments for funding. It is expected that 12,500 nurses will lose their jobs, and elderly and sick people who depend on them will have to be moved to hospitals, which are in terrible shape.

The "savings" will not be felt for the time being because the PCK will have to pay 100 billion zlotys, or \$640 to each nurse laid off, in severance pay.

Infrastructure

European industrialists urge great projects

Fiat president Umberto Agnelli, president of the "Infrastructure Working Group" of the European Business Roundtable, and Jerome Monod, a former member of the Club of Rome and president of the roundtable, said that there is a critical need for Europe to build a real infrastructure network, in a report released in Paris on Sept. 14, the French daily *Le Figaro* reported.

Agnelli stressed that infrastructure development is "one of the axes on which the future of Europe turns." The group wants to modernize existing transport routes, and to develop new modalities of cooperation in financing infrastructure based on private-public sector collaboration. According to Agnelli, "Europe is the terrain which is the most dependent on infrastructure, but these are national; what is lacking are those infrastructures which link together the countries of Europe." "A society which has a perspective for development needs modern infrastructure," he said.

One project outlined is a high-speed TGV rail link between Lyons, France and Trieste, Italy. More important than any specific project is to get such projects going now, since "what would be serious, would be to lose time," said Agnelli.

Agnelli said that the importance of the new report is that it underlines the "particular nature of infrastructure, as a common good," especially since European infrastructure is "emerging from one century of technological and institutional stagnation." The roundtable proposes to set up a "Center for Prospective Analysis on Infrastructure" as an independent institution, "dedicated to the physical and economic and social cohesion of Europe, improved competitiveness, and to a higher quality of life for its citizens."

"To increase private investment in infrastructure," the roundtable proposes that governments "provide guarantees for long-term investments"; "reduce risks by providing a stable contractual framework"; and "diminish the financial cost with off-budget instruments."

Life Sciences

Tadpoles born in space defy the expected

Astronauts aboard Space Shuttle Endeavour reported Sept. 16 that tadpoles born from eggs artificially fertilized in space were doing fine. The tadpoles were the first non-insect animals to be conceived and hatched in microgravity.

Kenneth Souza, principal investigator for the frog embryology experiment, explained that the stage most sensitive to gravity changes, and the stage at which symmetry of the frog is established, occurs shortly after fertilization. This stage, from the very start of life, has never before been observed in space.

Souza said that the tadpoles' weightless aquatics, according to AP, were "certainly not what one would see on Earth." The tadpoles were swimming in backward somersaults and forward somersaults. "There was a real hodgepodge of swimming behavior from these tads," Souza stated. He pointed out the importance of learning that eggs can be fertilized in the absence of gravity, which could have implications in the future for human reproduction in space.

● **ASIA** is replacing Ibero-America as the most heavily indebted region of the world, according to a report just released by the OECD, the Sept. 14 *International Herald Tribune* reported. Developing countries' debt totaled \$1.5 trillion last year, up 73% from 1982. Among Asian countries, India, China, and Indonesia are the most indebted. Total external debt in Asia amounted to \$480 billion, nearly double the level of a decade earlier.

● **THE AMERICAN** Society of Civil Engineers says New York City needs \$50 billion in infrastructure repairs over the next 10 years if it is to avoid a total collapse of roads, bridges, waterworks, and sewage systems, in a report released mid-September. ASCE president Chuck Pennoni said, "A nation's infrastructure is the heart and arteries of its economy. The investment needed to put it back in shape is an investment in economic health."

● **UKRAINE** Minister of Defense Victor Ivanovich Antonov said 500 programs have been created to convert defense production to civilian production, combined with interest-free loans from the government, in remarks at the National Press Club in Washington Sept. 17. Orders from the former U.S.S.R. dropped from 160 billion rubles last year to 10 billion rubles this year.

● **WORLD BANK** vice president Wilfried Thalwitz said the economies of some former communist bloc nations could shrink by up to 40% before "recovery" sets in, Reuters reported Sept. 18.

● **ZIMBABWE** has appealed for 750,000 tons of food aid in the next eight months, on top of the 1.25 million tons already imported, for victims of the worst drought in a century. "We need this food to avoid mass famine," Vice President Simon Muzenda told a U.N. conference on disaster management. Zimbabwe's farmers grew less than 30% of their normal crops in the 1991-92 crop cycle under the impact of the drought.

Algeria

Central control of economy reasserted

The Algerian government is moving back into central control of the economy, and has established a committee to control and restrict imports, Reuters reported from Algiers Sept. 17. The government said the move was "to contain the risk of economic, social, and political collapse" as a result of the unprecedented economic strains from servicing its \$28 billion foreign debt.

Algeria is faced with a debt-service ratio of 74% (i.e., 74% of export earnings). Despite the fact that the nation enjoys a trade surplus—imports of \$7 billion and exports of \$11.3 billion—the surplus is used exclusively in servicing the debt.

Guidelines issued by Prime Minister Be-laid Abdessalam empower a government committee to control imports to conform with economic priorities, which give preference to imports of needed medicines, food, construction materials, and spare parts, but discourage consumer items, such as luxury cars or sophisticated communications equipment.

The guidelines appear to replace regulations issued in April of last year which allowed Algerian enterprises to import what they liked directly from foreign suppliers, Reuters reported.

Astronomy

Galaxy redshifts are quantized, skeptics admit

The redshifts of galaxies—supposed to represent their recession velocities—are quantized, say astronomers who set out to prove that they weren't. The preference of galaxies and quasars for periodic redshift values corresponds to no known physical cause and raises the question that redshifts (or a component thereof) may not result from the velocity of the source. This may "force a rethinking of cosmic questions," according to the *New York Times* Sept. 15. Evidence for this conclusion was reported in *21st Century Science & Technology* magazine in January 1989.

Bruce Guthrie and William Napier at the Royal Observatory at Edinburgh, Scotland, studied 89 spiral galaxies chosen at random. Their apparent redshifts are also randomly distributed, until corrected for the redshift contribution from the Sun's motion around the galactic center. Then the periodicity appears.

William Tift, a University of Arizona astronomer, reported quantization of galaxy redshifts in 1976, and, with John Cocke, has continued to gather and refine the data that show periodicity.

Guthrie said, "We undertook this project to find the flaw in Tift's conclusions, assuming we could settle the matter in a couple of months. . . . But we've been at it for four years now. We've tried every statistical attack we could devise or that others have proposed, and this periodicity still doesn't go away." The finding has spill-over implications in favor of the work of the much-maligned astronomer Halton Arp.

Agriculture

World Bank opposed agricultural advances

The World Bank was attacked for obstructing the agricultural "Green Revolution" of Dr. Norman Borlaug, the Iowa plant breeder who won the 1970 Nobel Peace Prize for introducing new, high-yield wheat crops to Asia in the 1960s which tripled and even quadrupled food output, in a commentary in the Sept. 14 *New York Times* by Richard Critchfield.

Critchfield wrote: "Senior officials of the bank, mainly economists or former academics who have never set foot in an African maize field, are wedded to policies like 'structural adjustment,' a buzzword in free-market strategies that entails drastically cutting budgets and inflation, privatizing industry, lowering trade barriers and encouraging foreign investment."

Borlaug said bitterly, "The World Bank says you can't justify our kind of field work because enough research hasn't been done, even though we've demonstrated clearly that we can double, triple, even quadruple yields." World Bank bureaucrats and economists have "never lived in Africa. They live in an ivory tower called the World Bank."