staphylococcal infections, and other ingredients which may defend against influenza virus.†

Cow's milk, unsurprisingly, does not possess these qualities, its only advantage being its usefulness for feeding babies in Westernized urban societies whose mothers go out to work.

This seems hardly sufficient to explain why breast-feeding in the United States became so unpopular—the proportion of women breast-feeding their babies by the time they left maternity hospital had fallen to 38 percent by 1946, 21 percent by 1956, and a decade later to only 18 percent. Another probable factor in the decline is the Western fetish for the breast as sex symbol. Women fear that nursing a child will impair the shape of the breasts and their sexual attractiveness. (According to Dr. Spock, this fear is groundless. Provided that a suitable brassiere is worn to keep the skin from being stretched during lactation, the breasts return to their usual size after weaning.)

The philosophical basis of the modern decline, according to Jelliffe, lies in the technology-dominated medicine of the latter half of the 19th century, in which the scientific aspects of medicine were emphasized at the expense of the biological. Pediatricians thought it quite natural for a man-made formula to be an adequate substitute for mother's milk. The same attitude is reflected in the hospital routine of separating mothers from their babies. This "mechanistic" practice, as Jelliffe calls it, seemingly designed "for quasimilitary regimentation of patients and for the convenience of the medical staff rather than for families in distress," continues to this day, despite the developing awareness of the emotional importance of close mother-child relationships.

The recent revival of breast-feeding in the United States seems to be in large part a reaction against the success of modern medicine in dehumanizing the bonds between mother and child. The revival is most evident among educated women—according to national surveys taken in 1971, 32 percent of college-educated mothers breast-fed, compared with 8 percent of grade school–educated women. Although many individual doctors recommend breast-feeding, the medical profession as a whole has stood on the sidelines throughout this minor social revolution. "The medical profession was not supportive of the decision to breast-feed," says Helen A. Guthrie, professor of nutrition at Pennsylvania State University, who conducted a survey in 1965 to find out what was influencing women to breast-feed. A major U.S. textbook on pediatrics allocates only one and a half of its 1600 pages to breast-feeding, and these fail even to mention let-down reflex, the physiological mechanism that allows the milk to flow. Medical schools still devote very little attention to breast-feeding, not because they have anything particular against it, but because nutrition in general is a subject too unimportant to take up much room in the curriculum. The only organized activity to promote breast-feeding comes from La Leche League, a voluntary women's group.

The stigma against breast-feeding began to spread from the United States and Europe to third world countries following World War II. One thing that made possible this somewhat surprising imitation of Western habits—animal milk is not regarded as kosher in many Eastern cultures—was the fact that a copious by-product of the butter industry is dried skim milk, large quantities of which have been made available in developing countries under the Food for Peace program.

Western-trained pediatricians and the foreign expansion of the European and American baby food industries completed the conditions under which bottle-feeding could flourish.

Yet the bottle, wherever it usurps the breast, is a Western export that third world countries could do well without. Reeducation of pediatricians and regulation of the more pernicious promotional activities of the baby food industry would seem to be obvious steps to take. If there is any technology in need of assessment, that of replacing mother's milk would seem to be a leading candidate, both at home and abroad.—NICHOLAS WADE

† P. György, *Am. J. Clin. Nutr.* **24**, 970 (1971).

Metrication: Craft Unions Seek to Block Conversion Bill

At House hearings last year on metric conversion in America, Lord Ritchie-Calder, former chairman of the United Kingdom Metrication Board, said: "I don't know what will be the battleground for metrication in the United States. In Australia it was the schooner [about 20 ounces, usually of beer], and in Britain it was, and still is, the sacred pint."

Now, as Congress edges toward a vote on whether the United States should embark on a coordinated program to go metric, it appears that the battlegrounds, at least in the early stages, are the tool kits of electricians, carpenters, and machinists.

The House's metric conversion bill (H.R. 11035) was expected by many to breeze through. Instead, it was held up in the rules committee for some 4 months while AFL-CIO lobbyists, as well as committee chairman Ray Madden (D–Ind.), sought strenuously to kill it. They lost that stage of the battle when the bill, with Madden finally concurring, was granted a rule in early March. [The Senate's bill, introduced by Claiborne Pell (D–R.I.) and Daniel Inouye (D–Hawaii), is sitting still in the Commerce Committee, while the Senate awaits House action. Both bills call for a 10-year, voluntary changeover coordinated by a metric conversion board.]

Basically, there are two groups who fear the economic impacts of conversion. One is a coalition of three powerful AFL-CIO unions: the International Brotherhood of Electrical Workers (IBEW); the International Association of Machinists and Aerospace Workers, whose membership exceeds 600,000; and the United Brotherhood of Carpenters and Joiners of America. Representatives from these unions say that workers will need reimbursement up to $5000 for buying metricated tools; that mammoth retraining efforts will be necessary and that many workers, particularly older ones, face obsolescence. What may worry them even more is

the prospect that an inundation of foreign-made goods, once measurement restrictions on trade have been eliminated, will put Americans out of work.

The other group concerned about metrication is the small businessmen, represented by the National Federation of Independent Business (NFIB). The NFIB also worries about the import problem (although metric advocates say the switchover will enhance the U.S. export position), and spokesmen say that costs of metrication will increase the concentration of big companies, who can afford to metricate them-

Briefing

House, Senate Differ on Solar Energy

A bill proposing a $50 million, 5-year solar energy research and development program, whose architect is Representative Mike McCormack (D—Wash.), has become the focus of a tug-of-war between the House and the Senate over the nation's future in solar energy.

McCormack's bill swept through the House in mid-February by a vote of 253 to 2, with token opposition from the Administration. Under it, the National Aeronautics and Space Administration (NASA) would manage the development of sample solar heating and cooling equipment; the National Bureau of Standards would certify it for the building industry; and the Department of Housing and Urban Development (HUD) and the Department of Defense would see to it that 4000 units are built, installed, and used in private and federally owned buildings, respectively. By certain target dates, the government would install free units in houses in communities around the country. "We want to see if land values go up around solar-heated houses; we want to know if kids throw rocks at the roof panels," explained one source. The House staffers involved in the bill argue that the public is ready for such demonstration units. They note that they have received more than 100 letters from homeowners, land developers, and builders offering themselves as guinea pigs in a future solar program.

The Senate, however, is equally anxious to show initiative on solar energy; its Committee on Aeronautical and Space Sciences gave speedy consideration to the House bill, but reported out a rather different version in mid-March. The committee version is more tentative about the readiness of solar energy for public consumption. It authorizes only $10 million for 1 year; it divides responsibility for the work between NASA and HUD; and instead of furnishing the units to private homes, it provides that HUD would pay for the experimental houses itself. Finally, to cover its bets, the aeronautical committee referred its version to no less than four other Senate committees. Ostensibly the Senate version represents a better deal for scientists, since it emphasizes prototype development and generous federally funded testing. But it also puts less stress on generating a product the public can buy.

So the Congress faces an interesting chance to do something more about the energy crisis than lowering the speed limit and tinkering with daylight saving time. Since it is likely to approve some portion of the Administration's proposed $204 million solar energy research plan, Congress can choose whether, in addition, solar energy technology is far enough along to justify public use by 1979 or whether it should stay in a research and development stage.—D.S.

Academy Sued on Closed Meetings

Within the next 6 weeks, the National Academy of Sciences (NAS) will have to explain to the U.S. District Court of the District of Columbia why it should not open the meetings of the 400 to 500 committees of its operating arm, the National Research Council (NRC), to the public. The NRC is being challenged in a suit filed on 15 March by the Public Interest Campaign on the grounds that its committees are covered under the provisions of the 1972 Federal Advisory Committee Act which opens government advisory committee deliberations to public scrutiny.

Specifically, the suit seeks access to the deliberations and records of the Committee on Motor Vehicle Emissions, whose work is relevant to the subject of the Public Interest Campaign's newsletter, *Clean Air*. The suit argues that the newsletter is materially harmed by lack of access to the committee's information. It cites a 1971 petition by a group of 32 science writers to open NAS business meetings, which was partially successful, and letters from activist Julia T. Apter and from Ralph Nader associate Ronald L. Plesser questioning the academy's claimed exemption from the advisory committee act.

The suit reopens the issue of the academy's accountability to the public, which has a long and convoluted history. Academy spokesmen have in the past maintained that, although 80 percent of their work is done on contract with the federal government, they are not a government agency and hence not subject to laws such as the advisory committee act. Instead, spokesmen have said, the academy is like any other not-for-profit institution doing contract work for the government; its private status enables it to be "both a servant and critic" of Uncle Sam. As such, the academy is accountable to its membership only, according to this argument.

The question of which identity is the right one is a matter of dispute. Abraham Lincoln founded the academy by federal charter in 1863. A 1956 presidential executive directive "ordered" the academy council to have formal links with government agencies, which NAS now has. On the other hand, under the advisory committee act, the Office of Management and Budget (OMB) makes periodic reviews of its application in government agencies. So far OMB has not interpreted the act to include NAS.

Academy spokesmen have argued that if it were included under the advisory act's provisions, OMB would have the authority to regulate its committee appointments, fees, timetables, and maybe even its reports—thus jeopardizing NAS's independence.

But the brief filed in the District Court notes that, under the present system, one academy officer, in denying the public interest group some information, was able to fall back on an obscure rule: "Access . . . shall not be permitted until after the lapse of a 50-year period from the date of the requested material." Whether or not the lawsuit succeeds, it at least renews pressure on NAS to open up.—D.S.

selves and who will buy out many small concerns or drive them into oblivion.

The attitude of the unions, according to a congressional staff member who believes their concerns are valid, has become "downright irrational." Common wisdom has it that the question is not if, but how, America is going metric. Yet representatives from the three unions mentioned above contend that there is no hard evidence that metrication is inevitable. In a 13 February letter to House members, they say the chief beneficiaries of metric legislation will be "giant multinational corporations," whose activities are "frequently in contradiction to national goals and needs." They predict the loss of thousands of jobs as a result of increased imports, decry the complications of maintaining dual inventories, and contend: "Dual thinking will result in increased responsibility and job strain and be a potential source of safety problems."

While there is no hard evidence to support these convictions either —indeed, in England, according to Ritchie-Calder, conversion has proved cheaper and easier than anyone expected—the prospect has aroused some deep emotions. Andre Nadash, passionate official of the 58-year-old Metric Association, says metrication is obviously 100 years overdue and that the unions are simply trying to engage in "blackmail." The carpenters' union takes the position that metrication would be catastrophic, and has worked up a statement estimating, apparently arbitrarily, that metric education, training of instructors, and new tools would cost $363,993,500.

An inkling of the sentiment among some workers comes in a letter from a retired mechanic sent to the *Metric Reporter*, a year-old newsletter put out by the American National Standards Institute. The man said, in part, "Now because foreign countries say so—that we should change to that damnable metric system, everyone jumps on the bandwagon to change and do their bidding and AFL and CIO are taking it laying down without saying a word. . . . Our forefathers left those countries because they didn't like their systems—came here and invented their own. Now we give it up without a holler."

While the national leadership of the AFL-CIO has refrained from public statements lately, national legislative representative Andrew Biemiller says it maintains the position staked out in a resolution passed last November. Any federal legislation is premature, it says. It recommends instead the establishment of an independent Metric Monitoring and Assistance Board, which would collect information and determine the kind of assistance workers would need in the event of conversion, but which would not take a stand on the need for conversion itself.

The case for a metrication plan was made in a 1971 report by the National Bureau of Standards (*Science*, 13 August 1971). The AFL-CIO, whose anti-free trade bias runs counter to the internationalist views of the report, maintains that it was written by scientists and ignores the concerns of the working man. The man behind union lobbying efforts is the articulate and persuasive Tom Hannigan, assistant to the international secretary of the IBEW. Hannigan makes a point that is accepted by all but the most fervent metric advocates: that legislators, as well as the general public, are ill-informed as to what conversion would entail and that there needs to be a great deal more discussion on the subject. He contends that the metric bill is "a very narrow, special-interest trade bill" that is being pushed by American multinational corporations. He says that the NBS report is based on the premise that metrication of America is inevitable and will enhance the U.S. position in world trade. On the contrary, he says, conversion will mean the loss of "hundreds of thousands" of jobs from inundation of imports, and the U.S. economy, shaky enough now with inflation and energy shortages, will be turned upside down as higher prices are turned over to the consumer.

Data Lacking

Hannigan acknowledges that he has no data to back up these conclusions—that is why the AFL-CIO wants a monitoring board—but contends that advocates of the 10-year plan don't either. The alleged success of the British program makes no impression on Hannigan, who points out that their economy is in a mess—presumably partially because of metric confusion—and that British building trades, after attempting to convert, found it just too difficult and have retreated to the customary system.

Despite the fact that both houses of Congress have held hearings on metrication, Hannigan maintains that bills have been moving in a "low-key, low-profile" manner. The best way to avoid attracting attention in Congress is to omit any discussion of money, and H.R. 11035 contains no specific cost figures, not even the annual $2 to $4 million spelled out in a prior version of the bill to support the Metric Conversion Board.

Most House supporters of HR 11035 agree that if any provisions are made for government subsidies of workers or small businesses, the bill will not pass. There appear to be no grounds for compromise between the AFL-CIO and congressional metric supporters: Representative Spark Matsunaga (D–Hawaii) intends to introduce several amendments that would make available money for new worker-owned tools and metric conversion loans to small businesses, but Hannigan turns up his nose at this gesture on the grounds that the whole package is still hasty and ill-conceived.

Some congressional staffers are under the impression that union lobbying is on the wane, but according to Hannigan they are only on the verge of an expanded effort. Hannigan's troops will be working on union friends in the House until the vote [House Science and Astronautics Committee chairman Olin E. Teague (D–Tex.) wants to wait a few weeks on the theory that chances of passage will improve]; if it passes, they will move on to the Senate, and then, if necessary, on to the House-Senate conference.

Clearly, there is a gap between the AFL-CIO position and that of metric supporters in Congress which no one has yet sought successfully to bridge. Metric conversion, as Hannigan points out, has been met with "apathy and ignorance" by most people, and he concedes that that includes the unions, who have been tardy in getting themselves together on the issue. The public still knows virtually nothing about metrication, and as yet there has been little of the flamboyant publicity such as has attended conversion in Britain, where Ritchie-Calder moved things along with such memorable statements as, "We are not here to suppress the pint, but to liberate the liter."

So far, lobbying efforts of unions and small business associations, namely the NFIB, have not been particularly effective. The NFIB, for example, undercut its credibility by including some silly statements in a list of objections to the bill, such as "favorite recipes

(News continued on page 94)

(Continued from page 50)

might never be the same again," and ". . . the Defense Department declared that it could not guarantee national security during the conversion period."

Nonetheless, if the unions mount a more effective lobbying effort than hitherto, they may succeed in stimulating the public discussion that has been lacking so far.—CONSTANCE HOLDEN

APPOINTMENTS

Herman Postma, director, thermonuclear division, Oak Ridge National Laboratory, to director of the laboratory. . . . **Sidney Udenfriend**, director, Roche Institute of Molecular Biology, appointed also to vice president, Hoffmann–La Roche, Inc. . . . **Leslie A. Geddes**, professor of physiology, Baylor College of Medicine, to director, Biomedical Engineering Center, Purdue University. . . . **Robert Q. Marston**, former director, National Institutes of Health, to president, University of Florida. . . . **John T. Bernhard**, president, Western Illinois University, to president, Western Michigan University. . . . **Robert J. Slater**, president, Foundation for Child Development, to president, Medical College of Pennsylvania. . . . **William J. Moore**, dean of instruction, San Bernardino Valley College, to vice president for academic affairs, University of Redlands. . . . **Milton Greenberg**, dean of faculties, Roosevelt University, to vice president for academic affairs at the university. . . . **Robert C. Judd**, former professor of operations analysis, University of Toledo, to vice president for academic affairs, Dyke College. . . . **John E. Jones**, professor of medicine, West Virginia University, to dean, School of Medicine at the university. . . . **Erwin C. Hausmann**, chairman, electronic engineering department, Northrup Institute of Technology, to dean, College of Engineering at the institute. . . . **James R. Neal**, former associate dean, School of Education, Northwestern University, to dean, School of Education, Tuskegee Institute. . . . **James A. Rutledge**, associate dean, Graduate School, University of Nebraska, to dean, Graduate School, Northern Illinois University. . . . **John Barson**, associate dean, College of Osteopathic Medicine, Michigan State University, to dean, Oklahoma College of Osteopathic Medicine and Surgery. . . . **Vernon J. Shiner**, professor of chemistry, Indiana State University, to dean, College of Arts and Sciences at the university. . . . **Milton E. Lipetz**, professor of psychology, University of Colorado, to dean, Graduate School at the university. . . . **Donald S. Blough**, professor of psychology, Brown University, to chairman, psychology department at the university. . . . **David T. Rowlands**, professor of pathology, University of Pennsylvania School of Medicine, to chairman, pathology department at the school of medicine. . . . **Robert Michels**, associate professor of psychiatry, College of Physicians and Surgeons, Columbia University, to chairman, psychiatry department, Cornell University Medical College. . . . **John J. Spitzer**, professor of physiology, Hahnemann Medical College, to chairman, physiology department, Louisiana State University Medical Center. . . . **Wilbur B. Davenport, Jr.**, director, Center for Advanced Engineering Study, Massachusetts Institute of Technology, to chairman, electrical engineering department at the institute. . . . **Robert B. Blizzard**, acting chairman, pediatrics department, Johns Hopkins University School of Medicine, to chairman, pediatrics department, University of Virginia School of Medicine. . . . **Stephen J. Ryan**, associate professor of ophthalmology, Johns Hopkins University School of Medicine, to chairman, ophthalmology department, University of Southern California School of Medicine. . . . **William N. Spellacy**, professor of obstetrics and gynecology, University of Miami, to chairman, obstetrics and gynecology department, University of Florida College of Medicine. . . . **Donald J. Birmingham**, professor of dermatology, School of Medicine, Wayne State University, to chairman, dermatology and syphilology departments at the university. . . . **Darrell R. Williams**, professor of electrical engineering, University of Houston, to chairman, electrical engineering department, Illinois Institute of Technology. . . . **W. Maxwell Cowan**, chairman, anatomy department, Washington University School of Medicine, to chairman, anatomy and physiology departments, Stanford University School of Medicine.

Erratum: In "Excitability changes in cat lateral geniculate cells during saccadic eye movements," by H. Noda and W. R. Adey (8 February, page 543), line 14, column 1, page 544, is in error. The sentence beginning at the end of line 12 of that column, and the following sentence, should read: "Cells showing this type of sustained response are designated S-units (9). They do not show transient response to saccades."

Personnel Placement

POSITIONS WANTED

Biochemist. Ph.D. 1970. Interested in basic research position in cell surface biochemistry or cell surface immunology, particularly as related to tumor cells or to cell growth and differentiation. Three years of postdoctoral experience with transplantation antigen purification, chemical characterization. Two years as NCI Staff Fellow working with cell surface antigens and cell surface biochemical changes produced by viral transformation. Prefer Washington, D.C., area. Available September 1974. Sam Pancake, Bldg. 8, Room 121, NIH, Bethesda, Md. 20014. X

Biochemist/Microbiologist. Ph.D. 1969. Desires position in biochemistry, microbiology, chemistry, or biology department. Highly interested in teaching and curriculum development as well as maintaining a viable research program. Experience in administration and production of curriculum materials; publications. Box 162, SCIENCE. X

Biochemistry and Physical Chemistry. Ph.D. 1964. Seven years of teaching and research, publications, grants, graduate, undergraduate and interdisciplinary courses, spectroscopy, protein binding. Desires research or administrative position. Box 163, SCIENCE. 4/5, 12, 19

Desert Plants Expert. B.S. (with honors), graduate work. Teacher, writer, photographer, more than 10 years of experience, both greenhouse, outdoor succulents. Much fieldwork, Southwest, Mexico. Desire position in botanical garden, greenhouse, similar. Salary modest. Box 164, SCIENCE. X

Director, Multidisciplinary Laboratories. Ph.D., biochemistry; minor in medical sciences. Five years' experience. Desires position with medical or dental school, preferably with additional administrative responsibilities in curriculum development and academic appointment allowing opportunities for some research and teaching. Publications and self-instructional program productions. Box 165, SCIENCE. X

Economic Geologist. Ph.D. 1966. Publications. Desires academic research-teaching position in western United States. Strong theoretical background with interests in geophysics and geochemistry. Broad North American field exploration experience in shield and cordillera. Current research and publication on porphyry deposits. Box 149, SCIENCE. 4/19, 26; 5/3, 10, 17

Endocrinologist. Ph.D. 1967. Steroid metabolism, extensive radioimmunoassay experience. Publications in basic and clinical research. Seeks challenging position. Box 166, SCIENCE. X

Environmental Cancer Biologist experienced in in vitro chemical cancer research, teaching tumor biology, cell biology, comparative anatomy, embryology, and histology. Seeks academic position. Box 167, SCIENCE. X

Environmental Study Coordinator seeks challenging administrative position. Experienced interdisciplinary project management, study design and impact analysis. Box 150, SCIENCE. X

Fishery Biologist. Ph.D. 1974. Five years of experience in fish culture. Master's and Ph.D. research on temperature/salinity effects on marine invertebrates (peneid shrimp). Interested in invertebrate physiology/ecology, mariculture. Publications. Seeks academic, postdoctoral, or industrial position. Box 168, SCIENCE. X

Wanted: small undergraduate college where broadly trained **Geneticist** (Ph.D. 1965) can contribute significantly to curriculum innovation, experimental teaching, relevant introductory biology, interdisciplinary studies. Postdoctoral, 15 years of professional experience. 2266 Lake Circle, Jackson, Mississippi 39211. 4/5, 12

Immunologist/Clinical Chemist. A.I.M.L.T., Ph.D. Research and teaching experience in immunology. Specialty in cancer research. Numerous publications. Clinical laboratory experience in biochemistry, serology, immunology, and radioisotopic assays. Desires hospital, industrial, or academic position in Canada. Box 169, SCIENCE. X

Interdisciplinary Scientist-Engineer. M.S. Creative. Patents. Graduate training in biology, chemistry, physics, computers. Extensive R&D experience. Desires industrial or nonprofit consulting. Box 374, Blacksburg, Virginia 24060. X