

Law must further require that employers pay double- or triple-time for hours worked beyond L . This requirement can easily be made self-policing. Since salary rates below L would be unaffected, practically all weekly gross incomes would be reduced by the same factor $(1 - ku)$ as L . Just as feedback loops stabilize the flight of the inherently unstable space shuttle, so too the present feedback loop can stabilize employment in an inherently unstable economy.

Under the proposed system, employers could maintain or increase productivity only by hiring or technological innovation, and innovation would no longer cause hardship. As a specific example, suppose $u = 10\%$ and $k = 3.0$. This would allow $L = 28$ hours per week. At this level both private and public employers would feel enormous pressure to hire, to re-distribute work among employees, to transform long-term plans into short-term plans, and to move projects from back burner to front burner. Only in these ways could L be increased. *The net effect of this proposal would be an equitable and long-overdue re-distribution of employment.* As u diminishes, the appropriate response is to increase k , so as to hold L nearly constant while forcing u to diminish still further. As u approaches zero, k can be made very large without harmful effect (other perhaps than the shanghaiing of workers from the unemployment lines by employers!). By such "fine tuning" it may be possible to eliminate unemployment completely for all time. Thereafter, with $u = 0$, the formula would automatically restore the 40-hour week.

The very essence of the present situation is that there is not enough necessary and socially beneficial work to go around under a 40-hour week. Our society therefore supports entire parasite classes and parasite industries. Prominent among these is the rapidly emerging mugging industry. A re-distribution of necessary and socially beneficial work is imperative. The present distribution is both cruel and unusual. A feedback-controlled workweek is the obvious, fairest, and least painful of ways in which to accomplish this redistribution.

LEONARD M. BALL
4/82
Costa Mesa, California

Refusenik degrees revoked

The Royal Society of Canada has just completed its Centenary Meetings (30 May-3 June) in Ottawa. On its program was an entire session devoted to "The Critical Century, Human Rights," which dealt with its various aspects

pertaining to Canada. Nevertheless, this is such an important international issue that more attention must be paid to the implementation of human rights worldwide.

It is not an oversimplification to say that had human rights existed in Argentina, attention would have been paid by the dictatorial rulers to the demands of their people for "bread and work" rather than indulge, *à la Mussolini*, in a tragic war over the Falklands. If human rights existed in the USSR and the goal were to improve the lot of the Soviet citizen, enormous funds would not be squandered on weapons of mass destruction, that are threatening our very existence on this planet. Instead, the USSR, which poses as a paragon of human rights, sends its dissidents and refuseniks into exile (Sakharov), jails (Scharansky), concentration camps (Orlov), and insane asylums (Davletov), for daring to ask that their rights be granted in accordance with the Helsinki agreement.

The latest abhorrent example is the revoking of academic degrees of refuseniks, some of whom have devoted a lifetime in science and technology, simply because they requested to emigrate to Israel. A stenographic transcript of the cynical proceedings of a kangaroo court composed of academics from Moscow University, which stripped V. G. Melamed of his PhD in Physics-Mathematical Sciences, appeared in *Nature* (Vol. 297, 6 May 1982) and illustrates the deliberately pernicious methods used to dehumanize and oppress our colleagues, such as Melamed. Surely, we must protest such degrading and inhuman acts by writing or wiring, as individuals or societies, President Leonid Brezhnev and President A. P. Alexandrov, the USSR Academy of Sciences, before the revoking of degrees becomes a veritable plague in the USSR.

I. I. GLASS
University of Toronto
Downsview, Ontario

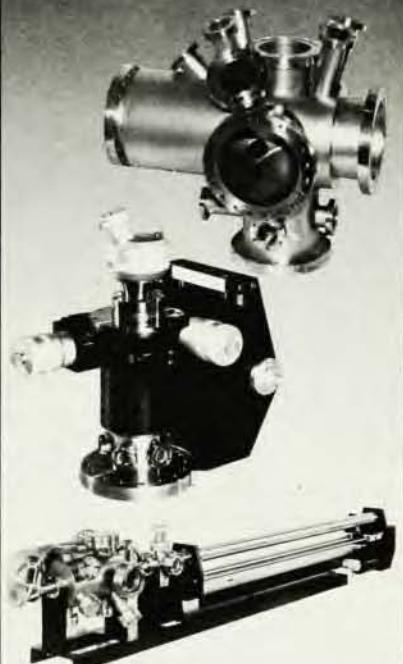
The refusenik vs. the rector

Anatoly Logunov is right! I second his request (May, page 119). A physics journal should stick to the facts. There are two sides to every story, as you are fond of saying, and the same holds for the opportunists in the USSR. I am surprised that Logunov did not suggest you clean up your own mess first—perhaps he did but his letter was shortened so that there may be more space for the tirades of Brailovskys, Azbel's, Dikiis, Freidlins, Freimans, Irlins, Reitmans and Vasilevskis—none of them Russians but all of them having had their education paid in its entirety by

continued on page 76

UHV INSTRUMENTS

Precision Vacuum Equipment



UHV INSTRUMENTS™ manufactures a complete line of precision accessories for the vacuum/surface specialist: precision manipulators, sample insertion and preparation devices, analysis probes, long stroke bellows devices, chambers, shear and tensile fracture devices. These devices can be used to prepare, fracture, transfer, and manipulate samples under vacuum. The accessories are compatible with most commercial analysis systems manufactured by PHI, Varian, HP, VG, Kratos, and others.

Call our sales office
(416) 335-3103, or write for our new catalogue.

ULTRA HIGH VACUUM INSTRUMENTS INC.
901 Fuhrmann Blvd., Buffalo, N.Y.
14203
on the West Coast call our representative at Process Physics Inc. in San Jose (408) 942-1611.

letters

continued from page 15

the Soviet Government.

VLADISLAV BEVC

Synergy Research Institute

San Ramon, California

6/82

The exchange of letters, (May 1981, page 11 and May 1982, page 119), between Irina Brailovsky, Russian refusnik, and Anatoly Logunov, rector of Moscow State University, leaves out some of the story. Being acquainted with the principals and with the Soviet system, we feel compelled to respond. One of us (Callen) visited the Brailovskys in 1973 and again, with Irina, in 1981, just before Victor's trial. The other (Goldman) is an immigrant from the Soviet Union, knows the Brailovskys personally, was a fellow physics student with Logunov at Moscow State University, and met with him occasionally thereafter.

The Brailovskys applied to emigrate 10 years ago. Their visa requests were rejected on grounds of knowing state secrets, although neither had ever held a security clearance or worked on a classified project. Arrested in late 1981, Victor was held incommunicado, tried without a lawyer, convicted of "defaming the Soviet State," and internally exiled.

Referring to Irina, Logunov writes that "during the period of my association at Moscow University (since October 1977) in the position of rector, this individual did not work at the university nor did she have any relation with it." Of course not. Irina, a fluid dynamicist, had been employed as an applied mathematician by Moscow University under a previous rector, since deceased. She had been fired (as was Victor) when they applied to emigrate.

At that time Moscow University had failed to certify that Irina could be released without jeopardizing state security. Later, after she was fired and after Logunov had become rector, another university committee had reconsidered her case and cleared her. Their report was signed by Logunov himself, who has admitted in private conversations that there is no reason to detain Irina. Logunov claims to have so advised the Ministry of Interior orally but refuses to forward to them the written committee report. He is said to take the position that his dealings with the Ministry are always oral.

In his PHYSICS TODAY letter, Logunov asserts that "Moscow University and myself in particular do not have and can never have any connection with the solution of the question of an exit visa." Five years ago, Logunov could have gotten away with that obfuscation, but not now. By now, so many immigrants

have gotten out and so many party members and Soviet officials who had been themselves responsible for filling out the forms required by OVIR and the KGB have emigrated, that we have a pretty good idea how the system works, even though the forms, and the very procedures, are themselves secret.

There is a form which OVIR requires to be sent from the employer. The employer (in this case Logunov, as current rector) must explain that the person involved does or does not know state secrets. The final entry on the form is crucial. On this line the employer must certify that "because of this reason this person can, or cannot, be allowed to emigrate," or words to that effect. Upon each rejection and reapplication OVIR goes back again to the institution where the individual worked, for the required clearance. This is the regular procedure, secret but absolutely well-known to Russian officials and to the emigrant and refusnik communities. For Logunov to deny this is perhaps understandable, for he is an ambitious man, at 54 or so already the rector of the Soviet Union's greatest university, vice president of the Soviet Academy of Sciences, a member of the Central Committee of the Communist Party, and a member of the Supreme Council of the USSR. Logunov is a man on the make. But in doing so he forsakes the superb humanitarian tradition of physicists at Moscow State University. Mandelstam, Landsberg, Leontovich, Tamm, and Khaikin perhaps did not achieve such heights, but they would not have acted in this way.

Logunov wants to move high in the Soviet firmament, but he also wants to be well regarded by his fellow scientists. He desires to travel in the West and to be welcomed by physicists at our conferences and our universities. We do not think he should be. As long as he personally blocks the emigration of Irina Brailovsky, we call upon scientists and persons of good will everywhere to shun Academician Anatoly Logunov.

EARL CALLEN

JOSEPH GOLDMAN

The American University
Washington, D.C.

6/82

Gamma-ray laser

A recent issue of the *Reviews of Modern Physics* presents a discussion of how one might hope to make a gamma-ray laser [George C. Baldwin, Johndale C. Solem, Vitalii I. Goldanskii, *Rev. Mod. Phys.* 53 687 (1981)]. I have a comment of such importance that I address it to PHYSICS TODAY with its numerous readership rather than to *Rev. Mod. Phys.* The authors perpetrate an exceptionally ugly acronym for the gamma ray laser—graser. The word has a bovine

sound, a heavy herbivorous drone that hides the excitement of the search to make a gamma-ray laser.

I propose an alternative acronym for the gamma ray laser—grayl. This name turns away from the cud-chewing contentment of "graser" and offers a rich mythic imagery. It catches the true spirit of the search for coherent radiation in the keV range.

Imagine also the advantages in seeking funding. What official of a funding agency would dare appear before Congress and say he had refused to fund a search for the grayl? The prospect that godless communists might find the grayl before the West would surely also loosen purse strings. A search for the grayl would fit naturally into policies of the present US administration.

Obviously the community of physicists should work to adopt the more euphonious, more hopeful, more exciting acronym of "grayl" for gamma ray laser.

CHARLES H. HOLBROW

Colgate University

Hamilton, New York

4/82

Help on pyroelectric history

We are preparing a historical account of the research and development of pyroelectric materials as sensors for infrared detectors, with special emphasis on the period from 1940 to 1960.

We would greatly appreciate receiving information on this subject. Your may send information to

Sidney B. Lang

Dept. of Chemical Engineering

Ben Gurion University of the Negev
84120 Beer Sheva, Israel

SIDNEY B. LANG

Beer Sheva, Israel

ERNEST H. PUTLEY

Royal Signals and Radar Establishment
4/82 Great Malvern, Worcester, U.K.

Japanese mode of thinking

Letters to the editor regarding the Japanese mode of thinking (April, page 91) prompted me to re-read the excellent article by Makoto Kikuchi (September, page 42).

Referring to the "Language Characteristics" chart in that article, a certain dichotomy is apparent:

Language Characteristics

English

Japanese

Digital expression

Analog expression

Logical orientation

Feeling orientation

Linear structures

Pattern structures

Quantitative

Qualitative

Science is easier

Poetry is easier

The English language has characteristics that we sometime refer to as "hard," whereas the Japanese is more flexible, or "soft." Further reflection reveals that there is a strong similarity