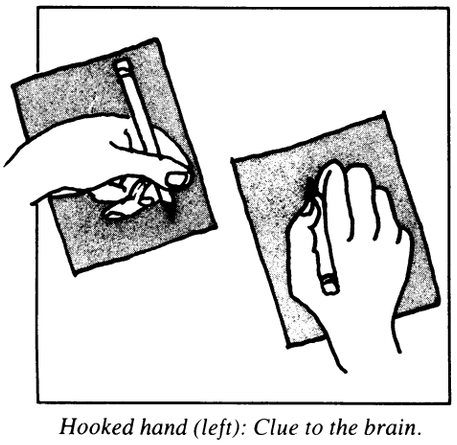
Hooked handedness and the brain

It's usually pretty easy to figure out—in right-handed people the left hemisphere of the brain is specialized for language abilities and the right hemisphere is specialized for mental imagery and spatial relationships. This rather straightforward crisscross probably holds true for 99 percent of all right handers, but the situation is not so easy to figure out for left handers. When information on cerebral specialization first started to come out, it was not known whether the brain organization of left handers was just the same or just the opposite of right handers. Now it is known that about 60 percent of left-handed individuals have language functions in the left hemisphere and visuospatial functions in the right (the same as right-handed individuals). The question now is, how do you determine which left handers have what kind of hemisphere specialization?

Jerre Levy and Marylou Reid of the psychology department at the University of Pennsylvania in Philadelphia have come up with what they call "a simple measurement which, in association with handedness, can reliably predict which hemisphere is predominantly linguistic and which primarily 'spatial' in the left-handed and occasional right-handed writer who is an exception to the normal relationship." The simple test has to do with writing styles. Left-handed writers, in addition to having two possible types of hemisphere specialization, display two distinct hand postures in writing. Most can be clearly classified as having either the "hooked" position, in which the hand lies above the line of writing, or the common right-handed position, in which the hand lies below the line of writing. The inverted or hooked position, say the researchers in the Oct. 15 SCIENCE, indicates that the usual crisscross relationship between hand and brain is not present. This finding is based on tests of 73 university students (left- and right-handed males and females who used either the normal or hooked writing posture). The 24 left-handed inverted writers proved to have left hemisphere specialization for language and right for spatial abilities. Noninverted left handers had the opposite brain organization. Hemisphere specialization in all subjects was measured by more traditional verbal and visual tests.



Hooked hand (left): Clue to the brain.

The hooked writing position has usually been explained as a learned adaptation to the necessity of writing from left to right in our culture, but this may not be the case. Some right handers are hooked writers. Also, Hebrew writing proceeds from right to left. If the learned adaptation theory were correct then right-handed Israelis would be expected to use the hooked position. They don't, but many left-handed Israelis do. This suggests that the hooked position may be related to hemisphere specialization rather than to learning and, as the researchers suggest, may be a good indication of the type of specialization.

This "simple, rapid and reliable" test for specialization in left handers adds another interesting bit of information to the growing body of data on the workings of the human brain. Much additional research is needed to clarify the causes and consequences of this specialization. □

High energy for heavy element

Bevalac sounds like something that might be a substitute for prune juice, but actually its most recent function has been to supply you with the iron you need—if you are an experimenter in nuclear physics, that is. Bevalac is a heavy-ion accelerator located at the Lawrence Berkeley Laboratory. It was made by joining a smaller ion accelerator, the Superhilac, to the Bevatron, which was, a quarter century ago, the world's most energetic proton accelerator, but which has long since been surpassed for proton use. The idea was to produce a machine that could accelerate heavy ions (atomic nuclei) to what, for them, are very high energies. Last week it did it for iron.

With an atomic number of 26 and an atomic mass of 56, iron is about a quarter of the way down the periodic table. Iron nuclei completely stripped of their electrons were accelerated to energies of 106 billion electron-volts, or a little more than two billion electron-volts per nuclear particle, which is the way heavy-ion experimenters tend to compare things. This is the highest energy for the heaviest element yet. Elements as heavy as xenon have been accelerated in the Superhilac alone, but to energies only in the millions of electron-volts.

Iron is particularly significant because it is believed to play an important role in a number of astrophysical processes, and laboratory studies to check such hypotheses will be possible with high-energy iron nuclei. According to an LBL announcement: "At the time the beam was achieved, there were approximately a dozen experimenters from around the world ready to use the first high-energy iron beam ever known to science." □

Energetic gammas: A steady source

For a few years now astrophysicists have been trying to explain what sort of occurrence could yield the bursts of high-energy gamma rays that are recorded several times a year from various directions in space. Now gamma-ray astronomy has a steady source to contend with too. In International Astronomical Union Circular 2992 (Oct. 7) R. D. Wills of the European Space Technology Center at Noordwijk, the Netherlands, reports that the European Space Agency's satellite COS B has detected "a high-energy, gamma-ray excess above the emission from the galactic disk consistent with a localized source. . . ." The location is galactic longitude 136° ±2°, galactic latitude +1° ±2°, or more or less in the plane of the galaxy. In gamma rays above 70 million electron-volts energy (corresponding to a wavelength around a tenth of a milliangstrom), the source emits about two millionths of a photon per square centimeter of detector per second, and the average of 30 hours' observation showed the flux to be constant. The weak X-ray source 3U 0258+60 lies within the error limits of the gamma-ray source's location, but whether there is a relation between the two remains for further observation to determine. □

U.S. POSTAL SERVICE
STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION
(Required by 39 U.S.C. 3685)

1. TITLE OF PUBLICATION: SCIENCE NEWS
2. DATE OF FILING: October 1, 1976
3. FREQUENCY OF ISSUE: Weekly
A. NO. OF ISSUES PUBLISHED ANNUALLY: 52
B. ANNUAL SUBSCRIPTION PRICE: $10.00
4. LOCATION OF KNOWN OFFICE OF PUBLICATION (Street, City, County, State and ZIP Codes) (Not printers): 1719 N Street, N. W., Washington, D. C. 20036
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers)
6. NAMES AND COMPLETE ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR
PUBLISHER (Name and Address): K. G. Sherburne, Jr., 3130 Hawthorne Street, N. W., Washington D. C. 20008
EDITOR (Name and Address): Kendrick Frazier, 5425 31 Street, N. W., Washington, D. C. 20015
MANAGING EDITOR (Name and Address):
7. OWNER (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)

NAME	ADDRESS
Science Service, Inc.	1719 N Street, N. W., Washington, D. C. 20036

8. KNOWN BONDHOLDERS, MORTGAGEES, AND OTHER SECURITY HOLDERS OWNING OR HOLDING 1 PERCENT OR MORE OF TOTAL AMOUNT OF BONDS, MORTGAGES OR OTHER SECURITIES (If there are none, so state)

NAME	ADDRESS
None	

9. FOR COMPLETION BY NONPROFIT ORGANIZATIONS AUTHORIZED TO MAIL AT SPECIAL RATES (Section 132.122, PSM)
The purpose, function, and nonprofit status of this organization and the exempt status for Federal income tax purposes (Check one)
[X] HAVE NOT CHANGED DURING PRECEDING 12 MONTHS [ ] HAVE CHANGED DURING PRECEDING 12 MONTHS (If changed, publisher must submit explanation of change with this statement.)

10. EXTENT AND NATURE OF CIRCULATION	AVERAGE NO. COPIES EACH ISSUE DURING PRECEDING 12 MONTHS	ACTUAL NO. COPIES OF SINGLE ISSUE PUBLISHED NEAREST TO FILING DATE
A. TOTAL NO. COPIES PRINTED (Net Press Run)	127,963	142,780
B. PAID CIRCULATION 1. SALES THROUGH DEALERS AND CARRIERS, STREET VENDORS AND COUNTER SALES	- -	- -
2. MAIL SUBSCRIPTIONS	123,937	138,216
C. TOTAL PAID CIRCULATION (Sum of 10B1 and 10B2)	123,937	138,216
D. FREE DISTRIBUTION BY MAIL, CARRIER OR OTHER MEANS SAMPLES, COMPLIMENTARY, AND OTHER FREE COPIES	546	509
E. TOTAL DISTRIBUTION (Sum of C and D)	124,483	138,725
F. COPIES NOT DISTRIBUTED 1. OFFICE USE, LEFT OVER, UNACCOUNTED, SPOILED AFTER PRINTING	3,480	4,055
2. RETURNS FROM NEWS AGENTS	- -	- -
G. TOTAL (Sum of E, F1 and 2—should equal net press run shown in A)	127,963	142,780

11. I certify that the statements made by me above are correct and complete. SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER: Business Manager

12. FOR COMPLETION BY PUBLISHERS MAILING AT THE REGULAR RATES (Section 132.121, Postal Service Manual)
39 U. S. C. 3626 provides in pertinent part: "No person who would have been entitled to mail matter under former section 4359 of this title shall mail such matter at the rates provided under this subsection unless he files annually with the Postal Service a written request for permission to mail matter at such rates."
In accordance with the provisions of this statute, I hereby request permission to mail the publication named in item 1 at the phased postage rates presently authorized by 39 U. S. C. 3626.
SIGNATURE AND TITLE OF EDITOR, PUBLISHER, BUSINESS MANAGER, OR OWNER