"Human Life" Testimony: J. C. Hickman; B. G. Boving; B. Libet; Genetic Influence on Behavior: W. Irons; Hubbert's Estimates: E. F. Osborn; |Graphs, Not Punctuation!: E. P. Hamp; A. Abbott

The Fate of the Seed Corn: D. A. Bromley

Tropical Archeoastronomy: A. F. Aveni

Studies in Histocompatibility: G. D. Snell

The Agriculture Grants Program: D. W. Krogmann and J. Key

Keyworth Gives First Policy Speech

Reagan Officials Discuss Science Budget

Court Upholds Controversial Regulations

Briefing: Ariane Is a Success; Soviets Sentence Scientist to 5 Years in Exile; Percheron: Entrepreneurial Exuberance in Space; Rostow Confirmed as Hard-Liner Head of ACDA; Denis Hayes Fired from SERI

The U.S. Flight from Pilotless Planes

CERN Sets Intermediate Vector Boson Hunt

Coronary Treatment Assessed

Call for Contributed Papers

Energy Seminars Address a Range of Concerns: J. Wrather; Media Fellows Begin Assignments; AAAS/NASW Host Chinese Science Writers Delegation: L. A. Levey; The Clearinghouse on Science and Human Rights; Division Meeting at Greeley Highlights the Unusual: R. A. Scribner; AAAS Alaska Division Announces Its 32nd Annual Meeting; AAAS Travelers; Arms Control Committee Established; Obituaries

The Winning Weapon, reviewed by M. P. Leffier; Taking Your Medicine, A. P. Williams; Bacterial Chemotaxis as a Model Behavioral System, G. L. Hazelbauer; The Physics and Chemistry of Low Dimensional Solids, J. C. Scott; Books Received
The Marine Geochemistry of Germanium: Ekaalicon: P. N. Froelich, Jr., and M. O. Andreae
Lateral P-Velocity Gradients near Major Strike-Slip Faults in California: D. J. Stierman and S. O. Zappe
Generation of Stabilized Microbubbles in Seawater: B. D. Johnson and R. C. Cooke
Constraints on the Formation of Sedimentary Dolomite: P. A. Baker and M. Kastner
Thyrotropin-Releasing Hormone Improves Cardiovascular Function in Experimental Endotoxic and Hemorrhagic Shock: J. W. Holaday, R. J. D’Amato, A. J. Faden
Epidermal Growth Factor Enhances Viral Transformation of Granulosa Cells: J. Harrison and N. Auersperg
Power Spectrum Analysis of Heart Rate Fluctuation: A Quantitative Probe of Beat-to-Beat Cardiovascular Control: S. Akselrod et al.
Reaction of Monosaccharides with Proteins: Possible Evolutionary Significance: H. F. Bunn and P. J. Higgins
Calcium Dependence of the Inactivation of Calcium Currents in Skeletal Muscle Fibers of an Insect: F. M. Ashcroft and P. R. Stanfield
Three Distinct Genes in Human DNA Related to the Transforming Genes of Mammalian Sarcoma Retroviruses: F. Wong-Staal et al.
Perivascular Meningeal Projections from Cat Trigeminal Ganglia: Possible Pathway for Vascular Headaches in Man: M. Mayberg et al.
Brain Tumors in Children and Occupational Exposure of Parents: J. M. Peters, S. Preston-Martin, M. C. Yu
The Diaphragm: Two Muscles: A. De Troyer et al.
Chloramphenicol Administration During Brain Development: Impairment of Avoidance Learning in Adulthood: A. Bertolini and R. Poggioli
Fetal Female Rats Are Masculinized by Male Littermates Located Caudally in the Uterus: R. L. Meisel and I. L. Ward
Reformation of Organized Connections in the Auditory System After Regeneration of the Eighth Nerve: H. Zakon and R. R. Capranica
Brain 5β-Reductase: A Correlate of Behavioral Sensitivity to Androgen: J. B. Hutchison and T. Steimer


GOVER
The role of environment in the development of astronomical systems is illustrated by the hypothetical navigator in tropical latitudes who finds his island destination by mnemonic association with a particular linear constellation composed of member stars that rise or set vertically with respect to the direction of that island in the horizon plane. The two members of the chain, connected by a dashed line in the illustration, can be recognized by astronomers in north temperate latitudes as part of a different star pattern—the well-known constellation of Orion. See page 161. [Sketch by Julia Meyerson, Colgate University, Hamilton, New York 13346]

American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects, further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, the advancement of science in the promotion of human welfare, and to increase public understanding and elation of the importance and promise of the methods of science in human progress.
The Fate of the Seed Corn

In American Indian culture one of the surest indications of impending disaster was the tribe’s decision that, in order to survive, it was necessary to eat the seed corn—in the full knowledge that this doomed the crop of the following year.

We face a similar situation in U.S. education in mathematics, physical science, and engineering. To remain competitive in the international marketplace, U.S. industries have recognized that they must attract the brightest, most dedicated young people available, and beginning industrial salaries have risen rapidly to bring this about. Colleges and universities can no longer compete, and there is a growing question about our ability, in the 1980’s, to supply young people in these areas for either industry or education.

At comparable career levels, industrial salaries have always been somewhat higher than academic ones; but academic positions remained in high demand because of what some viewed as important nonmonetary rewards. The situation has changed dramatically. While new Ph.D.’s in academic positions are typically offered annual salaries in the $15,000 to $20,000 range, the corresponding salaries in high-technology industry are in the $30,000 to $40,000 range. With this factor of 2, universities can no longer afford to hire their most able graduates—the teaching faculty of tomorrow.

But this is not all; unable to find enough qualified people in the universities and colleges, industry has recognized that high school science teachers also represent a pool of highly talented, underpaid, and often underappreciated people. During the past year alone, the membership of the Association of High School Science Teachers decreased by 10 percent; most of the 1000 teachers who left were hired by industry. We in the United States are dependent on secondary school teachers to attract young people into scientific and technological careers; so this reduction in the number of teachers is compounded. We are indeed eating the seed corn!

But let me hasten to add that I believe the industrial salary levels are fully justified. Our traditional positive balance of trade in high technology rested on the fact that we had superior products and superior salesmanship. The latter we can no longer claim in the face of aggressive competition from abroad and the former superiority is increasingly in jeopardy. As a nation, we need a continuing flow of the best young scientists, engineers, and mathematicians into industry.

Why then do secondary schools, colleges, and universities not more nearly match the industrial salaries? Unfortunately, at a time when the cost of a year of college has broken through the $10,000 barrier, educational institutions, as distinct from industry, simply cannot pass through such cost increases to their ultimate consumers; failing this, they cannot raise their salary scales sufficiently and remain solvent.

In its 1979 report to the Department of Commerce, the Advisory Committee on Industrial Innovation noted that “there has been an ever widening gap between the university and industrial communities and, as a result, the key national source of new technological knowledge is not being adequately tapped for its innovative potential by the private sector.” In the short term, industry has responded by sharply increasing its hiring of scientific and technological personnel; in the long term, it may well be destroying our national capability to supply such personnel.

In its own self-interest, industry must reexamine its long-term needs and responsibilities for educated personnel. Mechanisms for direct industrial support of university activity are already being explored on many campuses. Even more important, however, will be the development of mechanisms for direct industrial support or augmentation of faculty salaries to the level where these are again competitive. This is not a simple matter and large measures of goodwill, compromise, and recognition of need will be required on both sides. But the time to begin is now, while some seed corn still remains.—D. Allan Bromley, Henry Ford II Professor, Yale University, New Haven, Connecticut 06511