This Week in Science

Editorial
A New Approach to Faculty Salaries

Letters

News & Comment
Spy Satellites: Entering a New Era
Culliton Named to New Post
DOD Lists Critical Technologies
EPA’s Plan for Cooling the Global Greenhouse
German Computer Spy Ring Broken
Fraud Review May Be Taken from NIH
Next Science Adviser?
Japan Lays Out Welcome Mat for U.S. Scientists
Psychiatrists Examine Soviet System
European Genome Program Delayed?
Marchuk Admits Flaws in Election
Bonn Launches Wind Energy Experiment ■ ■ ■ Britain Picks Site for Wind Farm

Research News
Limits to DNA Fingerprinting ■ Check on Fingerprint News
Drug-Resistant Strains of AIDS Virus Found
Treasuring the Moon for 20 years
Is Risk Assessment Conservative?
Pulsar, Pulsar, Where Art Thou, Pulsar?
New Equipment Roundup Dazzles Scientists: The Pitcon Experience ■ Crime and Chemical Analysis ■ Probing the Chemistry of the Brain ■ The Outlook for the Equipment Industry

Articles
Star Formation in Irregular Galaxies: D. A. Hunter and J. S. Gallagher, III
Signal Transduction by the Platelet-Derived Growth Factor Receptor: L. T. Williams

Research Articles
Topology and Formation of Triple-Stranded H-DNA: H. Htun and J. É. Dahlberg

Reports

SCIENCE is published weekly on Friday, except the last week in December, and with an extra issue in February by the American Association for the Advancement of Science, 1333 H Street, NW, Washington, DC 20005. Second-class postage (publication No. 484460) paid at Washington, DC, and at an additional entry. Now combined with The Scientific Monthly© Copyright © 1989 by the American Association for the Advancement of Science. The title SCIENCE is a registered trademark of the AAAS. Domestic individual membership and subscription (51 issues): $70. Domestic institutional subscription (51 issues): $110. Foreign postage extra: Canada $32, other (surface mail) $32, air-surface via Amsterdam $66. First class, airmail, school-year, and student rates on request. Single copy sales: Current issue, $3.50; back issues, $5.00; Biotechnology issue, $6.00 (for postage and handling, add per copy $0.50 U.S., $1.00 all foreign); Guide to Biotechnology Products and Instruments, $18 (for postage and handling add per copy $1.00 U.S., $1.50 Canada, $2.00 other foreign). Bulk rates on request. Change of address: allow 6 weeks, giving old and new addresses and 11-digit account number. Authorization to photocopy material for internal or personal use under circumstances not falling within the fair use provisions of the Copyright Act is granted by AAAS to libraries and other users registered with the Copyright Clearance Center (CCC) Transactional Reporting Service, provided that the base fee of $1 per copy plus $0.15 per page is paid directly to CCC, 21 Congress Street, Salem, Massachusetts 01970. The identification code for Science is 0036-8075/89 $1 + .10. Postmaster: Send Form 3579 to Science, P.O. Box 1722, Riverton, NJ 08077. Science is indexed in the Reader’s Guide to Periodical Literature and in several specialized indexes.

The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to foster scientific freedom and responsibility, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress.
COVER The rose sea anemone (*Tealia pescivora*) exemplifies the beauty of many cnidarians, the simplest animals having a nervous system. Tentacles of the cosmopolitan anemone (*Haliphanellus luciae*) have mechanoreceptors on the surface that tune to the movements of prey identified by chemodetection. See page 1589. [Photograph by George Grall, National Aquarium, Baltimore, MD 21202]


1589 Cnidocyte Mechanoreceptors Are Tuned to the Movements of Swimming Prey by Chemoreceptors: G. M. Watson and D. A. Hessinger

1591 Major Enhancement of the Affinity of an Enzyme for a Transition-State Analog by a Single Hydroxyl Group: W. M. Katt and R. Wolden

1593 Direct Measurements of Sliding Between Outer Doublet Microtubules in Swimming Sperm Flagella: C. J. Brokaw

1596 Histamine Is an Intercellular Messenger Mediating Platelet Aggregation: S. P. Saxena, L. J. Brandes, A. B. Becker, K. J. Simmons, F. S. LaBella, J. M. Gerrard

1600 Activation of the Cellular Proto-Oncogene Product p21Ras by Addition of a Myristylation Signal: J. E. Buss, P. A. Solski, J. P. Schaeffer, M. J. Macdonald, C. J. Der


1606 Directed Movement of Latex Particles in the Gynoecia of Three Species of Flowering Plants: L. C. Sanders and E. M. Lord

1608 Commitment of Neural Crest Cells to the Sensory Neuron Lineage: M. Sieber-Blum

1611 Indole-2-Carboxylic Acid: A Competitive Antagonist of Potentiation by Glycine at the NMDA Receptor: J. E. Huettenre

Technical Comments


Meetings

1616 Gordon Research Conferences: Application Form

Book Reviews

1617 Neurobiology of Neocortex, reviewed by: S. P. Wise • Africanized Honey Bees and Bee Mites, E. E. Lindquist • Geomorphology and Hydrology of Karst Terrains, A. L. Bloom • Thermal History of Sedimentary Basins, G. Dev. Klein • Books Received

Products & Materials

1621 Peristaltic Pump • Database Accepts Handwritten Data • Database of Journal Contents • X-ray Dispersive Microanalytical System • Buffer Pads for Semidyration Blotting • Chromatography Integrator • Taq DNA Polymerase • HPLC Autosampler • Literature
American Association for the Advancement of Science
Science serves its readers as a forum for the presentation and discussion of important issues related to the advance-ment of science, including the presentation of minority or con-flicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all ar-ticles published in Science—including editorials, news and comment, and book reviews—are signed and reflect the indi-vidual views of the authors and not official points of view adopted by the AAAS or the institutions with which the au-thors are affiliated.

Publisher: Philip A. Abelson, Acting
Editor: Daniel E. Koslshand, Jr.
Deputy Editor: John I. Brauman (Physical Sciences)

EDITORIAL STAFF
Managing Editor: Patricia A. Morgan
Assisstant Managing Editor: Nancy J. Hartnagel
Senior Editor: Eleanor Butz
Associate Editors: Keith W. Brocklehurst, Martha Comeman, R. Brooks Hanson, Barbara Jasny, Katrina L. Keiber, Edith Meyers, Linda J. Miller, Phillip D. Szumon, David F. Voss
Letters Editor: Christine Gilbert
Book Reviews: Katherine Livingston, editor
This Week In Science: Ruth Levy Guyer
Contributing Editor: Lawrence I. Grossman
Chief Production Editor: Ellen E. Murphy
Editing Department: Lois Schmitt, head, Mary McDaniel, Patricia L. Moe, Barbara E. Patterson
Copy Desk: Jo G. Stagner, Jane Hunt, Marybeth Shartie, Beverly Shields
Production Manager: Karen Edwards Colson
Assistant Production Manager: James Lanady
Graphics and Production: Holly Bishop, James J. Olivarri, Yolanda M. Pook
Cover Editor: Grayce Finger
Manuscript Systems Analyst: William Carter

NEWS STAFF
News Editor: Barbara J. Cutlton
Deputy News Editors: Roger Lewin, Colin Norman
European Correspondent: David Dickson
Contributing Writer: John Walsh

BUSINESS STAFF
Circulation Director: John G. Colson
Fulfillment Manager: Ann Rugland
Business Manager: Deborah Rivera-Wenhoud
Classified Advertising Supervisor: Karen Morganstein
Guide to Biotechnology Products and Instruments: Shauna S. Roberts

ADVERTISING REPRESENTATIVES
Director: Earl J. Scherago
Traffic Manager: Donna Rivera
Traffic Manager (Recruitment): Gwen Canter
Advertising Sales Manager: Richard L. Charles
Marketing Manager: Herbert L. Burkland
Employment Sales Manager: Edward C. Keller
Sales: New York, NY 10006; J. Kevin Henebury, 1515 Broad-way (212-730-1050); Scotch Plains, NJ 07076; C. Richard Calle, 12 Unami Lane (201-889-4873); Chicago, IL 60614; Jack Ryan, 525 W. Higgins Rd. (312-885-8675); San Jose, CA 95112; Bob Brindley, 310 S. 16th St. (408-996-4906); Dorset, VT 05251; Fred W. Diefenbach, Kent Hill Rd. (802-967-5581); Damascus, MD 20872; Rick Sommer, 11318 Kings Valley Dr. (301-972-9270); U.K., Europe, Nick Jones, +44(0)64752916; Telex 42513, FAX (9647) 52053

Information for contributors appears on page XI of the 23 December 1986 issue. Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005. Telephone: 202-326-6500.

Advertising correspondence should be sent to Tenth Floor, 1515 Broadway, New York, NY 10036. Telephone 212-730-1050 or WU Telex 980862 SCHEINCO, or FAX 212-382-3725.

A New Approach to Faculty Salaries

The situation of faculty salaries is becoming desperate. During the past 10 years salaries have not increased as much as the consumer price index, in distinct contrast to salaries of baseball players and to tuition for college.

The traditional answer to such a problem is unionization, but unions have not worked in academia. Scientists, and other academics, tend to be individualists, and the enjoyment of doing basic research provides so many eager applicants that a university administration could in most cases replace a striking faculty in something less than a few milliseconds. At present, competition for star researchers raises salaries, but the process is too slow. Obviously, some different approach will be needed.

Although it will pain some souls dedicated to purity, one effective solution might be the creation of a phantom chair at each institution—one that is never filled but is used solely to raise salaries. Professor I. M. Pecunious at University X, with a clearly inadequate salary, will tell faculty friends at University Y that he is in distress. These friends at University Y will then offer the impoverished professor the Gaston P. Mirage Chair, which supplies a fantastic salary, laboratory space that is slightly smaller than Australia, and a reserved parking place with his name in large bold letters. Notice of the offer should then be leaked to generate a conditioned reflex in colleagues at University X, who will raise a large hue and cry, pointing out that the loss of Professor Pecunious will create irreparable damage to the university. Once Professor Pecunious has indeed been secured once again by University X at a price, other members of the faculty can rush in and claim that they are every bit as able as the professor and that he is being grossly overpaid. Only by giving other professors equivalent increases will the esprit de corps of the institution be maintained. Thus, faculties can receive raises without filling chairs or going through such painfully plebeian activities as strikes.

A similar principle can be used to increase the outside income of faculty members. At present, faculty members are invited to give speeches with the usual promise of a "modest honorarium." It is extremely poor form to ask for the actual dollar amount, but it is almost invariably discovered that the adjective is accurate. In the future, professors would be well advised to designate a colleague as their "scheduling agent." When an invitation is received, the faculty member should never negotiate directly, but should immediately say "Professor P. T. Barnum is in charge of my schedule, and you will have to speak to him." Such inquiries should be answered by Professor Barnum in terms such as, "What were you thinking of giving Professor Schmelzpunkt for an honorarium?" followed by satirical laughter, regard-less of the figure mentioned. After the laughter, the professorial agent will state, "There is no possible way that I could book the distinguished Professor S. for such a modest honorarium." He will then explain that Professor S. is in such great demand that he could only consider visiting Pinnacle University for three times the amount offered; he also should be met at the airport with a chauffeured limousine and requires a guaranteed audience of at least 500 people. If each professor had such a designated colleague-agent, it would soon raise the prices for all and provide a basis for faculty total income approaching that of congressmen.

There is good reason to be concerned about faculty and graduate salaries. It is the conventional wisdom that the diminishing pool of scientists is the result of poor teaching, demographic shifts, and the growing reluctance of students to choose difficult courses. It is time to give serious consideration to the hypothesis that students may see science as a career of high competition and anxiety, with low pay compared to that of doctors or lawyers. Furthermore, even those devoted to science may lose heart when they enter graduate school and find that stipends put them below the poverty line. Moreover, postdoctoral work is becoming a requirement as science becomes more complex, and that only extends the period of asceticism into the early family-raising years.

Although this problem may solve itself in the distant future, as projections indicate severe shortages in a number of professions in the late 1990s, it would be prudent to start adjusting salaries now so that more young people will be attracted to scientific and engineering careers. In that way the faculty will have, as the saying goes, a salary level the football coach can be proud of.—Daniel E. Koslshand, Jr.