

643 This Week in *Science*

Editorial

645 The Underside of Overhead

Letters

661 Health Care Rationing: P. R. WOLPE; W. HIGGINS; W. G. GUNTHEROTH;
R. CRAWSHAW; H. AARON AND W. B. SCHWARTZ ■ Competition Exclusion
Principle: J. MOORE

News & Comment

672 Struggling to Do Science for Society
674 Learning to Drink from a Fire Hose
676 Dingell: AIDS Researcher in Conflict
U.S. Math Still in Poor Health
677 British Museum in Turmoil
678 Billion-Dollar Orphans: Prescription for Trouble
680 *Briefings*: Population Is Environmental ■ Einstein Collection Available ■ Faculty
Salaries Flat ■ Alaska OK's Oil Cleanup Chemical ■ Physics Panel Sets Priorities
for 1990s ■ Rat Fluoride Study "Equivocal" ■ NIH: New Rumor List ■ View of a
"Clumpy" Universe ■ Superconductivity: Japan Versus U.S.

Research News

682 Mycoplasmas in the AIDS Spotlight
684 Sunspot-Weather Link Is Down But Not Out
685 "Superantigens" May Shed Light on Immune Puzzle

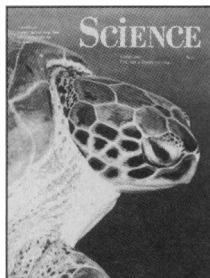
Articles

697 Numerical Transforms: R. N. BRACEWELL
705 The Staphylococcal Enterotoxins and Their Relatives: P. MARRACK AND
J. KAPPLER

Research Article

712 Crystal Structures of an Antibody to a Peptide and Its Complex with Peptide
Antigen at 2.8 Å: R. L. STANFIELD, T. M. FIESER, R. A. LERNER, I. A. WILSON

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COVER The hypothesis that endangered green turtles (*Chelonia mydas*) return to their natal beach to nest is supported by restriction fragment analysis of mitochondrial DNA. Thirty or more years may elapse before these high-seas travelers make their first return migration. Reproductive colonies are likely to be demographically independent and consequently must be managed on a colony-specific basis. See page 724. [Photograph by Anne B. Meylan]

Reports

- 720 Mars: Change in Axial Tilt Due to Climate?: D. P. RUBINCAM
- 721 Spatial Variation of Ozone Depletion Rates in the Springtime Antarctic Polar Vortex: Y. L. YUNG, M. ALLEN, D. CRISP, R. W. ZUREK, S. P. SANDER
- 724 A Genetic Test of the Natal Homing Versus Social Facilitation Models for Green Turtle Migration: A. B. MEYLAN, B. W. BOWEN, J. C. AVISE
- 727 Cloning of a 67-kD Neutrophil Oxidase Factor with Similarity to a Noncatalytic Region of p60^{c-src}: T. L. LETO, K. J. LOMAX, B. D. VOLPP, H. NUNOI, J. M. G. SECHLER, W. M. NAUSEEF, R. A. CLARK, J. I. GALLIN, H. L. MALECH
- 730 Induction of *Salmonella* Stress Proteins upon Infection of Macrophages: N. A. BUCHMEIER AND F. HEFFRON
- 732 Organization of the Human and Mouse Low-Affinity FcγR Genes: Duplication and Recombination: W. Q. QIU, D. DE BRUIN, B. H. BROWNSTEIN, R. PEARSE, J. V. RAVETCH
- 736 Peptide Immunogen Mimicry of a Protein-Specific Structural Epitope on Human Choriogonadotropin: J.-M. BIDART, F. TROALEN, P. GHILLANI, N. ROUAS, A. RAZAFINDRATSITA, C. BOHUON, D. BELLET
- 739 Regulation of Alloreactivity in Vivo by a Soluble Form of the Interleukin-1 Receptor: W. C. FANSLAW, J. E. SIMS, H. SASSENFELD, P. J. MORRISSEY, S. GILLIS, S. K. DOWER, M. B. WIDMER
- 742 Phosphorylation of the Polymeric Immunoglobulin Receptor Required for Its Efficient Transcytosis: J. E. CASAÑOVA, P. P. BREITFELD, S. A. ROSS, K. E. MOSTOV
- 745 Protease Nexin-II (Amyloid β-Protein Precursor): A Platelet α-Granule Protein: W. E. VAN NOSTRAND, A. H. SCHMAIER, J. S. FARROW, D. D. CUNNINGHAM

Book Reviews

- 750 Soviet Science on the Edge of Reform, reviewed by D. HOLLOWAY ■ Alternative Life-History Styles of Animals, H. M. WILBUR ■ Some Other Books of Interest ■ Books Received

Products & Materials

- 754 Instant Dry Sterilizer ■ Spectrometer ■ Reversed-Phase Column for Peptide Mapping ■ Acid Mixture Protects Skin ■ Soluble Copolymer for Gel Electrophoresis ■ Literature

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As budgets get tight, tension builds up in research laboratories and university offices. Professors and administrators, who should be working together, can get into bitter disputes over matters such as overhead. In the last decade there is little doubt that the overhead rate has increased faster than either research funding or inflation. This produces faculty ire, because added overhead means fewer direct grants. It would be a mistake, however, to assume that overhead increases simply because college presidents want to accumulate more staff. Some of it is caused by accounting and regulation imposed by the federal government, but that does not preclude the responsibility of universities for greater efficiency. The complexities of overhead are too diverse to be fully debated here. But two factors are of great importance and should be kept in mind as the debate intensifies.

Calculating the overhead at a university is never going to be easy because there is no strict definition dividing the responsibility of the university from that of the federal government. On one hand, it could be argued that the university has the responsibility to train students, and therefore incorrectly depends on the federal government for training funds. On the other hand, it could be argued that the federal government should set up its own laboratories for research and hire its own investigators, and therefore incorrectly depends on the university to recruit its personnel. In fact, of course, neither of these extremes is the case, and it is a lucky thing that they are not. The universities get a bargain in that the federal government supplies much of the money for facilities, stipends for graduate students, supplies, and equipment, which would be impossible to obtain elsewhere, given current university budgets. The federal government, in its turn, hires graduate students at salaries slightly above the poverty line, enabling the students to do excellent research in an atmosphere of creativity. In a society in which basic research is becoming increasingly beneficial to the standard of living, the current arrangement is symbiotic, and the vagueness of the dividing lines is not truly a deficiency.

Nonetheless, it is obvious that the present system could be improved greatly. One of its worst features is that middle management currently has an incentive to increase staff. Within the hierarchies of both the universities and the federal government, there is a general principle that individuals get more pay if they supervise more people. To delegate to middle management the responsibility for designing procedures for animal care, radiation safety, accounting, and similar issues is to invite the temptation to devise complex protocols that require additional personnel. Yet it is precisely that group to whom busy scientists and busy presidents assign the job, and then complain about the outcome.

One solution, and probably the best one, is to have a national overhead rate. Such a rate should be established at a generous level because it is to the benefit of the country and of scientists that universities flourish. However, a system that allows each university to manipulate numbers by creative financing can only lead to disaster. An individual rate is unfair and leads to the temptation whereby University X administrators increase the rate to compete with University Y for more federal funds and University Y scientists reduce the rate so that individual professors will have a better chance in the competitive world of grantsmanship. Minnesota needs more fuel in winter, Texas needs more air conditioning in summer, and thus local conditions often tend to level out. Some reasonable number could be calculated for average costs of renovation to modernize facilities, average overhead of administrators, average depreciation rate of buildings, and average maintenance and electrical bills for facilities. Once this is done a flat overhead could be given to each university based on the directly awarded research funds and the national rate. A relief mechanism for exceptions could be devised, but it should be exceptional and based on specific local conditions, not, for example, a desire to have a different depreciation rate.

Such a program would not only reduce the needed national bureaucracy but also offer incentives for individual efficiency. If a university could increase its efficiency by reducing middle management personnel it would be rewarded with net savings to be applied elsewhere. Inefficient universities would incur above-average costs. All universities and faculties would share the incentive to raise the national rate if it sank too low or to lower it if it became too high. Budgetary stringency in this case could lead to a reform offering great advantages to all.—DANIEL E. KOSHLAND, JR.