LETTERS
Sulfuric Acid Emissions from Cars: R. L. Bradov; T. H. Maugh; Computer "Therapy": J. Gaschnig; J. M. Vanderplas; Amorphous Semiconductors: D. Emin

EDITORIAL
Will Xerox Kill Gutenberg?: G. Hardin

ARTICLES
Posttranslational Covalent Modification of Proteins: R. Uy and F. Wold
The Natural Resources Program at the United Nations University: W. Shearer-Izumi

NEWS AND COMMENT
Occupational Cancer: Government Challenged in Beryllium Proceeding
Carter Reducing Plan Adds Pounds
National Laboratories: Focused Goals and Field Work Hinted Under DOE
Briefing: Humanists on the Move; Battle Heats Up over Sugared Cereals; A New Attempt to Help the Deinstitutionalized; Russell Peterson Says Yes—He Will Head OTA

RESEARCH NEWS
Obesity: A Growing Problem
Stress: Role in Hypertension Debated
Unified Gauge Theories: An Atomic Fly in the Ointment

ANNUAL MEETING
Meeting Program—Part I; Science International; Registration and Housing Forms

AAAS NEWS
Amendments to the AAAS Constitution and Bylaws: 1977 Election Results; Women Researchers Analyze Education, Job Barriers; AAAS Mass Media Intern Program Accepting Applications; Science Fellows Choose Hill Slots; Annual Meeting Notes; Proceedings Available

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BOOK REVIEWS

Men and Women of the Corporation and The Gamesman, reviewed by A. Levine; Language, Memory, and Thought, P. G. Polson; Ecology and Behaviour of Nocturnal Primates, G. A. Doyle; Recent Foraminifera, A. W. H. Be;

Books Received ................................................. 920

REPORTS


Primordial Noble Gases in Chondrites: The Abundance Pattern Was Established in the Solar Nebula: L. Alaerts, R. S. Lewis, E. Anders ........................................ 927

Somatostatin: Widespread Abnormality in Tissues of Spontaneously Diabetic Mice: Y. C. Patel et al. ........................................ 930

Human Factor VIII: Morphometric Analysis of Purified Material in Solution: H. K. Tan and J. C. Andersen ........................................ 932

Cigarette Smoke Activates Guanylate Cyclase and Increases Guanosine 3',5'-Monophosphate in Tissues: W. P. Arnold, R. Aldred, F. Murad ........................................ 934

Free Radical Increases in Cancer: Evidence That There Is Not a Real Increase: H. M. Swartz and P. L. Gutierrez ........................................ 936

Intergeneric Transfer of Genes Involved in the Rhizobium-Legume Symbiosis: P. E. Bishop et al. ........................................ 938

Mapping the Locus of the H-Y Gene on the Human Y Chromosome: G. C. Koo et al. ........................................ 940

Plant Crops as a Source of Fuel and Hydrocarbon-Like Materials: P. E. Nielsen et al. ........................................ 942

Saccharin and Other Sweeteners: Mutagenic Properties: R. P. Batzinger, S.-Y. L. Ou, E. Bueding ........................................ 944

Macronuclear Subunits of Tetrahymena thermophila Are Functionally Haploid: F. P. Doerder, J. H. Lief, L. E. DeBault ........................................ 946

Hormonal Inhibition of Feeding and Death in Octopus: Control by Optic Gland Secrecion: J. Wodinsky ........................................ 948

Regions of Cerebral Ischemia Located by Pyridine Nucleotide Fluorescence: F. A. Walsh, M. J. O’Connor, T. W. Langfitt ........................................ 951

Melatonin Induction of Gonadal Quiescence in Pinealectomized Syrian Hamsters: L. Tamarkin et al. ........................................ 953

A Phantom-Motion Aftereffect: N. Weissstein, W. Maguire, K. Berbaum ........................................ 955


COVER

Normal specimen of Octopus hummelincki, from Haiti, flashing its two ocelli. The terminal part of the female life cycle is controlled by secretions from the optic glands. These endocrine glands control egg maturation, cessation of sex behavior, cessation of feeding, broodiness, and death. Removal of the glands reverses these effects and increases life-span. See page 948. [Robert Jaffe, Brandeis University, Waltham, Massachusetts]
Will Xerox Kill Gutenberg?

Dead: one small commercial service that made life easier for lazy students. In this news report there is nothing that obviously should worry scientists and scholars; yet trouble can first appear as “a cloud no bigger than a man’s hand.”

For 40 years a student-founded business near the Berkeley campus of the University of California supplied “Fybate Lecture Notes” to students who were unwilling or unable to take adequate notes. Graduate students earned money working for Fybate. Many professors cooperated by correcting the final draft. The enterprise filled a need, it gave employment, and it satisfied the customers. Why did the system collapse?

Xerography was the culprit. Fybate Notes were copyrighted, but students copied them and thus evaded paying their share of production costs and profits. The word “profits” has a bad press in our day; many students find virtue in preventing them. So the goose has been killed: there will be no more Fybate originals to copy. One can argue that the change is educationally for the better; but will the fate of Fybate next overtake books and journals?

When modern copiers were new, copies cost 10 cents or more per sheet, and few scientific books cost more than 3 cents per page. It was then silly to copy a book still in print. Now the economics are reversed. The cost of the 43 "Books Received" listed in Science for 28 October 1977 averages out at 7.1 cents per page. The most expensive item, Transient Waves in Viscoelastic Media, costs 17.6 cents per page. Copying costs only 3 cents a sheet, and sometimes two book pages can fit on a single sheet, halving the cost. A really expensive book may be copyable for one-tenth its purchase price.

Unauthorized copying of copyrighted material is theft, but who among us can claim more than Hamlet, who said, “I am myself indifferent honest”? The higher book prices go, the less we hesitate to infringe copyrights. We face a textbook example of the destructive force of positive feedback. Original publication, with its expensive editorial and typographic costs, is markedly subject to economies of scale. In contrast, the cost of xerographing individual copies is nearly constant. Every increase in the economic advantage of xerography encourages more copying and less buying of books; this increases the price of future books published, encouraging more copying, which raises the price further. Are you willing to pay 17.6 cents per page for a book? How about 50 cents? Or a dollar? Publishers are caught in a vicious spiral.

Those who understand the danger best—authors and publishers—may hesitate to speak, knowing their arguments will be labeled “self-serving”—as indeed they are. But if the author were to give up his royalty the price per page would drop only to about 6.4 cents; and if the publisher followed suit, the price might fall as low as 5.7 cents. This would still be almost twice the price of xerography. The dynamics of the positive feedback system would be unaltered. How much longer can scholarly books and journals be published?

Must the gift of the Gutenberg be nullified by the new technology? Or can we devise an institutional defense against the imminent bibliocide? The floor is open to suggestions.—GARRETT HARDIN, Department of Biological Sciences, University of California, Santa Barbara 93106