

The Month at Caltech . . . continued

Last Word?

Irwin Nathan, Systems Consultant for Xerox Corporation in Rochester, New York, forwards this final word on the recalcitrant Xerox machine reported on by James and Ingelore Bonner in the November-December issue of E&S—a memo to him from G. S. Planner, General Manager for Xerox in London:

You will recall the article in the Caltech magazine recording the trip made to the Soviet Union by the Bonners, and the critical comment that the Xerox machine was not working—"it breaks down and cannot be fixed because Xerox service men do not come."

As we know the user, our office in Moscow contacted them and were informed that the machine does work well, but they had had to make these comments to the visiting delegation from the States, as an explanation of why they could not make copies, which in fact is not allowed because of the censorship rules.

They have sent a letter to us, confirming that the machine was installed in 1972 and has worked correctly according to its specification—and they have no claim in respect of service or quality.

Hmmmm

Everyone in the Soviet Union wants a Beckman instrument—a scintillation counter, a spectrophotometer, a Spinco centrifuge.—*Engineering and Science.*

They're crazy about wheat, too.

FEBRUARY 18, 1974
THE NEW YORKER

Books

*Some recent ones by or about
Caltech people.*

ALMOST ALL ABOUT WAVES
by John R. Pierce
MIT Press \$8.95

It is characteristic of John Pierce that he includes an "almost" in his title. Anyone else would have claimed that this book was *all* about waves.

"Modern physics is full of waves," Pierce says at the start of the book, "the earthquake waves which seismologists study; the waves and ripples on oceans, lakes, and ponds; the waves of sound which travel through the air; the mechanical waves in stretched strings and in the quartz crystals that are used to control the frequency of radio transmitters; the electromagnetic waves that constitute light, and that are radiated by radio transmitters and received by radio receivers; and finally, the waves of what?—probability, perhaps—which are used in quantum mechanics to predict the behavior of electrons, atoms, and complex substances."

What Pierce does here is to show how much a physicist or engineer can learn about waves without using a great deal of mathematics.

John Pierce got his BS from Caltech in electrical engineering in 1933, his MS in 1934, and his PhD in 1936. After 35 years with the Bell Telephone Laboratories, he became professor of engineering at Caltech in 1971.

SEISMICITY OF THE SOUTHERN
CALIFORNIA REGION
by James A. Hileman, Clarence R.
Allen, and John M. Norquist
Seismological Laboratory. \$14.25

Caltech's Seismological Laboratory has been collecting data on southern

California earthquakes for the last 41 years. Now three members of the staff have published a book about 15,340 quakes.

Seismicity of the Southern California Region is a 494-page volume with listings of the earthquakes of magnitude 2 or more. Not an interpretive study of seismic hazard, the book simply presents a maximum amount of fundamental data—the latitude and longitude of the quakes, their location by quadrangle name, the time of their occurrence, their magnitudes and depths, and the accuracy with which they were located.

Clarence R. Allen, professor of geology and geophysics; John M. Norquist, senior research engineer; and James A. Hileman, graduate student in geophysics, are the co-authors. Hileman developed a way to use Caltech's computer to print out maps of the fault distributions, and portions of the book are from his PhD thesis.

The book will, of course, be used by geologists who are interested in seismicity; but it should also be extremely helpful to engineers who are trying to resolve problems like selecting suitable sites for nuclear power plants.

OPERATING SYSTEM PRINCIPLES
by Per Brinch Hansen
Prentice-Hall, Inc. \$13.50

The first book to offer in-depth coverage of the common principles of computer operating systems for students and professional programmers. Per Brinch Hansen has been an associate professor of computer science at Caltech since 1972.

THIN-SHELL STRUCTURES
Theory, Experiment, and Design
edited by Y. C. Fung and E. E. Sechler
Prentice-Hall, Inc. \$21.95

The edited proceedings of a symposium held at Caltech in June 1972, co-sponsored by the Institute, the Air Force, the Office of Scientific Research, and the U.S. Navy Office of Naval Research.

The editors are both Caltech alumni: Ernest Sechler, now professor of aero-

navics at the Institute, got his BS in aeronautics in 1928, MS in 1929, and PhD in 1934; Y. C. Fung got his PhD in aeronautics in 1948, and is now professor of bioengineering and applied mechanics at UC San Diego.

DAILY LIFE IN PEOPLE'S CHINA

by *Arthur W. Galston*
with *Jean S. Savage*

Thomas Y. Crowell Company . . . \$6.95

Art Galston came to Caltech as a research fellow in 1943, and was associate professor of biology when he left in 1955 to become professor of biology at Yale, where he is Eaton Professor of Botany and director of Yale's Marsh Botanical Garden.

In May 1971 he was the first American scientist to visit the People's Republic of China since its founding in 1949.

Intrigued and impressed, he made a second visit in 1972, accompanied by

his wife and daughter. This was far from the standard "official" visit; the Galstons even spent a couple of weeks living—and working—on a commune near Peking.

Art came to Caltech last January, on the Caltech Y Leaders of America program, to talk about some of the highlights of his unusual China trip. This is the whole story—and it makes a lively book—illustrated with more than a hundred of Art's own photographs.

THE RESTORATION OF THE EARTH

by *Theodore B. Taylor* and
Charles C. Humpstone

Harper & Row, Publishers, Inc. . . \$7.95

A thoughtful proposal of a plan for dealing with our pollution problems—nationally and internationally. Both authors are associated with the International Research and Technology

Corporation in Washington, D.C. Charles Humpstone is a lawyer; Theodore Taylor, a nuclear physicist, received his BS at Caltech in 1945.

REFERENCE GUIDE TO FANTASTIC FILMS

Science Fiction, Fantasy, & Horror

compiled by *Walt Lee*

Volume 1 (A-F) \$9.50

Volume 2 (G-O) \$9.95

Walt Lee published the first volume of this index in 1972. Volume 2 has just been issued, and a third volume is due later this year. This monumental guide is, quite simply, a listing of every film ever made anywhere with any science fiction, fantasy, or horror in it. What's more, each film listing includes the date of production, the production company, date of release, running time, and screen credits—with special notes of interest and references on each picture. The three volumes will contain about 20,000 listings in all.



RESEARCH OPPORTUNITIES IN HIGHWAY ENGINEERING

The Asphalt Institute suggests projects in five vital areas . . .

Recent advances in roadbuilding techniques have made continued highway research essential. Areas of special importance include:

1. Rational pavement thickness design and materials evaluation. Research needed in Asphalt rheology, behavior mechanisms of layered pavements, stage construction, and strengthening by Asphalt overlays. Traffic evaluation requires improved procedures for predicting amounts and loads. Evaluation of climate on pavement also is important.
2. Materials specifications and construction quality-control. Need improved specifications, particularly acceptance and rejection criteria. Faster quality-control tests at construction and plant sites are also needed.
3. Drainage of pavement structures. Need more studies on requirements for sub-surface drainage of Asphalt pavements. While untreated granular bases often accumulate moisture, Full-Depth Asphalt bases on impermeable subgrades may not even require sub-surface drainage.
4. Compaction and thickness measurements. Recent use of thicker lifts in Asphalt pavement construction suggests need for new studies to improve control techniques.
5. Conservation and beneficiation of aggregates. More needed on lower-quality base-course aggregates mixed with Asphalt.

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Books . . . continued

The books are softbound, 8½x11, and illustrated. They are not generally available at bookstores, but can be ordered directly from Mr. Lee (P.O. Box 66273, Los Angeles 90066). Price of the three-volume set is \$28.

The man behind this awesome undertaking, Walt Lee, got his BS at Caltech in physics in 1954 and is a member of the technical staff at Hughes Aircraft.

THE BRAIN CHANGERS
 Scientists and the New Mind Control
 by *Maya Pines*
 Harcourt Brace Jovanovich, Inc. . . \$7.95

Despite the lurid title, this is a reasonable, rational reporting job on some of

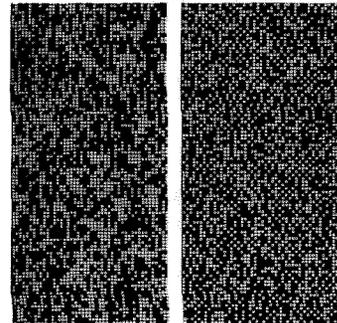
the brain research now going on in laboratories around the country. The author includes brief descriptions of the Caltech work of Derek Fender and James Olds, and a more extensive report on the research of Roger Sperry and his graduate student Michael Gazzaniga, PhD '65, now a professor of psychology at New York University.

ALGEBRAIC THEORY OF LATTICES
 by *Peter Crawley and Robert P. Dilworth*
 Prentice-Hall, Inc. \$11.95

A graduate-level text covering current developments in lattice theory. Robert Dilworth (BS '36, PhD '39) is professor of mathematics and chairman of the faculty at Caltech. Peter Crawley (BS '57, MS '58, PhD '61) came to Caltech as an assistant professor of mathematics in 1963 and was a professor when he left in 1972 to go to Brigham Young University.

Look Again

If you had trouble determining the orientation of any or all of the four computer-produced patterns on our cover, here they are again with the bisecting boundaries revealed.



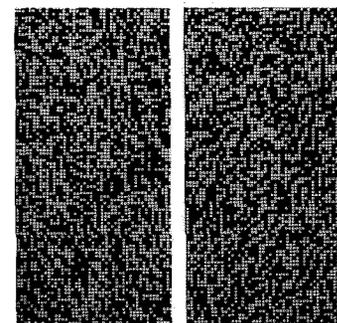
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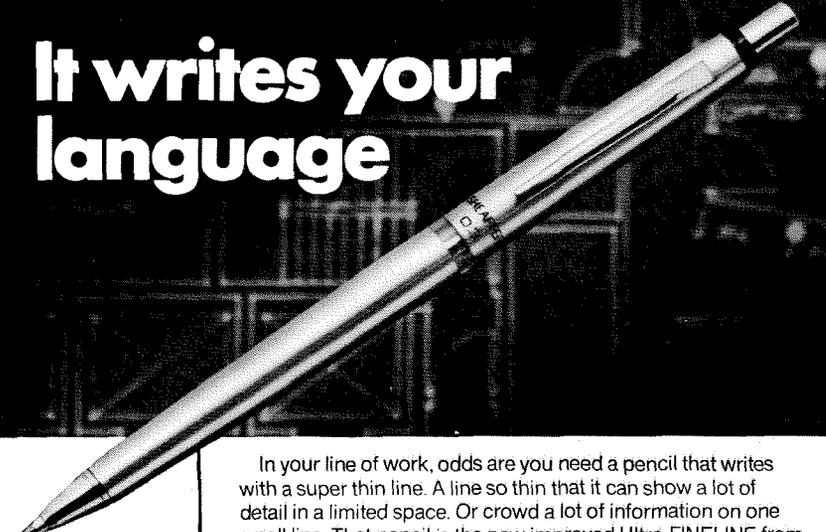


3 lower left



4 lower right

It writes your language

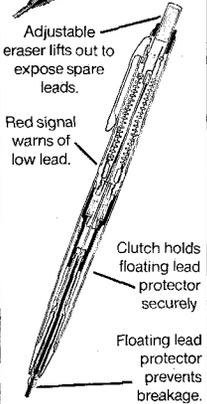


In your line of work, odds are you need a pencil that writes with a super thin line. A line so thin that it can show a lot of detail in a limited space. Or crowd a lot of information on one small line. That pencil is the new improved Ultra-FINELINE from Sheaffer. Available in 0.3mm and 0.5mm models.

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