Instructions for Contributors

The Editors of *Science*

Manuscripts submitted to *Science* for consideration for publication can be handled expeditiously if they are prepared in the form described in these instructions.

Submit an original and two duplicates of each manuscript. With the manuscript send a letter of transmittal giving (i) the name(s) of the author(s); (ii) the title of the paper and a one- or two-sentence statement of its main point; (iii) the name, address, and field of interest of four to six persons in North America but outside your institution who you think are qualified to act as referees for your paper; (iv) the names of colleagues who have reviewed your paper for you; (v) the field(s) of interest of readers who you anticipate will wish to read your paper.

Editorial Policies

All papers submitted are considered for publication. The author's membership or lack of membership in the AAAS is not a factor in selection. Papers are accepted with the understanding that they have not been published, submitted, or accepted for publication elsewhere. Authors will usually be notified of acceptance, rejection, or need for revision in 4 to 6 weeks (Reports) or 6 to 10 weeks (Articles).

Types of papers. Five types of signed papers are published: Articles, Reports, Letters, Technical Comments, and Book Reviews. Familiarize yourself with the general form of the type of paper you wish to submit by looking over a recent issue of the journal, and then follow the instructions for that type of paper.

Reviews. Almost all Articles, Reports, and Technical Comments, whether solicited or not, are sent to two or more outside referees for evaluation of their significance and soundness. Forms showing some of the criteria reviewers are expected to consider are available on request.

Editing. Papers are edited to improve the effectiveness of communication between the author and his readers. The most important goal is to eliminate ambiguities. In addition, improvement of sentence structure often permits readers to absorb salient ideas quickly. When editing is extensive, with consequent danger of altered meanings, papers are returned to the author for correction and approval before type is set. Authors are free to make additional changes at this stage.

Proofs. One set of galley proofs or an equivalent is provided for each paper. Keep alterations to a minimum, and mark them only on the galley, not on the manuscript. Extensive alterations may delay publication by 2 to 4 weeks.

Reprints. An order blank for reprints accompanies proofs.

Writing Papers

Organize your material carefully, putting the news of your finding or a statement of the problem first, supporting details and arguments second. Make sure that the significance of your work will be apparent to readers outside your field, even if you feel you are explaining too much to your colleagues. Present each step in terms of the purpose it serves in supporting your finding or solving the problem. Avoid chronological steps, for the purpose of the steps may not be clear to the reader until he finishes reading the paper.

Provide enough details of method and equipment so that another worker can repeat your work, but omit minute and comprehensive details which are generally known or which can be covered by citation of another paper. Use metric units of measure. If measurements were made in English units, give metric equivalents.

Avoid specialized laboratory jargon and abbreviations, but use technical terms as necessary, defining those likely to be known only in your field. Readers will skip a paper they do not understand. They should not be expected to consult a technical dictionary.

Choose the active voice more often than you choose the passive, for the passive voice usually requires more words and often obscures the agent of action. Use first person, not third; do not use first person plural when singular is appropriate. Use a good general style manual, not a specialty style manual. The University of Chicago style manual, the style manual of the American Institute of Physics, and the *Style Manual for Biological Journals*, among others, are appropriate.

Manuscripts

Prepare your manuscript in the form used by *Science*. Use bond paper for the first copy. Submit two duplicates. Double-space title, abstracts, text, signature, address, references (including the lines of a single reference), figure legends, and tables (including titles, columns, headings, body, and footnotes). *Do not use single spacing anywhere.* Put the name of the first author and the page number in the upper right-hand corner of every page.

Paging. Use a separate page for the title; number it page 1. Begin each major section—text, references and notes, and figure legends—on a new sheet. Put each table on a separate sheet. Place figure legends and tables after the references.

Title. Begin the title with a word useful in indexing and information retrieval (not "Effect" or "New").

References and Notes. Number all references to the literature, footnotes, and acknowledgments in a single sequence in the order in which they are cited in the text. Gather all acknowledgments into a single citation, and keep them short ("I thank," not "I wish to thank"). Cite all references and notes but do not cite them in titles or abstracts. Cite several under one number when feasible. Use the "BioSciences Information Service of Biological Abstracts," BIOSIS, with the few suggested revisions in *International List of Periodical Title Word Abbreviations* for abbreviations of journal names. If the journal is not listed there, provide the full name. Use the following forms:

Journal: H. Smith, *Am. J. Physiol.* **98**, 279 (1931).

Book: F. Dachille and R. Roy, *Modern Very High Pressure Techniques* (Butterworth, London, 1961), pp. 163–180.

Chapter: F. Dachille and R. Roy, in *Reactivity of Solids*, J. H. de Boer, Ed. (Elsevier, Amsterdam, 1960), p. 502.

Illustrations. Submit three copies of each diagram, graph, map, or photograph. Cite all illustrations in the text and provide a brief legend, to be set in type, for each. Do not combine line drawings and photographs in one illus-

tration. Do not incorporate the legend in the figure itself. Use India ink and heavy white paper or blue-lined coordinate paper for line drawings and graphs. Use heavier lines for curves than you use for axes. Place labels parallel to the axes, using capital and lower-case letters; put units of measurement in parentheses after the label—for example, Length (m). Plan your figures for the smallest possible printed size consistent with clarity.

Photographs should have a glossy finish, with sharp contrast between black and white areas. Indicate magnification with a scale line on the photograph.

Tables. Type each table on a separate sheet, number it with an Arabic numeral, give it a title, and cite it in the text. Double space throughout. Give each column a heading. Indicate units of measure in parentheses in the heading for each column. Do not change the unit of measure within a column. Do not use vertical rules. Do not use horizontal rules other than those in the heading and at the bottom. A column containing data readily calculated from data given in other columns can usually be omitted; if such a column provides essential data, the columns containing the other data can usually be omitted.

Plan your table for small size. A one-column table may be up to 42 characters wide. Count characters by counting the widest entry in each table column (whether in the body or the heading) and allow three characters for spaces between table columns. A two-column table may be 90 characters wide.

Equations and formulas. Use quadruple spacing around all equations and formulas that are to be set off from the text. Most should be set off. Start them at the left margin. Use the solidus for simple fractions, adding the necessary parentheses. But if braces and brackets are required, use built-up fractions. Identify handwritten symbols in the margin, and give the meaning of all symbols and variables in the text immediately after the equation.

Articles

Articles, both solicited and unsolicited, may range in length from 2000 to 5000 words (up to 20 manuscript pages). Write them clearly in reasonably nontechnical language. Provide a title of one or two lines of up to 26 characters per line and a subtitle consisting of a complete sentence in two lines with a character count between 95 and 105 for the sentence (spaces between words count as one character each). Do not break words at the ends of lines. Write a brief author note, giving your position and address. Do not include acknowledgments. Place title, subtitle, and author note on page 1. Begin the text on page 2.

Insert subheads at appropriate places in the text to mark your main ideas. The set of subheads should show that your ideas are presented in a logical order. Keep subheads short—up to 35 characters and spaces.

Provide a summary at the end.

Do not submit more than one illustration (table or figure) for each four manuscript pages unless you have planned carefully for grouping. With such planning many illustrations can be accommodated in the article. Consult the editorial office for help in planning.

Reports

Short reports of new research results may vary in length from one to seven double-spaced manuscript pages of text, including the bibliography. Short papers receive preferred treatment. Limit illustrative material (both tables and figures) to two items, occupying a total area of no more than half of a published page (30 square inches). A research report should have news value for the scientific community or be of unusual interest to the specialist or of broad interest because of its interdisciplinary nature. It should contain solid research results or reliable theoretical calculations. Speculation should be limited and is permissible only when accompanied by solid work.

Title. Begin the title with an important word (preferably a noun) that identifies your subject. The title may be a conventional one (composed primarily of nouns and adjectives), a sentence (containing a verb), or a structure with a colon (Jupiter: Its Captured Satellites). Limit it to two lines of complete words of no more than 55 characters per line (spaces between words count as one character each). Do not use abbreviations. Type the title in the middle of page 1.

Abstract. Provide an abstract of 45 to 55 words on page 2. The abstract should amplify the title but should not repeat it or phrases in it. Qualifying words for terms used in the title may be used. Tell the results of the work, but not in terms such as "——— was found," "is described," or "is presented."

Text. Begin the text on page 3. Put the news first. Do not refer to unpublished work or discuss your plans for further work. If your paper is a short report of work covered in a longer paper to be published in a specialty journal, you may refer to this paper if it has been accepted. Name the journal. If the manuscript has not been accepted, refer to it as "in prepa ration." Omit references to private communications. Do not use subheads.

Signature. List the authors on the last page of the text and give a simple mailing address.

Received dates. Each report will be dated the day an acceptable version is received in the editorial office.

Letters

The Letters section provides a forum for discussion of matters of general interest to scientists. Letters are judged only on clarity of expression and interest. Keep them short and to the point; the preferred length is 250 words. The editors frequently shorten letters. See instructions for the preparation of manuscripts.

Technical Comments

Letters concerning technical papers in *Science* are published as Technical Comments at the end of the Reports section. They may add information or point out deficiencies. Reviews are obtained before acceptance.

Book Reviews

The selection of books to be reviewed is made by the editors with the help of advisers in the various specialties arrangements are then made with reviewers. A sheet of instructions accompanies each book when it is sent to the reviewer.

Cover Photographs

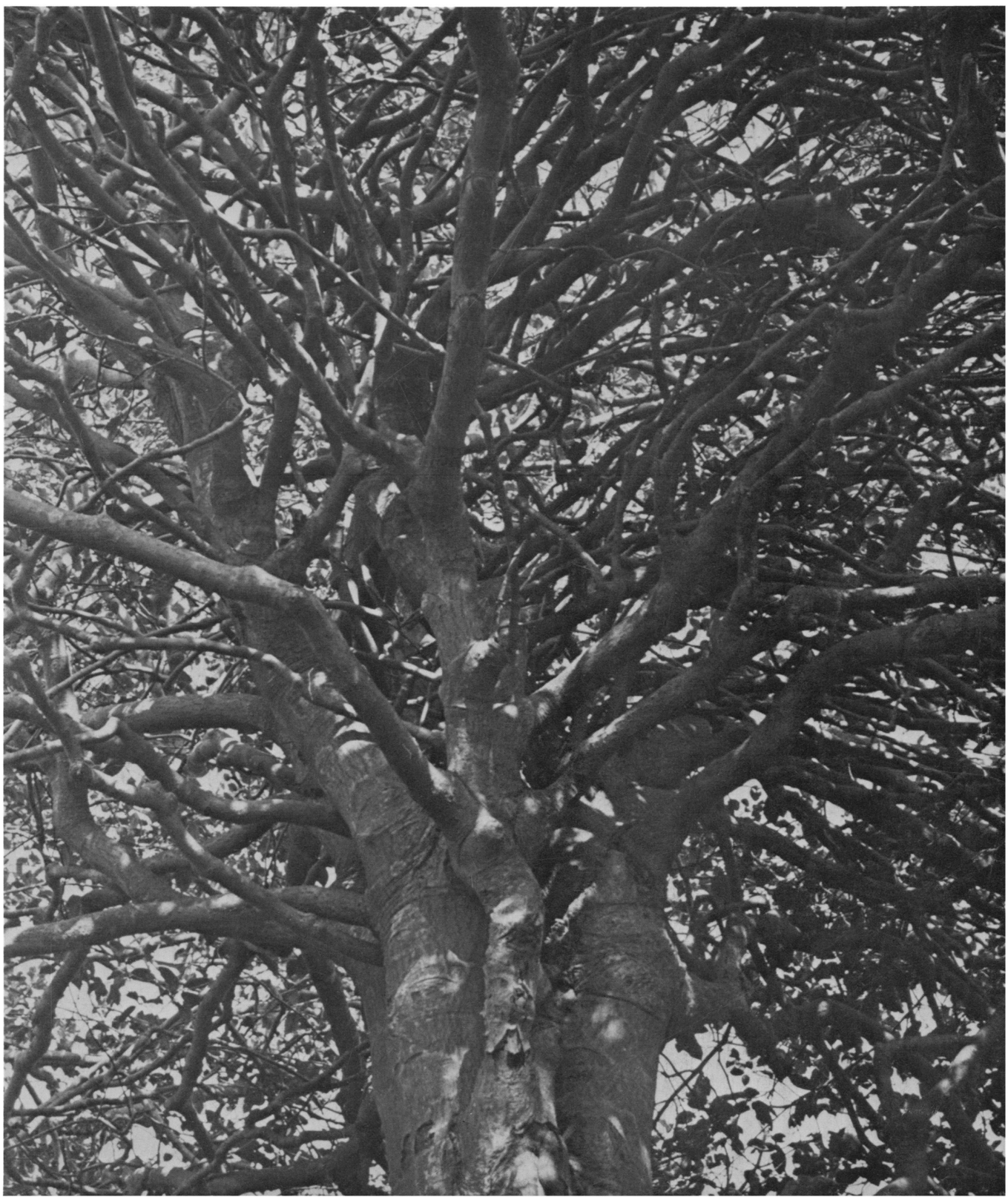
Particularly good photographs that are suitable for use on the cover are desired.

SCIENCE

5 April 1974

Vol. 184, No. 4132

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



FAST ELECTROIMMUNOASSAYS

With Orion ExaPhor Ready Plates you can perform EIA studies in a simple and quick way. These prepared agarose gel plates come in four different types, each with a specific antibody—IgG, IgA, IgM or Albumin. Plates with other antibodies will soon be ready.

The plates are made under controlled conditions. This means far better reproducibility and accuracy. And experimental time is shortened considerably. A complete IgM assay takes only 5 hours—you get your answer the same day.

You can use this highly sensitive method with the LKB Multiphor electrophoresis equipment to assay 18 samples of serum, cerebrospinal fluid or urine at a time. Antigen levels as low as 100 nanograms per millilitre can be determined.

LKB

LKB Instruments Inc.

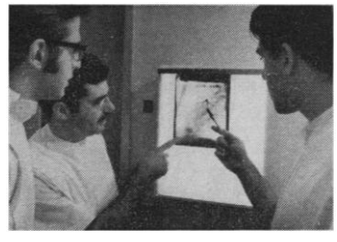
12221 Parklawn Drive, Rockville MD. 20852
11744 Wilshire Blvd. Los Angeles Calif. 90025
6600 West Irving Park Road, Chicago Ill. 60634
260 North Broadway, Hicksville N.Y. 11801

If you were working for Kodak and this were your big accomplishment, how proud would you feel?

Rapid Processing Copy Film. A triviality? No, not when you understand its purpose.

Radiologists are physicians who more often see patients through a sheet of x-ray film than face-to-face. Meshing eye and intellect to make life-and-death judgments from the subtle shadings on that sheet of film takes a long time to learn—and a great many patient films begged and borrowed from experienced colleagues. The most interesting films that have the most to teach are, of course, the most in demand.

Obviously, interesting films can be copied and studied as slides on a projector. Why this hasn't been done much, and why so much of the learning must be done from the original film are less obvious.



Not that it's impossible to make slide copies of adequate quality from medical radiographs. It's just that copying has posed its problems.

For training the eye, the shadows should be as on the original radiograph—light against dark, not a "negative."

With this requiring two exposures and two developments, and with limitations on maximum density for projection conditions, it is not easy to hit everything just right when that critical tonal subtlety occurs at a different density from one copying job to the next. Direct-positive films can eliminate one exposure but may have complicated processing requirements. A department of radiology is not a photographic laboratory and is fussy about letting go of its patient films.

A direct-positive film that could be run through the x-ray processor right along with the daily flow of radiographs would be nice. Or, if that's not convenient, and since it should be a 35mm film to use in a single-lens reflex camera on a tripod in front of the illuminator bearing the noteworthy original radiograph, it should be suitable also for manual processing in a tank with ordinary chemicals.

All of which happens to be true of the new film. Magic has been performed on its silver halide such that, except where hit by enough light, the whole picture area goes to its maximum density upon development. That density is not too high for an ordinary slide projector. (The magic does not relieve the need to find the right exposure for copying the particular radiograph, nor do we recommend slides for original diagnosis.)

Dealers in x-ray supplies and equipment will know the product as KODAK *RP/C Film SO-185.*

This quick route to 2″ x 2″ black-and-white slides is not just for radiologists.

KODAK RP/C Film SO-185 works just as well, of course, in copying charts or any black-and-white pictures for lecture use. Electron micrographers in particular may take to it. They often find that the generous exposures needed for best detail produce densities too heavy for good slide projection. This film, with its built-in limit on D_{max}, might turn out to be just the ticket for them. If stumped on a technical black-and-white copying problem, write Kodak, Dept. 756, Rochester, N.Y. 14650.

Kodak

An equal-opportunity employer f/m

5 April 1974

Volume 184, No. 4132

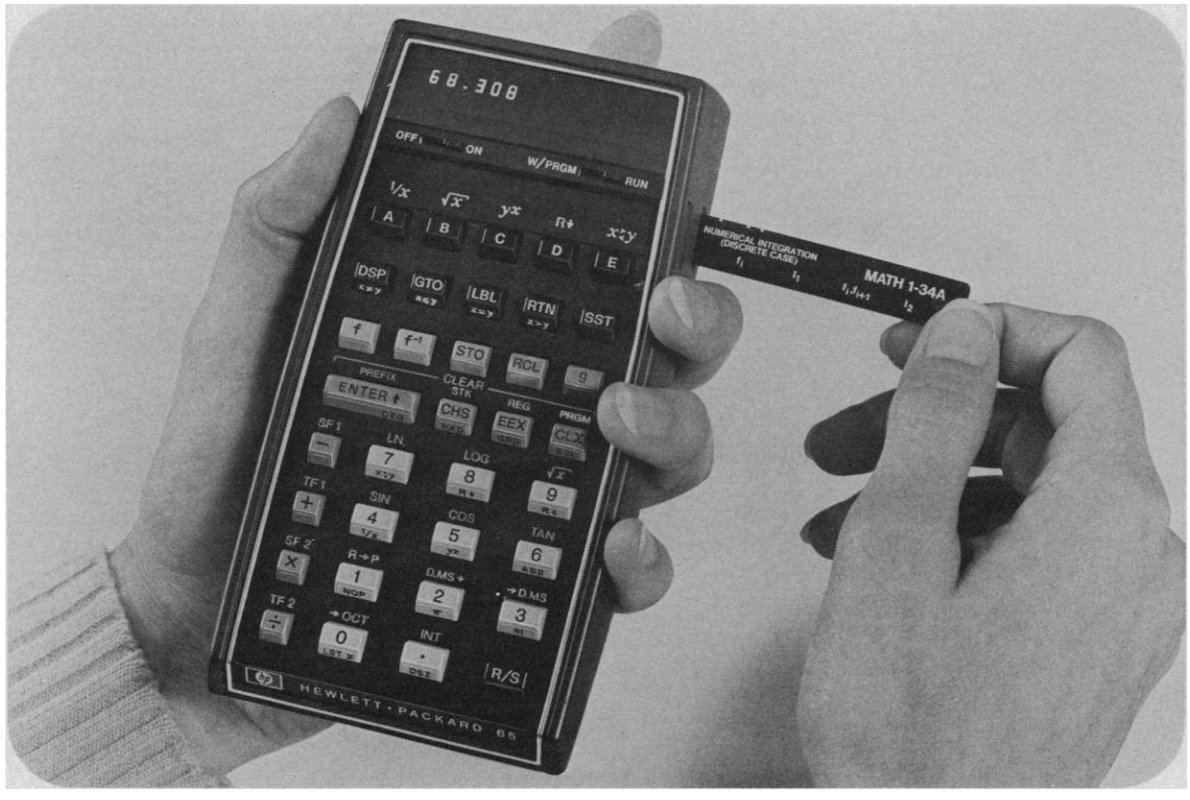
SCIENCE

SCIENCE is published weekly, except the last week in December, but with an extra issue on the fourth Tuesday in November, by the American Association for the Advancement of Science, 1515 Massachusetts Ave., NW, Washington, D.C. 20005. Now combined with The Scientific Monthly®. Second-class postage paid at Washington, D.C. Member rates on request. Annual subscription $30; foreign postage: Americas $4, overseas $6, air lift to Europe $18. Single copies $1 (back issues, $2) except Guide to Scientific Instruments which is $4. School year subscription: 9 months $22.50; 10 months $25. New rates will become effective 1 May 1974. Provide 6 weeks notice for change of address, giving new and old address and zip codes. Send a recent address label. Science is Indexed in the Reader's Guide to Periodical Literature.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

COVER

The proliferation of branches on trees in the Sunken Forest, Fire Island, New York. The enormous surface area of branches in this maritime forest is a result of the toxic effects of salt spray aerosols and provides an effective surface for trapping airborne nutrients. See page 60. [Henry W. Art, Williams College, Williamstown, Massachusetts]



Another small miracle: The first fully programmable pocket-sized computer calculator.

In January 1972, we introduced the first pocket-sized computer calculator, the HP-35. With transcendental functions, a full two-hundred-decade range and four register operational stack the HP-35 revolutionized the process of doing complex calculations.

In June 1973, we introduced the HP-45 designed for twice the computational power in the same size package.

Now we're introducing the HP-65, the first fully programmable hand-held computer calculator. Like its two antecedents the HP-65 makes single complex calculations automatically. In addition, because it is fully programmable, it can automatically perform a complete *sequence* of calculations to give you the answer. All you do is enter the raw data and a prerecorded program. You are relieved of remembering and executing the correct sequence of keystrokes manually.

The program is recorded on a magnetic card the size of a small stick of gum. Each program can consist of as many as 100 steps, and each step can be any of the calculator's 51 keystroke functions. These can be combined with branching, logical comparison and conditional skip instructions. The HP-65 also has a 4-register operational stack and nine addressable memory registers.

You can write, edit and record your own programs on the HP-65 keyboard. It couldn't be easier; you push the keys in the same sequence you would use to solve the problem manually, with the programming switch in the W/PRGM position. Then you record these steps on a small magnetic card. Next time you want to solve the same problem turn the switch to RUN and insert the card.

If you don't want to write your own programs, use ours. Six prerecorded packages, called Application Pacs, are available now; more are on the way. Each Pac contains up to 40 programs in disciplines such as mathematics, statistics, surveying, medicine, and electrical engineering. In the Math Pac II, for example, there are prerecorded programs for base conversion, complete elliptic integrals, intersection of a line and a conic section, as well as 30 other calculations. All Pacs available for $45.*

The HP-65 is priced at $795.* This includes one Application Pac, one Pac of blank program cards, handbook, battery pack, AC adapter/recharger, carrying case and travel case plus a one-year subscription to the User Library Catalog.

The new Logic Lab: a practical way to learn digital electronics hands-on.

Like many other aspects of modern life, electronics isn't what it used to be. With practically every new electronic product introduction the change becomes clearer: the trend is toward digital and away from analog. And the whole scene is confusing until you learn what the 1's and 0's of digital circuits are all about. The new HP Logic Lab clears away the confusion; in many cases, it can help you learn all you'll ever need to know about digital circuits. Designed for hands-on introduction, the Logic Lab includes a textbook and lab workbook as well as a fully equipped portable laboratory for digital experimentation.

The student learns to assemble a variety of functioning digital circuits using the breadboard, components and inter-connecting wires supplied. This takes a minimum of effort because the Logic Lab utilizes a solderless, plug-in connection technique for components and wires. No longer is assembly a gruelling process of soldering and unsoldering IC's and wires.

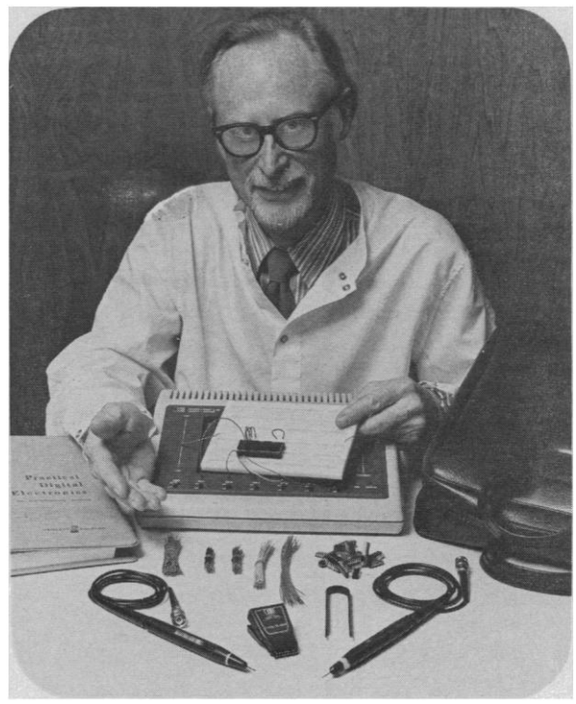
The laboratory station mainframe has the essentials built-in (power supply, logic state indicators and programmers, and pulse sources to provide active stimulus for the student's circuits). When the student has assembled a circuit, he can verify its operation using the professional-quality digital test instruments — the HP Logic Probe, Logic Pulser and Logic Clip. In doing so he not only learns how to troubleshoot a digital circuit, but also sees visual evidence of circuit component behavior and can make sense of their interactions with other components. In the final analysis, this is where he learns what the 1's and 0's mean.

The Logic Lab is ready for the next class, even if the student isn't. Caught by the bell in the middle of assembly or testing, the student's breadboard is easily removed and replaced by another one without disturbing the circuits.

The Logic Lab is an effective self-directed learning package. Written by a team of experienced educators and industry engineers, all text is arranged in a modular format that allows the student to start at a level that suits his individual needs. The instructor can involve himself to the extent he desires.

Not just for students, engineers also find the Logic Lab a boon in breadboarding, analyzing and debugging new designs.

The complete Logic Lab package is available for $650.*



For more information on these products write to us. Hewlett-Packard, 1507 Page Mill Road, Palo Alto, California 94304.

*Domestic USA prices only. 00407A

Mail to: Hewlett-Packard, 1507 Page Mill Road, Palo Alto, CA 94304
Please send me information on:
( ) HP 65 Computer/Calculator
( ) HP Logic Lab

Name_____ Title_____

Company_____

Address_____

City_____ State_____ Zip_____

HEWLETT hp PACKARD

Sales and service from 172 offices in 65 countries.
Palo Alto, California 94304

Here are a few problems Olivetti is ready to solve for you on its newest, fastest, most powerful P-652 microcomputer.

STATISTICAL SIGNIFICANCE AND REGRESSION ANALYSIS:

- ☐ Regression coefficients with standard errors
- ☐ Paired data analysis with transformations and confidence limits
- ☐ Multiple linear regression
- ☐ Polynomial regression
- ☐ Stepwise linear regression
- ☐ Multiple correlation coefficients
- ☐ Partial correlation coefficients
- ☐ F-statistic with significance levels
- ☐ t-statistic with significance levels
- ☐ Confidence limits on statistics
- ☐ Curve fitting (we have a wide range of models)
- ☐ Test for linearity
- ☐ Test for outliers
- ☐ Test for normality
- ☐ Distribution studies (Poisson, Beta, Binomial, Erlang, Weibull, etc.)
- ☐ Biserial and point biserial correlation coefficients
- ☐ Contingency tables
- ☐ Non-parametric statistics
- ☐ Moments and statistics of frequency distributions
- ☐ Moving averages
- ☐ Smoothing
- ☐ Trend analysis (Quadratic, Exponential, Logistic, Gompertz, etc.)

ANALYSIS OF VARIANCE:

- ☐ One-way ANOVA
- ☐ Two-way ANOVA
- ☐ Three-way ANOVA
- ☐ Analysis of Covariance

(We have a wide range of models.)

- ☐ Latin Square
- ☐ Factorial design
- ☐ Nested (hierarchical) design
- ☐ Randomized Block design
- ☐ Bartlett's Test
- ☐ Scheffe's Test
- ☐ Newman-Keuls Test
- ☐ Tukey's Test
- ☐ Least significance difference
- ☐ Comparisons among class means

BIOSTATISTICS:

- ☐ Quantitative log-dose response
- ☐ Quantal log-dose response

(We have both single and parallel line assays.)

- ☐ Slope-ratio assays
- ☐ Logit, NED, or Probit transformations
- ☐ Variance-weighted Radioimmunoassay data reduction
- ☐ RIA kit data reduction

(We have systems for most major protocols.)

OTHER _____

_____

_____

_____

_____

ARE YOU MAINLY INTERESTED IN:

- ☐ Hypothesis testing?
- ☐ Parameter estimating?
- ☐ Forecasting?
- ☐ Quality control?
- ☐ Determining significant variables?

WOULD OFF-LINE PROCESSING OF DATA FROM ANALYTIC INSTRUMENTS BE IMPORTANT?

☐ Yes ☐ No

Olivetti Corporation of America, 500 Park Avenue, New York City 10022
Attn: Microcomputer Systems

I've checked what I need. Please send me the specifics.

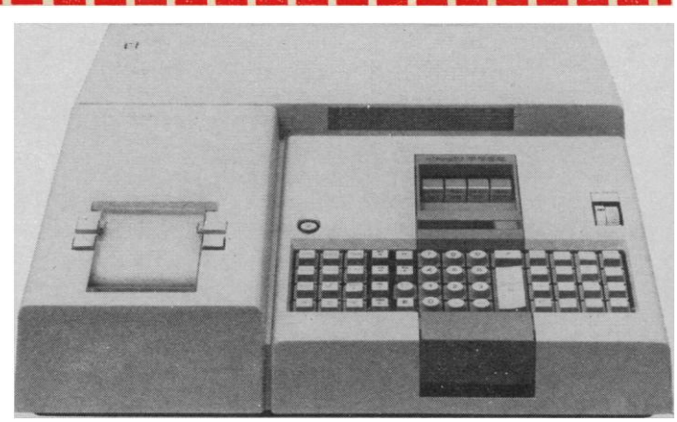
☐ I'm already using an Olivetti P-101 or P-602

NAME _____ TITLE _____

COMPANY _____ ADDRESS _____

CITY _____ STATE _____ ZIP _____ PHONE _____ S-4

This, without a doubt, is the ultimate system for statistical analysis on a small data base. It utilizes the newest, most advanced hardware—Olivetti's P-652 microcomputer (fifty times faster than our P-101, the famous statistical desk top computer used in labs and schools all over the world). And a comprehensive library of detailed, documented software offering all sorts of options for different running modes with special emphasis on error correction procedures. Take a look, there's nothing like it on the market. And, of course, it's backed by that famed reliable Olivetti service. Want to know more? Send the coupon.



OLIVETTI CORPORATION OF AMERICA, 500 PARK AVE., NEW YORK CITY 10022

SCIENCE

Special Issue • April 19, 1974

ENERGY

TOPICS TO BE COVERED

Conservation in homes, schools, and industry • Solar energy
Sociological impact of energy crisis • Economic strategy • Geothermal electricity
Impact on balance of payments • Federal energy policy
Academic community involvement • Expanding utilization of coal
Expanded oil production • Energy research and development
The European view • Low cost energy • Nuclear energy • Oil from shale

SOME OF THE CONTRIBUTORS:

Hans Landsberg • Peter L. Auer • Charles Berg • John C. Calhoun • Robert Berg • Robert Whiting • Arthur Squires • David Rose Geoffrey R. Robson • Martin Wolfe • James Murray • Kenneth Boulding • Thomas Stauffer • Philip Sporn • Wolfe Hafele • Ann Carter • Helmut Frank • J. S. Steinhart • members of News and Comment and Research News staff of *Science*

Write to:
Energy Issue Department
Science—AAAS
1515 Massachusetts Avenue, N.W.
Washington, D.C. 20005

Prepublication prices to regular members and subscribers who want *EXTRA* copies, and to nonsubscribers:

Orders of 1 to 4 (payment with order): $1 each
Orders of 5 or more: 80¢ each Orders of 25 or more: 70¢ each
Orders or 100 or more: Call for details 202-467-4410

Name _____ (Please print)

Address _____

City _____ State _____ Zip _____

Send _____ copies. Purchase order No. _____

Make checks payable to AAAS

5 April 1974, Volume 184, Number 4132 **SCIENCE**

Assessing the Demand for Scientists and Engineers

Energy research and development is budgeted at $1.8 billion for fiscal 1975; the total federal research and development budget of $19.6 billion is up 17 percent over last year. An effort of this magnitude over the next several years will require large numbers of scientists and engineers trained in a variety of traditional and interdisciplinary fields.

The number of physical scientists and engineers graduating each year is decreasing. These fields accounted for 20 percent of all bachelor's degree recipients in 1950, 14 percent in 1960, and 8 percent in 1971. The National Center for Educational Statistics projects a drop to below 5 percent by 1982. These disciplines constituted 29.2 percent of all doctorates granted in 1965, but are expected to make up only 21.2 percent of the total in 1975 and 17.7 percent in 1982. The increasing size of the college population resulted in a slight rise in the actual number of degrees granted in these fields during the 1960's, but this is no longer true. In both physics and chemistry, the number of bachelor's degrees started to drop in 1970, Ph.D.'s in 1971. Engineering bachelor's peaked at 44,190 in 1972, but will drop each year through 1976, when the class may total only 28,000.

The Council of Graduate Schools reports that graduate enrollment in physical sciences and engineering fell more than 8 percent between autumn 1970 and autumn 1972. A further drop is likely this year.

Meantime, federal support for full-time graduate students in physical science and engineering has dropped steadily from 41.8 percent of those enrolled in doctoral programs in 1969 to 39.8 percent in 1970, to 37.0 percent in 1971, and to 35.8 percent in 1972.

Some signs of technical manpower shortage are appearing already. The College Placement Council reports that 59 percent of all offers made by business and industry to 1974 graduates with the bachelor's degree have been made to engineers, who make up only 5 percent of the graduating class.

News stories of unemployed scientists and engineers proliferated in the early 1970's, as did articles on the "Ph.D. glut." Few of the latter differentiated among fields of study. The best statistics now available indicate that fewer than 1500 doctoral holders in the physical sciences and engineering were unemployed and seeking employment in 1973—an unemployment rate well below 1.5 percent.

Demand for technological specialists will be generated by the nation's energy program, its environmental, and other efforts. Whether enough scientists have been and are being trained in the areas in which they will be needed is not known. Because no federal agency has overall responsibility for manpower planning, top-level representatives from those agencies involved with national research and development programs (including at least the Federal Energy Office, National Aeronautics and Space Administration, Office of Management and Budget, National Science Foundation, and Atomic Energy Commission) must examine together the manpower implications of their several and collective segments of this enterprise and set up or fund a program for continuing assessment over the coming decade. Without it, we may be condemned to repeat our recent mistakes, generating expensive crash programs to produce required specialists, only to follow once again with periods of uneven oversupply. Only adequate manpower assessment can reconcile the long educational pipeline through which these experts must pass with the needed manpower component in the current national effort and the likely emphasis of major programs that will follow when such problems as energy have been solved. Dollar budgets can be changed quickly. Manpower budgets require longer planning time if both dollars and manpower are to be used wisely.—BETTY M. VETTER, *Scientific Manpower Commission, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036.*

five folded funnel filters free!

S&S pleated filters make analysis fast, easy, consistent

We'd like to give you five folded filter papers. Free. Just to prove there's nothing like them. To let you see how much faster, more uniform, laboratory filtration can be. Schleicher & Schuell has them for the full range of retained precipitates—from very fine, such as Dakin's solution, to gelatinous, like agar-agar and other culture media. And S&S pre-folded funnel filters eliminate the sharp apex of hand-folded filters, which can pack and resist pass-through.

Look at the description of S&S folded filters. Tell us on your letterhead which of the six grades you'd like to test, and we'll send you a suitable sample packet. Five folded funnel filters. Free!

SCHLEICHER & SCHUELL

S&S

520B½—Very rapid, creped, thick, high wet-strength filters, for agar-agar and other culture media, gelatin, fruit juices, syrups, varnishes. Suitable for high temperatures.

588— Very rapid, high wet-strength, pure white filters, for coarse precipitates.

606— Rapid, smooth surface, medium texture, pure white, fairly retentive filters, for simple solutions. Recommended for student use.

560— Moderately rapid, high wet-strength, pure white filters, for retaining moderately fine precipitates.

477½— Rapid, creped, high wet-strength filters, for aqueous, alcoholic and oily liquids, pharmaceuticals, beverages.

605— Dense, high wet-strength filters, for very fine precipitates. Suitable for sugar solutions treated with lead acetate, super-phosphates, Dakin's solution, and other liquids requiring high clarification in the presence of finely divided solids.

KEENE, N.H. 03431/Tel. 603 352-3810 • CABLE ADDRESS: FILTERING/TWX 710-366-6390 • D-3354, Dassel, West Germany • Telefon (0 5564) 195/Telex 09 65 632 • 8714 Feldbach ZH, Switzerland • Telefon 0 55/5 22 12/Telex 75628