

SCIENCE

24 December 1971

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AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



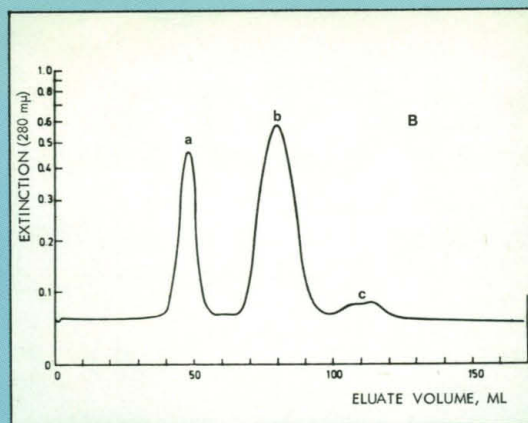
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 Column stabilised with 5 % polyacrylamide. Cross circulation of buffer.
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 SAMPLE: 0.25 ml 20 % albumin solution 0.04-M with respect to acetyl-
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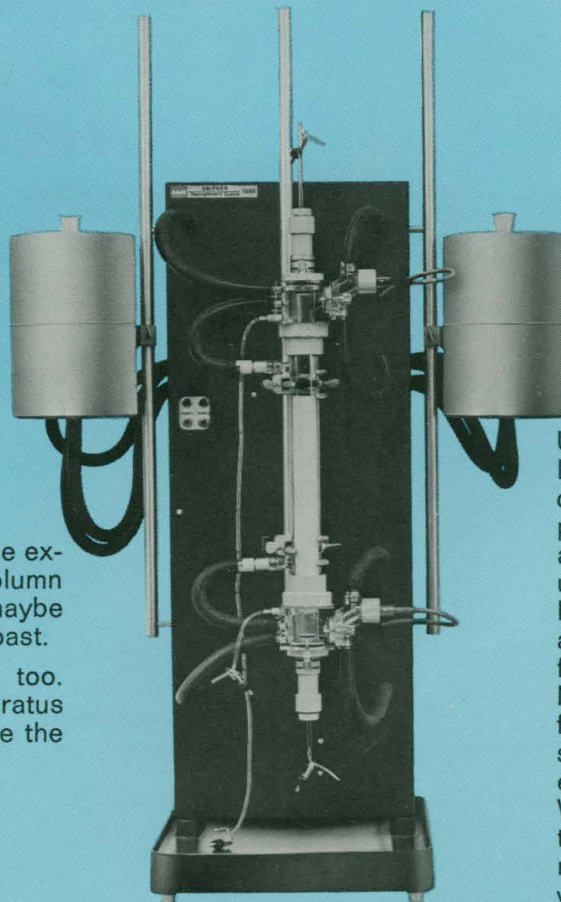
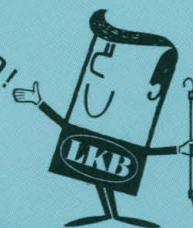
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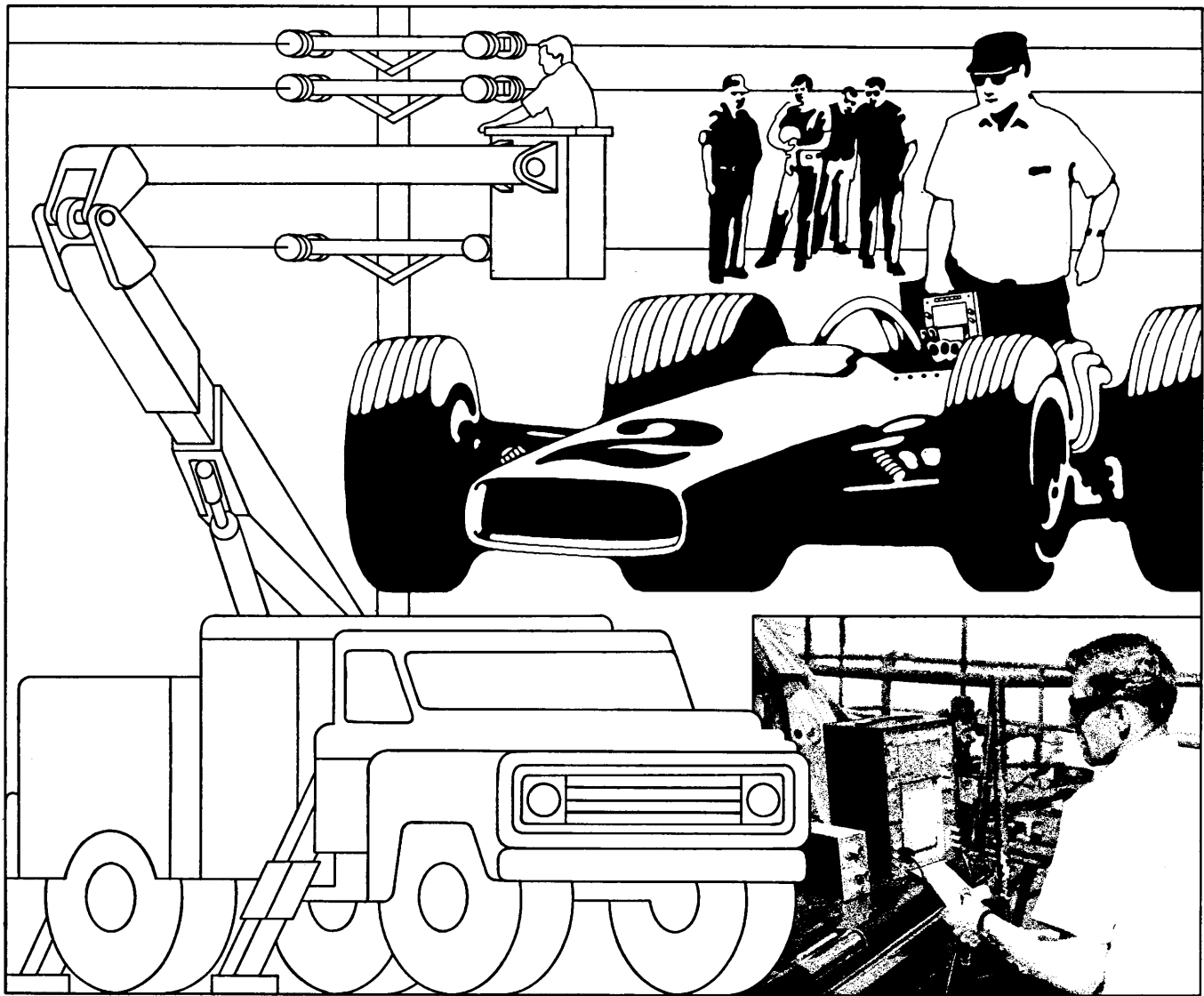
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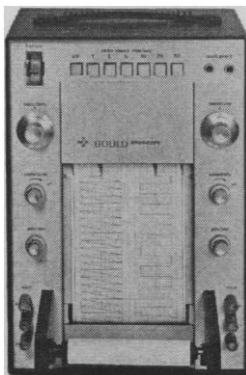


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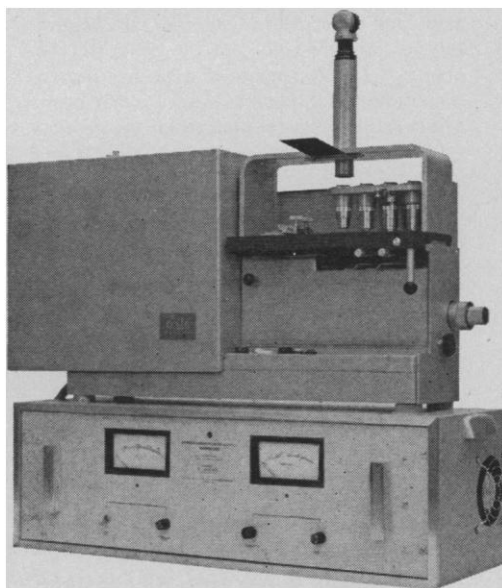
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Adelie penguins, Hallett Station, Antarctica. See review of AAAS Symposium Volume, *Research in the Antarctic*, page 1316. [Charles R. Roberts, Jr., National Weather Service, San Francisco, Calif.]

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Career Choices

In attempting to make good choices in preparing for a career, students have always faced uncertainties. Part of these have been within themselves; for example, questions of aptitudes, interest, and determination. Others have been external—questions of future opportunities to do significant work and the likely availability of employment. Mechanisms for helping students meet the internal uncertainties are still primitive, but they are far more effective than methods of providing guidance for the future. Two of the major sources of guidance have been defective. One of these is the departmental faculty advisers, who too often have advocated specialization in their own disciplines and discouraged broad preparation.

More serious are the mistakes that students often make when they try to use their own judgment in the search for future significance. Their common error is to assume that the challenge of the moment will be enduring. For example, in the early 1960's the mass media emphasized the potential of the space program. Many students accordingly prepared themselves for careers as space scientists and engineers. Later there was a smaller, but no less influential, exaggeration of opportunities in oceanography. In 1965, the Stratton Commission recommended that the federal government spend \$2 billion yearly in support of oceanography. Expectations were aroused both among students and in industry. The principal catch has been disappointment.

At the moment, we seem to be setting the scene for a fresh set of disappointments, this time around environmental concerns.

On many campuses across the nation, special courses, curricula, and institutes have been organized, in part to meet student demands and in part to channel students into environmental studies. Obviously it is desirable that students should be well informed about the environment. However, faculties should be cautious about encouraging students to believe that many job opportunities are likely to be available in that field.

A survey of major industrial companies indicates that they are devoting considerable attention and money to abating pollution. However, many point out that, given the current climate of public opinion, they must respond by utilizing established technology rather than by putting their bets on research that might pay off 8 years from now. The overwhelming majority stated that they were meeting their environmental problems by using talent already employed by the company, with only occasional use of outside consultants on ecological matters. The principal source of jobs will be governmental agencies—federal, state, and local. While a moderate number of new employees will be recruited, federal authorities have already received considerably more good applications than they can accept. They further estimate that state and local needs for scientists and engineers to work on environmental matters will amount to no more than several thousand per year.

Basing one's plans on the fashion of the moment is likely to lead to disappointment, but what is better? First, one should consider that there are some obvious societal needs that will long endure. Society will always accord prestige and financial rewards to its physicians. One cannot be so certain of the future for research scientists. We cannot state that society will support them or admire them. We cannot be sure they will find jobs, especially those who are narrowly trained. The best bet for the student is to prepare broadly, seeking a good grasp of the fundamentals of more than one science. Then, if he is willing to engage in life-long learning, he will be able to meet some of the many unexpected challenges that lie ahead.—PHILIP H. ABELSON

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drawings and photographs in one illustration. 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 reason-

ably 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 six double-spaced manuscript pages of text. Short papers receive preferred treatment. Limit illustrative material (both tables and figures) to one item for each three manuscript pages. Two items, occupying a total area of up to half of a published page (30 square inches), is the maximum. 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 preparation.” 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.

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 suitable for use on the cover are desired.