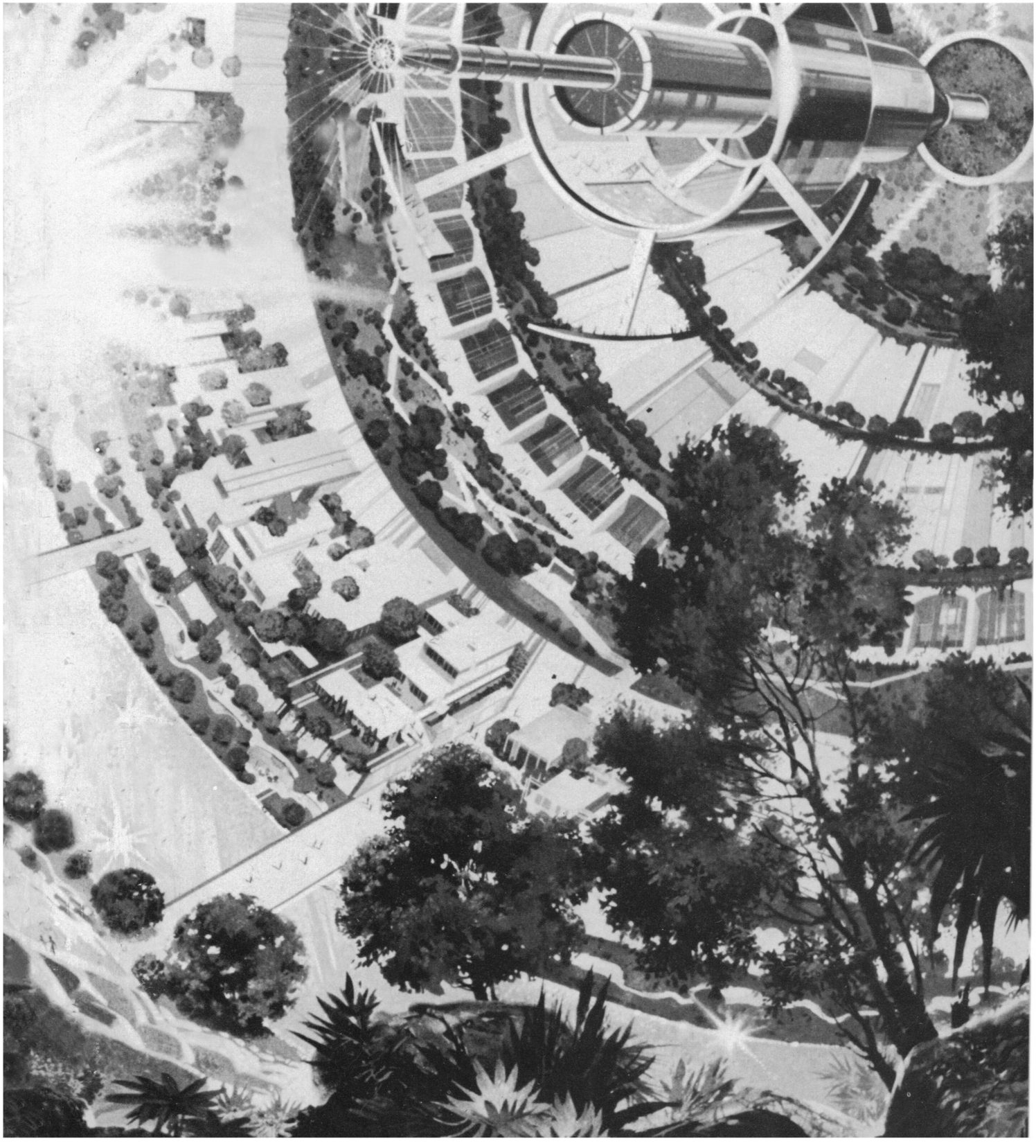
SCIENCE

5 December 1975

Volume 190, No. 4218

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



DON'T MISS ALL THE FUN THE 1976 A.A.A.S. ANNUAL MEETING HAS PLANNED FOR YOU. SIGN UP NOW.

14 different tours, 2 great concerts, exciting special events, many free, all in historic Boston, February 18th-24th, this Bicentennial year!

Is this any way to run the 142nd Annual A.A.A.S. Meeting? We think it is! But tickets are limited, so make sure to reserve a place for you and your family by signing up now.

CONDUCTED TOURS

TOUR 1. Introduction to Boston and Cambridge ($7.50 per person)
1A Wednesday, February 18.
1:30-4:00 pm.
1B Thursday, February 19.
9:30-12:00 noon.
1C Monday, February 23.
10:00-12:30 pm.
TOUR 2. Lexington and Concord ($7.50 per person)
2A Thursday, February 19.
1:30-4:00 pm.
2B Monday, February 23. 10:30-1:00 pm.
TOUR 3. University Tour ($6.60 per person) Including Harvard, M.I.T., Boston University, Northeastern, Radcliffe, Brandeis and others.
Saturday, February 21. 9:00-12:00 noon.
TOUR 4. Woods Hole Oceanographic Institution Tour and Program ($6.50 per person)
(Box lunch available. Limit 150 persons.)
Saturday, February 21. 8:30-3:30 pm.
TOUR 5. Audubon Society Field Trip
Newburyport—Plum Island ($7.50 per person). Monday, February 23, 7:30-1:00 pm.

CONCERTS

15. Arthur Fiedler conducting the Boston Pops Orchestra at Symphony Hall, Boston
Friday, February 20. 8:30 pm.
Floor and first balcony, $6.50. Second balcony, $4.50. All unreserved.

16. An afternoon of Scott Joplin's music performed by the New England Conservatory Ragtime Ensemble, and narrated by Gunther Schuller, President, New England Conservatory of Music. John Hancock Hall, Boston.
Sunday, February 22. 2:15 pm. All seats unreserved. $3.00 per person.

FREE MUSEUM ADMISSION

Admission to the Museum of Fine Arts, the Museum of Science and the New England Aquarium will be made available, free of charge, to conferees wearing registration badges.

FREE UNIVERSITY TOURS

TOUR 6. Boston University
TOUR 7. Harvard University
TOUR 8. M.I.T.
TOUR 9. Northeastern University
These tours are all scheduled for Saturday, February 21, 2:30-4:30 pm. Limited to 150 persons per tour. Transportation provided.

FREE INDUSTRIAL TOURS

TOUR 10. Abt Associates, Inc. & Bolt Beranek & Newman, Inc.
Friday, February 20, 8:30-12:30 pm.
TOUR 11. High Voltage Engineering, Corp. & Itek, Corp.
Friday, February 20.
1:30-5:30 pm.
TOUR 12. Damon, Corp. & Digital Equipment, Corp.
Friday, February 20, 1:30-5:30 pm.
TOUR 13. Environmental Research & Technology, Inc. & Raytheon Company.
Monday, February 23. 8:30-12:30 pm.
TOUR 14. MITRE, Corp. & Arthur D. Little, Inc.
Monday, February 23, 1:30-5:30 pm.
Limit of 50 persons per tour. Transportation provided.

FOR YOUR NOTE PAD

Hospitality Headquarters is located at Boston's Sheraton Hotel, Beacon D, Conference Level for complimentary coffee. Tour, concert and Bicentennial information.

All tours will depart from the Dalton Street entrance of the Sheraton-Boston Hotel.

Holders of tour tickets should check at A.A.A.S. Ticket Booth to reconfirm tour reservation(s).

All seats, tours and concerts, are unreserved, some have a participation limit, and all are on a first-come, first-served basis. Minimum number of persons will be required for tours or they may be cancelled.

Refunds on sales will be handled by Dept. R or on site—but must be made 24 hours in advance of tour departure—no refunds thereafter. Concert tickets not refundable.

Tickets will be mailed to individuals beginning January 20, 1976.

Return to A.A.A.S., Dept. R.
1515 Massachusetts Ave., N.W., Washington, D.C. 20005

Please circle activity desired. Write number of tickets desired in space next to appropriate number.

1A _____ *1B* _____ *1C* _____ *2A* _____ *2B* _____
3 _____ *4* _____ *5* _____ *15* _____ *16* _____

Name _____
Address _____
_____ Zip _____
Checks should accompany reservation forms and should be made out to AAAS or Am. Assoc. for the Advancement of Science. DO NOT SEND CASH.

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Please circle tour desired. Write number of tickets desired in space next to tour number.

6 _____ *7* _____ *8* _____ *9* _____ *10* _____
11 _____ *12* _____ *13* _____ *14* _____

Name _____
Address _____
_____ Zip _____
These tours are free.

THE 1976 A.A.A.S. ANNUAL MEETING IN BOSTON CAN BE A 1776 EXPERIENCE FOR THE WHOLE FAMILY.

5 December 1975

Volume 190, No. 4218

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. and additional entry. Member rates on request. Annual subscription $50; foreign postage: Americas $7, overseas $8, air lift to Europe $30. Single copies $2 (back issues $3) except Food Issue (9 May 1975) is $3 and **Guide to Scientific Instruments** is $6. School year subscription: 9 months $37.50; 10 months $41.75. 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

The American Association for the Advancement of Science was founded in 1848 and incorporated in 1874. Its objects are to further the work of scientists, to facilitate cooperation among them, to improve the effectiveness of science in the promotion of human welfare, and to increase public understanding and appreciation of the importance and promise of the methods of science in human progress. Postmaster: Send Form 3579 to SCIENCE, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005.

COVER

Possible interior design of a first, small-size space community. Such a habitat could be large enough to provide comfortable apartments, shops, parks, small rivers, and lush vegetation. See page 943. [*Science Year*, Field Enterprises, Inc., © 1976]

Things like our patented Combi-vial packaging, the safest and most convenient ever devised for labeled compounds. The contents can be extracted by syringe directly through the teflon-lined rubber septum, or the multi-dose closure can be removed by an easy tear tab for pipetting or multiple withdrawals, resealing with the screw cap. Very small volumes of liquid are packaged in our Combi-V-vial with its tapered reservoir insert.

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Food!

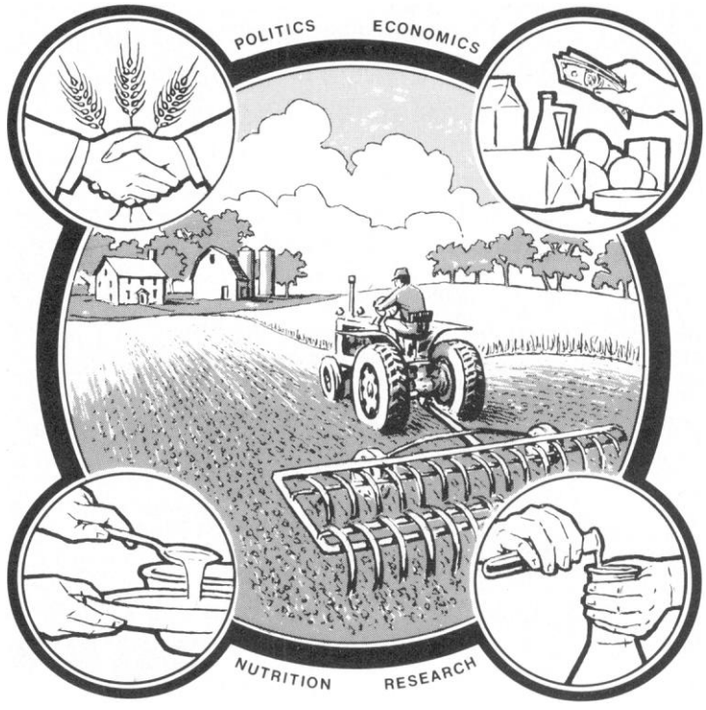
When abundant, it is wasted or treated as a commodity. When scarce, its distribution is a matter of life or death.

During the past few years, serious shortfalls in world food production and distribution, along with soaring agricultural prices, have posed some vital questions. Will . . .

. . . polulation growth and rising affluence exceed the world's capacity to feed itself?

. . . we run out of land, water, energy?

. . . applications of new agricultural technology yield essential benefits?



These complex issues—and some solutions—are a major topic in SCIENCE. It has published numerous articles by a broad spectrum of agronomic and nutritional experts. Now, more than 30 of these articles are collected in an important new compendium:

FOOD:
Politics, Economics, Nutrition and Research.

Originally published in various issues of SCIENCE, these thoughtful dissertations provide a close look at the "why" of the food situation—the influence of politics and economics. Nutrition, food production and distribution are discussed. And, there are exciting revelations as to the potential of

solar energy, nitrogen fixation, photosynthesis, and genetics

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Edited and with an introduction by Philip H. Abelson, FOOD: Politics, Economics, Nutrition and Research is provocative reading for everyone concerned with today's—and tomorrow's—food supply.

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5 December 1975, Volume 190, Number 4218 **SCIENCE**

Detlev Bronk

For all of us, the death of Detlev Bronk means that a steady and generous source of illumination has been extinguished. But in our hearts and memories there remains a warm afterglow.

Det Bronk was one of the most sought after and influential men in science. He made original and fundamental scientific observations, he served as president of two major universities, he was president of the National Academy of Sciences for 12 years, and his contributions to this country were such as to deserve its highest civilian honor, the Medal of Freedom. What were the essential characteristics that set this man apart? We think an important one was that he enjoyed what he did; he valued the scientific life. Another was that he really cared about people, and they reciprocated. In his address on retiring from the presidency of the American Association for the Advancement of Science in December 1953, there is a glimpse of what science meant to him:

"As a scientist, I think of intellectual adventure in terms of scientific research and inquiry. As members of the greater community of scholars, we should think of science as encompassing all significant knowledge which enriches life. Science in that broader sense is a great odyssey of the human spirit. Because it is just that . . . the future I envision is one of glad, confident mornings of new days of greater satisfaction."

This indicates another of Bronk's characteristics. He took the broad view. As a beginning scientist, he felt that the pinnacle of his desire was the sanctuary of the laboratory, but he soon realized that he could not allow external forces to control the life and future of the scientific community. Again, his philosophy is expressed in his presidential address:

"Science shapes the lives and thoughts of men and the destiny of nations; many who are not scientists are thus tempted by the will to serve or by the lust for power to control the policies and conditions under which scientists must work. Scientific research and knowledge are essential elements of modern life; the changing patterns of civilization are influenced by and, in turn, have a profound effect on the nature and the course of scientific activity.

"This is justification for inclusion of some who are neither scientists nor professional scholars in any field among administrators and trustees who play a powerful role in guiding the affairs of science and its uses. It does not justify their lack of understanding of science and the conditions under which it can flourish. . . .

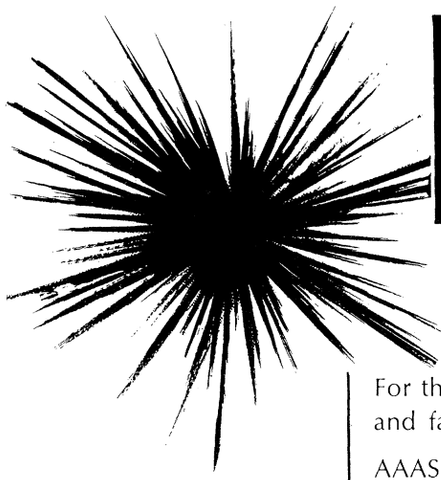
"Men of affairs and social influence need more knowledge of and appreciation of the traditions, ideals, and significance of science. Scientists are in part to blame for such lack of awareness . . . we have emphasized too much our discoveries and their useful applications. We have inadequately revealed science as a great intellectual adventure. Unless this quality of science is more generally comprehended, we shall be subject to adverse pressures that result from lack of understanding."

As president of Johns Hopkins University in the McCarthy era, Bronk learned something about adverse social pressures, but it was another of his characteristics that he had courage and knew when to display it:

"Progress requires courage. If we are to fulfill our rightful role in the furtherance of science, we need abundant courage. For this we are fitted by tradition and by the nature of our calling, for we are discoverers and teachers of new knowledge which is usually challenged and disputed. And so, there is no place in science for timid men and women who are unwilling to defend their necessary freedom for inquiry and free unprejudiced discussion."

But Bronk was no arrogant dissenter. He was basically a shy person, and like many great men he was modest. He was aware of his own place and the place of science in the larger scheme of things. It is told that some time during his years as president of the Rockefeller University he received a gift of money, which his fellow scientists pressed him to use for some worthy investigation or other; instead he spent it on a flower garden.

—NEVA M. ABELSON AND PHILIP H. ABELSON



Energy

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For the scientist, for the engineer, for everyone concerned with the profound and far-reaching effects of energy problems . . .

AAAS is pleased to announce the availability of a new publication—ENERGY: Use, Conservation, and Supply, a collection of enduring and readable articles designed to help the individual seeking to understand the energy problems we face and looking for practical solutions to these problems.

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WE'VE BEEN WORKING ON FOR THE LAST 100 YEARS.

And we're still working on it.

You see, the invention of the telephone didn't stop with Alexander Graham Bell. It just started.

Because the telephone is just the beginning of a telephone call. It's part of an intricate network of a trillion parts and nearly a billion miles of circuits.

To build this network, we at Bell Labs and Western Electric have long worked as a team with AT&T and your Bell telephone company.

As a result, America has the best telecommunications system in the world.

And the world has the benefits of such Bell System innovations as the transistor, the coaxial cable and direct distance dialing.

Working together, we've created entirely new communication systems. Like our latest switching machine that can route 550,000 calls an hour.

At the same time, we're constantly improving existing systems. Like tripling the capacity of our major microwave radio system in the last ten years.

Even the standard telephone that you probably think never changes has had virtually every major part improved since 1972.

In fact, we've made more than 2,500 improvements in your phone in the last twenty-five years.

Not just to make it look different. But to make it work better.

And to keep its cost down.

Improvements like these don't just happen.

The Bell System invests more than $750 million a year in research and development.

As an outgrowth, we receive an average of more than two patents every working day. And nearly half the things Western Electric will make this year didn't even exist four years ago.

In the next 10 years, we plan to expand the capacity of the telephone network as much as we have in the past 100 years.

To keep this network operating and growing takes the innovative teamwork of Bell Labs and Western Electric.

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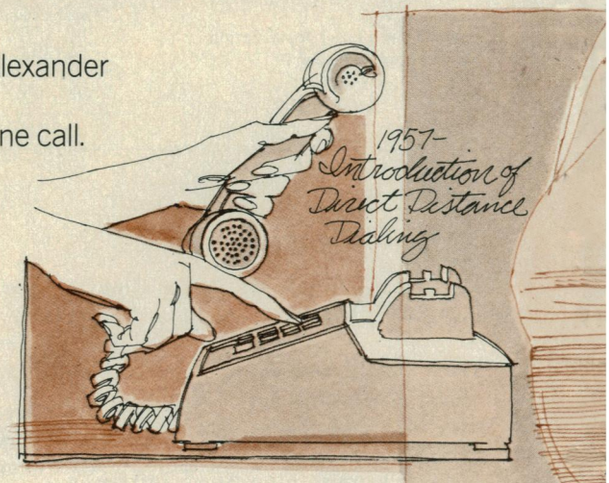
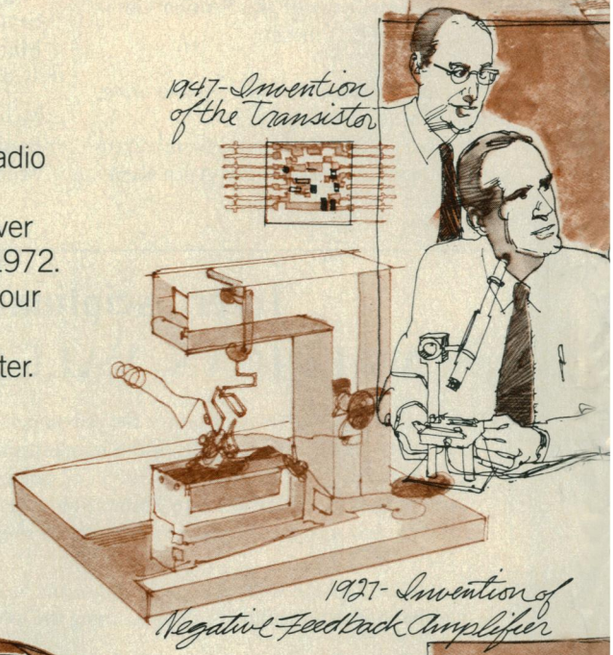
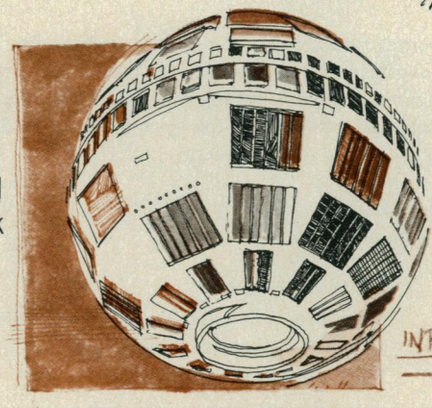


1957- Introduction of Direct Distance Dialing

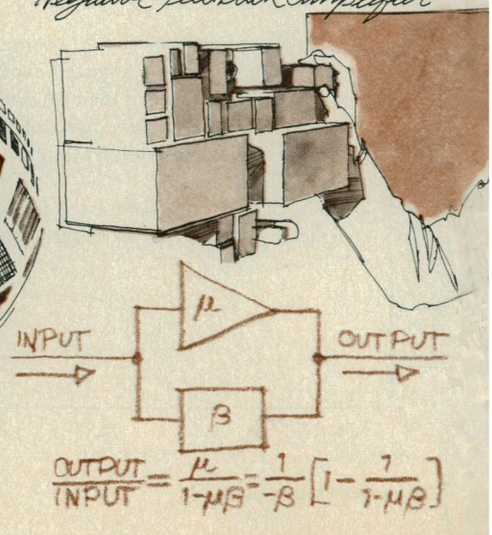


1947- Invention of the Transistor

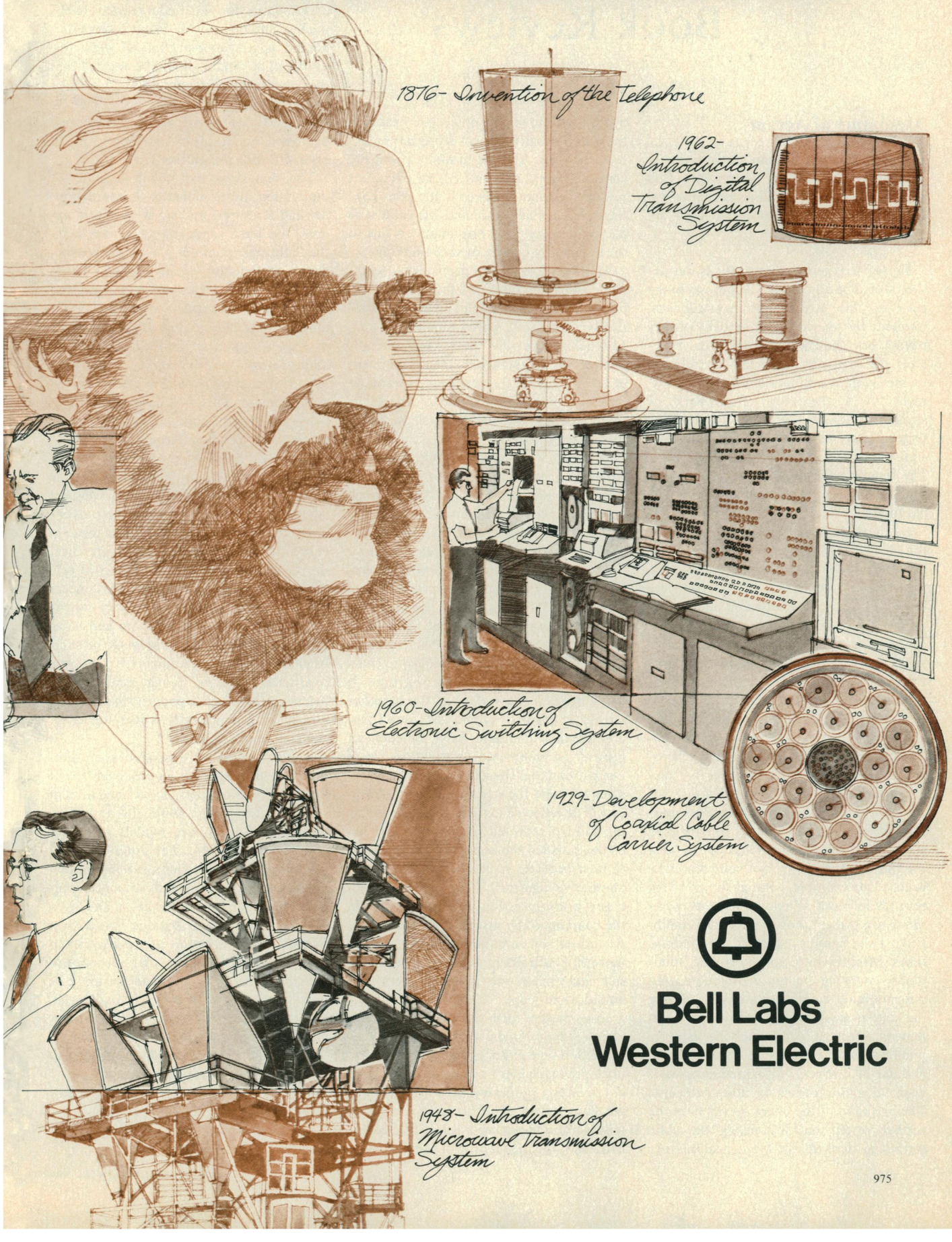
1927- Invention of Negative Feedback Amplifier



1962- Launch of Telstar™ Communications Satellite



YOUR NEXT PHONE CALL



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