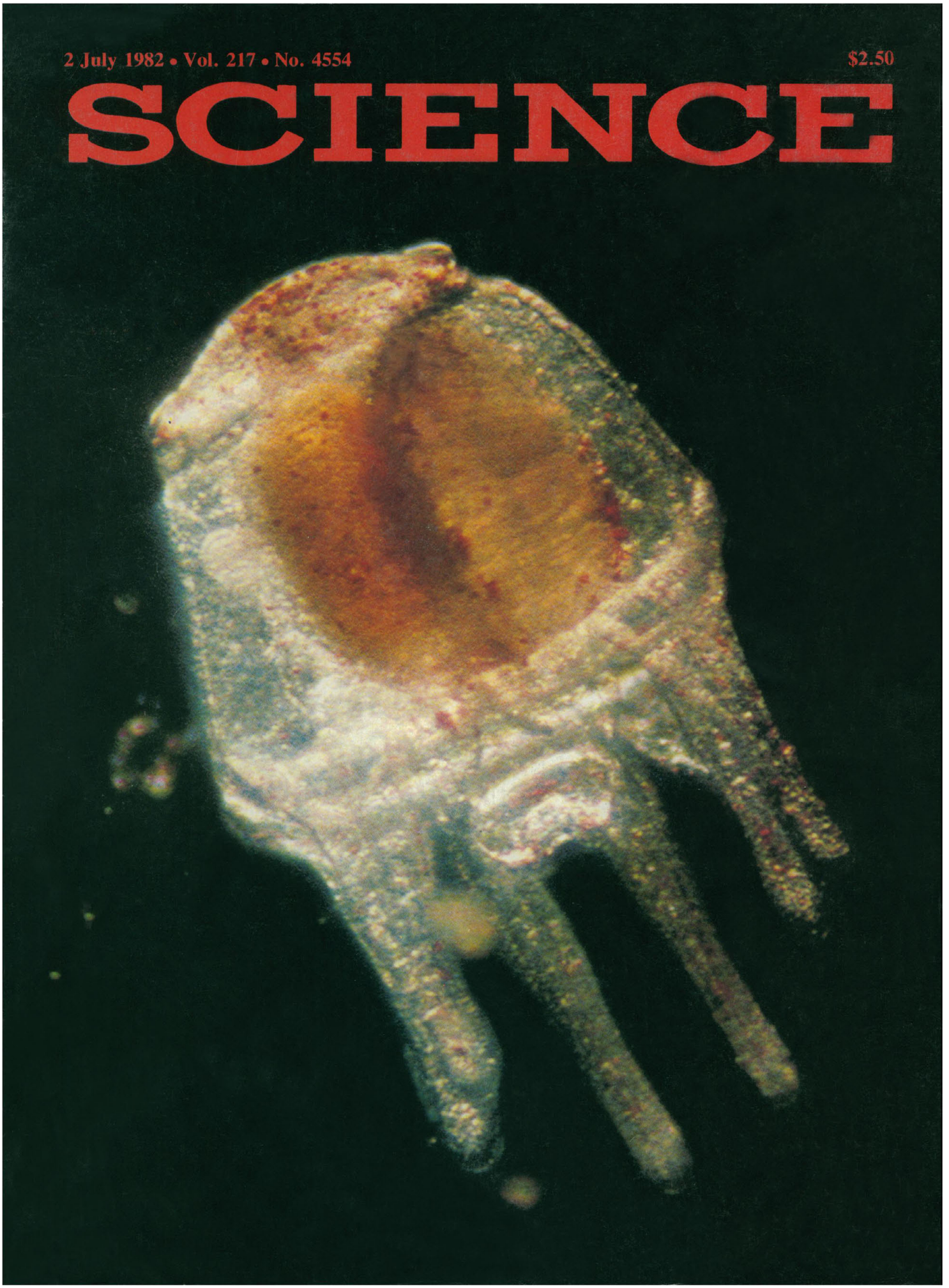
2 July 1982 • Vol. 217 • No. 4554

$2.50

SCIENCE



We appeal to your technical needs.

KODAK Technical Pan Film 2415 helps you record the sun and nearly everything under it.

What do you call a film you can use for solar flare photography, photomicrography, line-scan recording with cathode-ray tubes, lasers, or light-emitting diodes, photographing holographic reconstructions, and also for making black-and-white slides?

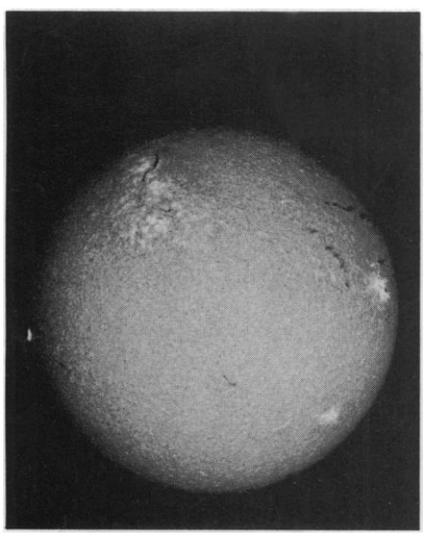
We call it KODAK Technical Pan Film 2415. You might call it "a film for all focal lengths," because it has been used rewardingly to record imagery with high-power microscope objectives, astronomical telescopes, and all sorts of camera lenses in between.

This extraordinary film, previously introduced as SO-115, is intended for a wide range of applications requiring high resolution, extremely fine grain, processing flexibility, high D-max, and relatively flat spectral response through most of the visible spectrum. It is coated on ESTAR-AH Base.

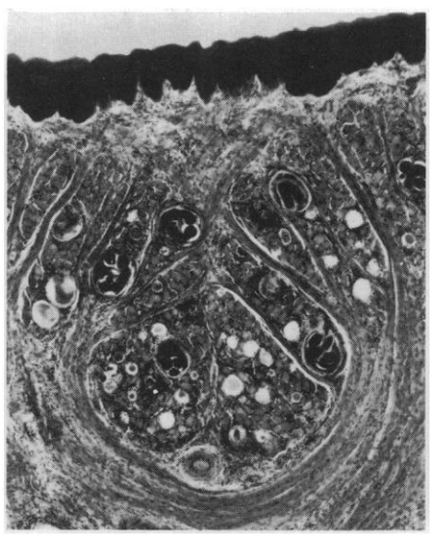
Its unusual combination of performance characteristics allows Technical Pan Film to fill a void in the matrix of black-and-white photorecording films. These characteristics have made 2415 a worthy successor to KODAK Solar Flare Patrol Film (ESTAR-AH Base) SO-392 and KODAK Photomicrography Monochrome Film SO-410—and a valuable alternative to KODAK High Contrast Copy Film 5069 in most applications.

You won't find a Kodak film with a broader range of scientific and technical applications. At the same time, you may wish to load a roll into your 35 mm camera to record some stunning pictorial photography.

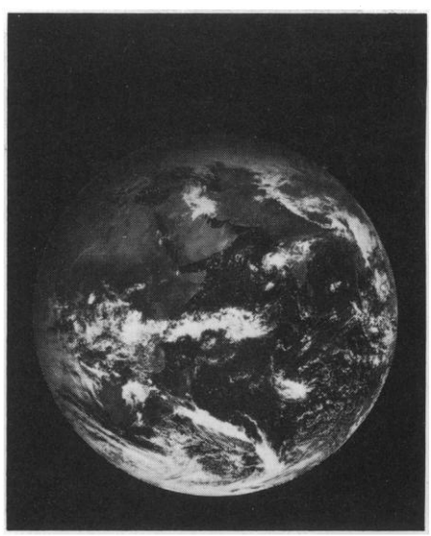
For additional information on Technical Pan Film, write to Eastman Kodak Company, Department 412L-153, Rochester, NY 14650. (A brief indication of your application may help us respond more effectively.)



Hydrogen-alpha photograph of solar flares. Sacramento Peak Observatory, Sunspot, N.M.



Photomicrograph of *trichinella spiralis* in muscle, 175×. Tungsten-halogen source (3200 K) with KODAK WRATTEN Filter No. 58.



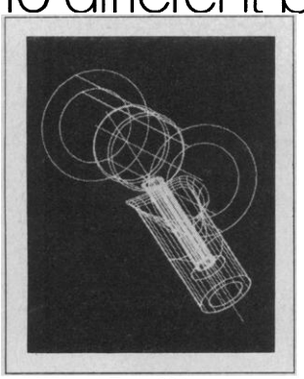
Meteorological imagery from geostationary satellite. VIZIR laser-beam recording by Société Européenne de Propulsion (France).

Kodak photographic products.
Capturing the images of science.

Kodak

Hours. Ours.

16 different black and white films. No waiting.



Type 084
High Speed

Compare the quality of the prints above, and you see why more and more technical, industrial and medical photographers want to work with Polaroid instant black and white films.

But another big reason they choose ours is choice: our films are available in a wide range of sizes, formats, speeds and emulsions.

Wherever exceptional tonal rendition is required, our fine grain films give you superb prints with virtually no graininess, as evidenced by Type 52, used for the metallograph above. It was delivered in seconds.

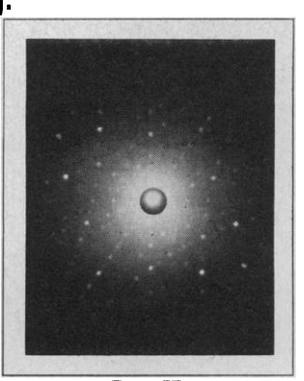
If you're photographing on the fringes of light and time, our high speed films will give you marvelous results in minute detail, in as little as 15 seconds.

For line art, charts and artistic effects, our high contrast films hand over enhanced blacks and whites in 15-second prints, and 30-second transparencies.

And no film in the world simultaneously delivers a fully developed print *and* a high resolution negative as fast as our positive/negative films—which also allow you to make enlargements (up to 25 times, without objectionable graininess or loss of detail).

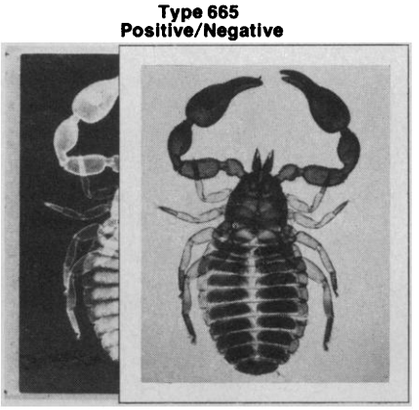
But the biggest benefit of all is that each of our films tells you instantly whether the picture you took is what you want.

To find out which of our films may be most appropriate for the kind of work you're doing, see your local Polaroid professional film dealer, or write: Polaroid Corporation, Dept. 482, Cambridge, MA 02139. Or call Polaroid Technical Assistance, toll free in the continental U.S.: 800-225-1618. (In Massachusetts, call collect: 617-547-5177.)



Type 57
High Speed

Type 665
Positive/Negative



We make sixteen different instant black and white professional films that are ready to give you the results you've been waiting for. Without the wait.

Polaroid
Instant Professional Films

ISSN 0036-8075

2 July 1982

Volume 217, No. 4554

SCIENCE

SCIENCE is published weekly on Friday, except the last week in December, by the American Association for the Advancement of Science, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. Second-class postage (publication No. 484460) paid at Washington, D.C., and at an additional entry. Now combined with **The Science Monthly**® Domestic individual membership and subscription (51 issues): $48. Domestic institutional subscription (51 issues): $85. Foreign postage extra: Canada $24, other (surface mail) $27, air-surface via Amsterdam $55. First class, airmail, school-year, and student rates on request. Single copies $2.50 ($3 by mail); back issues $3 ($3.50 by mail); classroom rates on request. **Change of address:** allow 6 weeks, giving old and new addresses and seven-digit account number. **Postmaster:** Send Form 3579 to *Science*, 1515 Massachusetts Avenue, NW, Washington, D.C. 20005. *Science* is indexed in the *Reader's Guide to Periodical Literature* and in several specialized indexes.

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

COVER

Advanced larva of the sea urchin, *Strongylocentrotus purpuratus*. This larva was grown in the laboratory and had been fed for about 6 weeks at the time the photograph was taken. It is about 0.8 millimeter across. The stomach can be seen filled with ingested algae and to the left of the stomach is the large ventral rudiment of the juvenile sea urchin that emerged a few days later upon metamorphosis. The parallel structures in the rudiment are the developing tube feet, still in a folded position. See page 17. [Photo by Patrick Leahy, California Institute of Technology, Pasadena 91125]

2 July 1982, Volume 217, Number 4554 **SCIENCE**

Chemical Abstracts After 75 Years

Members of the American Chemical Society have abundant reasons to be proud of the way their organization has served information needs of its members and of others. They have particular reason to be grateful for the efforts and achievements of many fellow chemists on behalf of *Chemical Abstracts*. This publication, now 75 years old, is regarded in many countries as the world's most valuable vehicle for abstracts of scientific papers.

Chemical Abstracts Service operates with a broad charter. It takes as its domain fields of possible interest to chemists. These include such conventional disciplinary areas as organic chemistry. They also include geochemistry, metallurgy, pharmacology, radiation chemistry, toxicology, and much of biology and physics. Some 12,000 journals are covered entirely or in part. They represent more than 150 countries and 55 different languages. Patents issued in 26 countries and by two international bodies, proceedings, dissertations, reports, and books are also monitored for items of chemical interest. In consequence, about 500,000 items are abstracted, indexed, or cited each year. Abstracts now fill 35,000 pages and indexes total 38,000 pages annually. *Chemical Abstracts* is international in both coverage and audience. Nearly two-thirds of its circulation is abroad.

This coverage of the world's chemical literature began in 1907, at a time when American chemists believed that European abstracting journals were neglecting U.S. contributions. The early issues were edited by William A. Noyes, Sr., from his office at the National Bureau of Standards. He was assisted by two other part-time editors, a secretary, and 129 unpaid volunteer abstractors. The first year's output contained about 12,000 abstracts. Later the editorial office was moved to Columbus, Ohio, adjacent to Ohio State University. With time, the volume of chemical literature grew greatly. For much of its history *Chemical Abstracts* relied heavily on volunteers to monitor and abstract the literature, although indexing was performed by the editorial staff. By the mid-1960's the corps of volunteers had grown to nearly 3300 in 55 nations, but even with this help the organization faced severe financial problems as the cost of composing the material escalated. Fortunately, at this time computer-assisted production became available. To take advantage of this development, most of the abstracting was concentrated in Columbus. The staff of the Royal Society of Chemistry still provide abstracts and indexes of the British chemical literature and about 1000 volunteer abstractors around the world assist with some language and subject areas.

Computer-assisted production of *Chemical Abstracts* opened new opportunities for service to the scientific community. For example, having names of authors, titles, and abstracts in machine-readable form meant that an electronic database was available for on-line search. This potential is being utilized on a large scale. Some of the major vendors report that the *Chemical Abstracts* database is their most popular item.

Organic chemistry is one of the great triumphs of the human intellect. Success in identifying, determining the structures of, and synthesizing about 5 million organic compounds is a marvelous achievement. But the large number of these substances brought with it an enormous problem of nomenclature and access to data about them. Many of the chemicals have been given more than a score of names; one of them (polyethylene) has a thousand. Hundreds of different substances may have the same elemental composition. The only unique characteristic of a compound is its structure. The structures of almost all of the known chemicals are now in a database and may be searched through CAS ONLINE. It is possible to identify within the file substances that share structural features.

With increasing applications and use of its database, Chemical Abstracts Service hopes to obtain about half of its more than $40 million annual budget from these products by 1984. It is heartening that an activity sponsored by a scientific society has been able to evolve with changing circumstances and to achieve an even greater level of service to the scientific and technical communities.—PHILIP H. ABELSON

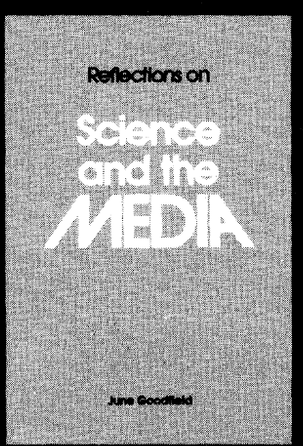
ARE THE MEDIA FAIR TO SCIENCE?

IS SCIENCE FAIR TO THE MEDIA?

Read *Reflections on Science and the Media,* a provocative new book by June Goodfield, author of *An Imagined World,* and decide for yourself.

"If any slim volume can help combat the polarisation which so easily afflicts discussion of media science, this is it. Apart from being limpidly written, the book succeeds well because it returns constantly to the machinery and manpower of the media."

— Bernard Dixon, New Scientist



In *Reflections on Science and the Media,* June Goodfield examines four recent, highly publicized science stories — Rorvik's clone, thalidomide, lab standards for recombinant DNA research, and the case of the painted lab mice. She finds that members of both professions have failed the public. Scientists are sometimes uncommunicative or may purposely exaggerate research findings. Reporters are selective and tend to write about alarming "news" or amazing "discoveries" as opposed to reporting in depth. And publishers may blur the distinction between fact and fiction for profit's sake.

Dr. Goodfield shows that these failures spring in part from the differing constraints under which the two professions operate: Scientists are often reluctant to talk about their research openly because they fear the complexities will be ignored or oversimplified; journalists tend to seek out that which is easily told and easily understood. The author also shows that both professions must come to some agreement about their mutual obligations to the public which supports them. *Reflections on Science and the Media* is a strong plea for such an understanding.

128 pp. 1981
ISBN: 0-87168-252-4
Paper, $9.00/AAAS member price, $8.00

Mail order to: AAAS Sales Dept. SM1
1515 Massachusetts Avenue, NW
Washington, DC 20005

Please allow 6-8 weeks for delivery. All orders under $10.00 must be prepaid.

REFLECTIONS ON SCIENCE AND THE MEDIA

1981 AAAS SUMMARY FINANCIAL STATEMENTS

The following financial information has been excerpted from the audited financial statements of the AAAS

BALANCE SHEET

	31 December 1981	31 December 1980
Assets		
Current assets		
Cash	$ 485,697	$ 235,910
Accounts receivable	3,124,383	2,015,916
Inventory of publications—at cost	103,740	90,445
Prepaid expenses	1,990,488	1,852,068
Total current assets	5,704,308	4,194,339
Investments—at market (note B)	11,814,085	11,729,672
Property and equipment	1,106,632	1,028,660
	$18,625,025	$16,952,671
Liabilities and fund balances		
Current liabilities		
Accounts payable and accrued expenses	$ 2,183,019	$ 2,196,737
Unexpended grants and contracts	213,809	193,933
	2,396,828	2,390,670
Deferred dues and subscriptions revenue (note A)	11,319,812	9,482,999
Total current liabilities	13,716,640	11,873,669
Fund balances (note B)		
Restricted by donor:		
Research	169,930	160,063
Special purpose	50,709	44,698
Building fund	50,000	50,000
	270,639	254,761
Unrestricted and Board restricted:		
Equivalent to investment in fixed assets	1,106,632	1,028,660
Reserve for future life member subscriptions to *Science*	200,000	200,000
Unrealized appreciation on investments (note B)	859,017	1,460,055
Other	2,472,097	2,135,526
	4,637,746	4,824,241
Total fund balances	4,908,385	5,079,002
	$18,625,025	$16,952,671

STATEMENT OF REVENUE AND EXPENSE AND UNRESTRICTED FUND BALANCE

	Year ended 31 December 1981	Year ended 31 December 1980
Revenue		
Member dues (note A)	$5,159,100	$4,367,027
Science Subscriptions (note A)	1,716,237	1,607,518
Science 81 Circulation (note A)	6,539,215	3,367,857
Advertising in *Science*	5,157,963	4,806,121
Advertising in *Science 81*	3,118,433	816,489
Publication sales	1,380,297	823,388
Meeting and exposition	212,996	175,706
Grants, contracts, and related activities (note A)	1,528,243	1,425,862
Contributions and other	341,830	326,615
	25,154,314	17,716,583
Expense		
Executive office	936,100	731,085
Office of Administration	1,978,994	1,633,492
Office of Comptroller	516,547	428,975
Editorial center—*Science*	8,495,900	7,588,802
Editorial center—*Science 81*	10,939,717	6,815,323
Meetings and publications center	838,082	777,804
Science education office	366,867	213,108
Public sector programs office	783,689	794,813
Office of communications and membership	871,236	670,797
International science office	454,005	566,922
Opportunities in science office	412,197	316,748
Development office	88,637	70,531
Office of information systems and services	58,166	—
	26,740,137	20,608,400
Excess of (expense)/revenue before contingency for potential income taxes and investment activity	(1,585,823)	(2,891,817)
Contingency for potential income taxes (note A)	—	(195,000)
Excess of (expense)/revenue before investment activity	(1,585,823)	(2,696,817)
Interest and dividends	1,193,642	966,524
Capital distribution of publicly traded investment fund shares	412,770	173,044
Excess of revenue/(expense) before net gain on sale of investments	20,589	(1,557,249)
Gain on sale of investments—Net	289,074	188,730
	309,663	(1,368,519)
Bequests and other special gifts	104,880	51,731
Net excess of revenue/(expense)	414,543	(1,316,788)
Increase/(decrease) in unrealized appreciation on investments	(601,038)	892,140
Decrease in fund balance for the year	(186,495)	(424,648)
Fund balance, beginning of year	4,824,241	5,248,889
Fund balance, end of year	$4,637,746	$4,824,241

NOTES TO FINANCIAL STATEMENTS YEARS ENDED 31 DECEMBER 1981 and 1980

A. *Summary of Significant Accounting Policies*

General

The Association is a nonprofit membership corporation incorporated in 1874 under the laws of the Commonwealth of Massachusetts. The Association follows the accrual basis of accounting. The Association is exempt from federal and state income taxes under Code section 501 (c) (3) with the exception of certain unrelated business income.

Grants and Contracts

Grants are made to the Association each year by the National Science Foundation and other organizations. At December 31, 1981 and 1980, grants and contracts awarded to the Association for which expenditures had not yet been incurred and/or cash had not yet been received were approximately $7,727,000 and $1,233,000 respectively.

Dues and Subscription Revenue

Dues and subscriptions are recognized as revenue based on elapsed subscription periods. Deferred dues and subscriptions revenue represent the portion of payments received which are applicable to future periods.

B. *Investments*

All investments are carried at quoted market value.

A summary of investments at market value is as follows:

	31 December 1981	31 December 1980
United States Treasury bills	$3,832,221	$4,098,072
United States Treasury notes	4,067,125	3,486,250
Publicly traded investments fund—listed New York Stock Exchange	3,914,739	4,145,350
Investments at market	11,814,085	11,729,672
Investments at cost	10,955,068	10,269,617
Unrealized appreciation	$ 859,017	$1,460,055

The unrealized appreciation, in the aggregate, is reflected in the fund balance as a single item.