

Science Books for Children

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Many years ago, a delegation of Chinese scientists visited ISI®. During dinner one evening, one of them asked me who was the leading publisher of popular science or children's science books in America. I was stunned when I realized there was no obvious answer to this question. Although I could vaguely recall the Golden Books that I had often read to my children, there was no single publisher that I could identify as the leader for science books for children. Why was there no McGraw-Hill or Academic Press of children's science books? In spite of the passage of many years, there is still no answer to that question. But I thought it would be interesting to communicate these impressions to the readers of *Current Contents*® (CC®), some of whom are publishers. In this essay, we'll focus on science books for children and the organizations and magazines that review them and promote their reading in the home and classroom.

Like so many questions to which one assumes at first that there ought to be simple answers, even *defining* a children's science book is not easy. In referring to children, do we simply mean anyone who is not an adult or do we mean those in kindergarten, grade school, or high school? As it turns out, each of these categories warrants a separate investigation. It does not necessarily follow that the existence or lack of science books for children of any age is good or bad, even for the cultivation of future scientists.

As a child, I read very little directly related to science, and yet I eagerly looked forward to attending a science-oriented high school by the time I was 13. Who knows what subtle influences aroused my interest in science? I recall an old theory that suggested a correlation between scientific creativity and the separation of parents.¹ I've often heard the statement that Paul De Kruif's *Microbe Hunters* had caused many a scientific career to be launched. Who knows, maybe Paul Muni playing the movie role of Louis Pasteur or "Dr. Ehrlich's Magic Bullet" did the trick.

On the other hand, through my old friend Watson Davis, who founded the organization that now produces *Science News*, I ordered a subscription to *Things of Science* for my children. Each month, there was some new, fascinating experiment to perform. Who can account for the fact that all but one of my children chose to ignore science? He had an early fascination with dinosaurs, and eventually became a biologist. So without going into a long digression on what motivates young people to pursue scientific careers, let us assume that the writing and publishing of science books for children of all ages is a worthy enterprise. There ought to be more of it. At the least we ought to know, as professional scientists, just exactly what's out there.

I have always felt that science books for children should be created not merely for the benefit of children but also for their parents. Whenever I have had diffi-

culty understanding some scientific phenomenon, I have often sought out the most elementary presentation I could find. This undoubtedly explains why so many scientists hold on to their undergraduate textbooks. And it accounts for the popularity of encyclopedias, dictionaries, and other sources of brief explanations.

Whether or not books motivate youngsters to become scientists, there are many factors that account for their use or disuse. The competition with television is one that cannot be ignored. Anyone who has ever watched "Mr. Wizard" on American TV will appreciate that it is far more appealing to a child or adult to have "difficult" scientific phenomena explained in such an entertaining, graphic manner. But it would take the creativity of a Dr. Seuss to make a child choose a book about science in preference to a televised show. Fortunately, such choices are not required. It has often been demonstrated that books and films have a symbiotic relationship, and even though one may spend several hours watching TV, there is also time to read if one is stimulated to do so.

So it would seem to me that the first task is to create the desire to read and enjoy books before encouraging children to read books about science. Since the young love excitement, books about science, like anything else, should perhaps be written with the sense of adventure. It will not then be a long transition from *The Call of the Wild* or *The Time Machine* to *Microbe Hunters*.

Science-fiction novels are another facet to consider when motivating children to read science "fact" books. There are those, like my friend Maurice Goldsmith, Science Policy Foundation, London, who believe that science fiction is a great spur to science. Clearly the adventures of "Star Trek" and other classics of science fiction have captured the imagination of many of us. While I myself have never been a great consumer of *Analog* magazine or even the work of

that superstar Isaac Asimov, I know that many scientists are intrigued—even obsessed—by science fiction. What is today's speculation may be tomorrow's reality. But I would very much like to see the demographic analysis of the readership of *Analog* or other science-fiction magazines. Scientists constitute a small minority of those readers, as is the case for *Omni*, *Discover*, *Science 84*, and other popular science magazines. Some of their most interesting sections are devoted to interviews with scientists.

A child's first exposure to the world of science often comes from popular or "trade" science books, as opposed to textbooks. Science-fiction books, such as those based on the popular "Star Wars" movie series, are entertaining and may stimulate a child's interest in astronomy or space technology. But science-fiction books do not give an accurate picture of what science is really about. Science-*nonfiction* books provide a more realistic introduction to science for young people. Many popular science books are well written, accurate, informative, and entertaining to read. There is also evidence that these books are very helpful when used alongside textbooks in the science classroom.

For example, a 1967 study by Louis E. Barrilleaux, Tulane University, New Orleans, Louisiana, compared two groups of eighth-grade students. One group used a standard science textbook. The other group did not have a textbook but was allowed unlimited access to the school library for outside reading in science. At the end of the school year, members of the group that used books in the library scored as high or *higher* than the textbook group on tests measuring science achievement, science attitudes, science writing, and critical thinking.² A 1980 study by Becky Fisher, Central Michigan University, Mt. Pleasant, compared seventh-grade students who used either a single science textbook or a variety of outside reading materials. Fisher found that the latter group of students scored higher than the textbook

group on science-knowledge tests and also expressed greater interest and enjoyment in what they had learned. She noted that the use of popular science books stimulated talk about science outside the classroom and made the students feel that science was a real part of their lives and not just an academic subject.³

Other studies have also concluded that popular science books are effective in stimulating students' interest in science.^{4,5} Cathy L. Guerra and DeLores B. Payne, Department of Education, Northwestern State University, Natchitoches, Louisiana, noted that a variety of science books—biographies of scientists, books on science careers, and accounts of discoveries and inventions—enhanced classroom instruction.⁵

It is unclear exactly how many popular science books for children are published in the US each year, but John Donovan, Children's Book Council (CBC), New York, estimates that the number has held steady for the last decade or so, at 300 to 350 books out of the approximately 3,000 children's books published each year.⁶ In 1984, says Donovan, the number of juvenile (preschool through eighth grade) science titles was closer to 500. This increase was largely due to a deluge of popular computer books for young readers.

Librarians and educators are faced with the problem of deciding which of these hundreds of titles are "good" science books. Fortunately, there are organizations that aid in the evaluation. The American Association for the Advancement of Science (AAAS), for example, publishes the magazine *Science Books & Films (SB&F)* five times a year. Each issue of *SB&F* features hundreds of book reviews, including a section on children's books. The reviews, which also cover science films, videocassettes, and filmstrips, are written by a volunteer corps of scientists, educators, and librarians, most of whom are AAAS members. Reviewers write a brief sum-

mary and evaluation, and assign the book or film a rating from "not recommended" to "highly recommended." Subscription inquiries may be sent to *SB&F* Subscriptions, AAAS, 1101 Vermont Ave., NW, 10th Floor, Washington, DC 20005.

Another review publication is *Appraisal: Science Books for Young People*, which is published three times a year in Boston by the New England Roundtable of Children's Librarians. The format of *Appraisal* is similar to *SB&F*, with one important difference—each book is reviewed by a librarian and a science specialist. Both reviewers provide a capsule evaluation of the book and assign it a rating from "unsatisfactory" to "excellent." For more information, contact Diane Holzheimer, Editor, *Appraisal*, 605 Commonwealth Ave., Boston, Massachusetts 02215.

Another valuable book list is published each year by a joint committee of the CBC and the National Science Teachers Association (NSTA). The annotated list, "Outstanding Science Trade Books for Children," is published in a spring issue of the NSTA magazine *Science and Children*, which is edited by Phyllis R. Marcuccio. Each issue of *Science and Children*, incidentally, contains a section devoted to the review of children's science books. The NSTA-CBC list may also be obtained by sending a self-addressed, stamped envelope to the Children's Book Council, 67 Irving Place, New York, New York 10003.

All of these organizations have specific criteria for evaluating science books. These criteria provide an insight into what constitutes a good science book for children. Both the AAAS and the NSTA-CBC stress that accuracy is essential.^{7,8} Information must be correct, complete, up-to-date, and presented clearly and understandably. Also important, according to AAAS publications manager Kathryn Wolff, are the "quality and relevance of the illustrations, [the book's] appropriateness for particular groups of readers, and the value of the

book when compared against similar titles."⁷ The NSTA-CBC criteria specify further that "facts and theories must be clearly distinguished, generalizations supported by facts, and significant facts not omitted."⁸ Anthropomorphism—talking plants or animals, for example—is inappropriate in the judgment of most *SB&F* and NSTA-CBC reviewers. Books should portray both sexes and a variety of races participating in the activities illustrated. In addition, notes Wolff, authors should convey a sense of excitement about science. But authors, at the same time, should avoid a "gee-whiz" approach that will make science appear magical and fantastic rather than a rational process of inquiry and investigation.⁷

Kathleen Johnston, editor of *SB&F*, claims that a good science book will draw a child into the world of science, and portray the topic as more than a mechanical discipline. Children's books, according to Johnston, should convey the emotive, human aspects of science and scientists.⁹

While not all books manage to meet these standards, many observers agree that there are many excellent books being published for young readers. Glenn Blough, former professor of science education, University of Maryland, College Park, chairs the NSTA-CBC review committee. Each year, his committee of librarians and educators reads hundreds of books and chooses 70 to 80 titles for the outstanding science books list. Blough believes that, generally, the 1984 crop of books is as good as or better than any his committee has ever seen.¹⁰ Zena Sutherland, professor of library science, University of Chicago Graduate Library School, Illinois, shares Blough's belief about the high quality of many children's science books currently published.¹¹ She points out that publishers, for the most part, are making more of an effort to find qualified authors for their science books. Publishers also now send manuscripts to experts for review.

The 1984 NSTA-CBC list certainly reflects a variety of subject matter, with

titles on natural history, astronomy, geology, and biology. A quick scan of the books on the list conveys something of the breadth of topics covered. The recommended grade level is given in parentheses after each title. *First to Fly* (6-up), by Robert R. Moulton, describes the experiences of high-school student Todd Nelson, whose project on zero-gravity insect flight was the first student experiment to fly aboard the space shuttle.¹² *Volcanoes in Our Solar System* (6-up), by G. Jeffrey Taylor, discusses volcanic activity on Earth as well as Mercury, Venus, and Mars.¹³ The text is illustrated with drawings and with recent photographs from the US *Mariner* and *Voyager* missions and the Soviet *Venera* spacecraft.

The form and function of animal feet are the subject of *Some Feet Have Noses* (5-up), by Anita Gustafson. Illustrated by April Peters Flory, the book looks at the feet of insects, birds, and mammals, and even at the fin-feet of such land-crawling fish as the mudskipper and the walking catfish.¹⁴ Wyatt Blassingame's *The Strange Armadillo* (4-up) discusses the behavior and habitats of this odd, armored creature.¹⁵ The author includes a chapter on the use of the armadillo as a laboratory animal in the fight against leprosy.¹⁶

Green Magic: Algae Rediscovered (6-up) by Lucy Kavaler, illustrations by Jean Helmer, talks about the many practical uses of algae as a food source and fertilizer, as well as their possible future uses.¹⁷ Another book, *Viruses* (6-up), by Alan E. Nourse, describes science's battle against viral disease, from the early efforts of Jenner and Pasteur through current research into a viral connection in cancer.¹⁸ In the following excerpt from *Viruses*, it is plain that the author respects the intelligence of his young readers:

Essentially, viruses are nothing more than molecule-size packets of nucleic acid, a complex form of organic compound, surrounded by protective coatings of protein.... It is these nucleic acids that make it possible for

cells to reproduce themselves and to pass on their own individual characteristics to new generations of cells. Viruses are really little more than tiny bundles of this hereditary material without the living cell around them. They are sometimes described as "chromosomes on the loose," tiny packets of "infectious heredity," and it is their nucleic acid that is the key to their dangerous power.¹⁸ (p. 10)

Other topics on the NSTA-CBC list include cranberries, hot-air balloons, Ferris wheels, and acid rain.⁸

Perhaps the most effective science books are those that manage to entertain and inform the reader. One such book is *Body Magic* by John Fisher. Using simple experiments and tricks that the reader can perform with his or her own body, the book entertainingly illustrates such scientific principles as leverage, vision, perception, and so forth.¹⁹ The reader has fun while learning.

Sutherland has identified several American authors who consistently write excellent, dependable science books for children. For example, Millicent E. Selsam is a trained botanist and former science teacher who has written nearly 100 science books for young readers.¹¹ Selsam has pointed out that she always attempts, in the course of her books, to acquaint children with basic scientific methodology—observing, gathering facts, and forming and testing theories.²⁰ She has written on a variety of topics, but has concentrated mostly on biology. One of her recent books, *Catnip*, chosen as a NSTA-CBC outstanding book, tells of the history and various uses of this mint plant.²¹

Sutherland also praises Seymour Simon, another former science teacher who is now a full-time writer. Simon's books, like Selsam's, do not simply list fact after fact to be memorized. His books encourage children to observe, explore, and experiment on their own.²² Simon has written about animals, the senses, and outer space, among other topics.

Lawrence P. Pringle is another writer recommended by Sutherland. Pringle writes primarily about environmental topics: energy, conservation, and descriptions of various ecosystems. His recent book, *Wolfman: Exploring the World of Wolves*, concerns the exploits of a biologist tracking and researching the often-misunderstood wolf.²³ Another of Pringle's books, *Feral: Tame Animals Gone Wild*, discusses domestic animals, such as pigs, burros, and horses, that have developed significant wild populations.²⁴

Sutherland also mentions Franklyn M. Branley, former chairman, American Museum of Natural History-Hayden Planetarium, New York, who writes on astronomy for young readers. One of Branley's recent books, *Saturn*, illustrated by Leonard Kessler, presents the most up-to-date information and images of Saturn from the recent *Voyager* flybys.²⁵ *Saturn* also appears on the NSTA-CBC outstanding books list.

One notable trend in the improvement of children's science books has been an increased emphasis on graphics and illustration. Blough points out that more publishers are using color photographs and illustrations to complement the text and are paying more attention to format.¹⁰ Margery Cuyler, children's book editor, Holiday House publishers, New York, believes that children have become very conscious of visual presentation as a result of their constant exposure to television and advertising graphics. Therefore, publishers are trying harder to appeal to children visually, with more photographs and more thoughtful graphic design.²⁶

One unfortunate consequence of this emphasis on graphics and improved production, as Blough points out, is that science books have become more expensive and thus harder for schools and libraries to obtain.¹⁰ On the other hand, improving the visual aspects of science books allows publishers to reach very young readers. Pamela R. Giller, children's librarian, Cary Public Library,

Lexington, Massachusetts, notes that readers as young as two or three years can be introduced to simple scientific and technical concepts through picture books.²⁷ Giller points out that publishers have taken into account the work of Jean Piaget, the well-known child psychologist, and other researchers, who have demonstrated that children are capable of learning about virtually any subject if it is presented correctly. Giller mentions such authors as Byron Barton, who has written simple books on housebuilding, animals, and wheels, and Gail Gibbons, whose subjects have included clocks, trucks, and how locks and keys work.²⁷

All this is not to say that science book publishing for children is uniformly excellent. Diane Holzheimer, who edits *Appraisal*, notes that quality varies greatly from publisher to publisher and from author to author.²⁸ A few publishers persist in releasing books that have not been reviewed for accuracy by specialists prior to publication, or books that are hastily assembled, uninspired, and apparently intended more to make a profit than to instruct and amuse the reader.

Even well-intentioned publishers sometimes produce inappropriate science books for children. Blough says he occasionally sees books written by authors who, although they are experts in science, have little or no experience writing for children. These books tend to have complex sentence structures and vocabularies that are above the reading level of the intended audience.¹⁰ This is where *Appraisal* and *SB&F* can be helpful. A judgment of "not recommended" or "unacceptable" in these publications will alert parents or librarians that a particular book is deficient in accuracy, organization, or readability. Generally, though, most observers seem to agree that publishers are producing well-researched, well-written science books for young readers.

One problem that seems to persist, independent of quality, is that science

books, and nonfiction books in general, do not get nearly as much attention as fiction does, even though roughly half of the children's books published each year are nonfiction.²⁹ Librarian and teacher Jo Carr, in the preface to *Beyond Fact: Nonfiction for Children and Young People*, considers the neglect that is suffered by nonfiction. She points out that teachers seldom read nonfiction aloud to their classes. Teachers also fail to encourage students to read nonfiction for enjoyment. Bookstores too, she notes, tend to stock far more children's fiction than nonfiction.³⁰ (p. IX) Beverly Kobrin, an education specialist who publishes the *Kobrin Newsletter* on juvenile nonfiction, frequently attends conventions of booksellers and educators. She often hears that "nobody wants nonfiction," and finds herself having to convince parents and teachers that nonfiction can be as well-produced, entertaining, and stimulating as fiction.³¹

Science author Vicki Cobb, several of whose books have appeared on NSTA-CBC outstanding books lists, also encounters the bias against nonfiction. In the course of her lectures and science demonstrations at schools and libraries, she is often told that she is the first nonfiction author ever to appear. A common reaction of students and teachers is, "Why didn't we know about these science books?"³² Holzheimer points out that most children's librarians have humanities backgrounds, and they do not really know how to evaluate science books.²⁸ That may be one reason why science books do not get the same attention or shelf space as fiction.

The major awards for children's literature also reflect the apparent prejudice against science books and other nonfiction works. Author Milton Meltzer points out that nonfiction books seldom receive the most prestigious prizes. For example, the Newbery Medal is awarded each year by the American Library Association, Chicago, Illinois, for "the most distinguished contribution to American literature for children." But

only six nonfiction books have been honored by the Newbery Medal since its inception in 1922. Five of these books were biographies.³³

Excellence in science writing for children has only recently been recognized by independent awards. Since 1971, the New York Academy of Sciences has sponsored the Annual Children's Science Book Award Program to honor and encourage high-quality science books for young readers. The Academy awards prizes in two age categories of readers—those under 10 years old and those between 10 and 16 years old. The panel of judges includes: William Burrows, Science and Environmental Reporting Program, New York University, New York; Joelle Burrows, picture editor, *The Sciences*, New York; Harry C. Stubbs, Milton Academy, Massachusetts; Philip Morrison, Massachusetts Institute of Technology, Boston; and Phylis Morrison, Workshop for Learning Things, Boston.³⁴ Incidentally, the Morrises also present a year-end review of children's science books in each December issue of *Scientific American*.

The 1984 winner of the Academy's award in the Older Category was *Volcano Weather* by Henry and Elizabeth Stommel. The book describes the eruption in 1916 of the volcano Tambora and the subsequent atmospheric effects of volcanic dust and ash on New England weather.³⁵ The Younger Category winner was *Oak & Company* by Richard Mabey, illustrated by Claire Roberts. This book tells about the life and death of a 283-year-old oak tree and its relation to the surrounding forest and wildlife.³⁶ Honorable-mention titles included books about dinosaurs, kites, and arithmetic.³⁴ For more information on the award, write to Ann Collins, New York Academy of Sciences, 2 East 63rd St., New York, New York 10021.

Of course, it would be unfair to limit this discussion of children's science books to the US. In other countries, such as the USSR, these books are also

quite popular. Ira Cohen, Imported Publications, Chicago, has made several trips to the USSR. His firm distributes English-language Soviet books in the US, including children's science books. Cohen points out that science books are extremely popular with young readers in the USSR, and that these books cover virtually every imaginable scientific topic.³⁷ Publishers of children's books, including Malyshev and Detskaya Literatura, maintain close ties with the Soviet academic community and compete for the best scientists to participate in the planning and writing of juvenile science books. According to Cohen, most science books in the USSR stress application and emphasize how the science and technology under discussion can be put to use for the improvement of society.

One such book is *From the Bonfire to the Reactor* by Alexei Krylov. As the title implies, the book reviews man's continuous search for the most efficient, economical sources of energy. The author discusses the theory and applications of steam power, the internal combustion engine, and hydroelectricity, as well as solar and nuclear energy. The book's fanciful, almost psychedelic illustrations contrast sharply with its thoughtful, serious text.³⁸

Natural history books are also popular. One book, *Builders in the Wild*, by Igor Akimushkin, discusses animals and the often elaborate structures they build for shelter and other purposes. The author describes beaver dams, termite lodges, the tunnel-like nest built by the stickleback fish, and other examples of animal construction.³⁹ *What the Bat Told Us*, by Boris Zubkov, discusses how the world of nature has influenced man in the concept and design of many inventions. "People learn from the world around them," states the author, and the book attempts to illustrate this point. Zubkov points out that observing a spider's web may have led man to the idea of building bridges, just as the sight of wind-driven leaves may have started man thinking about flight. Scientists,

says the author, have learned much from studying animals like the bat, with its sensitive, sonar-like guidance system. The book also discusses animals that can perceive the approach of earthquakes and storms and how man has attempted to emulate this ability.⁴⁰

Imported Publications offers other Soviet science books for children, including titles on transportation, astronomy, and paleontology. In addition, their catalog presents English-language titles from Russian publishers for adult readers, including books on the arts, science, history, and current events. Interested readers should write to Imported Publications, 320 West Ohio Street, Chicago, Illinois 60610.

An excellent source of information about juvenile science books in the UK is *Ways of Knowing: Information Books for 7 to 9 Year Olds*, by Peggy Heeks, assistant county librarian, Royal County of Berkshire, England. The book presents an annotated listing of more than 100 nonfiction titles, including many books on science. The topics that are considered include fossils and prehistory, the human body, natural history, and technology.⁴¹ As in *SB&F* and *Appraisal*, the capsule reviews evaluate the presentation and readability as well as the information content in each book. *Ways of Knowing* is published by the Thimble Press, Lockwood, Station Road, South Woodchester, Stroud, Gloucestershire GL5 5EQ, England. Thimble Press also publishes the *Signal Review*, a yearly guide to children's literature, including science books.

Another good British source is *The Good Book Guide to Children's Books*,

published by Penguin Books in association with Braithwaite & Taylor Ltd., London. Like *Ways of Knowing*, *The Good Book Guide* provides capsule descriptions of a variety of children's titles, including books on the human body, dinosaurs, astronomy, and computers.⁴² The book is available from Braithwaite & Taylor Ltd., PO Box 400, Havelock Terrace, London SW8 4AU, England.

As I noted earlier, science nonfiction books can be effective in informing and exciting young people about the world of science. This function is important, especially when one considers the extent to which science and technology increasingly permeate our lives. It seems clear that everyone in the scientific community has an interest in making sure juvenile science books continue to be published, continue to be made available as widely as possible, and continue to reflect the highest standard of accuracy and presentation.

I have always felt that scientific journals tend to dehumanize science. Some of the most interesting books about science are, in fact, biographic. We get glimpses of the personal side of science in almost every issue of *CC* in the section devoted to *Citation Classics*[™]. What we may need to interest young people in science is more biographic accounts of the early childhood of our most respected scientists.

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REFERENCES

1. Schlesinger B. Children in one-parent families: a review. *Conciliat. Courts Rev.* 19(2):23-31, 1981.
2. Barrilleaux L E. An experiment on the effects of multiple library sources as compared to the use of a basic textbook in junior high school science. *J. Exp. Educ.* 35(3):27-35, 1967.
3. Fisher B. Using literature to teach science. *J. Res. Sci. Teach.* 17:173-7, 1980.
4. Janke D & Norton D. Science trades in the classroom: good tools for teachers. *Sci. Child.* 20(6):46-8, 1983.
5. Guerra C L & Payne D B. Using popular books and magazines to interest students in general science. *J. Read.* 24:583-6, 1981.

6. **Donovan J.** Telephone communication. 31 July 1984.
7. **Wolff K.** AAAS science books: a selection tool. *Libr. Trends* 22:453-62, 1974.
8. Outstanding science trade books for children, 1983. *Sci. Child.* 21(6):43-7, 1984.
9. **Johnston K.** Telephone communication. 19 July 1984.
10. **Blough G.** Telephone communication. 18 July 1984.
11. **Sutherland Z.** Science books are better than ever. *Amer. Libr.* 12:535-9, 1981.
12. **Moulton R R.** *First to fly*. Minneapolis, MN: Lerner, 1983. 120 p.
13. **Taylor G J.** *Volcanoes in our solar system*. New York: Dodd, Mead, 1983. 95 p.
14. **Gustafson A.** *Some feet have noses*. New York: Lothrop, Lee & Shepard, 1983. 96 p.
15. **Blassingame W.** *The strange armadillo*. New York: Dodd, Mead, 1983. 64 p.
16. **Garfield E.** Leprosy: down but not out. *Essays of an information scientist*. Philadelphia: ISI Press, 1981. Vol. 4. p. 601-8.
17. **Kavaler L.** *Green magic: algae rediscovered*. New York: Thomas Y. Crowell, 1983. 120 p.
18. **Nourse A E.** *Viruses*. New York: Franklin Watts, 1983. 64 p.
19. **Fisher J.** *Body magic*. New York: Stein and Day, 1979. 158 p.
20. **Selsam M E.** Writing about science for children. (Carr J, ed.) *Beyond fact: nonfiction for children and young people*. Chicago: American Library Association, 1982. p. 61-5.
21., *Catnip*. New York: William Morrow, 1983. 48 p.
22. **DeLuca G & Natov R.** Who's afraid of science books? An interview with Seymour Simon. *Lion Unicorn* 6:10-28, 1982.
23. **Pringle L P.** *Wolfman: exploring the world of wolves*. New York: Scribner, 1983. 71 p.
24., *Feral: tame animals gone wild*. New York: Macmillan, 1983. 110 p.
25. **Branley F M.** *Saturn*. New York: Thomas Y. Crowell, 1983. 57 p.
26. **Cuyler M.** Telephone communication. 26 June 1984.
27. **Giller P R.** Science books for young children. (Carr J, ed.) *Beyond fact: nonfiction for children and young people*. Chicago: American Library Association, 1982. p. 65-70.
28. **Holzhefner D.** Telephone communication. 11 July 1984.
29. **Duke J S.** *Children's books and magazines*. White Plains, NY: Knowledge Industry, 1979. p. 77.
30. **Carr J**, ed. *Beyond fact: nonfiction for children and young people*. Chicago: American Library Association, 1982. 224 p.
31. **Kobrin B.** Telephone communication. 29 June 1984.
32. **Cobb V.** Telephone communication. 27 June 1984.
33. **Meltzer M.** Where do all the prizes go? *Horn Book Mag.* 52(1):17-23, 1976.
34. **New York Academy of Sciences.** "Oak & Company" and "Volcano Weather" win the New York Academy of Sciences Thirteenth Annual Children's Book Awards. (News release.) 9 March 1984. 2 p.
35. **Stommel H & Stommel E.** *Volcano weather*. Newport, RI: Seven Seas Press, 1983. 177 p.
36. **Mabey R.** *Oak & company*. New York: Greenwillow, 1983. 28 p.
37. **Cohen I.** Telephone communication. 17 October 1984.
38. **Krylov A.** *From the bonfire to the reactor*. Moscow: Raduga, 1983. 80 p.
39. **Akmushkin I.** *Builders in the wild*. Moscow: Malysh, 1978. 24 p.
40. **Zubkov B.** *What the bat told us*. Moscow: Malysh, 1981. 26 p.
41. **Heeks P.** *Ways of knowing: information books for 7 to 9 year olds*. Stroud, UK: Thimble Press, 1982. 54 p.
42. **Taylor B & Braithwaite P**, eds. *The good book guide to children's books*. London: Penguin, 1984. 79 p.