

# Books

## *The World of Science*

by Jane Werner Watson

Simon and Schuster . . . . \$4.95

Reviewed by Cleve Moler '61

How fast does a glacier flow?  
How do we measure the distance between galaxies?  
What is a set?  
How do we find a cosmic ray?  
What holds atoms together in a molecule?  
What is a virus?  
How strong should a dam be?  
The young people in today's scientifically-oriented world are asking these questions. High school and junior high, even college and elementary school students want the answers. And if no one will give them the answers, they want to find out for themselves.

It is especially for these young people that Mrs. Watson has written *The World of Science*.

In the words of the Foreword, written by Dr. E. C. Watson, Dean of the Faculty at Caltech, "This book deals with some of the questions that are turning up in scientific research today. It does not attempt to give all the answers nor to cover any field of science completely. It does, however, take you out to the frontiers of knowledge and provide you with a fair sampling of the kinds of work awaiting young men and women in the various fields of science and engineering. It is also accurate in its presentation of not only the results, but also the methods and — most important — the spirit of the investigations it describes."

Mrs. Watson is as skilled a writer as her husband is a scientist. The result is a book that is interesting and easy to read, but at the same time challenging and informative.

We look over the shoulders of geologists, astronomers, physicists, mathematicians, chemists, biologists and engineers at the experiments they are doing, the concepts and methods they use and the problems they face. We see what a scientist is like and what he does. For a high school freshman

who wants to be a physicist, this is important.

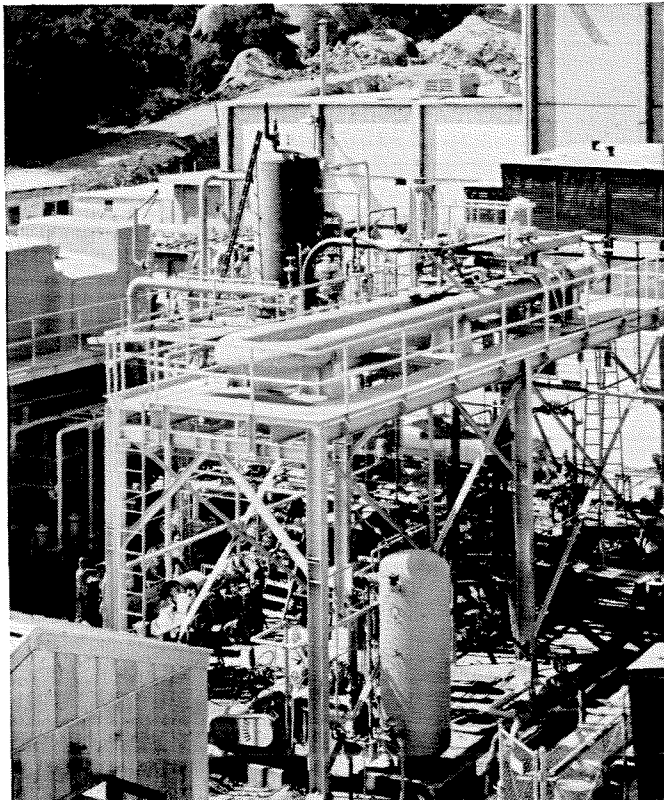
The scientists are pictured as nice, average people who enjoy their work and who have their problems like everybody else. ("In comes a geochemist. He does not look like a scientist on television. He is a young man wearing slacks and open-throated shirt.")

Each chapter opens with an almost story-like picture of a scientist at work. ("It is moonless and dark on Palomar Mountain. The night cold creeps about the gleaming observatory dome. Inside the dome, the air is scarcely less cold. For the observatory is carefully insulated . . . A man wearing an electrically heated suit steps out onto the floor. For a moment he blinks at the eerie darkness where monster shadows lurk and tiny red signal lights glow . . . Then the man steps onto a small railed elevator platform and presses a button.")

The narrative then begins, using the nomenclature and the symbology of the science and, before you realize it, you're in the midst of a discussion about the types of galaxies or the

*continued on page 10*

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## Books . . . continued

concept of a set.

A comment should be made about the color photographs and diagrams. The jacket blurb says there are about 265 of them and they're all well done.

*The World of Science* will be particularly interesting to anyone connected with Caltech. Most of the projects described are going on at Tech and many of the photographs are of Institute personnel and Institute labs.

If criticism could be made, it would be that the book is *too* well written and produced. At a glance, a high school student interested in science might think it was a glorified picture-book with some dramatized generalizations about things he already understands. It isn't obvious that the book contains information and ideas new to a Caltech sophomore, but written so that most of it can be understood by a good student in 7th or 8th grade. My review copy was picked up many times from my desk by curious friends in the Caltech student houses. More than once a comment like, "Say, this is actually pretty good," was heard.

One final word of warning should be given to any mothers and fathers who plan to get this book. Don't be surprised if you find yourself up late some night reading about computers or immunology long after your 14-year-old has gone to sleep.

### *Elementary Seismology*

by Charles F. Richter

W. H. Freeman and Company,  
San Francisco . . . \$12

Reviewed by Beno Gutenberg

If you are interested in earthquake problems — for example, the nature of the motion which shakes the ground, or the instruments which record the earthquake waves, or the depths in the earth at which the motion starts which produces the shaking at the surface, or if you want to know where earthquakes are frequent, or how they are located at a seismological observatory — then this is a book for you.

For 30 years Charles Richter, professor of seismology, has done successful research at Caltech's Seismological Laboratory. For most of this time he has supervised the measuring of seismograms, their interpretation and the reporting of the findings.

When you read in the newspaper or hear over the radio that Caltech has located an earthquake of magnitude 7.2 about 6,500 miles southwest of Pasadena, this is nearly always the result of his work.

During the last 30 years, after each earthquake in southern California which was large enough to do some damage he went as soon as possible into the field to study the effects of the shocks and to investigate after-shocks, when possible, with instruments. He has published many papers on specific earthquakes.

In New Zealand, Dr. Richter spent most of two months comparing earthquakes and their effects with those in California. It is generally known that he originated the earthquake magnitude scale in California. Considering this wide background, it is not astonishing that *Elementary Seismology* does not have its counterpart as a source of information on earthquakes for educated readers.

The book was developed from lecture notes for a course on elementary seismology given by Dr. Richter at Caltech, mainly for students majoring in geology who do not want to specialize in seismology or geophysics. Mathematical derivations are generally restricted to appendices of the book which, in addition, contain several lists of earthquakes. Others of these 17 appendices give tables and graphs for transmission times from various focal depths, charts for the calculation of magnitudes, methods and tables to locate nearby shocks, and a list of selected seismological stations.

There are many illustrations showing earthquake faults or effects. Maps of epicenters, partly with indications of the geology, and various types of sketches illustrate the relationship between earthquakes and geological structure. Charts connected with seismogram interpretation and reproduced seismograms aid in the understanding of the chapter on interpretation of records.

A detailed index of 30 pages makes it easy to find information on specific earthquake problems, on the seismic history of a given region or on results of a specific author.

*Beno Gutenberg, professor of geophysics, has been on the staff of Caltech's Seismological Laboratory for 28 years, and was director of the laboratory for eight years until his retirement from that position in 1957.*

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