

# Frontiers of Modern Science

**OUTPOSTS OF SCIENCE.** By Bernard Jaffe. New York: Simon & Schuster. 1935. \$3.50.

**WORLDS WITHOUT END.** By H. Spencer Jones. New York: The Macmillan Co. 1935. \$3.

**UNSOLVED PROBLEMS OF SCIENCE.** By A. W. Haslett. New York: The Macmillan Co. 1935. \$2.

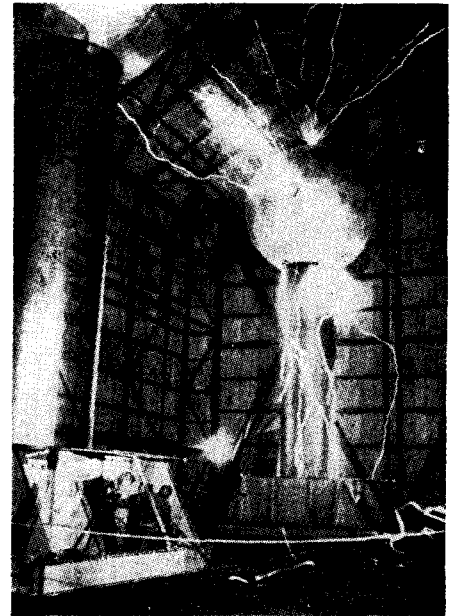
Reviewed by C. C. FURNAS

THE first of these books records the latest results of scientific research and presents brief vignettes of the personalities back of the work. Starting with "Genetics" Mr. Jaffe ends with "Galaxies" and in between spreads Anthropology, Physical Disease, Cancer, Glands, Mental Diseases, Vitamins, Insects, Matter, Radiation, Astrophysics, and Weather. He sets forth his facts well, in a simple manner so that all who read may understand, and he sets them forth accurately. His is not great writing but it is good writing, and for scientific subjects greatness of pen is not necessary. There are only three requirements for scientific writing: that ideas be presented as simply as possible, that explanations be clear, and that facts appear in logical order. If these requirements are fulfilled, interest in the subject itself holds the reader. Once he is started, Jaffe's book does hold the reader. As to accuracy—there can be no doubt that the man knows whereof he speaks, though his knowledge may be second or third hand. He slips a few times, though not often. For instance, he has the 200-inch disk of Pyrex glass for the world's forthcoming largest telescope poured in 1934 and being shipped to California in 1935 with the grinding work already started. Unfortunately the disk poured in 1934 was faulty, was never shipped or ground, and a second disk still rests in the

annealing ovens at Corning, New York, though it hopes to start its journey to California soon.

Anyone who has the slightest interest in a general view of the sciences will undoubtedly find Mr. Jaffe's volume readable from the front cover to the thirteen excellent pages of "Sources and Reference Material" and the extensive index at the end. For the man who has never been properly introduced to the physical sciences it may, on the other hand, appear to have too many facts and too few personalities.

But Mr. Jaffe has been wise in not following in the footsteps of a de Kruif in his "Microbe Hunters" and making the mistake of continually straining for dramatic effect. He does not overwork his personalities; indeed, he is inclined to lean over backward in his editing of personal material. Instead of bringing out the human touches he suppresses them. Had he thrown caution to the winds and labored carefully, he might have had a truly great book, the kind that sometimes grows into a classic, but it would have been essentially a book of biographies. When he visited the great physicist, Millikan, that gentleman was characteristically "busy campaigning for Herbert Hoover" and he "turned me over to some of his young associates for information." Of Millikan's student days he writes: "Much of his laboratory work was done at night, sometimes while he was still in full dress after a late social engagement." That is not the traditional scientist; he deserved at least two chapters of explanation. C. V. Riley, brilliant but argumentative head of the Bureau of Entomology, "resigned in a fit of temper" in 1894. That fit of temper would undoubtedly have been splendid material, had it been expanded. The authority on vitamins, E. V. McCollum, left the University



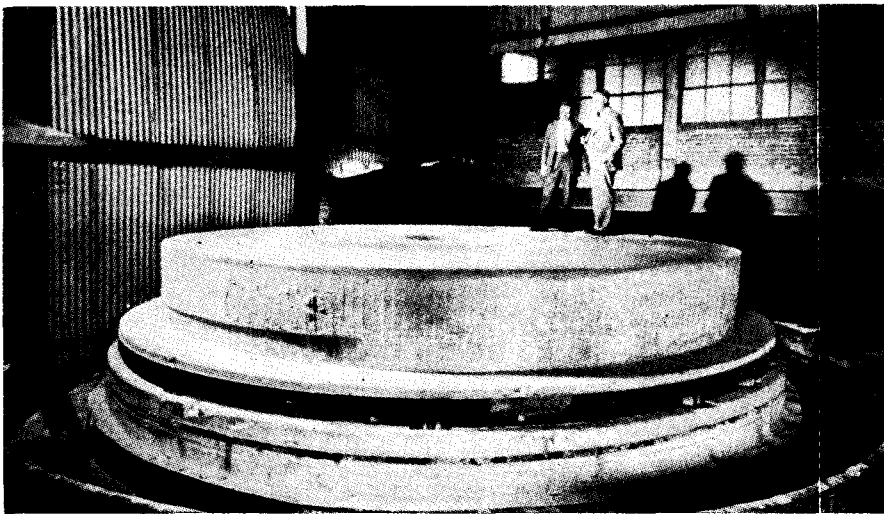
**VAN DE GRAAFF'S ELECTROSTATIC MACHINE IN ACTION**

*Voltages as high as 7,000,000 volts have been attained. (Wide World photo.)*

of Wisconsin because "matters were getting strained at Wisconsin." No further word. The strained relations at Wisconsin are probably as interesting as the vitamins. Of course, had Mr. Jaffe written all he knows of foibles and cantankerousness as well as sterling qualities he would have made several dozen powerful enemies. The book would have been a landmark but perhaps it would not be worth it to the author, for he may want to write of science and scientists again—I hope he does.

After reading Jaffe's chapters on Astrophysics and Galaxies the reader should turn to Jones's "Worlds Without End." He will find some duplication but not too much. Jones starts with the earth under our feet and then in easy stages takes us to the moon, each of the planets in turn, to the asteroids, the neighboring stars, to the limits of the Milky Way, to the millions of outlying island universes. It is a Cook's Tour of the cosmos but there is no ballyhoo about the glory of the heavens. Yet the reader lays the book down with an itch to go outdoors, to see again the Milky Way lighting the summer sky or Sirius, the Dog Star, decorating the winter night. The book is clear, concise, and authentic. It is for the reader of little knowledge but many questions.

The most interesting chapter is on "Life in Other Worlds." Verdict—Venus and Mars, some form of life barely possible, elsewhere in the solar system—no. As for stars other than the sun "... the probability is that there are other worlds scattered throughout the cosmos where life exists." That is comforting but here is a thought that is not. "In June 1921, the Earth escaped collision with Pons-Winnecke's comet by a few days only. Such a collision ... would be serious for the region of the earth where the impact oc-



**THE FIRST OF THE HUGE MIRROR DISKS**

*Cast by the Corning Glass Works for the new 200-inch telescope to be erected on the top of Palomar Peak, California. Pictures on this page from "Outposts of Science."*

curred." That bit of understatement is probably a subtle piece of English humor.

Mr. Haslett has done an outstanding job in the collecting of information, but has not distinguished himself as well in presenting it. Unfortunately the arrangement of his material is such as to be more likely to interest the reader already familiar with scientific thought than to lure any outsiders into the tent to observe the great scientific show.

Nevertheless, for a person with the mental leanings of the old time "natural philosopher"—the gentleman who was interested in a little of everything—his volume is highly recommended. Its facts are set forth in clear and simple form and the subject matter is completely authentic. The meat of the book is presented in the twelve central chapters. Ignoring the titles the general division of the subject matter may be classed as two chapters on astronomy, one on geology, one on meteorology, two on anthropology, two on physiology and psychology, and four on physics. Mr. Haslett sticks reasonably well to the implications of his title though ninety-five percent of his text is devoted, not to the unsolved problems of science, but to the solved problems. That is probably about the correct proportion though he might have used his five percent of forecasting to better advantage if he had pointed out more of the probable effects of yet-unfound knowledge on human affairs. As it stands the book is an outstanding compilation of information presented in orderly and simple fashion but it just misses being an outstanding book.

There is an excellent index. Had the author been a shade more scholarly and put in a bibliography he would have added greatly to the utility of the volume.

C. C. Furnas, who is a member of the department of chemical engineering of Yale University, is the author of "The Next Hundred Years: the Unfinished Business of Science," a selection of the Book-of-the-Month Club for January.

## Seeing Mexico

*TRAILING CORTEZ THROUGH MEXICO.* By Harry A. Franck. New York: Frederick A. Stokes. 1935. \$3.50.

*MEXICAN ODYSSEY.* By Heath Bowman and Stirling Dickinson. Chicago: Willett, Clark & Co. 1935. \$2.50.

*MEXICAN JOURNEY.* By Edith Mackie and Sheldon Dick. New York: Dodge Publishing Co. 1935. \$2.25.

Reviewed by RANDOLPH BARTLETT

**I**N order to write truly about a country it is necessary not merely to see it with the eyes, nor merely to understand it with the mind, but primarily to feel it in the heart. This cannot be achieved by the traveler who skips from museum to market, from cathedral to mountain, from park to slum, and from restaurant to railway. No matter how well trained in making observations such a peripatetic may be, his record will consist mainly of superficialities.

Of no country is this truer than of Mexico, which to most Americans is more foreign than France or Germany. Few even of those who are aware that banditry and revolution are isolated and increasingly rare phenomena of the republic, have any conception of the inner genius of the people, or any comprehension of what Mexican culture must inevitably mean in the development of the United States. Three books just published will help to clear away some of the ignorance on these points.

The Mexophile will frequently be irritated by Harry A. Franck's book. With two traveling companions and an automobile which keeps popping up, and off, he hurries back and forth from the Rio Grande to Oaxaca and sees a little of a lot of things which are not correlated.

The only section which has cohesion and continuity is that in which he tells of trying to find the route taken by Cortez on his first expedition, from Vera Cruz to what is now Mexico City.

However, those who do not know the land and its people will find "Trailing Cortez Through Mexico" informative despite its diffuseness. They will learn that it is a mistake as yet to try to drive from Texas to the capital. They will discover that in primitive territory good beds are scarce. They will learn interesting facts about the Cardenas regime, for the book is up to date in every respect. But they will look in vain for any evidence that Mr. Franck heard a group of Mexicans sing "*Guadalajara en un llano*" or saw them dance the *jarabe tapatio*.

Mr. Franck's book is much better than no book at all about Mexico, but not so good a one as he had led readers to expect from him.

In contrast, with light hearts and apparently even lighter purses, two young men from Chicago, Heath Bowman, a writer, and Stirling Dickinson, a painter, wandered nonchalantly down below the Rio Grande, and brought back a book which is so full flavored that it entitles them to be endowed as permanent travelers. They should be provided with something less than sufficient money, and told to "go and see and go and see and go and see some more," and then come back and tell about it. Submerging their Nordic egos, they insinuated themselves into the good will of the people of Mexico, and were swept to those warm and hospitable hearts. They are *simpaticos*.

Most significant and valuable of the varied chapters of the "Mexican Odyssey" are those which deal with several craft towns. Tixtla with its carvers of masks, Chilapa with its shawls, the workers in pottery and metals in Oaxaca, the *serapes* of Texcoco, are all discussed with a respect for the native arts that is refreshing. Best of all, while these two young men are serious, they are never dull, and the book is full of prankish humor.

"Mexican Journey" is frankly a guide book, and an excellent one. For those who have no talent for independent idling through a country, this compendium will enable them to decide where to go, how to get there, what to see, and how much it will cost.

What the people of the United States must learn, is that Mexico is struggling valiantly upward toward a crystallization of the national spirit against tremendous difficulties, the heritage from the Porfirio Diaz despotism. These three books, each in its individual way, are valuable contributions to the cause.

Randolph Bartlett, now on the editorial staff of the New York Sun, was formerly a newspaper man in California, and he has traveled extensively in Mexico.



LINOLEUM PRINT BY STIRLING DICKINSON: From "Mexican Odyssey."