that proofreading may still not be very high on Kadanoff's priority list.

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Making Waves: Stories from My Life

Yakov Alpert
Yale U. Press, New Haven, Conn., 2000. $30.00 (260 pp.). ISBN 0-300-07821-8

"I am not a Soviet man!" That simple declaration was Yakov Alpert's answer in 1980 to my question, "Why do you want to leave the Soviet Union?" How he came to this decision is one of the main threads of his memoir, *Making Waves: Stories from My Life*. His straightforward and touching account of making it in science (radio waves in the ionosphere and magnetosphere) and life (defiance waves in the Sovietsphere) is a well-documented account by a radio and plasma physicist whose unique life path transcends the birth and death of Soviet Communism.

Alpert was born in 1911 into a poor Jewish family in Ivnitsy, near Zhitomir, Ukraine. He warmly recalls his Hebrew school ("Cheder") training, as well as developing "survival strategies" during the violent anti-Semitic pogroms of 1919.

In 1931, with nothing but a high-school diploma in carpentry, and home experience with crystal radio sets, Alpert went to Moscow. Starting as a laborer in construction, he was propelled by his obvious intelligence onto an upwardly mobile science path. In 1934, he learned that the Lebedev Physics Institute of the Academy of Science (PhIAN) was moving to Moscow, and with characteristic chutzpah, or as he calls it "an optimistic temperament," he asked for and was given a technician's job based on his interest in the burgeoning wireless communication, radio. His creative experimental work there under Nikolai Papalexei and director Leonid Mandelshtam ("one of the most distinguished scientists of Russia . . ."), on the velocity and phase structure of radio waves over land and sea using radio interferometry, led to his maturation and a 1939 *kandidat* (PhD) degree. In 1944 he began experimental and theoretical studies of the fine structure of the ionosphere.

Following World War II, when Joseph Stalin's campaign against "cosmopolites" (Stalin's word for Jews) accelerated, Alpert was verbally abused, and in 1951, finally dismissed from PhIAN for being "unsuitable." However, with characteristic luck, in 1952 he was offered a position ("a brave and noble step") by Nikolai Pushkov at the Institute of the Earth's Magnetism, Ionosphere, and the Propagation of Radio Waves of the Academy of Science (IZMIRAN), where he headed his own department and had his own building. In 1958, he worked with radio data from Sputnik 1, the world's first artificial satellite, and showed that electron density in the ionosphere decreases slowly at levels above its main maximum. He also produced a theory—validated by satellite data—explaining "atmospherics," 50–30 000 Hz electromagnetic signals produced by lightning discharges.

Alpert's attitudes toward the Soviet system abruptly soured following the ruthless invasion of Czechoslovakia in 1968. He resolved to emigrate, and in 1974 he and his second wife, Svetlana Pikova, formally applied for permission to leave the USSR—thereby becoming refuseniks. Svetlana was fired from her job, and he was demoted at IZMIRAN.

Alpert then entered into the activities of the existing community of refuseniks, most of whom had lost their jobs and suffered harassment and terrorization by the Soviet secret police. For support, the refusenik scientists began to hold regular "Moscow refusenik physics–mathematics seminars" at selected apartments, including the Alpert's apartment from 1981 to 1987. These seminars provided moral support, stimulus for continued scientific productivity, and international attention.

Alpert's stories are replete with commentaries on the accomplishments and moral standing of Soviet scientists. He focuses particularly on the courageous people who endured prison, from the earliest dissidents to Anatoly (now Natan) Sharansky, Yuri Orlov, and "the singular saint" Andrei Sakharov. Alpert also discusses (in Appendix C) the craven "mores of Soviet physicists."

Alpert and his wife were allowed to emigrate, and in 1987 they departed for the US, a new life, and continued fruitful research. (Alpert is a research scientist at the Harvard–Smithsonian Center for Astrophysics and was a consultant at Bell Laboratories. His wife is undergraduate studies coordinator in the department of mathematics at Harvard University.)

Alpert has been blessed with good health, perceptive intelligence, an optimistic personality, many friends, supportive colleagues in the international community, and the love of two wives. As his friend and colleague Lev Pitaevsky notes in his informed "appreciation," a foreword to Alpert's opus on the resonance nature of the magnetosphere, in *Physics Reports* volume 339, page 323, 2001:

> Alpert has made pioneering and distinguished contributions to theoretical and experimental investigations in radio and plasma physics and is the author of several excellent books. He was honored by a special URSI (International Union for Radion Science) symposium in 1974 "in recognition of his prominence in this field."

Adding interest and documentation to the story are numerous black-and-white photographs of people and pages of scientific data, scientific journal pages, and letters. Also important are four appendices, two of which deal with his involvement with high-altitude atomic bomb explosions, and a detailed listing of seminars, titles, and international visitors to "The Moscow Refusenik's Physics–Mathematics Seminar."

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Cosmological Inflation and Large-Scale Structure

Andrew R. Liddle and David H. Lyth
Cambridge U. Press, New York, 2000. $80.00, $34.95 paper (400 pp.). ISBN 0-521-66022-X, ISBN 0-521-57598-2 paper

In *Cosmological Inflation and Large-Scale Structure*, Andrew R. Liddle and David H. Lyth present a comprehensive overview of inflation, the gravitational growth of density perturbations, and predictions of the properties of the microwave background radiation, all in the context of the standard, hot, Big Bang cosmological model. A few other topics are touched on, but these three key topics are covered in great detail in a superb, rigorous presentation.

Both Liddle and Lyth have been active contributors to important developments in the fields of inflation and large-scale structure for well over a decade. Their depth of knowledge and expertise provide a rock-solid foundation for this book, which is carefully constructed, well-written,