LETTERS FROM SOVIET PHYSICIST PETER KAPITSA: TWO COLLECTIONS

Pis'ma O Nauke: Letters About Science

P. L. Kapitsa

Moskovsky Rabochii, Moscow, 1989. 400 pp. 1 ruble *hc*
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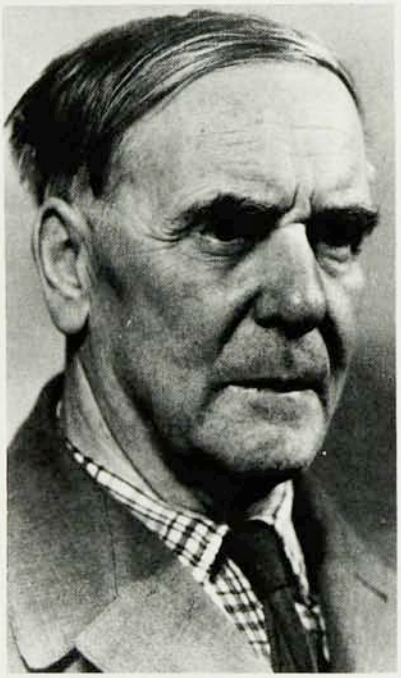
Reviewed by Mark Kuchment

From the epoch of Joseph Stalin, which has come to an end only in our time, some 37 years after the death of the dictator, very few diaries or personal letters remain. Much private writing was destroyed—sometimes together with its author—during Stalin's waves of terror. The surviving documents carefully omitted anything politically controversial. Others were never written at all. Thus, it is remarkable that the Nobel Prize-winning Soviet physicist Peter Kapitsa (1894–1984) was a compulsive letter writer. In his correspondence he not only discussed hot issues of the day but, as the Russian-language collection under review shows, turned his letter-writing gift into a potent tool for winning the confidence and support of Soviet authorities in Stalinist and post-Stalinist Russia. Gaining this confidence was, for Kapitsa, not only a matter of career promotion but, under some circumstances, a matter of life and death.

Between 1921 and 1934 Kapitsa lived and worked at Cambridge University doing research in the Cavendish Laboratory under Ernest Rutherford. The Soviet Government allowed him to retain his Soviet citizenship and make frequent trips to the USSR during the time he resided in the West. By 1934, Kapitsa had become a leading authority on low-temperature physics and magnetism, had been elected a fellow of Royal Society and had had a special research institution, the Mond Laboratory, created for him at Cambridge. During one of his visits to the USSR in September of 1934, at the height of his career, the Soviet Government suddenly prevented him from returning to Great Britain: At the age of 39, he was forcibly transplanted back in the USSR. Nonetheless, Kapitsa was able under those adverse circumstances to strike a unique bargain with his captors: A decision was made by the Soviet government to build a special institute—the Institute of Problems of Physics—and living quarters for him and his employees in the choicest area of Moscow, the Soviet Government allocated £30 000 to buy his equipment from the British and two of his British assistants were allowed to join him in Moscow for several years. By the end of the 1930s, Kapitsa was firmly reestablished in the USSR, not only as a member of the Soviet scientific community but also as a prominent public figure.



Peter L. Kapitsa

How did Kapitsa manage to achieve and retain this unique position for almost 50 years, until his death in 1984? The letters included in this Soviet-published collection, which covers the years 1930–1980, provide much of the answer. The bulk of the collection consists of letters to Stalin, Viacheslav M. Molotov, Valery Mezhlauk, Lavrenti Beria, Nikita Khrushchev, Leonid Brezhnev, Aleksei Kosygin and Yuri Andropov, the leaders of the USSR during this period.

"Love could be talked over but business is done in writing" was Kapitsa's favorite *bon mot*. But these letters could hardly be called strictly businesslike. In many cases they were skillful sales pitches by which Kapitsa attempted to ingratiate himself and his favorite topics with the all-powerful Soviet leadership.

With Stalin, in particular, flattery and demonstration of absolute devotion seemed to be quite necessary. A few examples illustrate Kapitsa's tactics:

▷ "Our technology, our economy, our state structure could be advanced only by science and scientists. You personally, as Lenin did in his time, are advancing our country as a scholar and thinker. The country is quite lucky to have such leaders" (5 October 1945).

▷ "I have exceptional respect for you as a seasoned and major fighter for modernization" (13 October 1944).

▷ "Comrade Stalin, two months ago I wrote you [a letter], but never received any response. I am really at a loss what to do in this case. There is nobody to whom I can make complaints about you!" (4 March 1945).

His keen perception of the peculiarities of the Soviet political system allowed Kapitsa not only to survive the ups and downs of his own fortunes but also to help and sometimes even save the lives of prominent Soviet colleagues such as the physicists Lev

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Landau and Vladimir Fok and the mathematician Nikolai Luzin.

The letters in this volume also throw light into some obscure corners of Kapitsa's career that have puzzled many in the West. Did Kapitsa return to the USSR of his own free will? His letter to Molotov of 7 May 1935 shows that he was, in fact, detained, as mentioned above. Did Kapitsa refuse to participate in the A-bomb project because he was a pacifist? No. According to his letter to Stalin of 25 November 1945 he chose not to participate because he did not have much confidence in the success of the enterprise and had had a run-in with Beria, the czar of Soviet nuclear research. Did Kapitsa participate in military-related research? Yes. As a letter to Georgi Malenkov dated 25 June 1950 attests, he developed one of the first blueprints of what we would now call a "Star Wars" system.

Kapitsa's loyalty to the regime gave him additional opportunities to try to reform it from within. In the last letter in this remarkable collection, written in 1980, Kapitsa wrote to Andropov, then head of the KGB, in defense of Soviet dissidents Andrei Sakharov and Yuri Orlov. "We achieved nothing applying growing administrative pressure to Sakharov and Orlov. [Sakharov had already been sent into exile in Gorki and Orlov was in jail.] Maybe it's better, plainly speaking, just to backpedal?" Thus Kapitsa was able to help the transition from Stalin's totalitarianism to Mikhail Gorbachev's *perestroika*: not a small accomplishment. Though incomplete (at least one letter to Stalin is missing), this remarkable collection certainly merits translation into English.

Letters to Mother: The Early Cambridge Period

P. L. Kapitsa (edited by D. Lockwood; translated by E. Lockwood)
National Research Council of Canada, Ottawa, 1989. 120 pp. $10.50 pb ISBN 0-660-13099-8

Now that the political climate is changing in the Soviet Union, we can expect to learn a great deal about Soviet physics in the 20th century that has heretofore been obscure. High on the list of interesting topics is the career of Peter Kapitsa. Since the preceding review by Mark Kuchment outlines Kapitsa's career, it is unnecessary to repeat that material here. Like the book reviewed by Kuchment, this is a collection of letters, but in this case they have been translated for us (by Eugenia Lockwood). The book reproduces the complete text of the letters from Kapitsa to his mother published in the Soviet magazine *Novy Mir* in 1986, and includes an introduction by Academician Yuli Khariton as well as many footnotes by Pavel E. Rubinin.

As editor David Lockwood's writes in his preface:

> These letters make fascinating reading even today, more than six decades after they were written. They give a lively account of Cambridge life in the 1920s as seen by a young Russian visitor. They also indicate the difficulties, stress and loneliness he faced in coming to work in a foreign land, particularly after the devastating personal tragedy of losing his father, his young wife and two children just months before his arrival in Cambridge. They reveal [Ernest] Rutherford's immense influence on the young Kapitsa, whose Cavendish experience set the tone for his future research work and his attitude toward science, in general. Through these letters we also follow the evolution of a most rewarding and affectionate relationship between Kapitsa and Rutherford. The oft-mentioned nickname of 'Crocodile' given to Rutherford by Kapitsa first appears in this collection in the letter dated 25 October 1921 and is used extensively by Kapitsa thereafter. The meaning behind it has been variously interpreted as being due to Rutherford's loud voice or heavy tread, and references are often made in English experience to the crocodile in *Peter Pan* and in Russian experience to the crocodile poems by K. I. Chukovsky. In the tradition of Russian usage, however, the term 'crocodile' when applied to people conveys the connotation of awesomeness that certainly dominated the young Kapitsa's attitude to Rutherford during their initial encounters. The exact reason for Kapitsa's use of the term is difficult to ascertain, as he was quite equivocal about it. Kapitsa earned for himself the nickname 'Centaur,' which was as ambiguous as his own nickname for Rutherford.

Khariton's introduction, which traces Kapitsa's career through the period 1921–26, is itself a very interesting and useful document. The book also contains 11 photographs portraying the apparatus and surroundings at the Cavendish Laboratory in the 1920s.

Physics at Cambridge had during that time reached a pinnacle that has seldom been achieved anywhere. Typical of Kapitsa's insights into British science is the following passage:

> It was England, however, that produced the greatest physicists, and now I begin to understand why. The English school is exceedingly conducive to the development of individuality and provides infinite opportunities for self-expression. One of its main characteristics is the absence of routine and stereotype .... The second factor is the drive to obtain results. Rutherford is very concerned that a person would not work without seeing some results, for he knows that this may kill one's desire to work.

Several letters also describe the construction and testing of the large generator Kapitsa used to create high impulsive magnetic fields. The letters also reveal British society in the 1920s as seen from Cambridge University by a clever and sensitive Soviet citizen. Some of the letters describing social occasions are hilarious, in particular, the account of James Chadwick's wedding and Kapitsa's first airplane flight.

Anyone interested in the evolution of physics in the first half of this century would be well advised to read this small volume. It is scrupulously translated, annotated and edited—a permanent contribution to the history of physics.

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China Builds the Bomb

John Wilson Lewis and Xue Litai
Stanford U. P., Stanford, Calif., 1988. 329 pp. $29.50 hc ISBN 0-8047-1452-5

With the publication of *China Builds the Bomb* by John Lewis and Xue Litai, we now have on record, in varying degrees of detail and authoritativeness, studies on each of the five acknowledged nuclear weapon states. The authors examine the why and the how of Chinese entry into the "nuclear club." By doing so they provide insight into the international and foreign policy considerations that motivated China's decision. They also reveal how a backward nation confronting enormous economic development problems and a lack of assets necessary to move a high-technology