

OBITUARY

ALEKSEI ALEKSANDROVICH POMERANTSEV



ON 21 MARCH 1979, Aleksei Aleksandrovich Pomerantsev, Professor at the Moscow State University, Doctor of Physical Science and member of the Honorary Editorial Advisory Board of the *International Journal of Heat and Mass Transfer* died unexpectedly in a tragic accident. Death has taken him away amidst a period of active scientific work. We have lost an outstanding scientist, a distinguished teacher, and a dear friend.

Aleksei Aleksandrovich Pomerantsev was born on 18 September 1896, in Moscow in the family of a medical doctor. Owing to his uncle P. A. Baranov, a famous educationist and author of an educational book on physics, he came into early contact with physics. After the October revolution—the student Aleksei Aleksandrovich had taken active part on the side of the revolution, and a small street in the centre of Moscow carrying his name still bears witness to this early period of his life—he has devoted all his efforts to his scientific work.

In 1925, he graduated from Moscow State University. He had written an outstanding thesis under the guidance of Professor Buchholz at the chair of theoretical mechanics. After leading practical courses on mechanics and hydrodynamics, where later academicians L. I. Sedov and L. V. Keldysh were among his students, he accepted an offer by Professor Leybensov to become a leading scientific coworker at the new Moscow Oil Research Institute. Here, he edited and supplemented the Russian edition of Ten-Bosch's book on *Heat Transfer* and wrote an appendix to Leybensov's book on *Oil Mechanics*.

In 1932, Professor A. S. Predvoditeljev invited Pomerantsev to give lectures on heat physics at the faculty of physics of Moscow State University. At the same time, he started a research project on thermoelastic deformations and stresses closely related to practi-

cal problems in production of steel and rails. His fundamental work on this problem stimulated extensive work on the experimental determination of physical parameters of steel and, as a consequence, a large special laboratory for heat physics was established at the institute. In 1934, Pomerantsev became a candidate of physical and mathematical sciences. As a special honour, this scientific degree was granted to him on the basis of his published work without defending a thesis. On 9 May 1940, he defended his doctor dissertation on "Thermal stresses in solids of revolution of arbitrary shape" at the faculty of physics of the Moscow State University. In 1951, he was awarded the order of Lenin due to this part of his scientific work.

During and after the second world war, Professor Pomerantsev has worked on a large variety of problems including important work on heat exchange with vibrating bodies (1945-47) and the stretching of steel beyond the Hook limit (1949). For the latter work he was honoured by the rector of the Moscow University. He was then attracted by problems of jet propulsion. He studied compression jumps in supersonic flow of rarified gases and made fundamental contributions to the theory of heat transfer in supersonic flow including real gas effects. This latter work has brought him international reputation. He also organized the Russian edition of M. Devienne's book on *Flow and Heat Transfer in Rarified Gases*, translated by his wife E. H. Pomerantseva.

Professor Pomerantsev reported on the results of his work at several conferences and, to some extent, they are included in the four books which he has published:

- (1) *A Course of Lectures on the Theory of Heat and Mass Transfer* (1965),
- (2) *Thermal Stresses in Solids of Revolution of*

- Arbitrary Shape* (1967),
 (3) *Physical Gas Dynamics* (1970),
 (4) *Physical Foundation of Heat and Mass Transfer and Gas Dynamics* (1977).

The second book has been translated into English. This extraordinary scientific productivity during the last decade Pomerantsev achieved notwithstanding his old age and in spite of seriously suffering from diabetes. Nevertheless, a number of his papers listed below are still unpublished. He was working on the publication of his collected papers when he died.

The scientific work of Pomerantsev is characterized by its close relationship to problems in applied science. His mastership expressed itself in the ability to go beyond the straightforward solutions, to generalize a given problem and thereby to open up the full width of underlying physics. He was a modest man, incorruptible in his judgement, and he never hesitated to express what he had found right. Those who have met Aleksei Aleksandrovich will never forget him.

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SCIENTIFIC PAPERS OF A. A. POMERANTSEV

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6. Thermal stresses in solids of revolution, *The Second All-Union Mathematical Workshop*, Leningrad 24–30 June 1934, Vol. 2, pp. 341–345. A.N. U.S.S.R., Co., Leningrad–Moscow (1936).
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11. *On the Theory of Coal Combustion in a Channel with Rectangular Cross-section*, in collaboration with A. B. CHERNUSOVII and U. A. FARBERII, No. 7, pp. 1067–1078, O.T.H. A.N. U.S.S.R. (1948).
12. Discontinuities of concentration in gas flow. New equation of the Rankin–Riemann Type, *Moscow State University Herald* 12, 81–84 (1953).
13. Theoretical investigation of the distribution of water-vapour mixture in cooling pipes, (1957). Unpublished.
14. The bending of a bimetal plate (1957). Unpublished.
15. Nonadiabatic evaluation of the Laval nozzle (1957). Unpublished.
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18. Wall heating by a supersonic gas flow, *Int. J. Heat Mass Transfer* 2, 8–14 (1961); *J. Engng Physics, Minsk* 3, 39–46 (1960).
19. On the exact theory of free convection, *J. Engng Physics, Minsk* 4, 21–26 (1961).
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