

Fiftieth anniversary of the discovery of combinational scattering of light (the Raman effect)

The Editorial Board

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This year marks the fiftieth anniversary of the discovery of combinational scattering of light (the Raman effect). The best proof of the scientific and practical importance of this effect, and a worthy monument to its discoverers, consists of the thousands of papers on all aspects of this fundamental optical phenomenon and the vast amount of new information on the structure and properties of molecules, crystals, and liquids which has been found by means of this effect.

In modern physics major discoveries are rarely accidental or unexpected. The history of the search for and the discovery of combinational scattering of light is a vivid example of the complicated paths which were taken by various scientists to reach the final goal and to interpret the results correctly.

In this issue we are publishing the original first scientific communications by Landsberg, Mandel'shtam, Raman, and Krishnan on the change in the spectral composition of light which has undergone molecular scattering. This change was discovered in 1928. This issue also contains an article by I. L. Fabelinskii which not only describes the historical course and logic of the evolution of the spectral study of scattered light which resulted in the discovery of combinational scattering

but also gives a brief description of the important branch of modern molecular optics which is based on this work. Some of the original papers are incorporated in Fabelinskii's article, while others are printed separately immediately after it. (Transl. ed. note. The four Russian translations of papers originally published in English and German are not reproduced here, but references are given to original sources).

The course of the research by Soviet scientists is naturally more familiar to us than the course followed by their Indian colleagues with which we can become acquainted only through their publications. For this reason, the work by the Soviet scientists is here discussed in more detail than is the work by Raman and Krishnan. We can hope that the colleagues of Raman and Krishnan, in their own articles marking the anniversary will discuss the work of these Indian physicists in greater detail than is possible solely on the basis of their publications. It would also be desirable that a more detailed description should be published of the work of the French researchers Rocard, Cabannes, and Daure, whose work is also cited by Fabelinskii.

Translated by Dave Parsons