

SUPPLEMENT TO THE PAPER ON BLUE QUARTZ

[REPLY TO THE CRITICISM OF DR ALFRED POSTELMANN
OF KONIGSBERG]

By N Jayaraman

In continuation of the discussions regarding the colouration of blue quartz mention could be made of the controversial points received in private communications from Dr Postelmann. While agreeing that the blue quartz from Pallavaram charnockite is actually a typical rock-forming blue quartz, quite comparable to the European types, especially the Scandinavian types, Dr Postelmann is of the opinion that the blue colour is the result of two colours produced independently by two swarms of acicular inclusions, each of them differing from the other only in the matter of size. According to him they are probably of two different generations. He maintains that the rutile needles alone are responsible for the blue colour of the charnockite quartz, and the loss of colour on heating is due to development during heating of numerous cracks which like snow totally reflect light and the quartz therefore appears snow-white.

But this view of Dr Postelmann does not fit in with my observations. Small quartz grains (2 to 3 mm in cross-section) were heated until they lost their colour, when examined under the microscope, they did not reveal the existence of any cracks. Further, it may be pointed out that the charnockite quartz contains sets of acicular inclusions belonging to only one generation, and that no difference could be noticed between the needles of different sizes.

Dr Postelmann considers that in such specimens of quartz, where there was no colouration although acicular inclusions were abundant, the absence of colour was due to the relatively large sizes of the rutile needles. He mentions that the needles would in such cases be so long as to be incapable of producing the selective Raleigh colour but would reflect uniformly all colours and thus white or whitish-grey colour is obtained. This statement of Dr Postelmann is contrary to my observations under the microscope. In the colourless specimens

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of quartz, the acicular inclusions of rutile are definitely shorter and finer than in the coloured specimens. They are not longer or stouter as indicated by Dr. Postelmann's views.

Further, he feels that the excess of titanium dioxide content obtained by chemical analysis over what could be accounted for by the acicular inclusions indicates that such quantity of titanium occurs as second order of countless needles which are so fine that they escape observation. I was, however, unable to detect either in the coloured or in the colourless specimens of quartz from Pallavaram, the so-called second order of acicular inclusions of a few μ in length even employing the highest magnification available in an oil immersion microscope.

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