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Science for the Naked Eye; or, the Physics of Everyday Experience VI .
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Glitter:Gems or Gyps?

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Color often determines the difference between a valuable gem and a worthless stone. Several technologies, both primitive and sophisticated, have been developed to improve the color of minerals in an attempt to transform common minerals into gem material. Heat treatment, dyeing, and irradiation by gamma rays, electrons and neutrons are all techniques used in gem coloration. Spectroscopic and luminescent phenomena are used to distinguish natural color from the efforts of the laboratory scientist and the native miner.

These tools are now being pushed to their limits as methods are being developed to practically duplicate natural color in treated stones. Synthetics are also being produced which equal or exceed the beauty of the natural gems. The study of gem coloration is not only of value for the gemologist, but also provides insight into basic problems of color in solids, radiation damage, crystal structure and mineralogy.