Glass prisms like the one shown here (reputedly owned by Isaac Newton and now in the collection of the Whipple Museum of the History of Science, University of Cambridge) were used to split white light into its constituent colors.
Frontiers in LIGHT & OPTICS

by Ian Osborne

Light, its interactions with materials, and our attempts at controlling those effects have held fascination for centuries. From the polishing of lustrous metals for mirrors to the recognition that glass could be worked to focus images to give us lenses and spectacles and the possibility of corrective vision, that fascination has had a practical bent. The development of telescopes and microscopes provided a view of the world far beyond our own physiological limitations, providing tools for the curious to pursue their scientific fields.

Our perception of light is limited to a very narrow band of the electromagnetic spectrum. Extending far beyond on either side of the visible wavelengths are the longer and shorter wavelengths of light that are exploited for myriad applications in communication, sensing, navigation, and imaging.

This special issue addresses modern developments in controlling and manipulating light: how light-based technologies are shrinking and becoming faster (Koenderink et al., p. 516); how recent theoretical developments in the manipulation of light are being implemented to provide materials with properties not available in nature (Pendry et al., p. 521); how the quantum properties of light are being exploited in new technologies (Walmsley, p. 525); and how new light sources are coming online that can probe the structure of matter on spatial and time scales that provide an exquisitely detailed picture of our microscopic world (Miao et al., p. 530).

With light touching so heavily on our everyday lives, it is apt that the United Nations General Assembly has designated 2015 as the International Year of Light and Light-Based Technologies.
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