

VAN NOSTRAND'S

# SCIENTIFIC ENCYCLOPEDIA

Tenth Edition

VOLUME 2

**Glenn D. Considine**  
Editor-in-Chief

**Peter H. Kulik**  
Associate Editor



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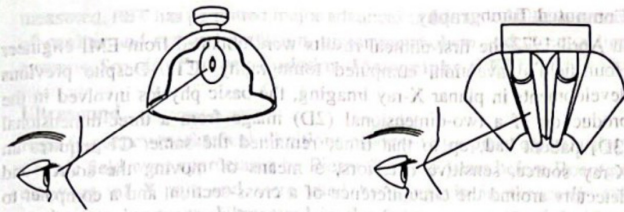


Fig. 10. Examples of direct glare where the eye of a person at a working position can see the lamp directly. (GE Lighting.)

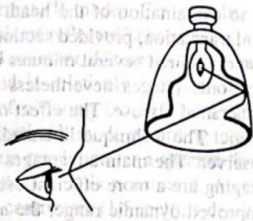


Fig. 11. Example of reflected glare from internal reflections within a luminaire. (GE Lighting.)

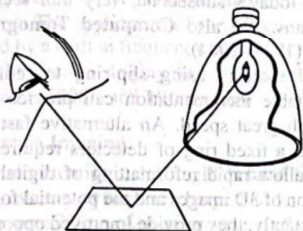


Fig. 12. Example of veiling reflection, where light from the luminaire is reflected back to the visual path of the worker. (GE Lighting.)

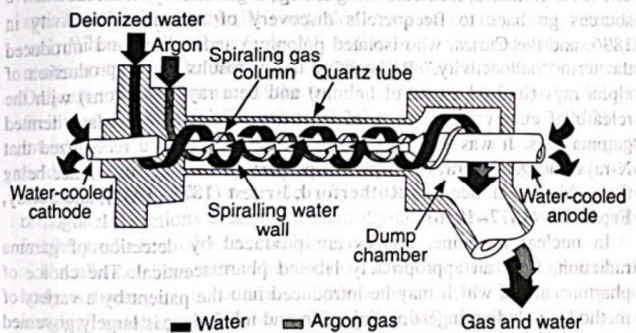


Fig. 13. Sectional view of a 300-kW arc lamp. The arc temperature is between 12,000 and 13,000°C. The Vortek lamp utilizes a spiraling wall of water to cool a quartz containment tube and to wash away debris from its tungsten electrode. It is estimated that the arc temperature is about one-half the temperature of the surface of the sun.

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#### ILLUVIATION. See Soil.

**ILMENITE.** A mineral oxide of iron and titanium,  $\text{FeTiO}_3$ . Magnesium and manganous manganese may replace ferrous iron to form a complete isomorphous series between ilmenite, and its magnesium-manganese end members, geikielite and pyrophanite. It crystallizes in the rhombohedral division of the hexagonal system; hardness, 5–6; specific gravity, 4.72; brittle, with uneven to conchoidal fracture. Crystals tabular, rarely rhombohedral, also massive, lamellar, granular. Color, iron black; opaque, with metallic to dull luster.

Ilmenite occurs as a common accessory mineral in both igneous and metamorphic rocks, and as heavy concentrations in certain black beach sands with magnetite, rutile, and zircon. Also found in pegmatites and as vein deposits. Valuable deposits are found in Norway; Sweden; Mexico; Finland; Ilmen Mountains, former U.S.S.R.; Canada; England; Brazil; and Italy. Brazil and India are rich in beach sand deposits. United States localities include California, Idaho, Colorado, Wyoming, Arkansas, Kentucky, Pennsylvania, Massachusetts, Connecticut, Orange County and the Adirondack Mountain Deposits in New York, and as beach sands in Florida north of St. Augustine.

Named after the Ilmen Mountains, former U.S.S.R.

**IMAGE.** A two-dimensional array of data with values at each element of the array related to an intensity or a color. An image is typically defined as the result of some type of image collection system; however, it could be the representation in two dimensions of any data by intensity or color.

**IMAGE COMPRESSION.** See Data Compression.

**IMAGE DISSECTOR CAMERA SYSTEM (IDCS).** See Nimbus Satellite Program.

**IMAGE ENHANCEMENT.** The process of changing the display levels in an image to highlight particular information in the image. This includes, but is not limited to, contrast improvement, edge enhancement, spatial filtering, noise suppression, image smoothing, and image sharpening. The result of this process is an enhanced image.

See also Photography and Imagery.

**IMAGE FILES.** See File Types.

**IMAGE PROCESSING.** The use of automated or manual techniques to provide the means of assessing, preprocessing, extracting features, classifying, identifying, and displaying the original or processed imagery for subjective evaluation, interpretation, and further interaction with the data.