Use of Lucis Software to Enhance Poorly Exposed Negatives

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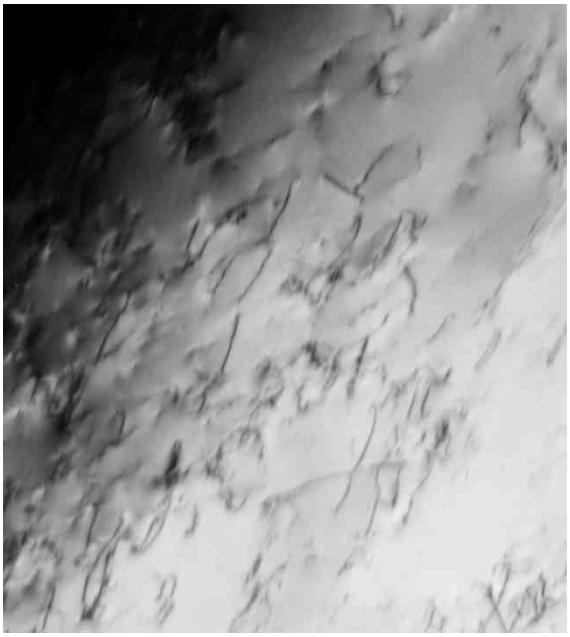
Lucis image processing uses a Differential Hysteresis method to reveal image information regardless of the underlying contrast. As a test of Lucis' capabilities, Lucis was used to enhance a very poorly exposed negative. Lucis processing greatly improved the contrast and clarity of the image. Lucis processing on more uniformly exposed negatives yields very high quality digital prints.

In figure 1 (right) is shown a copy of a very poorly exposed negative (The original is a transmission electron micrograph of dislocations in a stainless steel with nitrogen additions). The negative was scanned with a professional 8-bit flatbed scanner, with black and white levels optimized to the density of the negative.



An initial attempt at “printing” it (actually, inverting the gray scale and adjusting gamma) is shown in figure 2 (left). As can be seen, the contrast is low, and detail is not very visible, especially in the over- and under-exposed areas.

After processing with Lucis software, and having the black- and white-levels re-set, figure 3 (right) is obtained. Compared with figure 2, a major improvement is seen. In the upper left part of the image, the contrast is different from the other areas, but this is due to real sample effects (bending of the foil, taking this region of the sample away from the “two-beam” diffracting condition), and is hence a legitimate scientific observation, made visible by the Lucis processing, and is not an artifact of the processing or of the poor exposure.