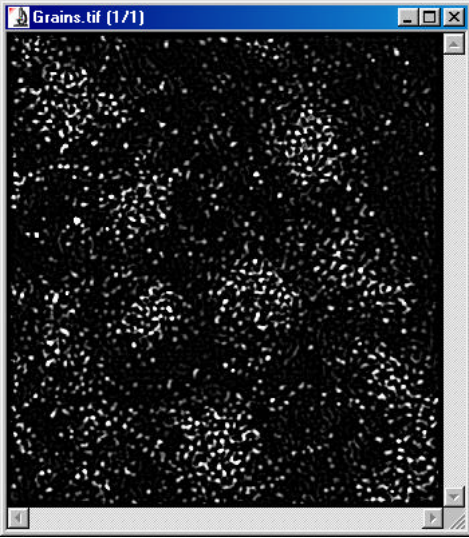
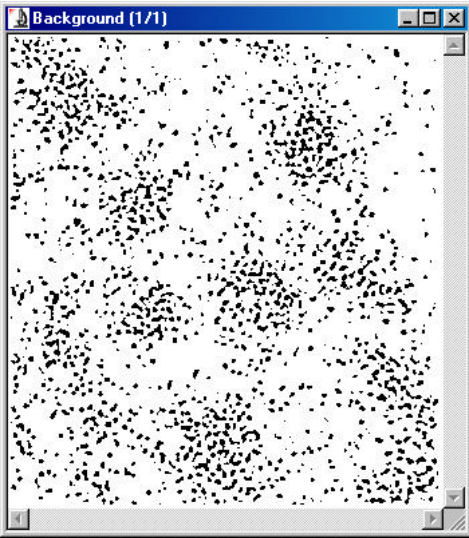


Particle Distribution

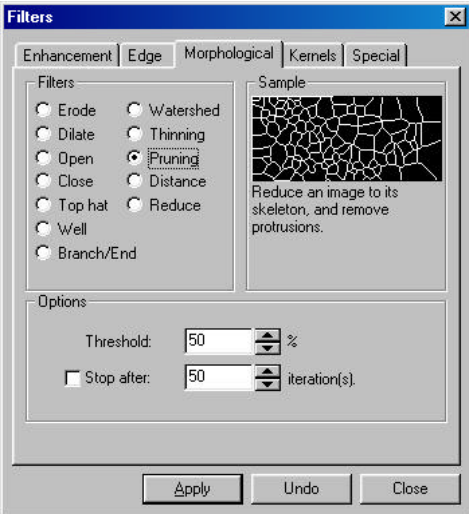
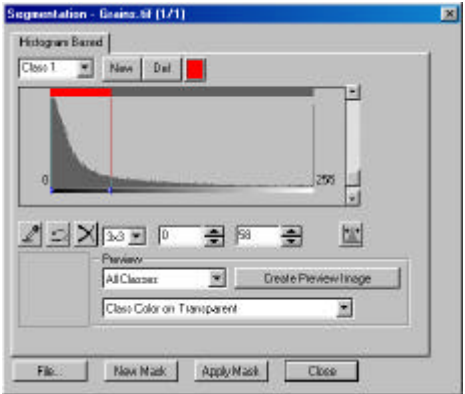


Problem: Information is needed to describe the distribution of the grains or particles in this image. The investigator wants to determine whether samples vary in terms of the homogeneity of particle distribution. The standard deviation of the distances between particles would be a measure of the nature of their distribution (if they were evenly distributed, the variation in those distances would be low).

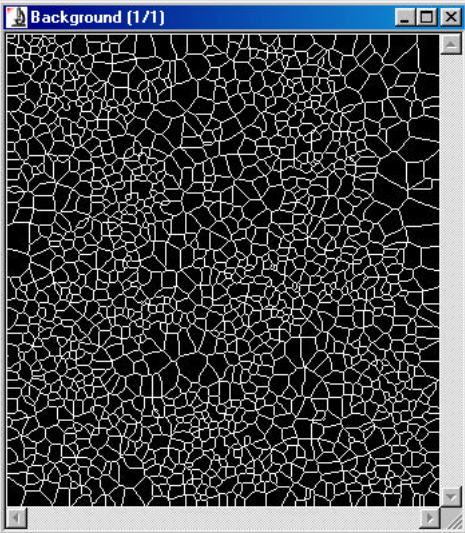
Solution: Segment the background, apply a Pruning Filter, and Measure the areas of the regions defined by the skeleton.



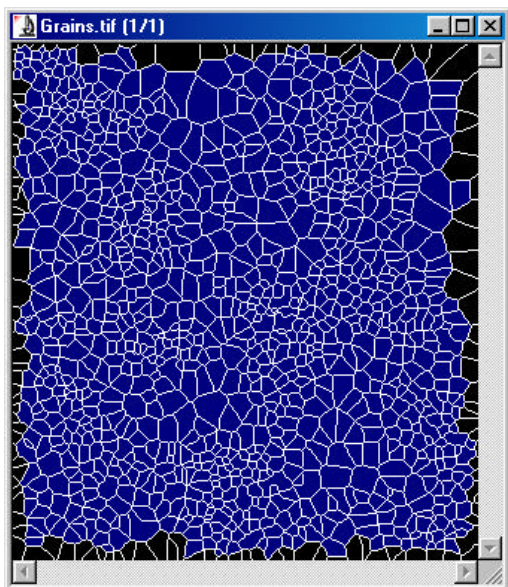
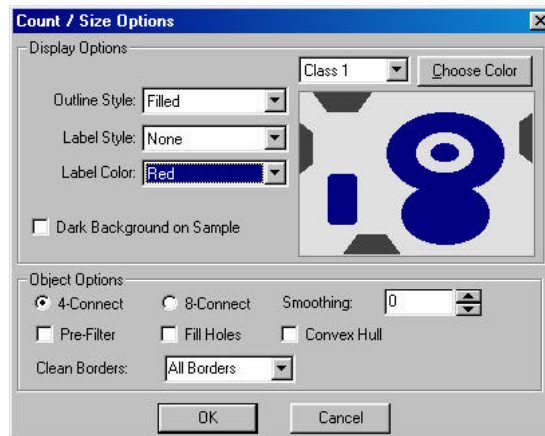
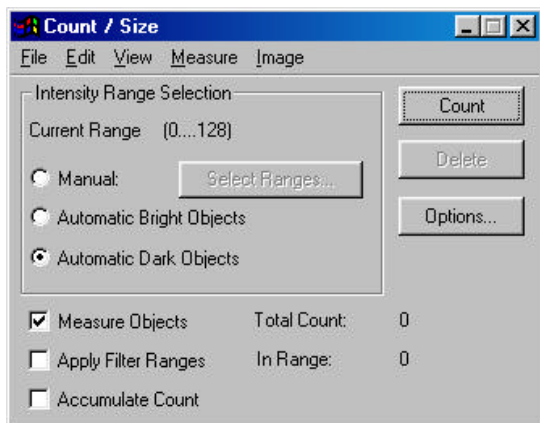
The dark background is selected by setting threshold values from 0 to 58. Then a mask or binary image is created.



A morphological filter (Pruning) is then applied that reduces the white portion of the image to its skeleton and removes any protrusions.

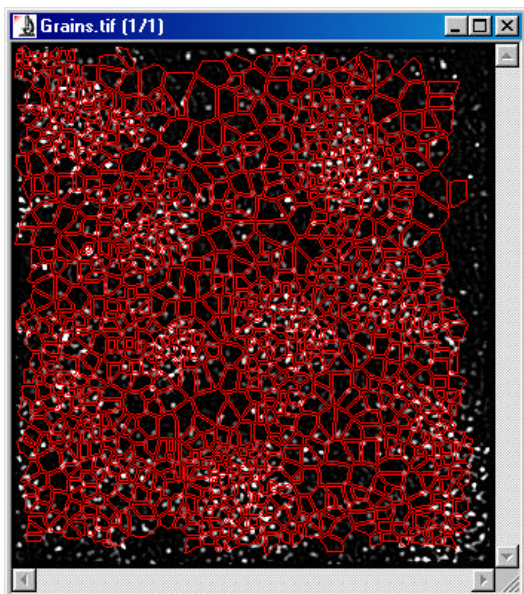


An Automatic Dark Object Count is done to measure the areas of the regions enclosed within the skeleton. Incomplete regions along the margins of the image are excluded by choosing the "All Borders" option.



The display on the left shows the measured regions (in blue) defined by the line segments of the skeleton.

The lower display shows the outlines of the measured regions superimposed on the original image. The standard deviation of these areas is an indication of the variation in the particle-to-particle distance.



Stats	Area
Min	10
(Obj.#)	392
Max	497
(Obj.#)	56
Range	487
Mean	73.760971
Std.Dev	54.247444
Sum	78998
Samples	1071