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## ABSTRACT FOR SANTA CRUZ TALK

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### **Early dynamic disturbance-rejecting experiments (mid 1960's): The First?**

#### **Method:**

These experiments were done before computer graphics was available. The method was essentially photographic. A long exposure astronomical photograph was taken on a glass plate. Processed rapidly, the processed plate was placed back in the camera - so the (disturbed) image fell on its own photographic negative.

Integrated light through the plate was received by a photo-multiplier; which gave an auto-correlation function, maximum correlation being indicated by minimum light, when the image best matched its photographic negative.

The high-speed shutter of a second camera (with a beam splitter) opened, whenever the match was good, until its plate was fully exposed.

In practice there were annoying tracking problems, as offset prevented auto-correlation. The system worked best with a randomly agitated water bath disturbance, when tracking was not a problem, though some improvement was obtained with telescopes.

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Gregory, R.L. (1964) A technique for minimising the effect of atmospheric turbulence on photographic telescopes. Nature. Lond., 203, 274-.

Gregory, R. L. (1967) Early telescope tests of the real-time sampling technique for minimising image disturbance. Supplementary paper 3 in SP Morgan (Ed), Restoration of atmospherically degraded images, U.S.A.F. and National Academy of Sciences