

tion Density. The loss of the information of scintigram displayed on X-ray film is less compared to the one on CRT or hard copy display because the image is displayed in life-size and the film has wide dynamic range of photo-density. Reduced-size scintigram of whole body scan can be also obtained. CRT which performs profile or histogram display is also useful as monitor at record and

playback.

Because this device has such performances as getting various scintigrams under different photo-recording conditions, significant processing with simple operation, and the image display device using conventional X-ray film, we consider it to be useful in routine clinical diagnosis.

### **Spatial Frequency Filtering of Scintigram (3) High Pass Filter**

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The spatial frequency filtering in scintigraphic reproduction can be performed by several methods. The basic feature of the spatial filtering studied is the coherence of He-Ne Laser. We used a high pass filter.

The small circular diaphragm is placed at the Fraunhofer spectrum corresponding to the scin-

tigram. The quality of the filtering image was separated into two parts. One consisting of a higher dot part was changed to non structural area and the other, lower dot part, was no changeable. We could draw the outline of a certain dot level and see a improvement of the signal to noise ratio in liver scintigram.

### **Evaluation of a Correction Method for High Count-rate Quantitative Studies**

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In high count-rate quantitative studies with the scinticamera and recording system, a count-rate correction must be made to compensate for dead time. In this point, we designed and composed an apparatus correcting count-losses analogously by means of analytic method, and evaluated the performance of apparatus experimentally and clinically. Then, the following results were obtained:

1. The linearity between radioactivity and corrected count-rate was investigated with Tc-99m sources of 14 different radioactivities until 0.37 to 30.0 mCi, and was significantly satisfied within 40 Kcps of observed count-rate.
2. The flow-rate of a special designed dynamic phantom, which was able to mix completely in the region of left ventricle and to change the flow-rate, was measured with corrected dilution curve recorded on a semilogarithmic chart, and could be measured accurately with error of  $\pm 5\%$ .
3. Clinically, the apparatus was considerably useful to measure the cardiac output and so on because this correction method was not only accurate but non-expensive and convenient.
4. It was a demerit that the dead time was needed to measure previously in different detecting conditions.