

- and width, 10% and 60% area of pulse density.
- b. distance from left end of the liver to point of maximum and minimum height of 10% area.
- c. distance from 10% area to 60% area,
- vice versa of each liver height.
- d. ratio of the left lobe of the liver.
- e. when the spleen density appeared on the digital image maximum height, transverse diameter, integral density and ratio of the spleen to the liver are measured.

The Development of Simultaneous Scinti-tomograms of Multiple Layers and Their Clinical Applications

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The scinti-tomograms of multiple layers can be simultaneously produced on a Polaroid picture by using a standard scintillation camera. This fact was demonstrated with the phantom experiments and selected clinical cases.

The equipment used in the study was a Nuclear Chicago's Pho/Gamma III with a special-designed rotating collimator and an optical device. The collimator was made of multi-parallel holes inclined 70 degrees from the surface of the NaI crystal. The optical device was made of two sets of lenses focusing images on a Polaroid film. Each set of lenses rotated on a circle of given diameter synchronously with the rotatory motion of the collimator.

As the collimator was rotating on the supporting frame with constant speed, the radioactive sources at the far distance from the

surface of the collimator made rotating images of large diameter on the monitor scope, but, those at the close distance made ones of small diameter. The images rotating with large diameter were focused to the Polaroid film as the static ones through the rotating lenses on the large circle. Those rotating with small diameter, however, were projected on the film as the static ones through lenses on the small circle. Thus, the diameter of circular movements of the lenses decides the tomographic layer.

The clinical usefulness of the scinti-tomograms was too early to be evaluated. Our method of the scintitomography, however, is expected to be helpful in differential diagnoses of diseases of internal organs, on which radioactivities of adjacent organs frequently influence to disturb the images of the target organ.