The lamino-scintiscaner which is a newly originated device by us to obtain stereographic observations of the liver and the tumor in it, was utilized to patients who was suspected of hepatic tumors. The lamino-scintiscaner consists of a couple of \( \gamma \)-spectrometers and scintillation probes which are fixed at right angles to one another at the focus of each honey cone collimator. Pulses from both scintillation probes are fed to multiplying circuit after pulse height analysis and the product of the average numbers of the pulses which arose from both scintillation probes within the selected time intervals (0.1 sec.) are fed to the memory type oscilloscope.

According to the results of experimental scanning of liver phantom bearing tumors, detecting ability of the lamino-scintiscaner is much higher than ordinary scintiscaner with respect to the size and site of detectable tumors.

By the lamino-scintiscaner, it is possible to recognize a cold area measuring 1.5 cm. in diameter situated at less than 5 cm. in depth and 3 cm. in diameter at more than 7 cm. in depth.

Subtraction and Addition Technique on Dual Opposed five-inch Crystal Scanner

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I) Design of dual opposed five-inch crystal scanner. Each detector system is consisted with five-inch crystal, pulse hight analyser and rate meter. Both puls hight analysers are connected to addition and subtraction selector, scaler and photo-dot scanning recorder. On the other hand, each rate meter is connected to two channel pen recorder respectively. The two scanning leads are exactly opposed, data collected by each crystal may be used separately, additively and subtractively.

Each head can be inclined up to forty-five degree in angle and both axis can be crossed at right angle. The honey comb type collimators have 109 holes and those focal depth are II and 20 cm.

II) Methods of analysis of geometry.

Tsuyat-scanninig test and responce measurements were performed using opposed counters and several type of collimators and methods of subtraction and addition, combinationally. The two opposed heads are removed from the scanner and set of repose. Point sources of Na\(^{131}\) were moved in area of two dimensions on the axis of counters by scanning machine and addition and subtruction technique were tested.

III) Result and conclusion.

1) One of the most difficult problem in the construction of the large crystal scanner was collimator design.

Enlargement of the relative are existing at distal side of focus of 11cm focal collimator was bigger than that of 20 cm collimator. The focal from of 20cm collimator is