were performed immediately and at 20 and 60 min. after injection.

Scintiphotos obtained at 1 hour were considerably different from case to case and were divided into 5 types according to the grade of diffusion and lymph node visualization. In Types 0 and I no lymph node was visualized. Type II to IV showed visual lymph nodes in various degree and increasing numbers stood for marked lymph node activities.

Radioactivity at 1 hour also differed from unchanged to around 60% of the initial.

In the 0 there observed slow disappearances and rapid disappearances were observed in some but not all of graves’ disease and chronic thyroiditis.

As to the Types of scintiphot, there found rough correlation with size of goitre, and much closer correlation was observed between Types and titers of circulating antibodies against thyroglobulin and/or thyroid microsomes.

Furthermore, untreated Graves’ disease, Hashitoxicosis and all but one of chronic thyroiditis were found to show positive lymph node visualization, but none of the other disorders. Therefore this technique was considered to be an easy and useful way of detecting autoimmune abnormality related to the thyroid.

Exophthalmic cases were used to show dominant lymph node visualization and most of antithyroid drug treated cases were associated with decreased lymph node images. Of note, in one case with positive T, suppression no lymph node was visualized. These observation confirmed the significance of autoimmune mechanism in Graves’ disease and further this technique was suggested to be useful for the determination of terminating chance of antithyroid drugtherapy.

Radiation Dose of the Liver in Patients of Hyperthyroidism Treated with $^{131}$I

T. Tsuchiya
National Institute of Radiological Sciences, Chiba
Ito Hospital, Tokyo

It has been reported by Nicoloff et al. that the $^{131}$I labeled thyroxine was much more incorporated into the liver in hyperthyroidism than in euthyroid. Authors found in some cases of hyperthyroidism that the liver accumulated an appreciable amount of $^{131}$I after therapeutic administration. The hepatic incorporation of $^{131}$I and its radiation dose therein were measured and estimated in 26 cases of hyperthyroidism treated with $^{131}$I in the present study. Radioactivity in the hepatic region of patients were measured by a scintillation counter following $^{131}$I administration. The hepatic $^{131}$I incorporation in patients was estimated by comparing the results of radioactivity measurements in patients with the measurements made under the same geometrical condition as the patients on the Alderson’s phantom loaded with the known amount of $^{131}$I (50–300 $\mu$Ci). The hepatic radiation dose was calculated from the estimated hepatic radioactivity and effective half life in liver of each patient using the formula in the MIRD. The minimum hepatic $^{131}$I incorporation was 36 $\mu$Ci, the maximum 1170 $\mu$Ci, and the average 320 $\mu$Ci. The corresponding radiation doses were 2.7 rads in the minimum, 108 rads in the maximum, and 26 rads in the average. It was found that the hepatic $^{131}$I incorporation and hepatic radiation doses were correlated with the administered doses of $^{131}$I but that they were not correlated with the thyroid radiation doses.

The level of alkaline phosphatase in the serum of hyperthyroidism before the treatment with $^{131}$I was higher than those of euthyroid and re-
mained same on 7 days after the treatment. However, one month after the treatment it became higher than the value prior to the treatment.