ly administered ^{131}I-Rose Bengal from blood was determined in patients with hepatobiliary diseases to examine the activity of hepatic uptake and excretion of the dye. From this curve the rates of hepatic uptake and excretion were calculated, and were compared with those obtained by the external counting and with the results of other liver function tests.

From the recorded hepatic uptake-excretion curve the rates of hepatic uptake and excretion were determined by two methods: one was the method by Miwa et al, the other was by Lowenstein. The rate of hepatic uptake determined by the former method was demonstrated by UR and the rate of excretion was by ER. By the latter they were demonstrated by Ku and Ke respectively.

Simultaneously the radioactivity of peripheral venous blood samples drawn serially was measured. From the blood disappearance curve thus determined, the rate constants from blood to liver (hepatic uptake rate, KL), from liver to blood (KL') and from liver to bile (hepatic excretion rate, KB) were calculated with the method by Araki et al.

As to the rates of hepatic uptake, all three levels were pararelled with jaundice index and S-GOT and S-GPT levels. They were favourable levels when the liver was damaged slightly and were decreased when it was damaged seriously. In patients with gallstone who accompanied jaundice, they were decreased. Among three levels, the levels of KU and KL had a good correlation.

As to the rates of hepatic excretion, both levels of ER and Ke were pararelled with jaundice index and with serum alkaline phosphatase level, but the level of KB revealed no correlation with these levels of liver function tests and with ER or Ke.

The level of KL' revealed no correlation with the results of other clinical liver function tests either.

Consequently, the level of KL appeared to provide reliable evaluation of hepatic uptake and agreed with the external counting, but the levels of KB and KL' appeared to be unable to evaluate hepatic excretion and reentry. Therefore, further studies are considered to be necessary.

Labeling of Bilirubin with Tritium

H. OGAWA
Tokai Laboratory Daiichi Pure Chemical Company
Y. ARAKI, T. KATO, T. MIYAZAKI and K. YOSHITOSHI
Faculty of Medicine, University of Tokyo
M. KAJIMA, S. YAMAMOTO, M. MIKAWA and S. OMORI
Tokyo Teishin Hospital

The necessity for RI labelled Bilirubin has been marked recently. However, Bilirubin does not contain an element which emits suitable γ ray, and preparation of Bilirubin-^{14}C is very troublesome, and so instead of it we tried to label bilirubin with ^{3}H. 200 mg of Bilirubin was exposed with 10 curies of ^{3}H gas for 15 days. After exposure labile tritium was removed from the Bilirubin-^{3}H by equilibrating twice in chloroform for 2-3 hrs at room temperature and twice in single-phase solution consisting of chloroform/methanol/water (5:5:1) under the same conditions. To minimize oxidation solvents were removed in the dark by a brisk jet of nitrogen. Bilirubin-^{3}H was dissolved in chloroform by boiling 10-20 seconds under reflux and cooled to room temperature. This solution was run down a column of anhydrous sodiumsulphate shielded from light. More than half of the chloroform was then removed by distillation until crystallization starts. To chloroform solution of Bilirubin-^{3}H was added ether and cooled to $-20°$C. The precipitate was collected by centrifugation, washed with ethyl ether several times. The

recrystalization was repeated several times and obtained bilirubin-^{3}H with speficic activity of Ca 24μc/mg.

Visualization of the Spleen in Liver Scaning

K. Okuda, Y. Shimogawa, H. Yakushiji, J. Matsuura, H. Takedatsu and M. Tanaka

Department of Second Internal Medicine, Kurume University School of Medicine

M. Ozeki and Y. Furukawa

Department of Radiology, Kurume University School of Medicine

Visualization of the spleen has been an accidental finding in liver scan. We are of the opinion that visualization of the spleen is related to the function of liver RES, and this report deals with the frequency of visualization of the spleen in various diseases. The color multiscintigraphy of the multiscintigram system has been used and 235 scintigrams taken from 204 patients were analyzed. The visualization occurred in 7 (30.0%) out of 23 patients with acute hepatitis, 7 (22.6%) of 3 with chronic hepatitis, 24 (70.5%) of 34 cirrhotics, 7 (77.8%) of 9 with chronic schistosomiasis, 18 (72.0%) of 25 with primary liver cancer, 2 (11.2%) of 18 with secondary liver cancer, 2 (100%) of 2 with the aBnti's syndrome, and 5 (14.5%) of 35 with other diseases. In 63 (51.6%) out of 122 patients with liver disease the spleen was visualized, and only 9 (16.3%) out of 55 with nonhepatic diserders.

The degree of visualization was (+) in most of the patients with acute hepatitis, (+) ~ (++) in chronic hepatitis, (+) ~ (+++) in cirrhotics, and (++) in primary liver cancer. All those who had liver disorders and a palpable spleen showed positive spleen, suggesting increase RES function of the spleen, whereas in 4 patients with leukemia and malignant lymphoma, the spleen was negative.

No direct correlation was seen between the degree of visualization of the spleen and the liver function tests, except for a relative correlation with the decrease of albumin and A/G.

When the accumulation of ^{189}Au over the liver and the spleen was studied with regard to time after administration, to evaluate the phagocytic activity of these organs, a trend was noted that with increasing severity of liver fibrosis the splenic curve becomes somewhat similar to the hepatic curve.

Splenic Scanning by ^{197}Hg MHP Treated Red Cells

H. Ueda, K. Chiba, K. Miura and M. Iio

Second Department of Medicine, University of Tokyo, Tokyo

S. Kato, K. Kurata and S. Nakano

Dinabot Radioisotope Laboratory, Tokyo

In spite of the growing importance of the radioisotope organ scanning for the clinical diagnosis, satisfactory radiopharmaceuticals for the splenic scanning was not yet available so far in Japan.

According to the report made by Dr. H. N. Wagner et al., we have evaluated the method to prepare ^{197}Hg labelled 1-mercuri-2-hydroxypropane (MHP) and the application of this material for the splenic scanning. Results