

Table 1.  $\text{Ca}^{45}$  excretion into the bile of rabbits.

| Animals**   | (1)                  |                  | (2)    |           | (3)    |           |
|-------------|----------------------|------------------|--------|-----------|--------|-----------|
| Time (min.) | Counts<br>(per min.) | Sp. ac. %<br>*** | Counts | Sp. ac. % | Counts | Sp. ac. % |
| 0-60        | 3390                 | 3342             | 6489   | 6980      | 4314   | 5380      |
| 61-120      | 2395                 | 3304             | 4197   | 6120      | 2844   | 4920      |
| 121-180     | 1615                 | 2302             | 2923   | 5130      | 2248   | 3228      |
| 181-240     | 717                  | 1638             | 2276   | 4160      | 3022   | 3105      |
| Total       |                      | 0.088            |        | 0.179     |        | 0.140     |

\*\* (1), (2) control (3) 200 mg  $\text{CaCl}_2$  injected one hour after the  $\text{Ca}^{45}$  adm.

\*\*\* per cent of the administration

Table 2. Urinary excretion of  $\text{Ca}^{45}$  for 4 hours after the administration.

| Animals | counts<br>(per min.) | sp. ac. | %      |
|---------|----------------------|---------|--------|
| ****    | ****                 | ****    | ****   |
| (1)     | 584                  | 1052    | 0.0062 |
| (2)     | 175                  | 1202    | 0.0019 |
| (3)     | 3000                 | 421     | 0.0339 |

\*\*\*\* The same as in Table 1.

The specific activity of  $\text{Ca}^{45}$  in the bile at the fourth hour amounted to the same value as that in serum at that time. The urinary excretion of  $\text{Ca}^{45}$  for 4 hours showed individual disparity, but the specific activity of the urinary isotopes was uniform in control animals. The intravenous injection of 200 mg inactive  $\text{CaCl}_2$  caused the notable increase of the urinary calcium and the decrease of the specific activity of the urinary  $\text{Ca}^{45}$ . (Table 2).

\* The radioisotopes were distributed by the A. E. C. of U. S. A.

## 22. On the Radioactive Sulphur $\text{S}^{35}$ \* Uptake by the Liver and Other Tissues

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The radioactive sulphur  $\text{S}^{35}$  [ $\text{BaS}$  in  $\text{Ba}(\text{OH})_2$ ] solution was injected subcutaneously into male mice in various condition, and the  $\text{S}^{35}$  uptake by liver, kidney and muscle tissues of these animals was examined. The administered  $\text{S}^{35}$  solution was that of pH 5.6, and the activity of the dose for each animal was 2.8-4.0  $\mu\text{C}$ . The experimental liver damage was done by the subcutaneous injection of  $\text{CCl}_4$  at 24 hours before the  $\text{S}^{35}$  administration. The methionine treatment was performed by the simultaneous administration of 40 mg l-methionine with the  $\text{S}^{35}$  solution. The animals were sacrificed at each period of one, two and three hours after the  $\text{S}^{35}$  administration, and the total  $\text{S}^{35}$  content of the tissues was measured by the G-M counter. The carriers of the uniform weight were used, in order to avoid the possible errors due to the self absor-

ption of the weak radiation emitted from the isotopes. The tissue homogenates were digested in Pirie's reagent, and  $S^{35}$  therein was precipitated as active barium sulphate with inactive  $BaSO_4$  of 10 mg per square centimeter.

Amouets of  $S^{35}$  per unit weight of tissues showed their maximam value at 2 hours after the administration. The  $S^{35}$  uptake by the tissuses in animals with the experimental liver damage was much greater than that in control animals. (Table 1.)

Table 1. Counts per minute per one gram tissue, when the counts of one-hundredth of the administered dose were 335 per minute.

| Time after admin. |      | one hour | two hours | three hours |
|-------------------|------|----------|-----------|-------------|
| Liver             | A ** | 155      | 317       | 166         |
|                   | B    | 370      | 455       | 260         |
| Kidney            | A    | 294      | 827       | 311         |
|                   | B    | 622      | 1198      | 305         |

\*\* A: control animal, B: animals with the experimental liver damage.

The  $S^{35}$  uptake by the liver and the kidney of the animals treated with methionine was much less than that in control animals. The  $S^{35}$  uptake by the nuscle tissues was minute.

\* The radioisotopes were distributed from the A. E. C. of U. S. A.