

in one case, but neither with the naked eye nor with the microscope could any abnormality be discovered in the kidneys. Another rabbit was killed by giving it a series of injections of oxalate solution into the veins. In this case there were changes in the kidneys that were readily detectable with a microscope, and crystals of oxalate could also be seen in the kidney-tubules; but the type of change noted was different from that seen in lambs whose kidneys are "pulpy"; moreover, in the so-called "pulpy kidney" of lambs one does not find oxalate crystals. A third rabbit, which had been fed on sorrel only, for a week, without showing any signs of illness, was killed and examined. No abnormality was found; the kidneys were normal and showed no crystals.

EXPERIMENTS ON LAMBS.

In these tests six lambs were used, with the following results:—

Lamb No. 4A: This lamb, about seven days old, was given a series of injections of sodium oxalate into the veins. When about 10 grains had been given, at the end of the second day, the lamb died suddenly. Examination showed the kidneys to be enlarged and pale. Microscopically there were changes like those noted in the rabbit similarly treated, and here again oxalate crystals could be readily seen in the kidney-tubules.

Lamb No. 1: This animal, about six weeks old, was fed with doses of oxalates and oxalic acid, and allowed to run with its dam. In the course of ten days it had received 56 grammes of these materials and was markedly ill. It showed none of the symptoms seen in cases of pulpy kidney, however, its illness evidently being due to inflammation of the stomach and intestines. It was then given a single large dose of oxalic acid, and died quietly about an hour later. On examination the kidneys were found seriously affected. Small hæmorrhages had occurred in them, giving a mottled appearance; they were also enlarged, but there was no pulpiness, although the examination was purposely left till four hours after death to give this every chance of occurring. Microscopically it was seen that the kidney-tubules were badly damaged and contained very numerous crystals of oxalate. The hæmorrhages had taken place exclusively *into* these tubules, which is another small point of difference between oxalate poisoning and pulpy kidney.

Lamb No. 5: This was two to three weeks old, and was treated similarly to lamb No. 1. In five days it received 34 grammes of potassium oxalate and 9 grammes of oxalic acid. It was then killed by a large dose of the latter, and examined some four hours later. The kidneys were certainly damaged, but to a far less extent than in No. 1. The changes that had occurred were of a similar nature.

Lambs Nos. 2 and 3: These were about five weeks old, and were fed on a diet entirely limited to sorrel, except for about ten minutes night and morning, when they were allowed to suck their dams. Feeding was commenced on 17th November, and for the first three days sorrel in the flowering stage was given, but from the 20th onwards young leafy sorrel from a field under crop was gathered for them. They were hand-fed three times a day, and ate on the average about 12 oz. to 16 oz. each per diem. This was continued for over four