

THE POSTNATAL DEVELOPMENT OF THE YOUNG
STRIPED GOPHER OR GROUND SQUIRREL,
CITELLUS TRIDECIMLINEATUS
(Or Petunia's Progeny)

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Although the striped gopher or ground squirrel is very common throughout the midwest and especially in South Dakota, there are no accounts of the early development of the young. Johnson and Wade¹ made laboratory studies on hibernation of this animal and attempted to observe its mating in captivity. Experimentation over a period of six years, with hundreds of animals, yielded only two cases of mating in the laboratory. Numerous females were pregnant when brought into the laboratory but these investigators did not describe the postnatal growth of the young. Therefore it would seem that the observations to be described below would be of interest.

On May 9, 1940, a pregnant female striped gopher was brought into the laboratory. At that time Petunia₂ weighed 145 grams. She was placed in a metabolism cage and a cigar box, with an opening cut in one end and containing fragments of paper, was put into the cage for a nest. She was provided with water, shelled corn, green vegetation such as dandelions and lettuce, and Purina dog food. She seemed to thrive on this diet. The water was supplied from a bottle suspended at the side of the cage with a drip tube at the lower end. The gopher soon learned to lick water from the glass tube, holding her paws about the end of it as she drank.

One week later, on May 16, a litter of nine young was born in the nest. The sex of the young could not be determined at that time since these animals are born in a rather immature condition. They were without hair or teeth, and their bodies were red because the blood showed through the

¹Johnson, George E. and Nelson J. Wade, "Laboratory Reproduction Studies on the Ground Squirrel, *Citellus tridecemlineatus pallidus*, Allen," *Biological Bulletin*, LXI (August, 1931), 101-113

²"A rose by any other name."

transparent skin. Their heads were very large in proportion to the rest of the body, and the fontanelles were conspicuous through the thin skin. Large dark elevations marked the position of the eyes, which were not open. The orifice of the ear was not yet formed and the pinna was rudimentary. The young were able to utter small squeaking sounds at once. At birth the average weight was 3.5 grams and the length from snout to base of tail 4.5 to 5.0 cm. Newborn rats were weighed and measured by way of comparison. The rats averaged 5.0 grams in weight and measured 4.5 to 5.0 cm. from snout to base of tail.

At four days the vibrissae had appeared. On May 24, (9th day), an appreciable amount of fine hair could be seen on the body by using a lens. By this date the animals had grown so that their average length was 6 cm. and their weights ranged from 8 to 10 grams. They crawled around vigorously but their legs could not support their body weight.

By May 25 (10th day), the eyes had still not opened but the lower incisors were beginning to show. On the twelfth day stripes showed faintly over the head and fine fur could be seen on the entire body except the legs and tail. By May 29 (14th day), the sexes could be readily distinguished. There were three females and six males. In the female the vulva was located just anterior to the anus. In the male the orifice was about 5 mm. anterior to the anus, and a longitudinal ridge about 5mm. long showed under the skin anterior to the orifice. This was the developing penis. The snout to rump measurement that day was 7 cm., and the average weight 15 grams. The eyes were not yet open, but the orifice of the ear had formed. On May 29, the stripes showed the full length of the body and the dots were visible in some of the stripes. By this time (14th day), the young animals had acquired the typical gopher chirp or whistle. A slight ridge indicated the upper incisors were forming.

The fur had become quite thick on the forelegs by June 2 (18th day), but it was still rather sparse on the hind legs. The lower incisors had now fully emerged. They were sharp, yellowish, and needle-like. By June 5 (21st day), all four legs and tail were covered with fur. On June 6 (22nd day),

the average length was 8cm.; the weight ranged from 16.5 to 19.2 grams. There was no correlation between body weight and sex. The eyes were not yet open, but the lids twitched when placed in bright light, indicating that some light was passing through the slit that was forming between the developing lids. Two days later, June 8, when the gophers were twenty-four days old, the eyes opened.

After they got their sight they became more active than ever. The upper incisors emerged by June 10 (26th day), and the mother gopher began to carry corn into the nest. Now the legs had become strong enough to support the body weight, and the little gophers began to scamper about and play like kittens. They rubbed their noses and washed their faces with their front paws. Within a few days after getting their upper incisors (the lower having appeared first as stated) they began to eat corn. They ate only the germ of the kernels which is typical of the striped gophers. By the time they were a month old they had acquired most of the adult behavior. They would sit up on their haunches to look around, holding their bodies very erect. At one month the body length had reached 9 cm. and the average weight was 22 grams.

The mother gopher never became tame. The young animals were tame for some time, but as they grew older they became more excitable and preferred not to be handled. When they were about six weeks old Petunia got out of the cage and left them. She remained at large in the building for a week before she was caught. In July, forty-six days after parturition, she was killed and the ovaries removed. It was of interest to note nine corpora lutea bulging out, five on the left and four on the right ovary. There were nine young in the litter it will be recalled.

After the mother left the young they were fed corn, green vegetation, a commercial pet food, and water. At first they seemed very active, but within a few days they began having tetanic spasms, from which one died. This was no doubt due to a deficiency of calcium in their diet, since the condition was remedied by feeding them milk with their other

food. After this addition to their diet the eight remaining animals seemed to be in perfect health up to July 3, when the observations were terminated. At that time the average length was 11.5 cm. and the average weight 48 grams.