

A MICROFILARIA (*MICROFILARIA ROSENAUI* N. SP. FROM  
THE CALIFORNIA GROUND SQUIRREL (*CITELLUS*  
*BEECHEYI*).

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With Plate VII.

THE following is a brief description of a blood worm which was first observed by Mr J. W. Kehoe, one of the technical assistants at the Federal Laboratory. The parasite has been found in squirrels coming from almost all parts of California east of the Sierra Nevada Mountains, and between the Mexican border and the Sacramento River (between 33° and 38° North Latitude).

Rodents from the southern sections of the State seem to show a higher percentage of infestation than those from further north. It is probable that at least five per cent. of the squirrels from the part of the State in which the parasites are found harbour the worm. There is no evidence that the nematode exercises any deleterious influence on the host. The adult forms of the parasite have not been found though careful search for them has been made.

*Description of the worm:* In the fresh blood attention is attracted to the parasite by a movement among the cells, and careful inspection shows this to be due to a very active worm. While the movements are quite vigorous no definite progress is made. The worm has been found alive two or three days after the death of the host. There is no evidence of the presence of a sheath. The tail is gently tapering while the head is rather blunt. The structure of the parasite cannot be studied satisfactorily in fresh preparations. The worm is readily stained by the ordinary basic dyes, but, for the study of the structure, Giemsa's method has given the best results. There is a faintly staining cuticle



*L. H. Wilder. del.*

which shows very fine transverse striations, but careful examination has failed to reveal any indication of a sheath. Within the cuticle is a column of nuclei which is more or less completely interrupted by several "clear spaces."

*The nuclei*: These are of two varieties: (1) nuclei usually spherical and staining uniformly deeply; these are by far the more numerous; (2) nuclei that are a trifle larger, somewhat less regular in outline and staining less deeply. The fourth nucleus from the tip of the tail is very generally one of the latter class. Others are scattered irregularly throughout the worm, except in the head and in the other clear areas.

*Clear spaces*: The head of the worm is always free from nuclei. About one-fourth to one-sixth of the distance from the head toward the tail is an area in which nuclei are almost invariably absent. About two-thirds of the distance from the head to the tail is a space in which cells are few in number. Near the tail, from one-eighth to one-fourth of the distance to the head, there is nearly always an area in which cells are absent. Some specimens show other clear spaces, but the ones mentioned are practically constant.

*Dots or Granules*: Almost invariably the clear space lying about two-thirds of the distance from the head to the tail will be found to contain a large number of fine granules. There are usually a few of these bodies, three or four or more, near the extreme front of the head, and a small number are often found in the tail. Occasionally granules are found in other parts of the worm, but usually they are confined to the head and to the clear space, two-thirds of the distance from the head to the tail. It was thought at first that these little objects, which are only seen in specimens stained with Giemsa stain, were artifacts, but their constancy leads to the conclusion that they are part of the structure of the worm.

*Head*: The head, which is cylindrical, tapers sharply to a flattened anterior extremity. The portion devoid of nuclei is usually about one and one-half times as long as the diameter of the worm.

*Tail*: The tail, which makes up about one-fourth of the length of the worm, tapers gently to a rather sharp point. Terminal nuclei in the tail are usually oval, the long axis corresponding to the long axis of the worm.

*Measurements*: The average length of ten specimens was 0.22 mm. (extremes, 0.17 mm. and 0.25 mm.). The width is from 0.0055 mm. to 0.007 mm., averaging a little less than that of the red blood corpuscles of the host.