level increased 106%, was in poor condition, while subject 5, the only runner to show a decrease in blood vitamin A, was in excellent condition.

Further studies using athletic subjects under controlled conditions of diet and exercise are being conducted.

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Chromosome Numbers of Some American Rodents

Sajiro Makino[1]

Zoology Institute, Hokkaido University, Sapporo, Japan, and Department of Zoology, University of Texas, Austin

While visiting several universities in this country, as an official representative of the Japanese Government, I was able to collect some mammalian material for chromosome research and I wish to report the chromosome numbers so far established for 16 species of American rodents with some comments. The results are summarized in Table 1.

The chromosomes of the deer mouse were investigated by Cross (1931, 1938) (*1, 2*), but his studies were confined to the spermatogonial chromosomes. The present study was made mainly on meiotic chromosomes. With the exception of *Peromyscus nasutus,* all species here reported show 24 chromosomes in the haploid set. *P. nasutus* has 26 haploid chromosomes. In all species there is always a heteromorphic XY-bivalent in the haploid complex, consisting of a large J-shaped X-element and a short rod-like Y. At metaphase the X and Y lie in side-by-side association coming together at their proximal dense part. The X and Y chromosomes disjoin at the first anaphase without exception. The diploid complement observed in 3 species shows 48 chromosomes, which consist of 2 pairs of large and medium J-shaped chromosomes, a pair of small V-shaped ones, together with rod-like elements.

The chromosomes of the muskrat (*Ondatra zibethica*) appear as rods, with the exception of a few chromosomes that have a constriction near their proximal ends. The chromosomes of the marmot (*Marmota flaviventris*) are characterized by J- and V-shapes of varying sizes. The prairie dog (*Cynomys ludovicianus*) shows also J- and V-shaped chromosomes varying in size. The diploid complement of the Mexican pocket mouse (*Liomys irroratus*) is remarkable in showing a pair of small J-shaped chromosomes together with rod-shaped elements of varying sizes. The porcupine (*Erethizon dorsatum*) is characterized by having the low number of 34 chromosomes in diploid cells, most of which are of J- or V-shape. The diploid complex of the chinchilla (*Chinchilla laniger*) shows chromosomes carrying submedian and subterminal centromeres, each one being a two-armed structure. The X chromosome is very prominent among the autosomes by being the largest V-shaped element. The Y comes next in size, also with a distinct V-shape.

TABLE 1

CHROMOSOME NUMBERS OF SOME AMERICAN RODENTS

Common name	Scientific name	Chromosome number		Sex chromosome
		2n	*n*	
Deer mouse (Cricetidae)	*Peromyscus polionotus polionotus*	—	24	X–Y ♂
	P. p. leucocephalus	48	24	"
	P. maniculatus maniculatus	48	24	"
	P. manic. blandus	—	24	"
	P. manic. bairdii	—	24	"
	P. manic. gambeli	—	24	"
	P. leucopus texanus	—	24	"
	P. truei truei	48	24	"
	P. nasutus	—	26	"
Muskrat (Microtinae)	*Ondatra zibethica*	54	—	"
Marmot (Sciuridae)	*Marmota flaviventris*	42	—	"
Prairie dog	*Cynomys ludovicianus*	52	—	"
Spruce squirrel	*Tamiasciurus fremonti*	—	25	"
Mexican pocket mouse (Heteromyidae)	*Liomys irroratus*	58	—	"
Porcupine (Erethizontidae)	*Erethizon dorsatum*	34	17	"
Chinchilla (Chinchillidae)	*Chinchilla laniger*	64	32	"

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