TOOTTHA

	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
0	1	1.07_2	1.15	1.23	1.32	1.41	1.52	1.62	1.74	1.87
1	2	2.14	2.30	2.46	2.64	2.83	3.03	3.25	3.48	3.73
2	4	4.29	4.60	4.92	5.28	5.66	6.06	6.50	6.96	7.46
3	8	8.57	9.19	9.85	10.6	11.3	12.1	13.0	13.9	14.9
4	16	17.1	18.4	19.7	21.1	22.6	24.3	26.0	27.9	29.9
5	32	34.3	36.8	39.4	42.2	45.3	48.5	52.0	55.7	59.7
6	64	68.6	73.5	78.8	84.4	90.5	97.0	104	111	119
7	128	137	147	158	169	181	194	208	223	239
8	256	274	294	315	338	362	388	416	446	478
9	512	549	588	630	676	724	776	832	891	955

financial experts as showing compound interest; at £7 3s. 6½d. per cent., money doubles itself every ten years, and in a century increases a thousand-fold.

Toottha makes light of astronomical figures: even the number of electrons in the universe amounts only to some toottha 262.8, a figure now shown as $2^{262.8}$ but which might with some advantage be written $2\backslash 262.8$ or, even more simply, $\backslash 262.8$. Curiously enough, the universe itself seems more within our grasp when we reckon its diameter, not by the thousandmillion light-years, but as $2\backslash 74.2$ miles.

PETER SIMPLE

ENGLAND,
OCTOBER, 1941

ORIGIN OF THE JAPANESE WALTZING MOUSE

IN 1912 Fortuyn[1] pointed out that the Japanese waltzing mouse was smaller, and had a shorter tail with a lower number of tail-rings, than European *Mus musculus*. Being quite unfamiliar with the species of Asiatic wild mice, he asked for the advice of the late Oldfield Thomas, of the British Museum, and was told that the only wild mouse of this type occurring in eastern Asia was *Mus musculus wagneri* Eversmann, at that time called *Mus wagneri,* and regarded as a species different from *M. musculus.* As Fortuyn was convinced that the Japanese waltzer was derived from a type distinct from the European house-mouse, he accepted this information as the basis of his contention that the derivation of the waltzer from *wagneri* was a proven fact.

More recently W. H. Gates[2] has supported Fortuyn's view, and has adduced morphological and physiological, as well as historical facts in its favor. Keeler,[3] primarily on historical grounds, has maintained a south Chinese origin of the waltzer.

Through the kindness of Dr. G. M. Allen, of Cambridge, Mass., I have recently had an opportunity to examine specimens received from Dr. Fortuyn, including 24 waltzing mice (8 white, 8 black, 8 Dutch piebald), and 9 wild *wagneri* from Peking, China. They bear out the resemblance between the two types, as described by Fortuyn and Gates. Therefore, it can be taken as proved that the Japanese waltzer has nothing to do with the European house-mouse.

However, the evidence that these mice were first bred in China, and were taken to Japan later on, can not be accepted as conclusive for the following reasons.

(1) *M. m. wagneri* Eversmann is not the only wild race of short-tailed mice of this group, found in eastern Asia. A second wild subspecies, *M. m. manchu* Thomas (1909),[4] is found in Manchuria and Japan. *Wagneri* and *manchu* are very closely related, but in populations of *manchu* a buff, and a dark grey color phase are found, whereas in *wagneri* only the buff phase is known.

(2) The Japanese house-mouse, *M. m. molossinus* Temminck, is derived from the local wild stock of *M. m. manchu,* from which it differs by its small size, and in having the belly buffy, instead of white. It has the same two color phases as the wild stock, the buffy and the dark grey, and almost as short a tail. When Thomas gave his information to Fortuyn, he was not aware of the occurrence of *M. m. manchu* in Japan, nor of the fact that *molossinus* was the common Japanese house-mouse, and that in Japan the European house-mouse does not exist.

(3) The house-mice of southeastern China, as far north as the Yangtze River, belong to the Indian type. They have very long tails, much longer than the head and body. They closely approach the European style, but differ widely from the short-tailed Japanese house-mouse.

(4) No true house-mice occur in northern China. The house-mice there are facultative commensals, and do not differ considerably from the local wild *wagneri.*

(5) The Japanese waltzer agrees in size and tail-length with the Japanese commensal *M. m. molossinus.* There is no need to suppose that it has been taken to Japan from elsewhere. It can not have been bred in northern China, where no true commensal mice are found, nor can it be derived from the house-mice of southern China, from which it is widely different.

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[1] A. B. D. Fortuyn, *Zool. Anz.,* 39: 88, 1912.
[2] W. Gates, Carnegie Inst. Washington, Publ. 337: 91, 1926.
[3] C. E. Keeler, "The Laboratory Mouse. Its Origin, Heredity and Culture." Cambridge, Mass., 1931.
[4] O. Thomas, *Ann. Mag. Nat. Hist.,* (8) 4: 22, 1909.