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THE IDENTITIES AND ALLOCATIONS OF *TAEROMYS PARAXANTHUS* AND *T. TATEI*, TWO TAXA BASED ON COMPOSITE HOLOTYPES (RODENTIA, MURIDAE)

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In 1941, Henri Jacob Victor Sody's paper "On a collection of rats from the Indo-Malayan and Indo-Australian regions" was published in volume 18 of the journal *Treubia*. This important paper contains the descriptions of 43 new genera, species, and subspecies proposed by Sody, and the identifications and some descriptions of the rats and mice that were housed in the former Zoological Museum of Buitenzorg, now the Museum Zoologicum Bogoriense in Bogor, Indonesia. The published report was the last major work written by Sody on Asian rats and mice and he included in it data he had compiled during his early studies of murid rodents in the late 1920's and the decade that followed. It is a final documentation of Sody's identifications of murid rodents and a summary of his opinions and philosophy regarding their systematics.

Mammalogists who study taxonomy of Indo-Malayan and Indo-Australian rats and mice have to consult Sody's report of 1941 and eventually must study holotypes of the forms he named and described in that paper. Most of the holotypes are now in the Rijksmuseum van Natuurlijke Historie at Leiden. I had the opportunity to study these specimens in the museum at Leiden during the winter of 1969 and was able to resolve the identities of many of Sody's names, taxa which were difficult to identify and allocate from his original descriptions. Two of these, *Taeromys paraxanthus* and *T. tatei*, are discussed in this paper. They are of special interest because each is a composite based on elements of two species.

ABBREVIATIONS AND METHODS

The specimens discussed in this paper are in the collections of the American Museum of Natural History (A.M.N.H.), the British Museum (Natural History) (B.M.), the Rijksmuseum van Natuurlijke Historie (R.M.N.H.), the personal collection of H. J. V. Sody (these specimens are housed in the Rijksmuseum van Natuurlijke Historie and are gradually being registered and incorporated into the main collection of the museum. Most of Sody's specimens, however, are still unregistered and these are designated in the present paper as "Sody No.", a notation that Sody used in his publications to refer to specimens in his personal collection), and the National Museum of Natural History of the Smithsonian Institution (U.S.N.M.). Measurements of the length of head and body and the length of tail of most specimens are those of the collectors and were taken from labels attached to study skins. I measured the length of the hind foot of all the specimens, but took all the external measurements of *Taeromys paraxanthus* and *T. tatei* from the dry, study skins.

Cranial measurements were taken with dial calipers graduated to tenths of millimeters. The limits of most of these measurements are explained elsewhere (Musser, 1970). I measured the greatest length and the greatest breadth of each first upper molar with the dial calipers placed under a dissecting microscope.

THE IDENTITIES AND ALLOCATIONS OF *TAEROMYS PARAXANTHUS* AND *T. TATEI*

Taeromys is one of the genera proposed by Sody in 1941 to contain "*Mus celebensis*" and its allies. Besides *celebensis* and the two newly described forms, *paraxanthus* and *tatei*, Sody also included *dominator*, *xanthurus*, *marmosurus*, and *bontanus*, all taxa usually listed as species of the genus *Rattus* (Ellerman, 1941, 1949; Laurie & Hill, 1954), and all known only from Celebes.

Taeromys paraxanthus was based only upon the holotype, but *T. tatei* was described from the holotype and one other specimen. In his revised classification of the genus *Rattus*, published in 1949, John R. Ellerman considered the genus *Taeromys* to be a synonym of *Rattus*. He also pointed out that the name *tatei* could not be used because it had been proposed already for *Rattus tatei*, a form named and described by Ellerman from specimens obtained in middle Celebes (1941: 215). Ellerman substituted the name *simpsoni* for Sody's name, *tatei* (1949: 191). Both *paraxanthus* and *simpsoni* were listed by Laurie & Hill (1954) as a species of *Rattus* in their list of "Land Mammals of New Guinea, Celebes and Adjacent Islands." Apparently neither Ellerman nor Laurie & Hill had examined the holotypes of *T. paraxanthus*

and *T. tatei* (throughout the rest of this report I will use Sody's name, *tatei*, rather than the name, *simpsoni*). Since Sody's descriptions of these two taxa were published no other specimens from Celebes or areas outside of that region have been referred to *paraxanthus* or to *tatei*, either in the mammalogical literature or in collections of museums I have worked in. A primary reason is the nature of Sody's descriptions. Each taxon was characterized by a combination of features closely resembling four species that had already been described, namely *Rattus xanthurus*, *R. callitrichus*, *R. taerae*, and *R. fratrorum*. Consequently, specimens could not be correctly identified as either *paraxanthus* or *tatei* from Sody's descriptions.

After studying the holotypes of these two taxa, I know why their identities have been unclear. Each specimen is a composite, the skin is an example of one species, the skull of another. The descriptions and correct allocations of *T. paraxanthus* and *T. tatei* are documented below.

Taeromys paraxanthus Sody, 1941

Sody based *T. paraxanthus* upon a stuffed skin and a skull; his description of both elements is short (1941: 313): "Skin hardly distinguishable from *T. xanthurus*: fur a little compacter, colour a trifle more buff (especially on sides of head), the dark basal part of the tail 1/2 of the whole length (*xanthurus* maximum 2/5). Like in *xanthurus* the piles are excessively elongated (up to 72 mm). But skull largely different: upper toothrow 10.3 mm (maximum in *xanthurus* 8.9), breadth of m¹ 3.0 (*xanthurus* 2.6). By the largeness of the teeth resembling *Lenomys*, but the palate is not especially narrowed. Upper toothrow rather strongly converging anteriorly, spreading posteriorly." Measurements of the skin and skull were listed following the description.

The skin of *T. paraxanthus* is slightly overstuffed, but in good condition. Two labels are attached to it. One is the original label; a "Coll. No." (341/38) is recorded on it as well as locality data; presumably the skin was obtained from Toelap West, Tonsea lama, in Tonsea District of northeastern Celebes, by G. W. Van Braekel in 1938. The second label is a red tag used for type-specimens by the Rijksmuseum van Natuurlijke Historie; the registration number of that museum is recorded as No. 9822.

The skin is from an adult male in full and fresh pelage. It is a fine example of *Rattus xanthurus*, a species originally described by J. E. Gray (1867: 598) as "*Mus xanthura*" and known to occur only in northern Celebes. In his description of *T. paraxanthus* Sody indicated that the skin closely resembled *R. xanthurus*. I have examined over 25 specimens of that species, including the holotype, No. 60.8.26.16, in the British Museum (Natural History). There are no important differences between these specimens and the skin of *T.*

paraxanthus, either in external dimensions, length and texture of pelage, color of pelage, or color and scalation of tail. For example, my measurements of lengths of head and body, tail, hind foot (including claws), and ear (from the notch), all taken from the dry, study skin of *T. paraxanthus*, are 225 mm, 280 mm, 51 mm, and 22 mm, respectively. Ranges of the same dimensions for nine adults of *R. xanthurus* are 220-260 mm, 264-330 mm, 45-50 mm, and 20-26 mm. The tail of *T. paraxanthus* is bicolored, the basal one-half dark brown, the distal one-half white. In most specimens of *R. xanthurus* only the basal one-third of the tail is pigmented, but the range of variation in individuals of that species I have studied covers the condition seen in *T. paraxanthus*. The tail of *T. paraxanthus* has nine rows of scales per centimeter; the range of rows in 11 adults of *R. xanthurus* is eight to eleven. The only conspicuous differences between the skin of *T. paraxanthus* and specimens of *R. xanthurus* of comparable age are those differences due to wear and age of pelage. Fresh pelage of *R. xanthurus* is lightly softer and more buffy than is the worn and faded pelage of that species. Such slight differences in texture and color of pelage were the primary contrasting features between *R. xanthurus* and *T. paraxanthus* indicated by Sody in his description.

The cranium and mandibles of the holotype of *T. paraxanthus* are not from a specimen of *R. xanthurus*, but are an example of *R. callitrichus*, a species described in 1879 by F. A. Jentink and still known only from a few specimens obtained in northern, middle, and southeastern Celebes (Musser, in press). The skull is from an adult and is complete except for missing parts of the occipital region. I have compared it with the lectotype, paralectotype, and another adult specimen of *R. callitrichus* from northeastern Celebes (R.M.N.H. Nos. 21275, 21276, and 21255, respectively) that are in the museum at Leiden. In table 1, measurements of the three specimens are compared with the skull of *T. paraxanthus*, and all four are contrasted with adults of *R. xanthurus* of comparable age. The configuration, dimensions, and proportions of the skull of *T. paraxanthus* resemble the specimens of *R. callitrichus* and not those of *R. xanthurus*. Sody noted that the skull of *T. paraxanthus* was quite different from those of *R. xanthurus*. The features of *T. paraxanthus* he pointed out, namely long tooththrows with large and robust teeth, and the maxillary tooththrows that converge anteriorly, are features characteristic of *R. callitrichus*. The skull of *T. paraxanthus* fits most closely with the available material of *R. callitrichus* from northeastern Celebes rather than with specimens from middle Celebes that I have examined (B.M. Nos. 40.388 and 40.389) or from southeastern Celebes (A.M.N.H. Nos. 101108, 101109, 101218).

Because the holotype of *T. paraxanthus* is a composite of two species, *R.*

TABLE I

Cranial measurements (in millimeters) of adult specimens of *Rattus callitrichus*, *Taeromys paraxanthus*, and *R. xanthurus* from northeastern Celebes.

	<i>R. callitrichus</i>			<i>T. paraxanthus</i>	<i>R. xanthurus</i>
	R.M.N.H. No. 21275 (lectotype)	R.M.N.H. No. 21276 (paralectotype)	R.M.N.H. No. 21255	R.M.N.H. No. 9822 (holotype)	Ranges of 6 males and 1 female. ^a
Zygomatic breadth	—	—	24.9	24.8	23.8-25.8
Interorbital breadth	7.0	7.1	7.4	6.9	6.0- 7.4
Length of nasals	20.8	20.3	20.7	21.4	18.0-20.3
Length of rostrum	15.9	15.3	16.0	16.9	15.1-17.6
Length of diastema	13.0	12.6	13.0	14.0	13.8-16.0
Palatal length	—	26.3	27.2	27.9	25.4-28.2
Length of incisive foramina	8.2	8.2	8.6	8.6	9.2-10.7
Breadth across incisive foramina	3.1	2.9	3.0	3.1	3.6- 4.1
Length of palatal bridge	—	10.6	10.9	11.1	8.5- 9.6
Breadth of palatal bridge at M ¹	3.3	3.3	3.2	3.3	3.7- 4.3
Breadth of palatal bridge at M ³	—	4.5	4.9	4.9	4.1- 5.3
Breadth of mesopterygoid fossa	—	2.9	3.3	2.9	3.4- 3.9
Alveolar length of M ¹⁻³	10.7	10.5	10.6	10.3	8.2- 8.5
Length of M ¹	4.6	4.8	4.9	5.0	3.4- 3.8
Breadth of M ¹	3.1	3.1	3.2	3.0	2.5- 2.7

^a A.M.N.H. Nos. 101249, 101250, 101251, and 101256; B.M. Nos. 97.1.2.23, 99.10.1.8, and 21.2.9.6.

xanthurus and *R. callitrichus*, either the skin or the skull must be selected as lectotype and the name *T. paraxanthus* placed in synonymy of the appropriate species. I designate the skin as lectotype. It is in better condition than the cranium and mandibles, and more importantly, it bears the original label on which the date and place of capture of the specimen are recorded, as well as the number referred to by Sody in his original description. The data on the label and the study skin are likely to be correctly associated. The skull, however, was certainly matched with the wrong study skin, either in the field or during the process of curation in the museum. I consider the

name, *Taeromys paraxanthus* Sody, 1941, to be a junior, subjective synonym of *Mus xanthura* Gray, 1867, a name currently, and correctly, listed as *Rattus xanthurus* (Tate, 1936; Laurie & Hill, 1954; and Misonne, 1969).

***Taeromys tatei* Sody, 1941**

Taeromys tatei is based upon two specimens, each consisting of a study skin and a skull, and was described by Sody (1941: 313-314) as: "A rather dark, long furred rat, below somewhat lighter than above by the long grey tips of the belly hairs. Back with woolly hairs (up to 20 mm in length, dark grey at bases, subterminally slightly brownish, tips light buff) and rather many piles (up to 30 mm, black). Belly with woolly hairs (grey) and very many slightly thicker, longer and straighter ones (dark grey over basal half, light gray, slightly buffy, over terminal half). General colour effect almost as in *Arcuomys arcuatus*, but with back finely speckled; probably very much like *R. hamatus*. Hairs on back of hands and feet dark brown, but near and on the fingers and toes white. Tail black over basal $\frac{1}{3}$, rest white. In the dried skin the very developed penis has a length of $13\frac{1}{2}$ mm. In the second specimen (a ♀, though labeled ♂) there is a strange scrotum-like development round the anal region. Mammary: pectoral 1, inguinal probably 2 pairs." Sody listed external and cranial measurements of both specimens and he compared *T. tatei* with the original description of *R. hamatus* (Miller & Hollister, 1921: 97).

The holotype of *T. tatei* consists of a study skin, cranium, and mandibles. The skin is overstuffed but is otherwise in good condition. The skull is incomplete. The occipital region of the braincase, the interparietal bone, and both bullae are missing.

Two labels are attached to the study skin. One, a red type-label, bears the registration number (No. 9821) of the Rijksmuseum van Natuurlijke Historie. The other is the original label; recorded there is a "Coll. No." (340/38), as well as locality data; apparently the skin was obtained from Toelap West, Tonsea lama, in Tonsea District of northeastern Celebes by G. W. Van Braekel on October 27, 1938 (Sody records the date as "25-VIII-1938").

The skin is that of an adult male in glossy, fresh pelage; it is an example of *Rattus taerae*, a species named and described by Sody in 1932 (p. 158). The species is known only from northeastern Celebes and is represented in collections of museums by few specimens. Sody's original description of *R. taerae* was based on five specimens obtained from the neighborhood of Tondano. Four of these are adults (Sody No. P. 5, Sody No. P. 67, Sody No. P. 72, and Sody No. P. 84) and one is in juvenile pelage (Sody No. P. 87). In addition to these five examples I have also examined an adult female

from Roeroekan (A.M.N.H. No. 101244). External measurements of the five adults are listed in table 2 and are compared there with the holotype of *T. tatei*.

The holotype of *T. tatei* and the five adults of *R. taerae* are closely similar in color and texture of the pelage covering both upper parts and underparts. The only significant differences between the two samples I detected were those due to wear of pelage and individual variation. The pelage of the five specimens of *R. taerae* is worn and each lacks the glossy tone seen in the holotype of *T. tatei*. The holotype of *T. tatei* has white front feet; the dorsal surfaces of the carpal regions and digits are clothed with white hairs. This distinctive pattern also occurs in *R. taerae*, but it is variable in that species; for example, only one of the five adults has white front feet.

In his original description, Sody compared the pelage of *T. tatei* with a specimen of *R. arcuatus* that was in the former Zoological Museum of Buitenzorg and with *R. hamatus*, a form he knew only from the original description. I have compared the holotype of *T. tatei* with a paratype of *R. arcuatus* (A.M.N.H. No. 101114) and with a paratype of *R. hamatus* (U.S.N.M. No. 218685). The external features of *T. tatei* clearly fit with *R. taerae* and not with the other two species. In comparing *T. tatei* with *R. hamatus* and *R. arcuatus*, however, Sody indirectly pointed out the close morphological similarity between *R. taerae*, *R. hamatus*, and *R. arcuatus*. These three species resemble one another more closely in external and cranial features than each resembles any other species of *Rattus* now known to occur on Celebes.

The cranium and mandibles of the holotype of *T. tatei* are not examples of *R. taerae*; they are from a specimen of *R. fratrorum*, a species named and described by Oldfield Thomas in 1896 (p. 246), and one that is known only from northeastern Celebes. The skull is that of a young adult. In table 2 its measurements are contrasted with those of five specimens of *R. taerae*, with the holotype of *R. fratrorum*, and with a sample of *R. fratrorum* from Temboan, a locality in northeastern Celebes. In most of the dimensions that were measured the holotype of *T. tatei* is about the same size as the holotype of *R. fratrorum*: its measurements also fall within the range of variation indicated for the sample of *R. fratrorum* from Temboan. There is no overlap in the observed range of variation in eight of the measurements — namely, length of nasals, length of rostrum, breadth of zygomatic plate, length of diastema, palatal length, length of incisive foramina, length of palatal bridge, and alveolar length of the maxillary toothrow — between the samples of *R. taerae* on one hand, and the sample of *R. fratrorum*

TABLE 2
Cranial measurements (in millimeters) of adult specimens of
Rattus taerae, *Taeromys tatei*, and *Rattus fratorum*
from northeastern Celebes.

	<i>R. taerae</i>				<i>T. tatei</i>			<i>R. fratorum</i>	Ranges of males from Temboan ^a
	Sody No. P. 72 ♂ (holotype)	Sody No. P. 5, ♀	Sody No. P. 67, ♀	Sody No. P. 84, ♂	A.M.N.H. No. 101244, ♀	R.M.N.H. No. 9821 (holotype)	B.M. No. 97.1.2.28, ♂ (holotype)		
Length of head and body	221	195	—	—	209	225	—	160-182 (17)	
Length of tail	217	219	—	—	215	206	145	155-180 (16)	
Length of hind foot	46	44	46	44	45	46	40	39-41 (17)	
Zygomatic breadth	24.5	24.2	24.5	—	23.4	—	21.0	19.0-22.1 (20)	
Interorbital breadth	7.0	7.0	6.6	7.1	—	6.4	6.4	5.9-7.0 (26)	
Length of nasals	22.2	22.1	21.1	21.4	20.1	16.9	19.4	16.2-19.2 (26)	
Length of rostrum	18.4	18.0	18.2	17.0	17.7	14.4	15.0	13.9-16.3 (26)	
Breadth of rostrum	8.8	8.4	8.2	8.4	8.4	8.2	8.4	7.0-8.7 (26)	
Breadth of zygomatic plate	5.9	5.6	5.8	5.9	5.2	3.9	3.5	3.0-4.6 (26)	
Length of diastema	13.6	13.8	13.4	13.0	12.9	11.5	11.8	10.2-12.2 (26)	
Palatal length	27.5	27.3	27.1	26.5	27.1	22.0	21.6	20.1-22.5 (26)	
Length of incisive foramina	9.0	9.0	9.0	9.1	9.1	7.8	7.4	6.4-8.0 (26)	
Breadth across incisive foramina	3.0	3.2	2.9	2.8	3.1	3.2	3.3	2.4-3.1 (26)	
Length of palatal bridge	10.1	10.1	10.0	9.2	9.7	8.2	8.2	7.8-9.1 (26)	
Breadth of palatal bridge at M ¹	3.9	3.7	4.0	3.8	3.9	4.0	3.9	3.2-4.4 (26)	
Breadth of palatal bridge at M ³	5.6	5.5	5.7	5.1	5.4	4.9	5.3	4.3-5.5 (26)	
Breadth of mesopterygoid fossa	4.1	3.6	3.8	3.5	3.6	3.3	3.5	3.0-4.2 (26)	
Alveolar length of M ¹⁻³	9.6	9.9	9.7	9.6	9.6	8.2	8.2	7.4-8.1 (26)	
Length of M ¹	4.4	4.5	4.6	4.5	4.6	4.2	4.0	3.7-4.4 (26)	
Breadth of M ¹	2.6	2.7	2.5	2.6	2.5	2.3	2.5	2.3-2.5 (26)	

^a U.S.N.M. Nos. 217616, 217623, 217624, 217625, 217628, 217637, 217640, 217641, 217643, 21764
217648, 217655, 217656, 217662, 217663, 217666, 217670, 217857, 217866, 217868, 217869, 21788
217883, 217884, 217887, and 217895.

^b Size of sample.

rum, on the other. These differences in size are diagnostic and quantitatively distinguish the two species. The measurements of these eight dimensions for *T. tatei* fall within the range of variation of *R. fratorum* and not within

the observed limits of *R. taerae*. I also compared the skull of *T. tatei* with 52 specimens of *R. fratrorum* (R.M.N.H. Nos. 21087-21123 and 21125-21139) from northeastern Celebes that are in the collection at Leiden. The size, configuration, and proportions of the skull of *T. tatei* fit well within the range of variation observed in that large sample.

The holotype of *T. tatei* is clearly a composite of two species; the skin is an example of *R. taerae* and the skull is from a specimen of *R. fratrorum*. I designate the skin as lectotype of *T. tatei*. Not only is it in better condition than the skull, but it bears the original label on which the date and place of capture are recorded, as well as the number listed by Sody in his original description. These data on the label are presumably correctly associated with the skin. That skin, however, does not belong to the skull it is now matched with. The names, *Taeromys tatei* Sody, 1941, and *Rattus simpsoni* Ellerman, 1949 (not *Mus simpsoni* Philippi, 1900, which is one of the many synonyms of *Rattus norvegicus*, according to Osgood, 1943: 235), become subjective synonyms of *Rattus taerae* Sody, 1932.

I have not seen the female Sody mentioned in his description of *T. tatei*; therefore, I cannot report whether both skin and skull of that specimen represent *R. taerae*, or whether it too is a composite, or if it is an example of a different species.

DISCUSSION

Scientific names of murid rodents that are based on composite holotypes are rare and I was surprised to discover that *Taeromys paraxanthus* and *T. tatei* proved to be founded on just such specimens. Even more surprising to me was the fact that the names were published within the last thirty years and that they were proposed by H. J. V. Sody, a man who was very knowledgeable about the murid fauna of the Indo-Australian region. This fact became evident to me as I worked through his personal collection of murid rodents in the museum at Leiden. After studying Sody's specimens, field notebooks, partial unpublished manuscripts, and sheets of measurements and other data, I became impressed not only with the depth of Sody's knowledge, but with the discerning and critical identifications of his specimens and evaluations of taxa he knew only from published descriptions.

Sody had representatives of *Rattus xanthurus*, *R. callitrichus*, *R. fratrorum*, and *R. taerae*, the four species that were to form his composite holotypes of *Taeromys paraxanthus* and *T. tatei*, in his personal collection at Leiden. It is evident that he had studied these specimens carefully for I found that the correct identifications had been written in Sody's handwriting on the labels attached to the study skins. Clearly, at one time, Sody

was very familiar with the morphological characteristics of these four species. Furthermore, he had also named and described *R. taerae* in 1932, and it seems peculiar that Sody did not recognize the skin of *Taeromys tatei* as an example of *R. taerae*, or that the skull belonged to a specimen of *R. fratrorum*. Equally puzzling, of course, is the fact that Sody did not consider the skin of *T. paraxanthus* as a specimen of *R. xanthurus*, particularly when he had specimens at hand in the museum at Buitenzorg for comparison, or that he did not perceive the skull to be an example of *R. callitrichus*; that skull, in fact, is very similar to the specimen of *R. callitrichus* in Sody's personal collection.

Possible explanations for Sody's actions may be that he did not have access to his personal collection when he was working at Buitenzorg; and that he had worked over his collection in the late 1920's and during all of 1930, the period when he did his best and most critical work, and the time before the spectre of world war had materialized into a force of change for so many persons.

In 1941 the thrust of Japanese occupation had penetrated vast regions of the Asian mainland and Pacific Islands, and had almost reached Java. At this time Sody was working in the Zoological Museum at Buitenzorg. In the introduction to his report of 1941 Sody explained that he had been transferred to the Zoological Museum at Buitenzorg, "In consequence of two requests (one from the 'Eykman Instituut' at Batavia, where leptospirosis or Weil's disease is studied, and the other from the Institute for Plant Diseases ('Instituut voor Plantenziekten') at Buitenzorg, where the classification of a collection of Celebes rats was wanted)." His personal collection of mammals was housed in the Rijksmuseum van Natuurlijke Historie in Leiden and Sody lamented that, "Unfortunately, the bulk of the author's private collection, which might have provided valuable data, is in Holland, and, due to the present circumstances, beyond reach. Nevertheless, a fair number of measurements of this material were at hand."

Instead of specimens, Sody took a large collection of field notebooks, descriptive notes, pages of manuscript, and sheets of measurements he had obtained from specimens in his collection and from the literature, with him to Buitenzorg. He relied completely on these sources and on his memory for comparative data regarding species that were not represented in the museum at Buitenzorg, and thus were not accessible to him. Soon after publication of his report on the rats and mice housed in the museum at Buitenzorg, Java was occupied by the Japanese and Sody was incarcerated in a special concentration camp where he remained during the occupation (Van Bommel, 1960). At the end of the war Sody was released and returned to

his work in the museum at Buitenzorg. Most of his notes and files of data remained at Buitenzorg during the war, but after 1949 the bulk of this material was returned to Leiden where it is now stored.

Sody had intended to write a book on the mammals of the Indo-Malayan and Indo-Australian regions and he accumulated notes and measurements over the years specifically for this purpose. With the intervention of the war, however, he apparently decided to include these data in shorter papers. Thus, most of it was eventually published in the paper on murid rodents in 1941, and in two other large reports: one "On a collection of Sciuridae from the Indo-Malayan and Indo-Australian regions with descriptions of 20 new species and subspecies, and with some remarks on the essential significance and the denomination of subspecies," and a second paper regarding, "Notes on some Primates, Carnivora, and the Babirusa from the Indo-Malayan and Indo-Australian regions (with descriptions of 10 new species and subspecies)", both published in 1949 in volume 20 of the journal *Treubia*. His subsequent published contributions to knowledge of the mammals of the Indonesian region were minor and he died in January 1959, without completing the book he had at one time planned.

In normal, more stable times, without the spectre of war with its attendant pressures, and with access to his collection, Sody might have done differently when he was working over the rats and mice in the collection at Buitenzorg. He might have been able to compare the holotypes of *T. paraxanthus* and *T. tatei* with specimens in his personal collection and perhaps would have recognized that the study skins were not matched with the correct skulls. As a result, his report might have been more reliable. But the early years of 1940 were neither normal nor stable—perhaps it is remarkable that Sody even saw his manuscript published.

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LITERATURE CITED

- ELLERMAN, J. R., 1941. The families and genera of living rodents. 2: Family Muridae. London, British Museum (Natural History): 1-690, figs. 1-50.
- , 1949. The families and genera of living rodents. 3 (1). London, British Museum (Natural History): 1-210.
- GRAY, J. E., 1867. Notes on the variegated or yellow-tailed rats of Australasia. — Proc. Zool. Soc. London, 2: 597-600, 1 fig.
- JENTINK, F. A., 1879. On various species of *Mus*, collected by S. C. I. W. Van Musschenbroek Esq. in Celebes. — Notes Roy. Zool. Mus. Netherlands, Leyden, 1 (2): 7-13.
- LAURIE, E. M. O., & J. E. HILL, 1954. List of land mammals of New Guinea, Celebes and adjacent islands 1758-1952. London, British Museum (Natural History): 1-175, 3 pls.
- MILLER, G. S., JR., & N. HOLLISTER, 1921. Twenty new mammals collected by H. C. Raven in Celebes. — Proc. Biol. Soc. Washington, 34: 93-104.
- MISONNE, X., 1969. African and Indo-Australian Muridae. Evolutionary Trends. — Mus. Roy. de l'Afrique Cent., Tervuren, Zool., 172: 1-219, figs. A-K, 27 pls.
- MUSSER, G. G., 1970. Species-limits of *Rattus brahma*, a murid rodent of northeastern India and northern Burma. — Amer. Mus. Novitates, 2406: 1-27, 6 figs.
- , (In press). Results of the Archbold Expeditions. No. 93. The reidentification and reallocation of *Mus callitrichus* and the allocations of *Rattus maculipilis*, *R. m. jentinki*, and *R. microbullatus* (Rodentia, Muridae). — Amer. Mus. Novitates.
- OSGOOD, W. H., 1943. The mammals of Chile. — Publ. Field Mus. Nat. Hist., Zool. Ser., 30: 1-268, maps 1-10, figs. 1-33.
- PHILIPPI, R. A., 1900. Figuras i descripciones de los Murideos de Chile. — Anal. Mus. Nac. Chile, ent. 14a: 1-70, pls. 1-25.
- SODY, H. J. V., 1932. Six new Indo-Malayan rats. — Natuurhistorisch Maandblad (Maastricht), 21 (12): 157-160.
- , 1941. On a collection of rats from the Indo-Malayan and Indo-Australian regions (with descriptions of 43 new genera, species and subspecies). — Treubia, 18: 255-325.
- TATE, G. H. H., 1936. Results of the Archbold Expeditions. No. 13. Some Muridae of the Indo-Australian region. — Bull. Amer. Mus. Nat. Hist., 72: 501-728, 32 figs.
- THOMAS, O., 1896. On mammals from Celebes, Borneo, and the Philippines recently received at the British Museum. — Ann. Mag. Nat. Hist., (6) 18: 241-250.
- VAN BEMMEL, A. C. V., 1960. In memoriam H. J. V. Sody. Lijst van publicaties over zoogdieren van H. J. V. Sody (samengesteld door A. M. Husson). — Lutra, 2: 1-5, 1 photograph.