2) As *Pseudoclavellaria marginata* L. is the genotype of *Cimbex* Ol., the genus we hitherto have called *Cimbex* will be without a name and I propose therefore to call it *Neocimbex* n. n. with *Tenthredo* (Cimbex) *lutea* L. as genotype.
3) With *Lyda pratensis* as genotype, the genus *Lyda* will be restored and is no longer a synonym of *Pamphilius*.

An Annotated List of the Ants of Arizona. (Hym.: Formicidae).

By A. C. Cole, Jr., Dept. of Entomology, University of Tennessee.

(Continued from page 101)

58. Pogonomyrmex apache Wheeler. North Miller Canyon, Huachuca Mts. (Wheeler).

59. P. barbatus subsp. rugosus Emery. Grand Canyon, Tempe, Florence, Jerome (Wheeler); Cactus Plain (F. H. Snow); Tucson (Wheeler, Cole); Tuba City, Cameron, Douglas, 40 Mi. S. Prescott, 74 Mi. S. Phoenix (Cole).

The nests at all localities visited by the writer were flat craters, 8 to 10 inches in diameter, in coarse sand. Several colonies were aggregated in each area, which was invariably dry desert.

60. P. barbatus subsp. curvispinosus Cole. 36 Mi. S. Prescott (Cole). This is the locality of the type. The ants were in a flat mound of pebbles in the center of the federal highway.

61. P. barbatus var. fuscatus Emery. Oracle, Pinaleno Mts., Tempe, Bowie (Wheeler).

62. P. barbatus var. molefaciens Buckley. Pinaleno Mts., Jerome, Benson, Oracle, Hereford, Palmerlee, Palmacoles (Wheeler); Huachuca Mts. (Wheeler, Biedermann, W. M. Mann); Tempe, Prescott (Cockerell); Kit's Peak (Clark & A. N. S. P.); Phoenix (Wheeler, Cole); Tucson, Douglas (Cole).

63. P. barbatus var. nigrescens Wheeler. Gila Bend Mts., Casa Grande, Bowie, South Catalina Mts. (Wheeler).

64. P. californicus Buckley. Grand Canyon, Yuma, Phoenix, Yucca, Welton, Tempe, Nortons (Wheeler); Wilcox (A. K. Fisher); Kingman, Cameron, Tuba City, Prescott, Tucson, Douglas (Cole).

The nests observed by the writer varied from large crater mounds of pure sand in a stream margin area of Opuntia,

Yucca, Kochia and Ephedra near Tuba City, to flat sandy craters in an arroyo with seedling pines and grasses near Prescott.

65. P. CALIFORNICUS var. ESTEBANIUS Pergande. Tucson, Tempe, Florence, Gila Bend Mts., Yucca, Yuma (Wheeler); Thatcher (R. V. Chamberlin); Phoenix (Wheeler, Cole); 25 Mi. E. Needles, Calif. (Cole).

66. P. CALIFORNICUS var. HINDLEYI Forel. Thatcher (R. V. Chamberlin).

67. P. CALIFORNICUS subsp. BARNSEI M. R. Smith. Maricopa Co. (O. L. Barnes).

68. P. CALIFORNICUS subsp. MARICOPA Wheeler. Pinalino Mts., Phoenix, South Catalina Mts., Benson, Tucson, Yuma, Nortons, Welton, Dragoon Mts. (Wheeler); Sanford, Graham Mts., Ash Creek (E. G. Holt); Huachuca Mts. (W. M. Mann); Coyote Mts. (Clark & A. N. S. P.); Douglas (Cole).

69. P. DESERTORUM Wheeler. Tucson and desert east, Benson, Tempe (Wheeler); Thatcher (R. V. Chamberlin); Bowie (Cornell Univ. Exped.); Kingman (Cole).

70. P. DESERTORUM var. FERRUGINEUS Olsen. Tucson (Pergande, P. Klingenberg).

71. P. HUACHUCANUS Wheeler. Huachuca Mts., South Catalina Mts., Dragoon Mts., Oracle (Wheeler); Seligman (Cole).

72. P. OCCIDENTALIS Cresson. Huachuca Mts., Ash Fork, Pinaleno Mts. (Wheeler); Grand Canyon, Prescott (Cole, Wheeler); Williams, Peach Springs, Seligman, Cameron, The Gap, Marble Canyon, Flagstaff (Cole).

73. P. SIMILIS Olsen. Oracle (Wheeler).

74. P. (EPHEBOMYRMEX) PIMA Wheeler. Tucson, Phoenix, South Catalina Mts., Bowie, Casa Grande, Tempe, Florence (Wheeler).

75. P. (E.) TOWNSENDI Wheeler. Fort Grant, Pinaleno Mts. (Cornell Univ. Exped.); Tucson (Wheeler).

76. MYRMICA MEXICANA Wheeler. Grand Canyon (Wheeler); San Francisco Mts. (W. M. Mann).

77. M. BREVINODIS var. SULCINODOIDES Emery. Prescott (Cole).

78. M. MUTICA Emery. Jacobs Lake (Cole).

79. M. SCABRINODIS Nylander. Grand Canyon (Wheeler).

80. M. SCABRINODIS LOBICORNIS var. GLACIALIS Forel. Grand Canyon (Wheeler); San Francisco Mts. (W. M. Mann).

81. M. SCABRINODIS LOBICORNIS var. FRACTICORNIS Emery.

Flagstaff, Williams (Cole).

82. LEPTOTHORAX NITENS Emery. Grand Canyon (Wheeler).

83. L. NEOMEXICANUS Wheeler. Grand Canyon (Wheeler).

84. L. CURVISPINOSUS RUGATULUS var. COCKERELLI Wheeler. Huachuca Mts. (Biedermann, Mann, Wheeler).

85. XIPHOMYRMEX SPINOSUS subsp. INSONS Wheeler. Huachuca Mts. (Wheeler).

86. X. SPINOSUS subsp. WHEELERI Forel. Huachuca Mts. (Wheeler).

87. X. SPINOSUS subsp. HISPIDUS Wheeler. Tucson, Phoenix (Wheeler).

88. ATTA (TRACHYMYRMEX) ARIZONENSIS Wheeler. Huachuca Mts. (Wheeler); Palmerlee (C. Schaeffer).

89. A. (T.) DESERTORUM Wheeler. Tucson (Wheeler).

90. A. (MOELLERIUS) VERSICOLOR Pergande. Yucca (Wheeler); Tucson (Fenner, Wheeler); 30 Mi. E. Kingman, 36 Mi. S. Prescott, Phoenix (Cole).

Subfamily DOLICHODERINAE Lund.

91. LIOMETOPUM APICULATUM Mayr. Huachuca Mts. (Biedermann); Grand Canyon (Cole).

92. L. APICULATUM subsp. LUCTUOSUM Wheeler. Grand Canyon (Wheeler, Cole); Prescott (Wheeler).

93. DORMYRMEX PYRAMICUS Roger. Grand Canyon (Wheeler, Cole); Jacobs Lake, Prescott, Tucson, Williams, Flagstaff (Cole).

I found numerous colonies of this ant at all the localities cited. Some were beneath rocks, others occupied small mounds of sand or other finely-divided soil particles. At Grand Canyon the small nests were on mound faces of *Pogonomyrmex occidentalis* Cresson, and at Prescott they were scattered between nests of *Myrmecocystus mexicanus horti-deorum* McCook. All were in rather moist habitats.

94. D. PYRAMICUS var. BICOLOR Wheeler. Grand Canyon, 16 Mi. S. Prescott, Douglas, Phoenix, Tucson (Cole).

This pretty variety of *D. pyramicus* inhabits more zeric places than does the typical species. Its small crater mounds are constructed in sand.

95. TAPINOMA SESSILE Say. Grand Canyon (Wheeler, Cole); Huachuca Mts. (Wheeler, Biedermann).

96. IRIDOMYRMEX ANALIS André. Grand Canyon (Wheeler); Marble Canyon, 47 Mi. S. Prescott, Phoenix (Cole). *I. analis* lives in very small crater nests of fine sand.

97. I. PRUINOSUS var. 12 Mi. E. Needles, Calif. (Cole).

98. FORELIUS MACCOOKI Forel. 30 Mi. E. Kingman, Cameron, 36 Mi. S. Prescott (Cole).

This ant appears superficially to be identical with *Iridomyrmex analis* André, and it inhabits similar places. The ant lives in aggregations of minute sandy craters in the drier parts of the desert. The workers are very aggressive.

Subfamily CAMPONOTINAE.

99. PRENOLEPIS IMPARIS Say. Grand Canyon (Wheeler, Cole); Huachuca Mts. (W. M. Mann).

100. P. IMPARIS var. ARIZONICA Wheeler. Huachuca Mts. (W. M. Mann).

101. P. (NYLANDERIA) GUATEMALENSIS Forel. Grand Canyon (Wheeler).

102. LASIUS BREVICORNIS Emery. Prescott, Flagstaff (Cole).

103. L. NIGER var. AMERICANUS Emery. Grand Canyon (Wheeler, Cole); Williams (Cole).

104. L. NIGER var. SITKAËNSIS Pergande. Flagstaff (Cole). This ant was rather common beneath small stones on the grassy forest floor of a yellow pine and Englemann spruce forest.

105. L. NIGER var. NEONIGER Emery. Flagstaff (Cole).

106. L. UMBRATUS subsp. SUBUMBRATUS Viereck. Williams (Wheeler).

107. L. (ACANTHOMYOPS) INTERJECTUS subsp. ARIZONICUS Wheeler. Huachuca Mts. (Wheeler, Biedermann, W. M. Mann).

108. FORMICA SANGUINEA subsp. SUBNUDA Emery. San Francisco Mts. (W. M. Mann).

109. F. SANGUINEA subsp. PUBERULA Emery. Graham Mts. (E. G. Holt).

110. F. RUFA subsp. OBSCURIPES Forel. Thatcher (R. V. Chamberlin); Williams, Flagstaff (Cole).

111. F. PERPILOSA Wheeler. Tucson, Benson (Wheeler, Cole); Tempe (Cockerell); Cameron, Douglas (Cole).

At Cameron I saw many crater nests in very sandy soil. The colonies were populous and contained much brood. The nests were scattered between mounds of *Pogonomyrmex barbatus* subsp. *rugosus* Emery.

112. F. FORELIANA Wheeler. Huachuca Mts. (Biedermann).

113. F. FUSCA L. San Francisco Mts. (W. M. Mann).

114. F. FUSCA var. SUBSERICEA Say. Williams (Cole).

115. F. FUSCA var. SUBAENESCENS Emery. Prescott (Cole).

At this place there were many earthen mounds, about 4 inches

in diameter with single central openings, in a forest of young pine.

116. F. FUSCA var. ARGENTEA Wheeler. Grand Canyon, Williams (Wheeler); Graham Mts. (E. G. Holt); San Francisco Mts. (A. K. Fisher); Huachuca Mts. (H. A. Wenzel).

117. F. FUSCA var. NEORUFIBARBIS Emery. Grand Canyon (Wheeler).

118. F. FUSCA var. GELIDA Emery. Grand Canyon (Wheeler).

119. F. NEOGAGATES Emery. Ash Fork (Wheeler); Grand Canyon, Williams (Wheeler, Cole); Flagstaff (F. E. Pratt).

120. F. NEOGAGATES LASIOIDES var. VETULA Wheeler. Prescott (Cole).

121. F. SUBPOLITA Mayr. Grand Canyon (Wheeler, Cole). I was surprised to find but one colony of this species in the Coconino Forest, for the place is decidedly within the ant's normal range and the habitat is a suitable one. An examination of the literature failed to indicate the ant's presence in other Arizona localities.

122. F. RUFIBARBIS var. GNAVA Buckley. Grand Canyon, Phoenix, Prescott, Tempe, Tucson, Benson, Huachuca Mts. (Wheeler); Huachuca Mts. (W. M. Mann).

123. F. COMATA Wheeler. Flagstaff (Cole).

124. F. MOKI Wheeler. Prescott, Grand Canyon (Wheeler).

125. MYRMECOCYSTUS MEXICANUS var. HORTI-DEORUM McCook. Cameron, Prescott, Phoenix (Cole).

Apparently this ant is an occasional invader of the true desert, inasmuch as it was found near Phoenix. Its pebble mounds are usually constructed on rocky ridges at much higher elevations.

126. M. MELLIGER Forel. Grand Canyon (Wheeler).

127. M. MELLIGER var. SEMIRUFUS Emery. Yucca (Wheeler); Phoenix, Tucson (Wheeler, Cole); The Gap, Marble Canyon, Cameron, 57 Mi. N. Cameron, Tuba City (Cole).

This is probably one of the most common desert ants. Its shallow crater nests of sand are almost everywhere in dry areas. Workers are very active.

128. M. MELLIGER SEMIRUFUS var. TESTACEUS Emery. Phoenix (Wheeler, Cole).

129. M. MELLIGER SEMIRUFUS var. ROMAINEI Cole. Cameron (M. Romaine).

130. M. MELLIGER var. JESUITA Wheeler. Cameron (Cole).

131. M. MELLIGER subsp. MIMICUS Wheeler. Jerome, Tempe, Yucca, Ash Fork (Wheeler); Tucson, Phoenix

(Wheeler, Cole); 30 Mi. E. Kingman, 16 Mi. S. Prescott (Cole).

This ant is typically a desert dweller. It constructs shallow crater mounds 8 to 10 inches in diameter. The colonies observed by the writer were large and contained no repletes.

132. M. MELLIGER subsp. MENDAX Wheeler. Grand Canyon (Wheeler).

133. M. MELLIGER subsp. ORBICEPS Wheeler. Ash Fork, Tucson (Wheeler); Cochise Co. (Biedermann).

134. CAMPONOTUS SCHAEFFERI Wheeler. Palmerlee (C. Schaeffer); Huachuca Mts. (Biederman, Oslar).

135. C. ACUTIROSTRIS var. CLARIGASTER Wheeler. Grand Canyon (Wheeler).

136. C. SAYI Emery. Prescott, Phoenix (Wheeler); Graham Mts. (E. G. Holt).

137. C. FALLAX subsp. RASILIS Wheeler. Arizona (Wheeler).

138. C. FALLAX RASILIS var. PAVIDUS Wheeler. Arizona (Wheeler).

139. C. MATULATUS subsp. VICINUS Mayr. Grand Canyon (Wheeler); Flagstaff, Prescott, Williams (Cole).

This form nests beneath logs at higher elevations in the State.

140. C. MACULATUS VICINUS var. LUTEANGULUS Wheeler. Huachuca Mts. (Wheeler).

141. C. MACULATUS VICINUS var. NITIDIVENTRIS Emery. Grand Canyon (Wheeler, Cole); Flagstaff, Prescott (Cole).

This ant is common at higher elevations and almost invariably nests beneath rocks. It is a typical pine forest insect.

142. C. MACULATUS VICINUS var. INFERNALIS Wheeler. Williams (Wheeler).

143. C. MACULATUS subsp. MACCOOKI Forel. Grand Canyon (Wheeler); Prescott (Cole).

144. C. MACULATUS subsp. SANSABEANUS Buckley. Huachuca Mts. (Wheeler).

145. C. MACULATUS SANSABEANUS var. TORREFACTUS Wheeler. Grand Canyon (Wheeler).

146. C. MACULATUS subsp. BULIMOSUS Wheeler. Huachuca Mts. (Wheeler, Mann, Biedermann).

147. C. FUMIDUS var. FESTINATUS Buckley. Arizona (Wheeler).

148. C. FUMIDUS var. SPURCUS Wheeler. Huachuca Mts. (Wheeler).

149. C. VAFER Wheeler. Huachuca Mts. (Wheeler).

150. C. ACUTIROSTRIS var. CLARIGASTER Wheeler. Grand

Canyon (Wheeler).

151. C. OCREATUS subsp. PRIMPILARIS Wheeler. Huachuca Mts., Nogales (Wheeler, Mann, Biedermann).

152. C. MINA subsp. ZUNI Wheeler. Tucson (Wheeler).

153. C. (COLOBOPSIS) ULCEROSUS Wheeler. Huachuca Mts. (Wheeler).

Marked Migrant Butterflies (Lepid.: Nymphalidae).

Under this title, in the *Entomologist's Record and Journal of Variation* (London), for October, 1936, Mr. T. Bainbrigge Fletcher, formerly Imperial Entomologist for India, comments on the absence of information on the actual movements of individuals and continues: "To attain this necessitates the marking of individual butterflies in such a way that each individual may be recognizable at any time or place. . . . After trials of several methods, . . . I have marked individuals with numbers on small labels applied directly to the wing. The process is quite simple. After netting, the specimen is examined for sex and any individual peculiarities (condition, chips, splits or tears of the wings, markings, etc.), which are noted in a register; a small patch on the upper surface of the right fore wing is then rubbed clear of scales and a small label is attached to this bare patch with Canada balsam; the butterfly is then placed in a glass-bottomed box for a few minutes, to allow the adhesive to harden, and it is then released. The label, which does not incommode its flight in the least, is written in waterproof Indian ink on tracing paper, a small sheet of labels being written up and each one cut off as required. . . . Any combination of letters or of numbers can be used, provided that each marker has his distinct series. It is desirable to descale the portion of the wing to which the label is to be applied, as in some of my earlier experiments, in which I did not descale, I found that the labels sometimes became detached by being pulled off with the patch of the underlying scales; since practising descaling I find that the label is very rarely lost. . . . During this season I have marked up to date (27. ix. 36) 67 *V. atalanta*, 7 *V. cardui* and 1 *V. io*. Of the *V. cardui* one individual remained here and was seen frequently for ten days after release. Of the *V. atalanta* six remained for two or three days, . . . one for seven days and one for twelve days; so that only three individuals out of seventy-five remained for any appreciable period, all the rest flying off again at once or almost at once."