

## VI. HYMENOPTERA ANTHOPHILA.

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Among the Hymenoptera collected during the Abor Expedition there are 40 specimens of Bees, most of which appear to be fairly widely distributed. I have been able to accurately identify most of them, but there are a few the identity of which I am not quite sure about. I therefore propose to leave them undetermined for the present.

### 1. *Sphecodes*, sp.

One male collected at Sadiya, N.-E. Assam, on the 27-xi-11 (*Kemp*).  
A genus very widely distributed in both hemispheres.

### 2. *Halictus*, spp. (♂ ♂).

There seem to be at least two species among the 3 specimens of this genus which were collected at Sadiya, 28-xi-11, and Dibrugarh, 11—19-xi-11, N.-E. Assam and at Kobo, 400 ft., 3-xii-11 (*Kemp*). Those from Sadiya and Kobo come very near *H. funebris*, Cam., and the one from Dibrugarh agrees with the description of *Halictus pulchriventris*, Cam., differing only in having the 2nd joint of the flagellum of the antenna black beneath instead of testaceous yellow.

There is also a very badly preserved female belonging to this genus collected at Sadiya, N.-E. Assam, 28-xi-11 (*Kemp*).

### 3. *Halictus rufo-zonatus*, Vachal.

Ann. Mus. Civ. Genoa (2a), 1894, p. 442, ♀; Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 439, ♀.

Six females were found under bark at Renging, ca. 2,150 ft., 19-xii-11 (*Kemp*).

Bingham records the species from Bhamo, Upper Burma.

### 4. *Andrena mollis*, Smith.

New Sp. Hym. B. M., p. 50, ♀; Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 446.

Three specimens were collected at Sadiya, N.-E. Assam, 28-xi-11, and two at Dibrugarh, N.-E. Assam, 17—19-xi-11 (*Kemp*).

Recorded by Bingham from Bombay, Assam, Burma and Tenasserim.

Represented in the Indian Museum collection from United Provinces :—Jhansi, 850 ft., 2-viii-05 (*Brunetti*).

U. Burma :—Rangoon, 12-vi-97 (*Bingham*).

E. Himalayas :—Sukna, 500 ft., 2-viii-08 (*Annandale*).

A very variable species.

#### 5. *Nomia aurifrons*, Smith.

Trans. Ent. Soc. London, 1875, p. 43, ♀; Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 455; Paiva, Rec. Ind. Mus., i, pt. i, 1907, p. 16.

One specimen from Dibrugarh, N.-E. Assam, 11—19-xi-11 (*Kemp*).

Recorded by Bingham from Bengal, Sylhet, Burma and Tenasserim.

Represented in the Indian Museum collection from Katmandu, Nepal Valley, 4,500 ft., Oct., 1906, and from Nagarkote, Nepal, ca. 6,000 ft., Oct., 1906 (*Hodgart*).

Represented in the Pusa collection from Bihar :—Pusa, Chupra.

#### 6. *Nomia terminata*, Smith.

Trans. Ent. Soc. London, 1875, p. 56; Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 459; Paiva, Rec. Ind. Mus., i, pt. i, 1907, p. 16.

Three specimens taken at Kobo, 400 ft., 6—8-xii-11 (*Kemp*).

Recorded by Bingham from Sikhim, Burma and Tenasserim.

Represented in the Indian Museum collection from Assam :—Margherita.

E. Himalayas :—Sureil, Darjiling district, 5,000 ft., April, 1905 (*Alcock*).

#### 7. *Lithurgus dentipes*, Smith.

Cat. i, p. 146, ♂; Horne, Trans. Zool. Soc. Lond., vii, 1872, p. 175; Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 470.

One specimen from Sadiya, N.-E. Assam, 27-xi-11 (*Kemp*).

Recorded by Bingham from Sikhim; Manipuri, N.-W P. (*Horne*); Tenasserim and New Holland (*Smith*).

Not previously represented in the Indian Museum collection.

Represented in the Pusa collection from Bihar :—Pusa, Chupra.

#### 8. *Ceratina hieroglyphica*, Smith.

Cat. ii, 226, ♀ ♂; ? *Ceratina flavopicta*, Morawitz (*nec* Smith), Hor. Soc. Ent. Ross., xxiv, 1890, p. 356. *Ceratina hieroglyphica*, Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 503, pl. iv, fig. 3; Rec. Ind. Mus., ii, 1908, p. 365.

One specimen from Sadiya, N.-E. Assam, 28-xi-11 (*Kemp*).

Bingham records it from Mussoorie, Dehra, Barackpore, Sikhim, Bangalore, Assam, Burma and Tenasserim extending into China and the Malayan region.

Represented in the Indian Museum collection from Kashmir 8,000—9,000 ft.

W. Himalayas :—Mussoorie, ca. 7,000 ft., 20—26-v-05 (*Brunetti*).

Bihar :—Barh (*Burkill*).

Bengal :—Calcutta, Khulna, 10-iii-07 (*Caunter*).

Assam :—Sadiya and Margherita.

Borneo :—10 miles south of Kuching, Sarawak, 24-vi-10 (*C. W. Beebe*).

Represented in the Pusa collection from Bihar :—Pusa, Chupra, Daulatpur, Darbhanga.

W. Himalayas :—Mussoorie, 7,000 ft.

Bombay :—Kanara, Belgaum, 2,500 ft.

### 9. *Crocisa emarginata*, Lepel.

Lepelletier, Hym., ii, p. 449, ♀ ♂; Smith, Cat. Hym. Ins. B.M. ii, p. 277; Journ. Linn. Soc., xi, 1876, p. 390. *Crocisa decora*, Smith, Trans. Ent. Soc. London, n. s., ii, 1852, p. 41, ♀. *Crocisa elegans*, Smith (*nec* Moscary), New species Hym. B. M., p. 107, ♀. *Crocisa emarginata*, Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 517; Proc. Zool. Soc. London, 1896, p. 454; Paiva, Rec. Ind. Mus., i, 1907, p. 16.

One specimen from Dibrugarh, N.-E. Assam, 19-xi-11 (*Kemp*).

Recorded by Bingham from Sikkim, Calcutta, Bombay, Malabar, Ceylon, Pundaloya (*Green's coll.*), Burma and Tenasserim; on the west extending to South Africa, on the east to China and the Malay Archipelago.

Represented in the Indian Museum collection from Bombay :—Poona Ghats.

United Provinces :—Lucknow.

Bengal :—On the road from Magra to Trebeni, Hooghly district, 31-vii-09 (*Mus. collr.*); Basanti Forest Station, Sunderbuns, L. Bengal, 16-xi-09 (*Jenkins*); Calcutta, 7-xi-06 (*Brunetti*), 9-vi-09 (*Mus. collr.*).

Nepal :—Soondrijal, Nepal Valley, 1906 (*Hodgart*).

Assam :—Sibsagar; Margherita; Naga Hills.

S. India :—Bangalore; Oorgaum, ca. 2,500 ft., 20-x-10 (*Mus. collr.*).

U. Burma :—Between Tengueh and Tali Fu, Yunnan, W. China, 1909-10 (*J. Coggin Brown*).

L. Burma :—Moulmein; Mergui; Tenasserim.

Ceylon : Kandy, vi-10.

Malay Archipelago :—Sinkep I.

Malay Peninsula :—Perak.

Represented in the Pusa collection from S. India :—Naduvatam, 7,000 ft., Nilgiris.

Bengal :—Madhyapara, Dacca district.

Bombay :—Belgaum, 2,500 ft.

10. *Habropoda fulvipes*, Cam.

Cameron, Ann. Mag. Nat. Hist., xiii (7th series), 1904, p. 211.

One specimen in very good condition taken in a jungle path, Sadiya, N.-E. Assam, 23-xi-11 (*Kemp*).

Originally described from Khasi Hills (*Rothney coll.*).

Not previously represented in the Indian Museum collection.

11. *Anthophora zonata*, Linn.

*Apis zonata*, Linn. Syst. Nat. (ed. 10), i, p. 576. *Anthophora subcaerulea*, Lepel., Hym., ii, p. 30, ♀♂. *Anthophora zonata*, Bingham, Proc. Zool. Soc. Lond., 1896, p. 455; Faun. Brit. Ind. Hym., i, 1897, p. 527; Paiva, Rec. Ind. Mus. i, 1907, p. 16.

One specimen from Sadiya, N.-E. Assam, 23-xi-11 (*Kemp*).

Recorded by Bingham from all over India, Burma, Tenasserim, and Ceylon, extending through the Malay regions to Australia.

Represented in the Indian Museum from W. Himalayas :—Mussoorie, ca. 7,000 ft., 20—24-vi-05 (*Brunetti*); Almora, Kumaon, ca. 5,500 ft., 15-vii-11 (*Paiva*); Kalka, base of Simla Hills, alt. 2,400 ft., 18-vii-11 (*Mus. collr.*).

United Provinces :—Dehra Dun base of W. Himalayas; Kaladhunji, Naini Tal district (plains) 20-iv-09 (*Mus. collr.*); Meerut, 25-iv-05 (*Brunetti*).

E. Himalayas :—Sikhim; Siliguri, base of E. Himalayas.

Bihar :—Rajmahal, 5-vii-09 (*Annandale*); Barh (*Burkill*).

Chota Nagpur :—Paresnath 4,300—4,400 ft., 15-iv-09 (*Annandale*).

Bengal :—Murshidabad; Calcutta, 23-iv-07, 27-v-09, 9-vi-09; Netrakona, Mymensingh district, 4-x-09 (*Bagchi*).

Assam :—Margherita; Sadiya; Naga Hills; Sibsagar; Mazbat, Mangaldai district, 11—15-ix-10 (*Kemp*).

Burma :—Tenasserim Valley.

Madras :—Gopkuda I., Lake Chilka, Ganjam, N.-E. Madras, 7—15-viii-07; S. end of Lake Chilka, N.-E. Madras, 4-iii-10 (*Annandale*).

S. India :—Bangalore; Shasthancottah, 12 miles N.-N.-E. of Quilon; Trivandrum, 6-xi-08 (*Annandale*); Ayasamtengi, S. end of Lake Kayankulum, Travancore, 6-xi-08; Maddathoray, W. base of W. Ghats, Travancore, 17-xi-08 (*Annandale*); Trivandrum, August, 1903, November, 1890.

Ceylon :—Peradeniya, 10-vii-10, 24-v-10, June, 1910.

Malay Peninsula :—Perak.

Represented in the Pusa collection from Bihar :—Pusa, Chupra.

Orissa :—Cuttack.

Central Provinces :—Bilaspur.

Bombay :—Matheran, 2,500 ft.

12. *Xylocopa latipes* (Drury).

*Apis latipes*, Drury, Ill. Exot. Insects, ii, pl. 48, fig. 2. *Xylocopa latipes*, Fab., Syst. Piez., p. 337; Smith, Cat., ii, p. 353; Trans. Ent. Soc. Lond., 1874, p. 267; Bingham, Proc. Zool. Soc. Lond., 1896, p. 456; Faun. Brit. Ind. Hym., i, 1897, p. 536, pl. iv, fig. 7; Cameron, Faun. and Geo. Mald. and Lacc. Arch., vol. i, Hym., 1900-1903, p. 62.

One specimen from Sadiya, N.-E. Assam, 27-xii-11 (*Kemp*).

Recorded by Bingham from Sikhim, Barrackpore, Kumaon, Terai, Central India, Malabar, Coonor, Assam, Burma, Tenasserim extending to China and the Malayan region.

Cameron records it from Mamaduwari, Mahlos Atoll, Maldives.

Represented in the Indian Museum from E. Himalayas :—Sikkim; Tindharia, 2,820 ft. (*Richardson*).

United Provinces :—Saharanpur.

Chota Nagpur :—Ranchi.

Bengal :—Murshidabad; Calcutta.

Assam :—Shillong; Margherita; Naga Hills; Sibsagar; Mazbat, Mangaldai district, 11-15-x-09 (*Kemp*).

Burma :—Tenasserim; Tavoy; Mergui.

S. India :—Bangalore; Trivandrum; Travancore; S. Malabar.

Ceylon :—Colombo, 25-vi-4.

Malay Archipelago :—Sinkep I.

Malay Peninsula :—Perak; Johore.

Borneo :—Kapit, Sarawak, 21-vii-10 (*Beebe*); Sandakan.

Represented in the Pusa collection from Assam :—Naharkatia; Nangpoh, 3,000 ft. to 5,000 ft., Khasi hills.

13. *Xylocopa collaris*, Lep.

Lepelletier, Hym., ii, p. 189, ♀; Smith, Cat., ii, p. 353; Journ.

Linn. Soc., xi, p. 393; Trans. Ent. Soc. Lond., 1874, p. 270.

*Xylocopa dejeanii*, Lepel., Hym., ii, p. 209, ♂; Smith, Cat.

Hym. Insects B.M., ii, p. 357; Journ. Linn. Soc., xi, p. 394.

*Xylocopa collaris*, Bingham, Proc. Zool. Soc. Lond., 1896, p. 456;

Faun. Brit. Ind. Hym., i, p. 543.

Seven females and two males from Yembung, 1,100 ft., taken on the 14-i-12, boring into rotten wood, and another taken at Rotung, 1,400 ft. in rotten wood on 23-xii-11 (*Kemp*).

Recorded by Bingham from Sikhim, Allahabad, Kumaon, Burma, Tenasserim, Ceylon (Pundaloya), extending into the Malay region and Siam.

Represented in the Indian Museum collection from Tibet (*Moller*).

W. Himalayas :—Simla.

E. Himalayas :—Sikhim.

Assam :—Naga Hills; Sibsagar; Sadiya; Margherita.

Burma :—Mergui; Upper Tenasserim.

S. India :—Trivandrum, Feb., 1893.

Malay Peninsula :—Johore.

Represented in the Pusa collection from Bengal :—Buxa Duars.

#### 14. *Bombus orientalis*, Smith.

Cat. ii, p. 402, ♀. *Bombus buccinatoris*, Sm., New Sp. Hym. Ins. B.M., p. 132, ♀. ? *Bombus simulus*, Grib., Bull. Ent. Soc. Ital., xxiii, 1891, p. 114, ♀. *Bombus orientalis*, Bingham, Faun. Brit. Ind. Hym., i, 1897, p. 555, pl. iv, fig. 9 ; Paiva, Rec. Ind. Mus., i, 1907, p. 17.

Two specimens from Rotung, 1,400 ft., 26—27-xii-11, one from near Renging, 1,500 ft., 19-xii-11, and one from Sirpo, ca. 1,300 ft., March, 1912 (*Kemp*).

The specimens vary very much in size, the smallest is 12 mm., the next 15 mm. and the largest 26 mm. in length.

Recorded by Bingham from Sikhim, Kunawar. " One of the commonest species about Darjiling " (*Bingham*).

Represented in the Indian Museum collection from Nepal :—Katmandu, Nepal Valley, 4,500 ft., Oct., 1906 ; Soondrijal, Nepal Valley ; Chitlong, little Nepal Valley ; Chandragiri, ca. 8,000 ft., Oct., 1906 (*R. Hodgart*).

E. Himalayas :—Sikhim ; Kurseong, 4,700—5,000 ft., 22, 24, 25-vi-10, 5, 7, 9-ix-09 (*Annandale*) ; 6,000 ft., 13-x-09 (*D'Abreau*) ; Gumti, Darjiling district, ca. 4,000 ft., vii-11 (*Gravelly*).

Assam :—Cheera Punji, Khasi Hills (*Warren*).

W. Himalayas :—Kanaul, British Garhwal, 18-x-07 (*Mus. collr.*).

Represented in the Pusa collection from E. Himalayas —Phoobsering, Lebong, Darjiling district.

It might be useful to note that each of the species *Bombus orientalis* and *B. haemorrhoidalis*, which to the casual observer would appear alike, has its range of distribution quite distinct. *B. orientalis*, though recorded so far west as Kanaul in British Garhwal, is not met with in any of the western ranges of the Himalayas. It is found as far west as the western borders of Nepal and probably in some of the Kumaon Hills where the two species may meet. *B. haemorrhoidalis*, though described from Chusan in the hills of North China, has not yet been found in any Indian locality to the east of the Kumaon Hills. I found it in fairly large numbers in Almora, visiting roses.

#### 15. *Apis dorsata*, Fab.

Fabricius, Ent. Syst., ii, p. 328 ; Syst. Piez., 370 ; Smith, Cat. ii, p. 415 ; Journ. Linn. Soc., xi 1876, p. 396 ; Horne, Trans. Zool. Soc. Lond., vii, p. 181, pl. 22, fig. 3 ; Lep., Hym., i, p. 405, ♀. *Apis testacea*, Sm., Journ. Linn. Soc., ii, 1858, p. 49. *Apis zonata*, Sm. (*nec Guér.*), Journ. Linn. Soc., iii, 1859, p. 8. *Apis dorsata*, Bingham, Proc. Zool. Soc. Lond., 1896, p. 457 ; Faun.

Brit. Ind. Hym., i, 1897, p. 557, pl. iv, fig. 11 ; Paiva, Rec. Ind. Mus., i, p. 17, 1907.

One specimen from Dibrugarh, N.-E. Assam, 17—19-xi-11 (*Kemp*).  
Recorded by Bingham from throughout India, Burma, Tenasserim, Ceylon, extending into China and the Malayan region to Java.

Represented in the Indian Museum collection from W. Himalayas :—Mussoorie, ca. 7,000 ft., 12-viii-05 (*Brunetti*) ; Kumaon ; Simla, 7,000 ft., 7-v-10 (*Annandale*).

United Provinces :—Dehra Dun, base of W. Himalayas ; Dhikala, Naini Tal district, 22-iv-08 ; Boxar, Naini Tal district, 19-iv-08, Gularbojh, Naini Tal district, 17—20-iv-08 ; Bareilly 15—22-iii-07 ; Lucknow, 5-xi-07 ; Meerut, 8—14-iii-07 ; Kaira, base of W. Himalayas, Naini Tal district, 24-iii-10 ; Bhogpur, Bijnor district, 2-iii-10 ; Amangarh, Bijnor district, 24-ii-10 (*Mus. collr.*).

Nepal frontier :—Thamaspur, 18—20-ii-08 (*Mus. collr.*).

E. Himalayas :—Sikhim.

Chota Nagpur :—Paresnath, 4,400 ft., 11-iv-09 (*Annandale*).

Bengal :—Murshidabad ; Calcutta, 20-iii-08 (*Annandale*).

Assam :—Naga Hills ; Sibsagar ; Shillong ; Margherita ; Mazlat, Mangaldai district, 11—15-x-10 (*Kemp*) ; Lushai Hills, 3,600 ft., 7-vi-04 (*E. C. MacLeod*).

Burma :—Base of Dawna Hills, 2-iii 08 (*Annandale*).

Bombay :—Belgaum.

Malay Archipelago :—Sinkep I.

Represented in the Pusa collection from Punjab :—Lahore ; Wazirabad ; Jamoo.

Central Provinces :—Bula ; Hoshangabad ; Itarsi.

Bihar :—Chupra.

Bengal :—Rangpore.

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