

FURTHER NOTES ON INDIAN *Phlebotomi*.—The recent acquisition of a number of specimens of *Phlebotomus* from different parts of India and especially from Ceylon enables me to amplify the notes published in these "Records" last year (vol. iv, No. ii, pp. 35—52), and I have been helped greatly to gain a true appreciation of certain characters by frequent discussions with Mr. E. Brunetti.

Hitherto I have laid great stress on the relative lengths of the different parts of the second longitudinal vein as a specific character, but these lengths are evidently more variable than I thought. They would provide a method of separating a species such as *P. himalayensis* from one such as *P. argentipes* at a glance, but in the latter the length of the upper branch of the vein, and consequently that of the other parts also, varies within fairly wide limits. I have had, therefore, to recognize that the form recently described by me as *P. marginatus* is not a "good" species but merely a colour variety of *P. argentipes*.

Regarding the sanitary importance of *Phlebotomus* attention may be directed to a paper just published by Major F. Wall, I.M.S.<sup>1</sup> The facts cited suggest (1) that troops moved into certain barracks in Chitral become infected with a fever akin to or identical with what is called *Papatacifieber* in Austria, these barracks being frequented by *P. papatasi* and *P. babu*, and (2) that men from districts in which these two species occur are less liable to suffer from this fever (having perhaps become to some extent immune) than those from districts in which the common species are *P. major* and *P. himalayensis*.

*Phlebotomus argentipes*, Annandale and Brunetti.

*Rec. Ind. Mus.*, iv, p. 44, pl. iv, fig. 3, pl. vi, fig. 6; *Spolia Zeylanica*, vii, p. 59.

I have recently examined a good many specimens from Peradeniya, which is situated in the interior of Ceylon at an altitude of about 1,500 feet. The species occurs all over the plains of India except in the extreme north-west. Apparently it does not occur in the Himalayas.

Var. *marginatus*, Annandale.

*P. marginatus*, *Spolia Zeylanica*, vii, p. 62, fig. 7.

This form cannot be regarded as more than a colour variety, distinguished from the typical form of *P. argentipes* by the fact that the dorsum of the thorax is brown instead of black and the sides of the thorax rather darker than in the typical form.

The var. *marginatus* occurs in Calcutta as well as at Peradeniya and is apparently not a seasonal form.

<sup>1</sup> *Ind. Med. Gazette*, xlvi, p. 41 (1911).

*Phlebotomus major*, Annandale.

*Rec. Ind. Mus.*, iv, p. 46, pl. v, fig. 4, pl. vi, fig. 4.

Specimens appear to be invariably larger than those of *P. argentipes*, from which both the typical form and the variety here described may be distinguished by the fact that the dorsum of the thorax is never black or brown.

Var. *grisea*, nov.

Distinguished from the typical form by the general greyish or brownish (instead of golden) colour.

I took several specimens in a house at Kurseong in the Darjiling district (alt. 4,700 feet) in June, 1910, and also saw the variety in the same house in April, 1911. The two varieties are easily distinguished by the naked eye.

*Phlebotomus babu*, Annandale.

*Rec. Ind. Mus.*, iv, p. 49, pl. iv, fig. 1, pl. vi, figs. 3, 3a; *Spolia Zeylanica*, p. 61.

As I have pointed out in a recent paper, this species is probably identical with "*Hebotomus*" *minutus*, Rondani, but it is impossible to state that it is synonymous without a comparison of specimens. I have recently obtained specimens of *P. babu* from Peradeniya in Ceylon and from Drosh in Chitral in the Hindu-Kush Mountains (4,700 ft.). The species is probably distributed all over the plains of India and ascends the Western Ghats to an altitude of at least 2,000 feet, but is not known from the Himalayas.

Var. *niger*, nov.

Darker than the typical form and as a rule larger.

This form was at first regarded as a distinct species and is marked as probably being so in Mr. F. M. Howlett's collection. I cannot, however, distinguish any constant difference in its venation or genitalia.

As yet the variety has only been taken in Bihar. I have not seen it in Calcutta.

*Phlebotomus papatasi* (Scopoli).

*Rec. Ind. Mus.*, iv, p. 51, pl. iv, fig. 4, pl. vi, fig. 2.

I have recently received specimens from Drosh, Chitral (Major F. Wall, I.M.S.), and from Quetta, Baluchistan (Lt.-Col. Wimberley, I.M.S.). The species appears to be common, together with *P. babu*, all over the north-west of India, ranging as far east as Pusa in Bihar.

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