

his life in Calcutta, and I cannot do better than quote them in *extenso* :
 “ His profession is that of a musician and it is hardly too much to say that for the greater part of ten years he has devoted his evenings to earning his daily bread and his days to the study of Diptera. ”

“ The school to which Mr. Brunetti belongs, and to which it is natural and proper that an amateur should belong, is that of the rigid taxonomists, who are interested in the naming and classification of specimens rather than in morphological relationships or biology. ”

Brunetti was unfortunately never well off financially and did not belong to any scientific Society or Association except to the Asiatic Society of Bengal of which he was elected an Associate member in March 1915.

A list of Brunetti's scientific publications prepared by Mr. C. O. Bateman, Librarian, Zoological Survey of India, is appended (pp. 294-296). From this it will be seen that he published 33 papers in the “ *Records of the Indian Museum* ” and 3 volumes in the “ *Fauna of British India* ” on Indian Diptera.

The following pages which deal with Brunetti's work as a Dipterologist have been kindly written by Mr. Ronald Senior-White, who was personally acquainted with Brunetti and is in a better position than myself to write regarding Brunetti's work on the Indian Diptera.

B. P.

BRUNETTI AS A DIPTEROLOGIST.

The history of Oriental dipterology divides itself into two parts, separated by a well marked pause at the close of the Nineteenth Century. The death of Bigot in 1893 had put a term to the endless flow of description, insufficient and loosely worded, which Francis Walker and himself had been producing for forty years, whilst the chaos resulting therefrom had, in 1896, been ably summarized by van der Wulp in his classical ‘ *Catalogue of the described Diptera from South Asia.* ’

Without Wulp's catalogue, or an analogous work, further progress would have been impossible, but even with it anyone proposing to take up the study of Oriental Diptera might well have paused appalled before the lists of species therein recorded. Walker was notoriously incapable of correctly locating a species generically, in fact this point does not seem to have greatly interested him, he seemingly having been solely concerned to publish a new specific name. As the types of both Bigot and himself, together with those of the fewer though much more adequately characterized species put out in the last half of the century by Schiner, Doleschall and Thomson, were all in Europe, any progress from the Asiatic end might well have been considered impossible.

But this was not all. Among the families of the order one had so far not suffered from over description, but now, following on Ross' discovery, this, the Culicidae, became the subject of equally indiscriminating publication, and from 1900 onwards floods of new species, and, worse, of genera, poured forth from the Medical Press, from workers largely ignorant of the principles of taxonomy and the elementary rules of zoological nomenclature, until it might well have appeared to a detached zoologist that

Oriental Dipterology had descended into such a slough as to be almost without hope of rescue.

But, during the full flood of mosquito description, and after the rest of the Diptera had lain in chaos for ten years, there appeared the subject of the present notice, an amateur who, prior to his coming to the East in 1904, had worked on the European fauna, and who seems to have been at least a scientific acquaintance of Verrall, from whom, perhaps, he had acquired his method of meticulous description and power of insight into the obscurities of the earlier authors. For three years after his arrival in India, to which he came as musical conductor of the Bandman Comedy Company, Brunetti seems to have had time for nothing but the amassing of large collections at the places visited by the company, with which he toured most of the Orient, including the Chinese Treaty Ports, but in 1906 he settled down in Calcutta, heading his own string band, and devoted his leisure time to determining Diptera in the Indian Museum, to the library and collections of which he was given access by the late Dr. Annandale, always prepared to recognize enthusiasm and merit in any scientific worker, however academically unqualified. That, in no small measure, Annandale 'discovered' Brunetti will be not the least of the stones in the temple of fame of the greatest of Indian Zoologists.

Brunetti's position at the Museum was an irregular one. When budget funds permitted, he was in the receipt of a salary from the Zoological Survey, and his types, etc., became the property of the Museum; when there was no money to pay him with he worked there as an outside specialist, retaining 'half duplicates' and types, if these came from his own collection. It is fortunate that the latter will not be dispersed on his death, as the twenty thousand specimens comprising it have been left to the National Museum at South Kensington.

There was, at this time, in the Indian Museum, a not inconsiderable collection of Diptera, which had been worked through by Bigot during a visit to India many years before. However, though Bigot had, (whilst destroying most of the locality labels and substituting 'Inde' only), affixed names to many of the specimens, the larger part of these were found never to have been published, and were rescued from oblivion by Brunetti, who adopted many of them when describing these specimens during the course of his work. A few other specimens had been named for the Museum many years previously by Becker, but the total quantity of available named material was insignificant.

It was this collection, therefore, and those amassed by himself, that about 1906 Brunetti sat down to work upon. With very few authentically named specimens, and *all the types in Europe*, his task must have appeared almost hopeless, but he possessed in exceptional degree the power of 'visualization', (as Osten-Sacken called it), that is, of constructing from a description a mental image of the specimen before the original author, thus amplifying and elucidating an otherwise inadequate description, instead of becoming fogged by the discrepancies and omissions encountered in merely comparing a specimen with such. Witness his footnote in his first paper on the description of *Odontomyia claripennis* Thoms., "this hardly reads like a distinct dorsal stripe, or wide transverse bands." It was this power of reading himself into the mind of an author

which enabled him to elucidate so many obscure descriptions without reference to the types. His other great advantage, of course, an advantage even to-day obtainable nowhere else in Asia, was access to an almost complete file of the literature.

Using Schiner's 'Fauna Austriaca,' with which his European work had rendered him familiar, as a generic basis, he took description by description from Wulp's Catalogue, and sought to allocate these generically and to prepare keys, (not always published), to the species thus sorted out, thereafter working through the actual specimens and describing nothing as new until he had tried it against all existing descriptions.

In this fashion material for the 'revision' of a family or group was gradually got together, and his work is noteworthy almost more for the number of old species that he recognized and adequately re-described than for the immense number of *spp. nov.* of which he was the author.

His method of work was never more clearly seen than in his very first paper, 'Revision of the Oriental Stratiomyidae,' in the introduction to which he says "Baron Osten-Sacken's view to the effect that writings on the fauna of a region imperfectly known should be considered as preparatory and not final results seems correct, and his opinion that a writer is not 'called upon to describe as new every specimen that he cannot identify' is echoed by my own. Therefore I am not sure whether analytical tables of genera and species should have been presented, for owing to my inability to obtain specimens of the majority of the species, the tables have had to be drawn up mainly from descriptions, and will be open to improvement on a better personal acquaintance with a larger proportion of the species." How good, however, these tables, concerning the use of which he was thus doubtful, really are, the present writer can testify. It was by their aid that I originally attempted the identification of my first collections of Oriental Diptera, and beyond his papers for some time I had access to no descriptive literature whatever. None the less, subsequent checking has proved that by this means it was possible to identify correctly the majority of specimens taken, so be it that they belonged to described species, and to decide with some certainty when an undescribed species was before one. I remember well, on the first occasion that I met him, in his room on the top floor of the Museum, in 1919, putting before him for opinion a solitary specimen which by his tables I had made out to be *Acraspidea felderi* Brauer, (now *Aulana confirmata* Wlk.). He checked the specimen against the actual original description, not quoted in his paper, and confirmed my diagnosis, remarking that he had often vainly tried to fit something to that description. I have a vivid recollection of his pleasure in finding that his tables were of value and use to others.

Gradually, on these lines, he cleared up the whole of the Nematocera-Brachycera and Aschiza, with the exception of Cecidomyiidae, Chironomidae, (on which, during his period at the Museum, he was supplying the late Abbé Kieffer with Indian material), Culicidae, Tabanidae, (in which he sent home to Miss Ricardo the material on which her revision of the Oriental species is mainly based), Asilidae and Dolichopodidae (sending the Museum material of the last to Becker). From 1920 onwards I know he himself was working on the Asilidae, and my collection, now in

the British Museum, contains many Dasypogoninae and Leptogastrinae with his ms. names attached. It is greatly to be hoped that his ms. is available and will be handed to some other specialist for completion or incorporation.

In other words, either he himself, or specialists furnished with material through him, made a clean sweep through practically the whole of the Order except Muscoids, and even in these, here and there, as in Sepsidae and the haematophagous Muscids, he cleared up a corner when some distinctive limiting characters to a group were available. Finally his work on the Indian forms was compiled into the three 'Fauna of British India' volumes that bear his name. These include large numbers of new species not included in the original revisions of the individual groups, and though increasing collections will for many years to come bring undiscovered forms to light in every family, those who, like the present writer, have done most of the subsequent description, have no difficulty in building on the foundations erected by Brunetti, and it is only when undertaking a *de novo* revision of a family he never touched that those who come after him can have any conception of the situation he faced throughout the entire Order.

Towards the end of his time in India, his acquaintance with the fauna was literally astounding. I remember accompanying him to the Colombo Museum, when he was on his voyage home, (as he mentioned, by the old P. & O. 'Somali' that had brought him to India seventeen years previously), with a view to dividing with him the then entirely unnamed dipterous collection of that Institution for working out. Being shown the collection, he said, 'let's see what we can name straight off', and from box after box, with only an occasional glance at a file of his own papers, he named specimen after specimen, once again finding, in *Eriocera meleagris* O. S., a species which he had never hitherto seen but had correctly visualised from its description.

Though he never touched either identificatory or descriptive work in the family himself, his work in Oriental Culicidae stands as something apart from the rest of his activities. As an all-round Dipterist, he was aghast at the flood of unscientific general erection of the Theobaldian School, and in his three catalogues, (two devoted to Culicidae alone), and in his paper, 'Critical Review of Genera in Culicidae,' strove to render himself a Court of Appeal and lessen the mischief done by the Medical Entomologists of the day, replacing their synonyms by at least un-pre-occupied names, irrespective of whether the genera thus re-named had validity or not. Though this part of his work has now only historical interest, it had value in its day as an attempt to stem the tide of unscientific procedure, and to bring the work of the 'Culicidologists' into line with the rest of Zoology.

Even whilst in India, he was not entirely centered on the Oriental Fauna. For years he kept a manuscript catalogue of Australian Diptera up to date, and it is to be hoped that the manuscript of this will be rendered fit for publication.

Brunetti confined himself entirely to the descriptive side of dipterology. For bionomics he had no interest. To tell him that you had

recently bred one of his species left him quite cold. He thus lies under the stigma of being 'typically museum minded', but at the epoch at which he appeared what was wanted as a pre-requisite to bionomical work was an out-and-out systematist, whose interest in an insect finished with the affixing of a correct name label, and biologists who will come after him will always have cause to bless one who saved them the drudgery of separating and identifying the species they may work with. '*Nomina Insectorum distincte tradere convenit. Nomina si pereunt, perit et cognitio rerum; nomina si confundantur, confundantur omnia necesse est.*'

Brunetti was an entomologist of the old school, relying up to the limit of its powers on a hand lens, (he had a $\times 50$ Zeiss with a working distance of about $\frac{1}{8}$ inch which it was always a wonder to me how he managed to use) and seldom concerning himself with genitalia in classification,—he told me "he loathed a dissected specimen," and in consequence in years to come many of his species in certain groups may prove complices, but his work will stand for all time as the foundation of our modern knowledge of Oriental Diptera. Though a *bon viveur* with a discriminative palate he cheerfully faced comparative poverty in pursuit of his life's interest, and his passing leaves a gap which it will be hard to fill. The circumstances of modern research confine it perforce more and more to its economic applications, and many of the families of flies he touched, and those he was forced through lack of time to leave in obscurity, will probably remain as they were left until their members are found in some fashion to come in contact with human activities. Peace be to his cheerful soul and laurels on the work he accomplished,—we may ne'er look on his like again.

R. S.-W

LIST OF BRUNETTI'S PAPERS.

1. Revision of the Oriental Stratiomyidae, with *Xylomyia* and its allies.
Rec. Ind. Mus. I, pp. 85-132 (1907).
2. Notes on Oriental Diptera.
Rec. Ind. Mus. I, pp. 163-170, 211-216, 381-385, pl. xv (1907).
3. Note on *Rutilia nitens*.
Rec. Ind. Mus. I, p. 172 (1907).
4. Annotated Catalogue of Oriental Culicidae.
Rec. Ind. Mus. I, pp. 297-377 (1907); IV, pp. 403-517 (1912).
5. Notes on Oriental Syrphidae with descriptions of new species.
Rec. Ind. Mus. II, pp. 49-96 (1908); XI, pp. 201-256, pl. xiii (1915).
6. Indian Psychodidae.
Rec. Ind. Mus. II, pp. 369-384 (1908).
7. Revision of the Oriental Leptidae.
Rec. Ind. Mus. II, pp. 417-436 (1909).
8. Revised and annotated catalogue of Oriental Bombylidae, with descriptions of new species.
Rec. Ind. Mus. II, pp. 437-492, pl. xii (1909).
9. New Indian Leptidae and Bombylidae, with a note on *Comastes*, Os. Sac., V. *Heterostylum*, Macq.
Rec. Ind. Mus. III, pp. 211-230 (1909).