

THE
ENTOMOLOGIST

An Illustrated Journal

OF

GENERAL ENTOMOLOGY.

EDITED BY RICHARD SOUTH, F.E.S.

WITH THE ASSISTANCE OF

ROBERT ADKIN, F.E.S.

H. ROWLAND-BROWN, M.A., F.E.S.

W. LUCAS DISTANT, F.E.S., &c.

F. W. FROHAWK, F.E.S., M.B.O.U.

C. J. GAHAN, M.A., F.E.S.

W. J. LUCAS, B.A., F.E.S.

CLAUDE MORLEY, F.E.S., F.Z.S.

DR. D. SHARP, F.R.S., F.E.S., &c.

“By mutual confidence and mutual aid
Great deeds are done and great discoveries made.”

VOLUME THE FORTY-SIXTH.

LONDON:

WEST, NEWMAN & CO., 54, HATTON GARDEN,
SIMPKIN, MARSHALL, HAMILTON, KENT & CO., LIMITED.

—
1913.

THE ENTOMOLOGIST

VOL. XLVII.]

SEPTEMBER, 1914.

[No. 616

AN EXPEDITION IN SEARCH OF RUSSIAN BUTTERFLIES.

BY W. G. SHELDON, F.E.S.

So far as I am aware, out of the hundreds of expeditions British lepidopterists have made into almost every part of Europe during the last thirty years, not a single one has had this great country for its goal, though I believe one or two have incidentally collected a few specimens there on their way further east.

Foreigners travelling in Russia at present are not very numerous, and such as there are consist almost entirely of those who have business in the country; and I may say that in my journey of about two months, during which I travelled about five thousand miles, I saw only one German, and not a single American, Frenchman, or Englishman, until Moscow was reached on my return to England.

The prospect of undergoing the rigid Customs examination frightens a good many timid ones; the passport regulations are, perhaps not without reason, the cause why a good many more possible visitors do not reach Russia, and seriously this question is always an anxious and it may very easily become a disastrous one, for an individual in Russia who cannot produce a passport is looked upon by the authorities as a very suspicious person; he must stay in the town where he happens to be until they are satisfied of his bona fides, which will usually take many days, possibly some weeks, and if he is a little indiscreet he will very probably spend the time in prison. Then, apart from the fact that it is not very difficult to lose a document, a foreign passport has considerable value to those subjects of the Czar who wish to leave Holy Russia, but whom the authorities of that country do not desire to part with; consequently there are always people on the lookout to steal your passport, and they do not by any means lack opportunities. On the frontier it is taken from you, passed by an official, and then after the luggage has been examined, which will take a considerable time, another

official calls out the name on each passport of the whole train-load of waiting people, and if you do not recognize your name when it is called out, and someone else claims your precious document, it disappears, and there you are!

Immediately you have taken a room in a hotel, the proprietor demands your passport, for which he does not give a receipt. It is handed over to the police by him, and you get it back before you leave the town. At your last place of stay it pays an additional visit to the police to have stamped upon it permission to leave the country; and on your return journey it is taken from you several hours before you get to the frontier, and only returned at the last Russian station.

No, travelling in Russia is not likely to be popular with foreigners so long as the present passport regulations exist; the Russians themselves recognize this, and there is an agitation going on at the moment to get them done away with.

My thoughts had often been centred on Russian Lepidoptera, but I had fancied that it was rather too tough a problem to be tackled during a summer holiday.

There are certain parts in the west and north-west which it is quite easy to reach, but the butterflies found there are generally too western in type to be novel, and one can get nearly everything with equal facility, and under much more favourable conditions of sojourn, in eastern Germany, or in Scandinavia.

The interesting parts of the country from a lepidopterist's point of view are unquestionably those which are the most remote from England; and these are by no means easy to reach, where time is an object, and when one gets there, at the end of about a week of travel, there are various reasons, as will be seen hereafter, which make the average family man think hard before he finally decides to collect Lepidoptera in remoter Russia.

One can get very little reliable information in England respecting Russia. The ubiquitous Cook knows it not, and railway tickets from London are only issued to Moscow, St. Petersburg, and Odessa. Bradshaw, in the Continental edition, professes to give time-tables of all the trains in every part. One wonders whence they were obtained, and if such trains really ever did run, for all I tested turned out to be hopelessly inaccurate, and there is no reason to suppose they were in any way exceptional.

Baedeker, until this year, had only a somewhat ancient edition, in French or German, but within recent months a new one, in English for the first time, was issued. I was not aware of this edition until I called upon the British Consul-General at Odessa. This gentleman gave me this very useful piece of information, and further very kindly lent me a copy, which was of immense assistance.

On mentioning my project to the companion of my Spanish expedition of last year, Mr. A. H. Jones, I was very glad to find that he was able and willing to come with me once more, and we left London on the evening of April 29th, for Odessa, which was reached after a most uninteresting journey of seventy-two hours, during which, after crossing the Channel to Flushing, we did not pass through a single tunnel.

I wished before the more serious entomological work of the journey commenced to see something of the beautiful south coast of the Crimea. On the day following our arrival at Odessa we therefore got on board the Black Sea steamer, landing the following morning at the famous fortress of Sebastopol.

We spent a couple of days at Sebastopol, which were occupied in visiting scenes of the principal events of the siege of sixty years ago, not doing any actual collecting, but we saw a good number of butterflies, and the district impressed us as better ground for Lepidoptera than any we afterwards saw in the Crimea. The valley leading from Sebastopol to the English Cemetery appeared particularly promising.

On May 7th we hired a carriage and drove to beautiful Ialta, a drive that will always remain vividly impressed upon my memory for the loveliness of the scenery *en route*. Apart from the interest of the journey, we were much impressed with the manner in which the three little Tartar horses dragged the four-wheeled carriage, ourselves, our luggage, and the driver, the whole distance of sixty-one miles, without turning a hair, galloping uphill and downhill equally as on the level. The route is for the first half of the distance inland. Balaclava is passed on the way, and then one gradually mounts upwards, between woods—full of wild pæonies at the time of our visit—until a col named the “Porte de Baidar” is surmounted, then all at once the beautiful south coast bursts into view from a height of almost 2000 ft. The day was perfect, and the sea almost as blue as the Mediterranean can be; the view itself is superb, and the conditions we saw it under were the best possible. Beyond Baidar the road is entirely alongside the sea, which is never lost sight of, and vistas of surpassing loveliness continually burst into view. Just before Ialta is reached, the Imperial Palace and Park of Livadia are passed. The Czar was in residence, and the road, and in fact the whole district, was patrolled by picked Cossacks, magnificently mounted and armed. It was an impressive scene!

Ialta is in situation and surroundings very similar to Mentone, but it is even more beautiful. The vegetation is, however, not so southern; one sees plenty of cypress trees and occasional palms, and in the main street I saw several fine specimens of *Jacaranda mimosæfolia*, which just then were a gorgeous mass of purple tubular flowers; but with few exceptions

the flowers and trees of the Crimean southern coast are those commonly met with in mid-Europe.

We spent five days at Ialta, during which the weather was favourable, and we were able to explore every day for Lepidoptera. I must say I was much surprised and disappointed to find how western they all were. Scarcely a species was seen that cannot be found in the Alps. The only butterfly we noticed that was at all eastern in its distribution was *Pyrgus orbifer*, which was not uncommon. *Colias erate*, *Zegris eupheme*, and *Plebeius zephyrus*, amongst other species, are said to occur, but we did not see any of them. A plant that is very like *Astragalus exscapus*, the food-plant of *P. zephyrus*, was, however, abundant locally by the roadside near Aloupka, some ten miles from Ialta. Most of the ground that seemed promising is enclosed, and a considerable part is vineyards, and there is very little space to collect in. Butterflies were by no means common either as individuals or species, except in one or two instances. Hibernated examples of *Libythea celtis* were pretty frequent, although we did not see any trees of *Celtis australis*.

On the evening of May 12th we once more boarded the steamer, landing the following day at Novorossisk, on the east coast of the Black Sea.

Novorossisk is a seaport of considerable size, and trades in corn, timber, and other commodities. It is situated at the base of what I suppose one might call the foothills of the Caucasus Mountains, which have an altitude here of from 1500 ft. to 2000 ft.

We stayed five days, and during that time explored the surrounding mountains and valleys as much as possible.

I was again much surprised at the western character of both vegetation and Lepidoptera. Many of the little dingles seemed very like those one meets with at home; the sides were clothed with elm and ash and oak, and many of the common English flowers grew beneath.

The only eastern butterfly we came across was *Erebia afer*, which was not uncommon some distance up the mountains. Unfortunately, we were a month too late for it, and nearly all the specimens captured were more or less *passé*.

We found some good ground amongst the hills to the north of the town, but the best was undoubtedly the valleys and mountains south of the harbour.

In planning an expedition which had for one of its objects the making acquaintance with as many eastern butterflies as possible, it seemed to me that there were three districts which were worthy of consideration.

First, there is the great range of the Caucasus Mountains, magnificent in scenery, historic in the past ages, and peopled with some of the most fascinating races in the world. All of

surpassing interest to the tourist; but when one comes to go a little closely into the question, it becomes evident that there is something to be said on the other side of the question.

There is a strip of mountainous coast extending along the eastern shores of the Black Sea from Novorossisk to Batoum—beautiful throughout and very tempting; but, says Baedeker, reeking with malaria, every bit of it! and independent testimony, including the verdict of the British Consul at Novorossisk, confirms Baedeker. Even Novorossisk itself is very malarious in certain parts of its environs.

No less scathing is Baedeker about the sanitary condition of the whole range, which he describes as malarious throughout, even in the mountains. And then the people! Brigands almost all of them, more or less! The published returns testify to many hundreds of cases of highway robbery annually, and even life is by no means safe. It might be possible to do something in one or two well-frequented places, but elsewhere, to be in safety, you must collect your specimens under the guns of an armed escort, enveloped in a mosquito net, and even *Lepidoptera* lose their charm when studied under such conditions!

Secondly, there are the Ural Mountains. I am not aware that the objections I have named respecting the Caucasus as a centre apply to this district; and I may say that, so far as I am aware, out of the Caucasus life and property are as safe at the present moment in Russia as in any other European country. But the Urals are situated rather too far north to produce the majority of the eastern species that affect Russia. Further, I gather that the accommodation is poor and objectionable from many points of view, and that only Russian is spoken; and I think I can go so far as to say that a sojourn there, unless one had a courier and could spend it under canvas, would be anything but enjoyable, if not impossible, from our point of view.

There remain the steppes of the south-east in the basins of the great rivers, the Ural and the Volga. This region, from all the reports I have seen, contains the greatest number of desirable *Lepidoptera* of any district in Russia, and to it I felt strongly drawn. The chief difficulty to be surmounted was one which applies more or less to all parts of Russia: how to avoid the uncleanness and disease which unfortunately are only too prevalent everywhere. Even in the large towns sanitation is almost unknown; in the hotels, with the exception of a very few, the beds are verminous. Cholera, typhus, and other objectionable acquaintances are more or less endemic, and often epidemic; and, of course, in the small towns and in the villages matters are very much worse. One would have liked to settle down in some district which had never been worked, but the objections to such a course were so manifest that I felt compelled to pause.

In this dilemma an idea came into my head which seemed

to offer a feasible solution of my difficulties, and this was contained in the blessed word Sarepta. One finds it immediately the study of European butterflies is commenced enshrined in the classic pages of Kane, and described as the haunt of almost everything eastern; and Staudinger and every other authority confirm this view, and quote it on innumerable occasions.

The great blessing of Sarepta from my point of view was the fact, known to me, that its population consisted chiefly of Germans; and surely one could obtain with them clean accommodation and wholesome food, and, further, the risk of sickness to be apprehended elsewhere would be avoided, or very much lessened, in their town.

About one hundred and fifty years ago that extraordinary woman the Empress Catharine the Second, who then ruled the fortunes of Russia, was desirous of colonising the country around the Volga, and her own people not being then sufficiently civilised to form suitable colonists, she induced great numbers of Germans to settle there, granting them great tracts of free land and freedom from military service, and conferring other important privileges upon them. At the present day there are dozens of these colonies, the inhabitants of which are still largely of German extraction, and Sarepta is the most southern of them. It is situated on the right bank of the Volga some three hundred miles from its mouth.

I do not know who discovered Sarepta entomologically, but Edward Eversmann in his '*Fauna Lepidopterologica Volgo-Uralensis*,' published in 1844, and still the standard work on the Lepidoptera of Eastern Russia, was well acquainted with it. In his preface he speaks of two brothers of the name of Kindermann spending the summers of 1838 and 1839 collecting Lepidoptera there. He also mentions that an entomologist named Zwick had still earlier collected Coleoptera and Lepidoptera in the same place. Since the days of Eversmann the best known investigator has been a German resident, H. Christoph, who collected insects for Staudinger, and from whom most of the numerous specimens in our National Collection at South Kensington, which are labelled Sarepta, came. Christoph undertook several expeditions into the Caucasus and other parts of Asiatic Russia, and resided at Sarepta until about twenty-five years ago; his son still lives there; most of his specimens in the National Collection date back about fifty years from the present time. Another German resident of Sarepta, a botanist of the name of Becker, seems to have studied Lepidoptera as well as botany, and I am informed he made an extensive collection of the former, which is still in the district.

The town seems from time to time to have been visited by entomologists from Germany, but I have been unable to find any results of their investigations in print, though there may be some in the magazines of that country.

The left bank of the Volga almost along its whole length is flat, but the right bank on which Sarepta, as before mentioned, is situated, is an almost continuous range of hills, in some places attaining a height of over 1000 ft.; at Sarepta they are from 200 ft. to 300 ft. in altitude. These hills have apparently been formed in the long distant past by the prevailing wind from the east blowing the sand formed in the river bed into dunes; these dunes being in the process of time converted into solid earth by the growth of plants, the roots of which have bound the soil together. The tops and sides are generally covered with a growth of low plants; in the folds and cross ravines, however, there are woods and bushy slopes full of life of all kinds, insect and otherwise.

The Volga, which above Sarepta flows for several hundred miles in a south-west direction, skirting for the whole distance the base of the hills, has within comparatively recent times carved out for itself a new course which commences immediately north of the town; this course leaves the hills and strikes out across the steppe in a south-easterly direction. At Sarepta the distance from the river to the hills is about two miles, and the town lies on the level plain midway between the two.

Having decided to make a stay of several weeks at Sarepta, we left Novorossisk on the evening of May 18th, bound thither. The distance is about 500 miles, across the steppe the whole distance, in traversing which we did not see a hill or even an undulation; it was a weary journey, which the train is timed to do in twenty-four hours, and which it actually accomplished in twenty-seven hours. This journey we did on bread, cheese, and beer, for we were warned at the last moment at Novorossisk, too late to take a supply of food with us, that the more solid eatables to be had on route were bad, and that it was dangerous to partake of them.

At Sarepta I had obtained through a German correspondent the address of a person who kept an inn, the only one there, and on arrival, to our great relief, we found airy rooms, clean beds, and wholesome, if rough, food, and in Herr Georg Enke a most obliging, intelligent, and helpful host.

I must confess that it was with a feeling of keen disappointment that I surveyed my surroundings on the morning after our arrival. I had expected to find Sarepta, which contains some six thousand people, a model town. I had pictured the steppe, by some well-thought out scheme of irrigation, made to blossom like the rose, and the whole district converted into vineyards, fruit orchards, and gardens. There is some spasmodic irrigation, but not by any means sufficient to transform the arid plain into fertility, only just enough to water a few gardens. There is no evidence of want of prosperity of a kind, with plenty of good houses, for Russia, even some fruitful and

shady gardens; but the whole is hardly what one expected from a German population; it was Germany of the eighteenth century, modified and not improved by the sojourn of its inhabitants for one hundred and fifty years in Russia. The streets are unpaved, except for one or two short lengths of cobbles, so rough that when we drove over them we wished they too had not been paved; undrained, and unscavenged, full of hollows, in which the water stands in great pools after every storm; and the sandy surface everywhere churns up into seas of mud almost knee deep during wet weather.

One of the first things I noticed at Sarepta was that the window openings, outside the glass, had wire gauze shutters to exclude insect pests; I inquired if there was any malaria in the town; the reply I got was somewhat evasive, and later on I was told that it was not so bad as in the surrounding country. We were both provided with mosquito curtains, which we slept under, and avoided as much as possible going near swamps; probably in consequence of these precautions we did not suffer any inconvenience; but mosquitoes were not infrequent in our rooms, and one captured on my curtain has been identified at the British Museum as the malaria-conveying species, *Anopheles maculipennis*. It appears, therefore, that future visitors should take precautions against this pest. I suspect that malaria is pretty universal throughout Eastern Russia.

The flora of the steppe did not come up to the expectations I had formed of it. I had looked to find a sward of brilliant flowers, but the growth is almost entirely *Artemesia*, grey and fragrant, of several species, and low growing, some six inches high; oxen and horses seem fond of it, camels devour it greedily, and the entire steppe smells of it.

In places on the slopes of the hills there is a good deal of a fine dry wiry grass, the food of *Melanargia* var. *suwarovius*, and here and there one comes across a certain number of flowering plants; a brilliant purple sage is one of them, a bright pink *Helichrysum* another, there is a blue *Linum*, and several species of *Phlomis*, but the whole are not in sufficient numbers to produce any broad effect.

The railway passes along the base of the hills, and upon its banks we found excellent collecting ground; there was here a luxuriant growth of many species of leguminous and other plants, and amongst them could be found such desirable butterflies as *Colias erate*, *Glaucopsyche cœlestina*, *Scolitantides pylaon*, *Zegris eupheme*, and many others.

The glory of Sarepta is, however, the "Tschapurnik Wald," a large wood, the property of the community, and used by it for picnics and other kinds of recreation; it occupies a hollow in the hills some four miles to the south-west of the town. This wood and the adjacent bushy slopes have glades which are

carpeted with a very luxurious growth of flowers, and it is one of the most prolific localities for butterflies I have ever seen; the nearest approach to it I know is the famous wood at Pészer, near Budapest, to which it is very similar in many respects. Amongst the brilliant and interesting flowers growing here were fine bushes of the common garden plant *Gypsophila paniculata*, and the almost equally well known *Thalictrum flavum*; these two plants were especially attractive to the Thecladæ, four species of which I, on one occasion, saw on a plant of *G. paniculata*. In the glades, too, *Melitaea trivia* swarmed, and a little earlier *Cænonympha leander* and *Parnassius mnemosyne* were equally abundant. In this wood *Pararge clymene*, so rare in Central Europe, was an abundant butterfly; and many others, the names of which alone would make the mouth of a lepidopterist water, were to be found in profusion.

Perhaps more striking even than the Lepidoptera in this wood, and in fact in the whole district, were the birds. Golden orioles fluted in every tree; brilliant bee-eaters hovered overhead; still more brilliant rollers performed their curious aerial antics; hoopoes in dozens, unmistakable in plumage and in note, were there; amongst the Raptores, particularly noticeable were the buzzards, many scores of pairs of which were breeding in the "Tschapurnik Wald"; one small oak copse, crowning a eminence, which had been defoliated by the larvæ of *Tortrix viridana*, had the appearance of a rookery, so thickly were the trees crowded with the old and new nests of this species. Hobbies, kestrels, goshawks, and at least three species of day-flying owls swarmed everywhere. The whole formed the most extraordinary assemblage of bird life I have ever seen, and one which it would be difficult to equal anywhere.

Other excellent ground was a series of cross valleys, in the main face of the range of hills, some few miles to the north-west of Sarepta, and in the direction of the large town of Tsaritsyn, which is some twenty miles distant.

These cross valleys had on their lower slopes a good deal of wood, with which the bottoms were generally filled, and in them were found much the same species as in the "Tschapurnik Wald," in addition to which they were the headquarters in the district of *Neptis lucilla*, *Melanargia* var. *suwarovius*, *Hesperia tessellum*, *Lycaena arion*, and *Polyommatus amandus*.

There are cross valleys in the hills opposite Sarepta also, but these are much inferior in flora and fauna to those above-mentioned, and we found them hardly worth investigating.

The magnificent hornet-like parasitic hymenopteron, *Scolia flavifrons*, was abundant everywhere on flowers.

Lepidoptera were distinctly local, and it entailed a great deal of hard work in prospecting to get a fair idea of the district fauna; probably this was the reason why we did not see certain

butterflies that have been reported from Sarepta, and which we expected to come across. The most notable of these was *Pontia chloridice*, which we were much disappointed not to find anywhere, although a sharp look-out was kept for it, and every swift-winged white that there was the slightest suspicion of was diligently netted, when this was possible. Other species that we expected to see, but did not, included *Satyrus autonæ*, *S. hippolyte*, *Oeneis tarpeia*, *Triphysa phryne*, and *Scolitantides bavius*; probably we left too early for the first two species, and arrived too late for the third and fourth; with respect to the last-named butterfly, it is, I believe, always rare in Russia, and possibly it occurred further afield than we were able to work.

We were at Sarepta from May 19th until June 23rd, between which dates the weather was almost perfect; bright sun from morning until evening on almost every day was our fortunate lot; and there was always a cool and most invigorating breeze to temper its rays.

On June 23rd we started on the return journey, travelling up the Volga as far as Nijni Novgorod, a distance of about 1200 miles, which took the steamer six days to accomplish. The Volga boats are excellent, well fitted up, and the cuisine arrangements exceedingly good; the voyage, apart from being a little monotonous, is interesting, and after our hard work was very restful and enjoyable.

I was struck with Nijni Novgorod and its district as an entomological centre; it is in the neighbourhood of what looks like a great deal of promising country, which should repay investigation. From Nijni to Moscow is only ten hours by rail; after staying a few days at the latter city I came straight to England, parting from Mr. Jones at Warsaw, en route for the Tyrol.

AUSTRALIAN HALICTINE BEES.

By T. D. A. COCKERELL.

Parasphecodes atronitens, sp. n.

♀. Length about $9\frac{1}{2}$ mm.; entirely black, the flagellum obscure brown beneath; clypeus shining, strongly but not densely punctured, and with a short median sulcus; front appearing granular, more or less glistening, especially at sides; hair of face and front very scanty, fuscous, but at sides of face appearing pale and glistening in some lights; cheeks with shining white hair; mesothorax dull, extremely densely punctured, the punctures clearly visible under a lens; scutellum dullish, densely very minutely punctate, with a depressed median line or sulcus; area of metathorax minutely and obscurely subplicate basally, and with a raised median line, but otherwise without sculpture; tubercles with a dense fringe of greyish white hair;

AN EXPEDITION IN SEARCH OF RUSSIAN BUTTERFLIES.

BY W. G. SHELDON, F.E.S.

(Continued from p. 242.)

THE season at Sarepta was about a fortnight later than the average, and this fact must be considered in connection with the dates given below.

I have to thank Mr. A. L. Rayward, who has most kindly made preparations of the genitalia of all species, the identity of which I was in doubt.

The number of species of *Rhopalocera* we saw in the Crimea was twenty-seven, at Novorossisk twenty-three, and at Sarepta seventy-six; and the total number in all three districts combined was eighty-six species, as follows:—

Papilio podalirius.—A rather small, weakly-marked race was not uncommon at Ialta and Novorossisk; and one or two examples, exceedingly worn, were seen at Sarepta during the first few days we were there.

P. machaon.—A few specimens were seen at all three localities, but it was only common at the tops of the mountains at Novorossisk; I saw, but did not capture, an example of ab. *aurantiaca* there.

Parnassius mnemosyne.—This species swarmed at Sarepta, in the "Tschapurnik Wald" on May 22nd, and later we found it almost equally abundant in the valleys towards Tsaritsyn. The form is a large one, with the black markings not so suffused, and bolder than is the case in specimens from the Alps. They are very like some I have from Herculesbad, except that the black spots are larger. Both these localities are at low levels, Sarepta being actually below sea-level, and Herculesbad only about 150 ft. above it.

Aporia crataegi.—Generally distributed in woods, but not abundant: the specimens are large and the veins very pronounced. The females, when newly emerged, have the yellow shading on the under side much stronger than in Central European examples. This species was first noticed on May 22nd.

Pieris brassicae.—Only seen at Sarepta; a few examples amongst gardens.

P. rapae.—Common at Ialta and Novorossisk.

P. manni.—Specimens of a Pierid which I feel sure is this species were taken at Sarepta.

P. napi.—I saw a few examples only of this species at Ialta and Sarepta. The only one I brought home is a very ordinary female from the first-named locality. In all probability our visit occurred between the period of the first and second broods.

Pontia daplidice.—Frequent at Novorossisk, and there was the tail end of a brood flying at Sarepta at the time of our arrival. These were var. *bellidice* of a very extreme form, with darker under sides to the hind wings than is the case in Southern French specimens, accounted for no doubt by the amount of cold the pupæ had

been subjected to. A second brood was abundant during the last few days of May; I should call these intermediate between the type and var. *bellidice*.

Anthocharis belia.—A very pretty form with light grey tips to the superiors was not infrequent at Ialta; the second brood became plentiful at Sarepta by June 7th; the upper sides of these are similar to South European var. *ausonia*, but the under sides are much darker, and closely resemble var. *simplonia*. I suppose they should be called var. *uralensis*, Bartel, but they do not seem quite to agree with his description of this variety.

Euchloë cardamines.—A remarkable race was abundant in the "Tschapurnik Wald" at the end of May; they are much larger than any I have seen from elsewhere, expanding up to 56 mm. The average expanse of British and European specimens I make to be about 42 mm., and Mr. Wheeler, in his 'Butterflies of Switzerland,' gives the same expanse. It will thus be seen how large this steppe form is. The discoidal spot on the superiors is smaller than in the type, and the under sides of the inferiors have very much less green. I propose for this local race the name of var. *volgensis*, n. var. Typical specimens were not infrequent at Ialta, and in the woods between there and Sebastopol; it was also seen at Novorossisk.

Zegris eupheme.—Not uncommon on the railway banks at Sarepta during the first day or two we were there; but, as happens in the case of the Spanish race, it disappeared all at once, and not a specimen was seen afterwards.

Leptosia sinapis.—Frequent at Ialta, also at Novorissisk, and one or two were seen in the "Tschapurnik Wald," at Sarepta. The examples I brought home are very typical first-brood forms.

Colias hyale.—Fairly numerous at Sebastopol; abundant at Novorissisk, and common at Sarepta at the date of our arrival, and a second brood was flying there in the middle of June.

C. erate.—This beautiful eastern species was abundant at Sarepta at the date of our arrival, and from its condition then it had evidently been flying some time. There was a series of emergences during the whole time of our sojourn, and it was particularly abundant during our last few days. The male is a particularly vigorous creature, flying at a tremendous pace, and very difficult to capture, unless one can intercept it in its course. The female is much less active, and frequently settles to suck at flowers. The white form of the female, var. *pallida*, was almost as abundant as the type. At Sarepta *C. erate* frequented chiefly the railway banks and cuttings, no doubt being influenced largely in its choice of locality by the luxuriant growth of leguminous plants on which the larva feeds, which are to be found there; the male was, however, to be seen at intervals, wildly scurrying along, all over the surrounding country. I was successful in breeding an imago from an ova obtained from a captive female.

C. edusa.—Common in the Crimea and at Novorossisk. At Sarepta I saw one or two worn examples on May 21st, and there was a second brood which I saw first on June 9th; these were not by any means abundant.

Colias hybrids.—It has long been noted that, when two or more of certain species of this group are found on common ground, inter-

mediate forms occur, and it is beyond reasonable doubt that these are hybrids. It is known that a number of Asiatic species produce these intermediate forms or natural hybrids; and there are certain species occurring in Europe which there is good reason to suppose hybridize also; for instance, in the only locality in which the two Arctic species *C. hecla* and *C. werdandi* are known to frequent the same ground, an intermediate form, ab. *christienssoni*, Lampa, has been taken, apparently in numbers, judging from the series of it that we have in the National Collection. At Sarepta intermediate forms between *C. erate* and *C. hyale* and between *C. erate* and *C. edusa* are well known, and there are examples of both these forms in the National Collection. The first-named cross is known as *C. hyale* var. *sareptensis*, Stgr., and the second *C. erate* var. *chrysodona*, Boisd. Seitz has muddled the nomenclature of the former hybrid in his work; he first, in the description of the different forms of *C. hyale*, calls it var. *sareptensis*, and then, amongst the forms of *C. erate*, gives it the new name of var. *diana*. Obviously, hybrid forms between two species cannot have more than one name and, therefore, Staudinger's *hyale* var. *sareptensis* must stand. Seitz figures both hybrids. It seems probable that the vigorous male of *C. erate* is responsible for these abnormal pairings, which in the case of *erate* × *hyale* produced offspring at Sarepta more numerous than the typical *C. hyale*. The hybrid *erate* × *edusa* was not abundant; I only saw some half dozen of it in all; these were very constant and without variation; but of the *erate* × *hyale* hybrid there is every form, from almost typical *C. erate* to almost typical *C. hyale*. One wonders if these hybrids are not fertile *inter se*, or with one or both of the parent species. One possible reason why the *Colias* species hybridize freely is that the genitalia of many of them are so similar there seems no physical obstacle to their doing so. The similarity in these organs prevents them being used as factors to identify the various hybrids.

Gonepteryx rhamni.—Hibernated specimens were seen at Ialta and Sarepta, and in the latter locality freshly emerged examples were frequent from June 16th; they are rather smaller than those I have from Britain and Central Europe; the males are a little more richly yellow, and the females rather whiter.

Thecla w-album.—Common in clearings in the "Tschapurnik Wald" from June 16th; they were very partial to the flowers of *Gypsophila paniculata* and other plants.

T. ilicis.—In the same locality as the last, apparently not abundant; the only example I brought away is a typical female. First seen on June 16th.

T. spini.—Abundant and generally distributed from June 12th onwards; they were the type form without any approach to ab. *lynceus*.

T. pruni.—I saw three or four fresh specimens in the "Tschapurnik Wald" on May 22nd, flying over blackthorn bushes, but did not come across it afterwards; the only one captured, a male, does not differ from those I have from Central Europe.

T. acaciae.—First seen on June 4th; not uncommon, and generally distributed amongst blackthorn. The only difference I can

see in the Russian specimens from those I have from Hungary is, that on the under sides of the former the ground colour is grey, and of the latter grey-brown.

Callophrys rubi.—The most remarkable race of this species that I have seen was common at Novorossisk. It is a small form with an average wing expanse of 30 mm.; the under side is typical, but the upper sides of the wings in both sexes are black, without the slightest tinge of brown, and the whole surface has a grey-blue sheen, similar to that which is found in male examples of *Zephyrus quercus*, but of course the sheen is not the same colour as in that species. I propose for this remarkable race, which so far as I am aware is confined to the Caucasus, the name of var. *schamyl* n. var. I saw, but did not capture, a few examples of *C. rubi* at Ialta; these, as far as I could see, were very typical. A few examples were seen at Sarepta on the outskirts of the "Tschapurnik Wald"; they are rather darker brown in colour than the type, and have an expanse of about 34 mm.

Chrysophanus phlaeas.—A few very typical cold-form examples were seen at Ialta and Novorossisk.

C. dorilis.—A very typical male was taken by me at Sarepta on May 22nd.

C. thersamon.—Abundant at Sarepta, but somewhat local, chiefly frequenting the railway banks and the adjacent slopes; a bright form, especially on the under side, on which the grey ground colour of the hind wings is much lighter, and the copper ground of the fore wings much brighter than in Hungarian examples. I suppose they would all come under Klug's var. *omphale*, but it is difficult to know where the type ends and this variety commences. The chief distinction that Klug makes is that his var. *omphale* has tails on the inferiors; and he figures the males and females with tails approximately 2 mm. and 4 mm. long, respectively; but all *C. thersamon* that I have seen have tails in both sexes, if only rudimentary ones. My Sarepta specimens have tails, in the males about three quarters of a millimetre in length, and in the females 2 mm. in length, whereas Hungarian first brood examples, which I understand to be the type, have only very rudimentary tails, of not more than a quarter of a millimetre in length. Individuals were continually emerging at Sarepta during the whole period of our stay.

C. dispar var. *rutilus*.—I was much delighted to see this grand species once more. Years ago I formed the opinion that it was the most beautiful European butterfly when seen on the wing; and now that I have observed all the European species, with the exception of about sixty, I can fully confirm this opinion. One can imagine what our British type, the finest form of all, must have looked like. I first saw var. *rutilus* at Sarepta in a small swamp in the railway cutting, a mile or so to the south-east of the town, on May 26th. Afterwards we found that it was generally distributed in the small swamps that are to be found in certain valleys which lie towards Tsaritsyn; it was not very common there, but I expect it was abundant in the large marshes between the arms of the Volga, had one cared to work them, which I did not. The form is a very similar one to that found near Budapest, and quite as large.

Everes alcetas.—A large form of this species, expanding about 33 mm., was not uncommon on the outskirts of the "Tschapurnik Wald," and also on the railway banks, from May 20th.

Scolitantides baton.—Common at Ialta, less so at Novorossisk, and widely distributed at Sarepta; in all cases the examples are the type form, without any approach to var. *panoptes*.

S. pylaon.—This Eastern species was fairly common on the banks and in the cuttings of the railway, but at first I experienced considerable difficulty in distinguishing it, especially on the wing, from the much more abundant *Plebeius argyrognomon*, with which it flew. It had probably been out a week or ten days before we arrived at Sarepta; after the first two days it got rare, and the examples seen were all more or less defective, although odd ones were picked up whenever we collected in its localities until May 27th. In the series I obtained there is not any noticeable variation in the females, but there is a good deal in the males. *S. pylaon* was first described by Fischer de Waldheim (the female only). Herrich-Schäffer, who next dealt with it in 'Schmetterlinge von Europa,' figures both sexes; of the male, fig. 333 illustrates a form without black spots on the hind margins of the inferiors, upper side, but with two red lunules at the anal angle of each; this form, therefore, which was not uncommon at Sarepta, it would appear, in accordance with the law of priority, is the type. The other forms obtained include one figured by Herrich-Schäffer (fig. 339), which shows a row of black spots on the upper side of the inferiors on the outer margin; this form I propose to call ab. *nigro-puncta*, n. ab. The other form I obtained is entirely without black spots or red lunules on the upper side of the inferiors, for this I propose the name of ab. *immaculata*, n. ab.

Plebeius argyrognomon.—Abundant at Sarepta and in good condition at the date of our arrival. An interesting form; the males of a deeper blue than the Western specimens which I possess; both sexes have the orange bands on the under side very prominent, in this respect resembling the Hungarian form; the species continued in good condition for several days.

P. argus (*ægon*).—The most abundant *Lycænid* seen at Sarepta—swarming everywhere. The first examples which were flying at the date of our arrival were small and dull-coloured, but those that emerged in June were much larger, with whiter under sides.

Polyommatus astrarche.—Only seen at Novorossisk where I captured a few very typical specimens of the southern low level race.

P. icarus.—Common everywhere we collected, especially at Sarepta. A large form; the females entirely without blue on the upper side. I kept a very careful look-out for *P. thersites*, without success, and I am convinced that this recently recognised species does not occur in any locality in which we collected, although its food-plant, sainfoin, grows freely at Sarepta.

P. eroides.—One example, a very fresh male of this beautiful species, or form of *P. eros*, was taken by me on June 12th at the top of a cross valley in the hills which are opposite to Sarepta. It was a very windy day, and I feel sure that the butterfly had been blown

from its true locality, but a long and wide search for further specimens was fruitless.

P. bellargus.—Only seen at Ialta; the males which were just coming out were large examples of ab. *puncta*.

P. amandus var. *lydia*.—This form of *P. amandus* was not uncommon on bushy slopes, both at the "Tschapurnik Wald" and in the valleys in the direction of Tsaritsyn. The first specimens were seen on May 23rd, and the species continued in good condition for about a month, after which it became worn.

Cupido sebrus.—A short series was taken at an altitude of about 1000 ft. at Ialta, where the species frequented flowery clearings in the pine-covered slopes of the mountains. The males are of a deeper and purer blue than the type; the females are remarkable in that nearly the whole of the superiors and the bases of the inferiors are suffused with grey-blue scales. I propose for this form the name of ab. *caerulea-grisea* n. ab.

Glaucopsyche caelestina.—This Eastern species had evidently been common a short time previous to our arrival at Sarepta; but the examples we took were almost all worn to shreds, and it took my best efforts to obtain half-a-dozen fair specimens, which were picked up singly wherever there was a considerable growth of leguminous plants.

(To be continued.)

A FORTNIGHT IN SHETLAND.

BY PERCY C. REID.

AT 9 a.m. on July 14th, my friends Messrs. J. Peed and G. D. Hancock and myself left Aberdeen on the s.s. 'St. Sunniva,' bound for Baltasound in the Island of Unst. After a calm passage we found ourselves when we awoke next morning at Lerwick, where we changed on to the s.s. 'Zetland,' and reached Baltasound that night at 10 p.m., some three hours behind time, owing to fog. We had engaged rooms at the Queen's Hotel, which lies about a mile from the landing stage, so that it was not far from midnight before we had had some supper and were settled in. The next day was spent in surveying the country and deciding on our plans.

The Island of Unst lies practically due north and south, and is some twelve miles long by about five miles wide, with Baltasound at the head of a deep inlet just about halfway up the east coast. The island is composed of round-topped hills, covered with grass and short heather, with the highest hills, Saxaford and Hermaness, at the northern end, and is traversed longitudinally by a deep depression, which from the latitude of Baltasound is occupied northwards, first by Loch of Cliffe, a fresh-water loch, and then, separated from it only by a sand bar, by a sea loch called Burrafirth.

As a supplement to the above note, I may mention the fact that *H. atriplicis* was formerly quite a common moth round Wicken: one good spot was a plantation close to the village itself. Mr. Bond told me that on one occasion he had been on the Fen all the evening, returning to the well-known 'Five Miles' Inn about midnight, very tired; it being a very warm night he opened the windows, placed a light near them and went off to sleep; awaking when it was broad daylight he found *Noctuæ* sticking "all about the walls and ceiling, most of them *atriplicis*." From a female taken at sugar June 11th, 1877, I obtained three eggs and succeeded in rearing one imago which emerged on June 15th, the following year; I fed the larva on knotgrass. It was in this latter year that I last saw the long extinct *Lælia cænosa*. On August 6th I took a male and Albert Houghton another, flying, or rather "fluttering," with their characteristically soft flight up and down the glass sides of the lamp. Messrs. Porritt and Daltry took the very last (recorded) specimens, I believe, in the following year (Entom. xi. 229).

Wanstead: November 10th, 1914.

AN EXPEDITION IN SEARCH OF RUSSIAN BUTTERFLIES.

By W. G. SHELDON, F.E.S.

(Concluded from p. 297.)

Hipparchia semele.—First seen on June 6th, and shortly afterwards became abundant everywhere.

Pararge climene.—This species, which is not known to extend further west than the Carpathians, and which is rare in the one or two localities in which it is found in those mountains, occurs in the utmost profusion at Sarepta; I saw, but did not capture, a single example on May 31st in a cross valley in the hills some four miles north-west of the town. At the same spot, when next I visited it on June 5th, *P. climene* was flying in profusion; on this day only males were seen. The next day they were almost equally abundant in the "Tschapurnik Wald," and we afterwards found them in every spot in which there was any quantity of wood. The first females were seen on June 11th. This butterfly frequents the outskirts of woods; the male has a very *epinephele*-like flight, and on the wing closely resembles *E. jurtina*. It is continuously hovering over and searching amongst bushes for the females. These latter are not easy to find or secure; they seem, one presumes, after pairing to hide away from the males, and are to be kicked up out of small clumps of bushes some distance away from the larger woods that the males frequent. I did not see a single female flying naturally; probably they would fly late in the day, when I was never on the ground. When disturbed they would, if not netted, quickly settle again in the thickest part of a

bush. All my females, about a dozen in number, were secured in these spots, with the exception of a couple that were found *in cop.* one morning about 10 a.m. Both sexes get worn very quickly, and are only fit for cabinet specimens for a very few days after emergence.

P. macra.—I saw but did not capture this species at Novorossisk.

P. megaera.—Common at Ialta and Novorossisk, but not seen at Sarepta. The Ialta specimens are very bright and richly coloured; those from Novorossisk are not so bright as typical examples.

P. egeria var. *egerides*.—Only seen at Ialta; one or two specimens.

Epinephela lycaon.—First seen at Sarepta on May 25th; afterwards it became common generally; the form is the fine one known as var. *intermedia*, which is described and figured by Seitz.

Coenonympha leander.—This eastern species we found abundant in the "Tschapurnik Wald" on May 22nd; many of the males were on that day past their best, and the females were well out. In its appearance and habits it is very similar to its Spanish representative *C. iphoides*, except that it seems to frequent bushy slopes, whereas *C. iphoides* is usually, but not always, a marsh-loving species. Although *C. leander* was common in the "Tschapurnik Wald," we did not see it elsewhere.

C. arcania.—Very typical examples of this species were common, in the same locality as the last only, from May 22nd onwards.

C. pamphilus.—Seen in all districts worked, but not commonly; the examples are in all cases very typical.

Carcarodus alceae.—Not uncommon at Novorossisk and Sarepta.

Pyrgus proto.—A larva found freely on *Phlomis herba-venti*, both at Novorossisk and Sarepta, produced this species after my return to England. The specimens are less ochreous than those I have from Spain.

P. orbifer.—Not uncommon at Ialta, and one example was taken by me at Novorossisk.

Hesperia carthami var. *moeschleri*.—Common on dry hills at Sarepta at the date of our arrival.

H. armoricanus.—A few specimens of a Hesperid were taken at all three localities, which an examination of the genitalia proves to be this species. There are certain divergences from western *H. armoricanus* apparent in these organs, but Dr. Chapman, who has examined the preparations, does not consider them sufficient to indicate a distinct species.

H. cribrillum.—On May 29th I captured two examples of this species in a valley in the main range of hills, about two miles south-east of Sarepta; they were taken within a few yards of each other. On the following day I netted on the same spot a third example; but though I afterwards frequently searched both this and many other similar localities, these three specimens were the only ones we saw; they are small examples, not exceeding 36 mm. in expanse.

H. tessellum.—This fine eastern species was first seen on May 27th; afterwards it became somewhat common, but it was local and difficult to capture. Many of the specimens are large. I have it up to 46 mm. expanse. Its headquarters was undoubtedly in the valleys in the hills some miles north-west of Sarepta; it was here to be seen in some numbers, flying wildly, and being difficult to follow with the

eye in its swift flight; from time to time the butterfly would settle upon flowers, but even then a capture was difficult to effect, for it would usually fly up when one was some yards distant.

H. sidae.—Common in the same localities as the last species, and of similar habits. Some of the examples are very large; I have one that expands 45 mm., as against 39 mm., the expanse of the largest of my southern French specimens. The Sarepta form is also more brightly marked, both on the upper and lower surfaces; first seen on May 28th.

H. malvae.—A few specimens were seen at all localities, of what I presume is this species; unfortunately, neither Mr. Jones nor myself brought back a male, so we cannot be quite certain.

Nisoniades tages.—Not uncommon at Ialta and Novorossisk, a very typical form.

Augiades sylvanus.—Common in woods at Sarepta from May 21st.

Adopaea flava.—Common at Sarepta; a fine richly-coloured form, expanding up to 40 mm.; first seen on June 6th.

A. lineola.—Abundant in the same localities as the last species, from May 31st.

The Heterocera of Sarepta were most interesting and abundant, and it was a matter of keen regret to both Mr. Jones and myself that we were not able to work at them more thoroughly; but this would have entailed a certain amount of night collecting, and one cannot very well keep fit if both day and night work is undertaken, especially when, as in our case, you are on the wrong side of a certain age.

Perhaps the most striking moth we saw was the exquisite *Macroglossa croatica*, which although not common, was not infrequent in June; it seems probable that it can fly rapidly, but those I saw, all of which were captured, were slowly threading their way amongst the herbage; the larva is said to feed upon *Centaurea*.

Zygænidæ were very rare; a few examples of what I suppose is *Procris globulariae* were taken at Sarepta and Novorossisk, and at the former locality *Syntomis phegea* was seen not rarely.

The larvæ of *Malacosoma castrensis* were abundant amongst *Artemisia*, sp.

The beautiful *Cucullia argentina* was not infrequent at rest on the stems of dead plants, and was exceedingly well protected by its resemblance to them. *Heliothis scutosa* swarmed everywhere, and *H. dipsaceus* was equally abundant. I bred an example of this species from a larva found feeding upon the flowers of a *Salvia*, which resembled and might be *S. pratensis*.

H. peltigera and the beautiful *H. incarnata* both occurred, and *Acontia lucida* and *A. titania* were common; a handsome larva found upon a species of *Linaria* produced *Calophasia casta*.

Micra paula was not infrequently taken; probably it was abundant, but of course its small size made it very inconspicuous. *M. parallela* and the beautiful *M. purpurina* occurred.

Amongst the Plusias I have brought away examples of *P. ni* and *P. gutta*, and the ubiquitous *P. gamma* swarmed.

Emmelia trabealis was abundant and generally distributed, and everywhere in swamps.

Erastia argentula was abundant.

The eastern species *Euclidia triquetra* flew in the sun not infrequently on the banks of the railway. Single specimens of *Agrotis ravidia*, *Xylina scripturosa*, *Cucullia xeranthemi*, and *Scotogramma stigma* came to light in our rooms.

Amongst the Geometræ *Euchloris volgaris*, the eastern representative of *E. smaragdaria* was common; its food-plant is undoubtedly *Artemisia*, on one species of which I saw females depositing ova in the daytime. Perhaps the most striking geometer we saw was the very handsome *Aspilates mundataria*, which was abundant everywhere; equally common, but very local, and only seen on the hills towards Tsaritsyn, was the delicate *Siona nubilaria* var. *exalbata*; and with it, and superficially closely resembling it, were large numbers of *Scoria dealbata*. One of the most abundant species was *Lythria purpuraria*, which occurred in the type form, and also as var. *lutearia*; amongst the Acidalias, *A. similata*, *A. sericeata*, *A. subtilata*, and *A. marginepunctata* were taken. Other species observed included *Rhodostrophia vibicaria*, *R. iacularia*, *Boarmia consortaria*, *Ematurga atomaria*, a remarkably light form, *Phasiane glariaria*, *Eubolia arenacearia*, *Fidonia murinaria* and *Scotosia rhamnata*.

The Pyralidæ were in enormous number as examples, but apparently they consisted of but very few species. Quite the most abundant of the group was *Phlyctaenodes sticticalis*, which swarmed everywhere; other species were *P. sulphuralis*, *P. verticalis*, *P. clathralis* and *Cledeobia connectalis*.

In the above list of Heterocera it is notable that almost half of them have been reported as having been found in Britain, which is a surprising proportion, considering the distance apart that the localities are, and the difference in climate that obtains. Still more notable, however, is the fact that out of the species that are on the British list about a dozen are our most local natives, or casual visitors; and point to the fact that the reason they are rare or local with us is that our country is on the extreme verge of their areas of distribution. Amongst the Micros very little could be turned up at Sarepta. The whole terrain swarmed with them; but with the exception of two or three species of Tineæ only odd specimens could be found. Single examples of one species were all I could get amongst the Crambidæ and Pterophori: and of the great Tortrix group less than half-a-dozen individuals were seen.

The following is a list of some specimens brought home, which Mr. J. H. Durant has kindly named:—*Euxanthia hamana*, *Cydia splendana*, *Plutella maculipennis*, *Pleurota pyropella*, *Coleophora vibicigella*, *Brachodes appendiculata* and *Tinea misella*.

NEW SPECIES OF HETEROCERA FROM FORMOSA.

By A. E. WILEMAN, F.E.S.

SYNTOMIDÆ.

Amata nigrifrons, sp. n.

♀. Head and thorax black, the latter spotted with orange beneath; abdomen black with five orange bands, the first (basal)