ESPECIALLY FOR FIELD COLLECTORS

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COLLECTING ON THE MACKENZIE AND IN THE WESTERN ARCTIC

by COLIN WYATT

On May 11th 1955 I arrived at Fort Smith, N.W.T. The ice had not yet gone out on the Slave River and there was no sign of leaf on the trees. All that was flying were a few hibernated *Polygonia faunus, P. j-album,* and *Nymphalis antiopa.* On May 18th *Lycænopsis pseudargiolus* appeared, in the forms "lucia" and "marginata," followed two days later by *Incisalia polios* and *I. augustinus,* which soon swarmed everywhere Bearberry was growing. Then the season began with a rush. Soon *Boloria freija* appeared, with some very dark undersides, *Erebia discoidalis, Pieris sisymbrii, P. bryoniæ* in a form close to *oleracea* but rather more strongly veined beneath, *Papilio glaucus canadensis* in an occasional male. *P. sisymbrii* was very plentiful along the forest margins and in clearings. Next *Euchloe ausonides* came out, not very common, and lastly on May 27th the first *Incisalia eryphon* was caught. Later on this species was locally not uncommon where pines grew, coming down off the tree-tops to feed at Bearberry blossom, and I took a good series. The females were mostly completely flushed with orange, and there were some good orange females among the other two *Incisalia. Glaucopsyche lygdamus,* presumably *oro,* came out here and there, never common, as did *Erynnis icelus.* On June 6th the first *Erebia disa* was caught, and soon the species was common in the dry, fairly open forest, in a form that was very much darker than *mancinus* from Banff, even the females barely showing any red suffusion. All specimens bore a red discal spot. The wing-shape was less rounded than in *mancinus.* The same day and place, to my surprise, I took a fine deep brown female of *Œneis chryxus caryi,* the first indication that I was a long way north of the normal west Canadian fauna, and on June 11th the first male of *Œ. macounii* was taken almost in the same spot.

By now spring had fully arrived. I then went by tugboat down the Mackenzie River from Fort Smith to Aklavik, calling at various places along the river. The first call was Fort Providence on June 14th. This was still a typical lush northern Canadian landscape of spruce and poplar forest; *P. glaucus canadensis* was plentiful, about the same size as Banff specimens, and I took 5 males and a female of *Œ. macounii* along the wide bridle paths in the forest, together with a few *G. lygdamus* and one fresh *Carterocephalus palæmon,* apparently much the same as Banff *mandan.*

Next call was Norman Wells, where we stayed from June 18th to 21st. This had for me been long a name to conjure with, and it was a great thrill to go ashore with net and set out towards the still snow-dotted Franklin

Mountains east of the river. Sure enough, in the first large, open, heathy clearing I took several *Œ. chryxus caryi,* and a little further on, where Labrador Tea was in full flower, the first *Colias* appeared, a fine male of *hecla glacialis.* This was a great excitement, followed almost immediately by a fine fresh male *Papilio machaon aliaska,* the only one I saw at the Wells. *Colias palæno chippewa* was fully out, and I soon had a good series of both Sulphurs. *C. hecla* males were scurrying everywhere, but the females mostly kept to the scattered forest clearings, where catching was not so easy. Of the 23 females I took in the four days, only one was orange, three were a pale primrose, two white flushed with orange on forewing disc, and all the remainder white. *C. chippewa* females were all white. One male *E. ausonides* was taken, apparently *mayi* with very pale grey apex. A few *Œneis jutta,* presumably *leussleri,* skipped about among the trees in the damper areas, together with a few *E. discoidalis* and *E. disa.* These latter were similar to the Fort Smith race, but smaller and a little darker, and quite obviously had nothing whatever to do with *mancinus.* A few small and dark *B. freija* were about, going over, while *B. titania* (if indeed it is *titania*) was fresh out, a small form beneath showing certain affinities with *rainieri* and very different to the deep purply race from Banff. I took on this trip some 200 specimens of the *titania-chariclea* complex, and exact denomination must wait until Dr. Klots has had a chance to work them over. *B. eunomia,* in a small form that is probably *dawsoni,* though a bit on the pale side, was just emerging. *B. frigga* was fairly common, apparently identical with Banff *saga.* One *Plebejus sæpiolus* turned up, and a few small and dull *G. lygdamus,* obviously a more "arctic" form than that at Fort Smith. Of the "blues" only *Everes amyntula* was common, swarming in all grassy, open places. *C. palæmon* was about, a smaller form than *mandan* and not so bright, yet brighter beneath than the eastern *mesapano* though similar to it above. I took a few of what is presumably *Erynnis persius avinoffi,* and another *Erynnis* sp. close to *icelus,* which I have so far not been able to identify. *P. glaucus* was about in a very small race, one male being even smaller than my *machaon aliaska;* further up towards the mountains the species was fairly common in both sexes, and is probably referable to *arcticus.*

This about covers the species flying on the flat ground within a mile of the river. Only the *Colias, E. disa, B. titania,* and *E. amyntula* were at all plentiful, all other species being rather scattered, *Œ. caryi* only occurring in one very small area near the airstrip. On my last day I tried to walk up to the hills, following any apparent track through the forest, often forcing my way through scrub. After four hours tough going I was only about 2,000 ft. above the river, and still a long way from the first upper slopes of the mountains, so I had to give up all hope of reaching them. However, after working a very promising-looking Cloudberry bog by a lake on a small plateau, without finding anything but a few *C. hecla,* I made a detour through the forest to go up a small rise for a view, and at its foot, in open clearings among the pines, where clumps of *Dryas integrifolia* was growing, I suddenly saw a large and dark *Boloria.* At first sight it reminded me of a female *B. alberta,* so I pounced on it. However, it was a very big and dark *polaris,* and after a lot of very

hard and exhausting work I had a series of 18. The species was exclusively associated with the *Dryas*. It was a large form, brightly marked beneath with large white markings, generally similar to the nymotypical form from Lapland and very different from the little darkly marked tundra race from around Hudson's Bay. Thank goodness I had made a good contact at the Imperial Oil Company the first night at Wells, so when I got back, hot, wet and tired, I was able to quench my well-earned thirst with beer, the last I was to have for a very long time.

Our next call was Fort Good Hope. As we docked I spotted a hilltop about two miles away, to which I made my way as soon as I could. In the dense forest I saw nothing, but the Cloudberry bogs were full of *B. polaris,* while a few fresh *B. titania,* the unknown species of *Erynnis, B. freija, B. eunomia* and *E. disa* were about. I took a pair of *Œ. chryxus caryi,* and four males of *Œ. brucei,* presumably *yukonensis*. But on the hilltop I had my reward. Here were *P. machaon aliaska* and *P. glaucus arcticus* sailing around in the forest clearings about 8 to 12 feet up, settling on the tops of poplar saplings. It was hard work, but I got a nice series, including a most magnificent melanic aberration of *aliaska,* which, when I first saw it on the wing, I hoped might be *nitra.* Contented I made my way down the steep slopes of the hills, blue with flax, to the hot and steamy Cloudberry bogs, picking up some more *polaris* as I went. Suddenly I saw a huge brown thing the size of a big Saturniid moth, fluttering round a spruce tree in amorous dalliance with a male *B. polaris;* out of curiosity I caught it, and to my amazement it proved to be a female, fresh emerged, of *P. glaucus,* the whole ground colour being a rich tawny color instead of cream, and with all black markings heavily enlarged and suffused across the wings.

After a day and a half placidly steaming down the river we came to another of those "names", Arctic Red River. This was undulating country, half bog, half dry ridges clothed in conifers, and thickets of alders and black birches. On landing I was met by an *E. discoidalis* and a *P. bryoniæ pseudobryoniæ,* reminding me strongly of *adalwinda* from Lapland. A round trip over the territory within two miles produced some nice *P. machaon aliaska* of both sexes, the females ovipositing on a small low-growing carroty plant, *B. polaris,* a few *C. hecla,* still apparently *glacialis,* with white females, a few *B. titania, Œ. taygete,* one *jutta* and one *E. pers'us avinoffi.* There was no sign of *Erebia youngi herscheli,* which I had hoped to see here.

So on we went, now up the Peel channel right in the Mackenzie delta, to Fort MacPherson. Here *machaon* and *bryoniæ* were flying over the grass between the houses and river bank, but I found my Mecca in a large Cloudberry Bog just half a mile beyond the western edge of the settlement. Hardly had I reached it than I took a fine *Pyrgus freija,* and a moment later, with a subconscious side-swipe, I netted a small passing *Erebia.* On taking it out of the net I began to shake with excitement — a perfect male *youngi herscheli!* But for a long time I saw no more, contenting myself with *P. machaon,* which was plentiful if hard to catch, *B. polaris, Œ. taygete,* and occasional *Œ. brucei,* and the odd *E. disa* and *freija.* The *disa* were still small and dark, close to

the Norman Wells form, the bands beneath not very clearly defined. Then a *B. frigga* appeared, the first of the large pale form *gibsoni* (*alaskensis*). One hibernated female of *Polygonia gracilis* turned up, a species I had not expected to see nearly a hundred miles north of the Arctic Circle. But by the time five o'clock came I had taken six more *E. youngi,* here and there in the damper areas near to the forest edge. They were not so easy to take as *disa.* All were as fresh as paint, and I was struck with the resemblance, especially beneath, to the asiatic *E. dabanensis,* of which it may prove to be a race. Next morning I had time for a quick three hours in the same place, and got two more *E. youngi,* some more *B. frigga gibsoni,* a series of *titania* which now began to look very like *chariclea* though still probably the former. A few *C. hecla* and *palæno* were about.

On June 28th I landed at Aklavik. Aklavik has little to recommend it. Situated on a sharp point inside a hairpin bend of the river, it is cut off inland by impassable swamps, lakes and forest, and there is hardly anywhere to collect. However, I took a series of *P. pseudobryoniæ,* some *P. gracilis, C. palæmon,* and *E. amyntula,* and some *B. titania* which, for all that they were flying in what I call a typical *titania* habitat, like the Norman Wells specimens, I now feel are probably *chariclea* upon comparing the two spread series. So I obviously had to get out of Aklavik for good collecting. I had nearly a month before I had to catch my ship at Tuktoyaktuk for Coronation Gulf, so after a lot of checking up on transport possibilities, I at last got away with my tent into the mountains by the N.W.T. Yukon border. Here I was dumped with food for five days in solitude apart from several quadrillion mosquitoes.

I soon found a good camp-site on open, heathy tundra about a mile from the foot of the mountains. Both *Colias* were flying, as were *P. machaon, P. glacilis,* and *Œ. taygete.* It was a bit cloudy, so things were sluggish. *B. "titania"* was again there, now I feel probably *chariclea, frigga gibsoni, eunomia* in a very pale form new to me, not *dawsoni;* I circled around near the forest edge and finally picked up three *youngi,* while in the open cotton-grass areas I took three male *E. fasciata,* also not as fresh as I would have liked. But this was a good start; my camp-fire smoke drove off the mosquitoes, and not even a thunder storm could disturb my slumbers behind the large handkerchief I had tied over my eyes to keep out the Midnight Sun.

Next day dawned fine, so I rubbed myself well with "612" and made a bee-line for the mountains. The usual things flew on the flatter ground, but as soon as I began to climb I took a male *E. rossi,* probably *gabrieli,* small and dark with barely an apical ocellus. After some 1,100 ft. I met with *C. nastes subarctica* and *B. improba,* probably *E. youngi,* flying low over the ground on grassy subalpine slopes thickly covered with the dwarf *Salix uva-ursi. Arnica alpina* was the chief flower, to which the *nastes* gladly came, about the only chance one had of taking them. Here also flew undoubted *chariclea butleri,* some of the females being almost black; at the time I thought they might be different to the bolorians I had taken at Aklavik in the forest, but upon comparing them now I doubt it. This will be a nice problem for Dr. KLOTS.

On and on I climbed. At 1,300 ft. I went through a belt of dwarf alders, and above this came to damp slopes from whence the snow had not long gone, the moisture coming from the large drifts higher up which were rapidly melting. Here were a few *E. rossi* and *E. disa,* the latter now true *subarctica* with distinct bands. The former were fresh, the latter going over. Higher up, at about 2,200 ft. I came to an enormous shelf that was a shimmering, silvery mass of cotton-grass. Its countless tussocks were a pugatory to walk over, but I had the satisfaction of taking five *E. fasciata* with one fine fresh female. Also more *rossi,* while at the upper edge of the plateau, on the mountainside, I took several of a small, dark, and very heavily-spotted form of *B. freija* which I am sure is referable to *natazhati.* With it, on the same slope, I took *B. frigga gibsoni* and *improba.*

At last I came to the summit, a long, stony ridge. As was to be expected, the first things sighted were several *P. machaon aliaska* males chasing about, and later I took two pairs *in cop.* But suddenly a *Boloria* skimmed past, sat for a second on a flat stone with outspread wings, and dashed off again. What the devil was this? It reminded me of *astarte,* but I had never heard of *astarte* up here. Back it came. I stalked it carefully and got nt: a big *Boloria* of a pale ochre-yellow. I turned it over. Then I nearly fell over. *Distincta!* There was no doubt about it — I was holding a bug of which only three specimens were known, taken nearly forty years ago! So I began to concentrate on the rocky mountain top and finally, after much exert on, took a good series of males. At last the time came to go down. I followed the northern ridge off the top, coming round a shoulder onto a steep grass and rock slope, covered with pink mats of *Phlox sibirica* and white clumps of Saxifrages. A yellow *Œneis* got up; I caught it. Now what was this? It seemed nearest to Lapland *norna* but yet very much more strongly marked. I still do not know what it is — probably a new species. Tom Freeman and I later found two more mixed up with *Œ. cairnesi* in the Canadian National Collection, and two more in the Carnegie Museum at Pittsburgh. New York had none. A little later I took a female *Œ. melissa,* race uncertain, the only specimen I saw all summer, at 3,000 ft. Finally at 1,200 ft., almost down, I found where the females of *E. youngi herscheli* flew, taking three, with eleven males taken mostly singly elsewhere during the day. So it had been a good day.

Next day looked stormy. I set off up the mountain again, but the top was obviously going to be in shadow all day. I concentrated on *E. youngi,* but only got five, with one female on the same ground. However, *E. fasciata, E. disa, B. improba, C. nastes* and *B. natazhati* were about, and over the edge of a spur, on a steep gravelly slope, I took two males of a small, light, immaculate *Œneis, cairnesi,* another of the things not turned up since Gibson's expedition. Here I also found the females of *B. distincta,* together with a few males. This was indeed a locality! I spent three more days on the mountain, and ended up with a fine series of most of the species so far taken, all but *E. disa subarctica,* which was not at all common and going over. Some more *Œ. brucei yukonensis* turned up, some other *Œneis* that are some form of *polixenes,* and, on my last day, two males of *Plebejus optilete yukona,* fresh

out. I saw what looked like *Colias gigantea* in a willow swamp, but did not get any. At 6 p.m. my transport came and back I went to Aklavik.

Two collecting days at Aklavik produced a short series of *P. optilete yukona,* the first two *Cœnonympha tullia yukonensis,* a series of the local *B. "titania"* and of the pale arctic race of *B. eunomia.* To my surprise a female of *Phyciodes campestris* turned up, togther with one *P. faunus* and more *P. gracilis. P. pseudobryoniæ* was common. Then I went off down the delta on a small schooner towards the Arctic Ocean. We called in at one Eskimo camp on the tundra north of the tree-line, where in ten minutes I took a small unknown *Œneis,* possibly *cairnesi* but not for sure, another *P. campestris* female, and a heavily marked female of *Plebejus aquilo bryanti.* Then we sailed on to Whitefish whaling beach, on the ocean near Tuktoyaktuk. I spent nearly ten days collecting on the tundra at Whitefish and at Tuktoyaktuk. The mosquitoes were appalling, but the collecting good. I ended up with nice series of *E. fasciata,* some of which had the pale submarginal band of the hindwing beneath very narrow, approaching *avinoffi, E. rossi gabrieli,* and enough *E. disa subarctica* to make a fair showing, the species being always very local, flying singly near alder scrub; *Œ. taygete,* a few *Œ. polixenes,* and some more *E. youngi herscheli* with two females, and one more female of the new unknown *Œneis* near *norna. B. chariclea butleri* swarmed, while *polaris* was common and *improba* occurred sporadically. These were typical *improba improba,* the hindwing beneath almost unicolorous purple with the silver costal streak, while those I had taken in the mountains had all been a paler form with lighter, distinctly marked and banded undersides, presumably *youngi. C. hecla hecla* flew everywhere but not in any great numbers, and with it a few specimens which may prove to be a form of *boothi.* The *hecla* females were all deep orange with very heavy black borders, and of large size. *P. optilete yukona* was widespread over the area wherever *Vaccinium* grew. The final surprise was a fine female, darkly marked, of *Boloria pales,* presumably *alaskensis,* and close search in both localities produced a reasonable series. Just before sailing from "Tuk" I took a fine series of *P. aquilo bryanti* just behind the settlement, and one female of *Hesperia comma.*

After three days through the ice pack we at last dropped anchor in Coppermine. Here I decided to leave the ship, and trust to luck to get transport on further east somehow or other in God's good time. Anyway collecting was good, even though a bit late, July 26th. There was no sign of *Œneis peartiæ,* which should fly here, nor of *C. boothi* or *E. fasciata. C. nastes* was very worn, as was *chariclea. C. palæno chippewa* was also going over, but some fine yellow females turned up. The best find here was *Lycæna phlæas feildeni,* a far paler and more washed-out form than the Lapland *polaris,* and I got a good series after much hard and concentrated work. *P. aquilo bryanti* and *P. optilete yukona* were not uncommon, and I took five males and two females of a very dully marked but fair-sized form of *Plebejus argyrognomon,* which may or may not be synonymous with *kodiak. B. pales* was fairly plentiful and I took quite a nice series. By the time I left, on an unexpected survey aircraft that dropped in on August 3rd, autumn was definitely in the air. I was dropped

off at Bathhurst Inlet, where all that I saw were a few battered *C. palæno,* five *P. aquilo* and one *L. phlæas feildeni,* even less marked than the Coppermine ones, but with only one specimen I cannot make any comments.

After two weeks at Bathurst I finally went on to Victoria Island, and later to the Boothia Peninsula, but by that time the season was over and not a bug to be seen. The flowers were all in seed and the migratory birds already beginning to collect for their long flight south. At last an aircraft turned up and flew me out, but not until the first blizzard had come and the lakes begun to form ice. I had seen the short arctic summer come and go — it had been all too short for me. However, I had got pretty well everything I wanted, and a few things I had never expected to see in my life outside of a museum, so I was happy. Apart from that, there is a calmness and peace about the Arctic which is most soul-satisfying. I hung on in the North until the sea freeze-up started, and when I finally returned to the "outside" at Halifax by way of Baffin Island and Labrador, I swore I would return to the Arctic at the first opportunity.

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NOTES ON TECHNIQUES

Every collector has pet techniques or ideas. Some of mine may be of interest to other amateurs.

Unlike most entomologists, I use ethyl acetate as the killing agent in my jars. Among the advantages are: 1) It is non-poisonous to humans. Thus it can be safely used around children. 2) Even though the insect stops fluttering within a few seconds, it can be revived even some minutes after capture for release or egg-laying without ill effects. This is especially useful for a collector who rears 3) Jars may be easily made by pouring plaster into wide-mouthed screw-cap jars as with other killing jars. When the plaster dries the ethyl acetate can be poured in as needed. 4) Specimens stiffen only upon very long contact with the reagent. One must be careful not to soak the plaster too much, or the insect may become wet and harden. The ethyl acetate evaporates from the specimen rapidly, leaving the scales unaffected. The stiffness remains, however, but can be eliminated by a short stay in a relaxing box.

Some disadvantages are as follows: 1) Many collectors want a killing agent that acts quickly. 2) Since the ethyl acetate is volatile, jars must be recharged frequently. 3) Rubber ringed caps can not be used, for the reagent softens and dissolves rubber. This can be avoided by inserting a tight cardboard disc into the cap. The cardboard can be covered with aluminum foil or wax to make a tight seal. Needless to say, to me the advantages outweigh the disadvantages.

For several years, I have covered my spreading boards with graph paper attached by means of soft glue. The squares speed mounting and enable more accurate positioning of the wings. The soft glue allows pins to go through very readily. When the boards get too worn, the paper can be sanded down and a new layer pasted on.

In rearing larger larvæ, I use wide-mouthed glass jars or large waxed cottage cheese cartons. These can be easily cleaned and washed. Netting can be fastened over the mouth of the container with a rubber band. On very humid days when moisture collects in the containers, they can be held up to a fan for a few minutes whenever needed.

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