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## Some More High-Alpine Sawflies (Hymenoptera Tenthredinidae)

by

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(British Museum (Natural History), London)

My wife and I spent June 1959 continuing our investigations of the sawflies and other Hymenoptera of the high Swiss Alps. From June 5th–19th we stayed at Bettmeralp, near Brig, Valais, at about 1938 m. (6460 ft.) and from June 19th–July 1st at Verbier, Valais, at about 1500 m. (5000 ft.).

The present paper is restricted to those sawflies associated with the arctic-alpine vegetation and is intended as an addition to the account of this fauna that I have already given (Benson 1955, *Mém. Soc. R. ent. Belg.* 27 : 74–81). Most of the material dealt with here was collected from willow scrub (mainly *Salix lapponum* L. subsp. *helvetica* (VILL.) SCHINZ and KELLER) in catkin or opening bud on north-sloping scree, or on patches of *Salix reticulata* L. *herbacea* L., and *retusa* L. in catkin, at altitudes between 2100 and 2400 m. (7000 and 8000 ft.) or (when we were staying at Bettmeralp) on similar vegetation close to the Aletsch Glacier down to about 1800 m. (6000 ft.). At 2745 m. (9000 ft.) on Mt. Rognieux near Verbier between snow storms on June 27th we collected within a few minutes representatives of two arctic species not previously known from Central Europe as well as the only specimens of a new *Pontania* and additional specimens of two other new species. There must be several more new sawflies awaiting discovery in these regions.

A sample collection of high-alpine sawflies is being deposited in the Musée Zoologique, Lausanne.

### **Nepionema** gen. nov.

Belongs to Nematinae of the Tenthredinidae.

*Antennae* more than twice as long as breadth of head behind the eyes. *Head* with eyes sub-parallel in front, less than one and a half times as far apart as their height. Malar space shorter than breadth of

2nd antennal segment. Clypeus subtruncate in front and only slightly emarginate medially. Inter-antennal area strongly produced. Antennal hollows (between antennal sockets and inner orbits) deep.

*Thorax* with the suture dividing the front mesonotal lobe medially, the suture separating the post-tergite of the mesoscutellum and the suture separating the prepectus from the mesopleura, obsolescent. *Wings* (fig. 5) with 2<sub>rm</sub> always absent in forewing so that cells 1RS and 2RS are always fused as in *Euura* but cell 2R1 is divided by a cross-vein; Sc is almost interstitial with origin of M from R, and C is strongly swollen apically as in *Dineura*.

*Legs* with hind tarsus almost as long as tibia; and 4th segment longer dorsally than apically. Tibial spurs a little longer than apical width of tibia. Tarsal claws without any secondary inner tooth and the main tooth bent at almost 90° (fig. 4). *Abdomen* in ♀ with strong ovipositor, longer than hind tibia, and cerci subclavate.

Type species: *Nepionema helvetica* sp. nov.

### ***Nepionema helvetica* sp. nov.**

♀. Black or piceous with brownish yellow tegula, apices of femora, tibiae, and tarsi basally and underneath, as well as base of sawsheath. Wings subhyaline; disc of stigma (paler basally), base and apex of C brownish-white; margins of stigma and rest of venation brown. Length 4.5-5 mm.

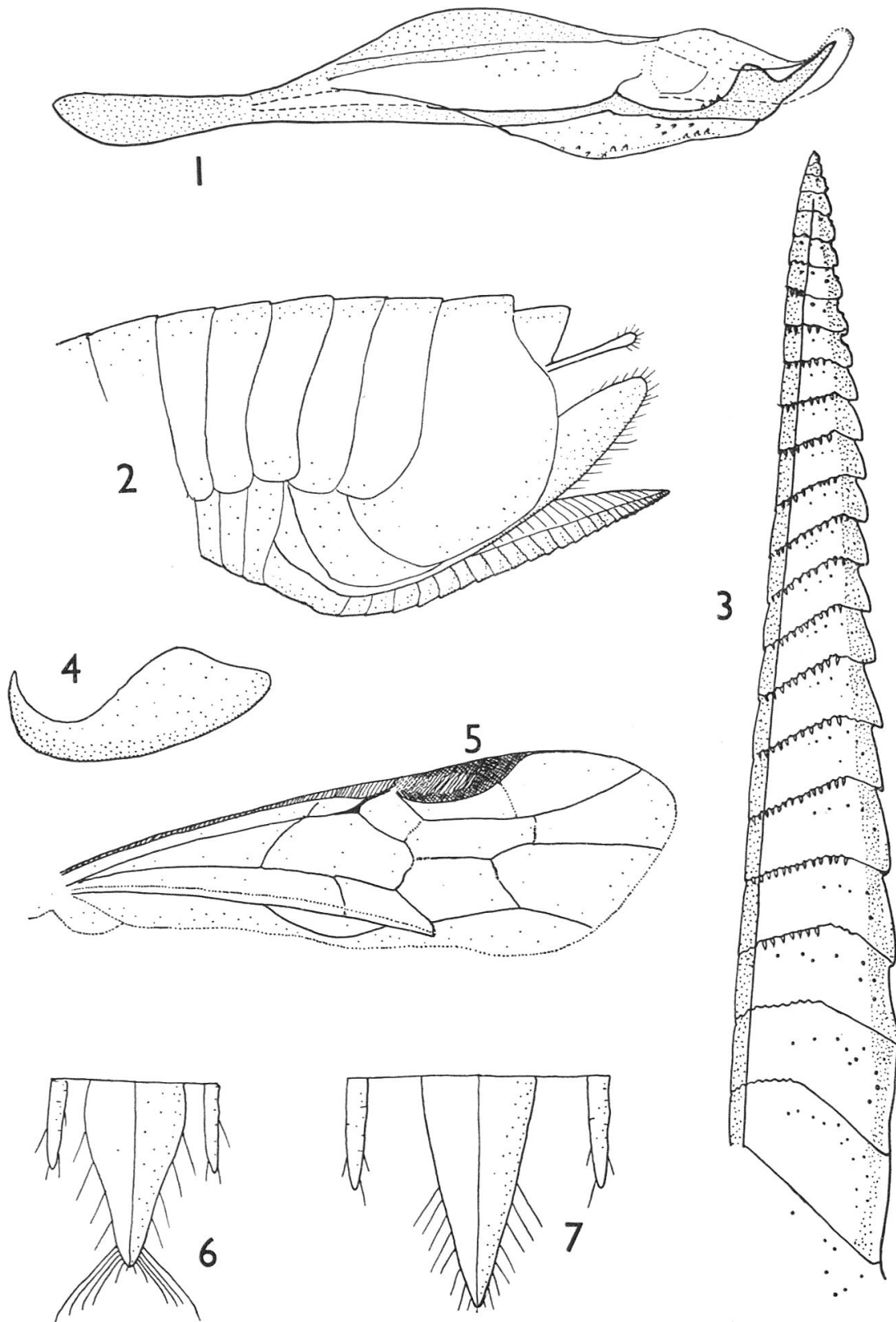
*Antenna* about as long as C of forewing; segments 3 and 4 subequal and together about as long as 7 + 8 + 9. *Head* with height of eye to distance between them as 1.0 : 1.4. Malar space about two-thirds as long as distance between antennal sockets. Frontal area raised and flat with only slightly carinate margin. Hind ocelli about as far from hind margin of head as their own diameters; POL : OOL as 1.0 : 1.1.

*Abdomen* with sawsheath acuminate apically in dorsal as well as lateral view (fig. 2). Suberect with powerful saw (fig. 3) not reaching back beyond apices of subsclavate cerci.

*Punctuation*: whole insect shining, with surface sculpture mainly obsolete apart from minute hair-warts and slightly coriaceous tergites. *Pubescence* dense on head and mesonotum, and in length up to about three-quarters as long as diameter of ocellus; absent on broad pleura-sternal line of meso-thorax, and on abdomen.

♂ as ♀ but has tegula black, and C and stigma of forewing darker in colour, the antenna as long as C + stigma, a slight truncate medial apical projection to last tergite and penis valve of genitalia as in fig. 1.

*Switzerland*, Valais: Aletschwald, 6000-7000 ft. 14 ♂, 7 ♀ (including Holotype), 7-17.VI.1959 (J. E. & R. B. BENSON); Bettmeralp, 6000-7000 ft., 1 ♂ 7-17.VI.1959 (J. E. & R. B. B.); near Verbier,



Figs 1-5. — *Nepionema helvetica*: 1, penis valve; 2, apex of ♀ abdomen laterally; 3, saw; 4, tarsal claw; & 5, right forewing.  
 Figs 6-7. — Sawsheath from above in: 6, *Pontania retusae*; 7, *Amauronematus nimbus*.

c. 7,500 ft., 2 ♂, 2 ♀, 20-28.VI.1959 (J. E. & R. B. B.); near Verbier, 8000-8500 ft., 2 ♂, 5 ♀, 27.VI.1959 (J. E. & R. B. B.) Total : 20 ♂, 14 ♀.

Of described genera *Nepionema* is closest to the North American *Neopareophora* which however always has the cross-vein 2rm present in the forewing, has normal cerci and a short ovipositor. In the key to Nematine genera in Benson 1958 (*Handbks Ident. Brit. Ins.*, 6, (2 c) : 144-149.), *Nepionema* would run to couplet 7 (3), in which it would not fit, because, although it has « Antenna more than twice as long as breadth of head » and other characters such as the dilated Costa and position of Sc in forewing of *Dineura*, it has the converging eyes and shorter malar space of the other half of the couplet leading to *Mesoneura* and *Pseudodineura*. However its strongly bent simple claws and the regular absence of the vein 2rm in its forewing distinguish it from all three genera.

### ***Pristiphora borea* (KONOW)**

*Pristiphora borea* (KONOW)

BENSON, R. B., 1958. *Handbks Ident. Brit. Ins.*, 6. Hym. (2 c) : 171 & figs 459, 464 & 473.

We found specimens of this species on *Salix* scrub on screes in various places over 6000 ft. at Bettmeralp, by the Aletsch Glacier and above Verbier. I have also seen a pair reared from larvae on *Salix glabra* SCOP. found by Mr. Rudolph Hinz above the tree-line near Hindelang in Bavaria near the Austrian border in 1957. And I have seen specimens from the Austrian Alps collected by Prof. Dr. Franz of Vienna. It has not been recorded before from C. Europe.

### ***Amauronematus latiserra* (MALAISE)**

*Pontopristia latiserra*

MALAISE, R. 1921. *Ent. Tidskr.* 42 : 14.

*Amauronematus amentorum* (FÖRSTER)

BENSON, R. B. 1955, *Mém. Soc. R. ent. Belg.*, 27 : 78, nec FÖRSTER.

*Amauronematus latiserra* (MALAISE).

PETERSEN, B. 1956, *Zool. Iceland*, 3 (49-50) : 14.

I found representatives of this arctic species on *Salix* scrub by the Ferpècle Glacier, Valais in June 1935 at from 6000 to 7000 ft. and they were named by Conde as *A. amentorum* and so recorded by Benson 1955. Another specimen was found in June 1959 on *Salix* scrub at about 7,500 ft. above Verbier. The species has not been recorded before from Central Europe.

### ***Amauronematus coracinus* LINDQVIST**

*Amauronematus alpicola* KONOW.

BENSON, R. B. 1955, *Mém. Soc. R. ent. Belg.*, 27 : 78, nec KONOW.

*A. coracinus*.

LINDQVIST, E. 1959. *Not. ent.*, 39 : 14-15.

I found this species not uncommonly on *Salix* scrub at from 7000 to 8000 ft. at Arolla and Ferpècle in Valais in June 1935, and again at from about 7,500 to 8000 ft. above Verbier in June 1959. The original specimens were named by Conde as *A. alpicola* KONOW. I recently sent specimens to Lindqvist who tells me that they are not *A. alpicola* KONOW (which is but a synonym of *A. taeniatus* LEPELETIER) but a previously undescribed species which he has since described.

### ***Amauronematus enslini* LINDQVIST**

*Amauronematus enslini*

LINDQVIST, E. 1959, *Notul. ent.*, **39**: 8-9.

Specimens of this species which I collected from *Salix* scrub by the Ferpècle Glacier at from 6000 to 7000 ft. in Valais in June 1935 were identified by Conde as *A. distinguendus* Enslin. I recently sent specimens to Lindqvist who says they are not *A. distinguendus* but a new species which he has since described. The species occurs also in Norway.

### ***Amauronematus variator* (RUTHE)**

*Nematus variator*.

RUTHE, J. F. 1859. *Ent. Z. Stettin*, **20**: 308.

*Amauronematus variator* (RUTHE).

BENSON, R. B. 1955. *Ent. mon. Mag.*, **91**: 104-105, figs.

LINDQVIST, E. *Notul. ent.*, **38**: 2-3, figs.

I found a single female of this species on a herbaceous *Salix* at about 9000 ft on Mt. Rogneux near Verbier on June 27th 1960. Close by was a specimen of *A. abnormis* Holmgren. Neither have previously been recorded from Central Europe. *A. variator* is a circumpolar arctic species thought to be replaced in Central Europe by *A. godmani* Benson (Benson 1955, *l. c.*). *A. godmani* is in my experience far the most abundant *Amauronematus* on high alpine or glacial *Salix* scrub in Switzerland; and I have also found it on the Raxalpe in Lower Austria at 6000 ft. as well as in N.W. Scotland. In *A. godmani* males predominate and the antennae are longer (4th segment as long as longest measure of eye); *A. variator* on the other hand is a parthenogenetic species and has shorter antennae (4th segment much shorter than longest measure of an eye).

### ***Amauronematus nimbus* sp. nov.**

*Amauronematus leptcephalus* (THOMSON)

BENSON, R. B. 1955. *Mém. Soc. R. ent. Belg.*, **27**: 78, nec THOMSON.

♀ Black except for the following which are yellow: mouthparts, labrum, front margin of clypeus, small spot adjoining top of eye and spot on upper hind orbit, tegula, apices of coxae and  $\pm$  trochanters below,  $\pm$  apical half of femora, tibiae and tarsi though  $\pm$  infuscate

above, the two apical tergites laterally and apical margin of sternites obscurely as well as base of sawsheath. Wings hyaline; stigma and C brownish white, rest of venation brown.

*Head* strongly contracted behind eyes and with coarse rough surface.

*Antenna* as long as C of forewing; 3rd segment about as long as short diameter of eye; long measure of eye greater than any antennal segment. Malar space about equal to distance between antennal sockets. POL = OOL. Posterior ocelli further apart than from hind margin of head as 1.0 : 0.8.

*Thorax* with mesonotum shining between  $\pm$  regular punctures. Mesopleura coriaceous. Hind tarsus about five-sixths length of tibia. Hind inner tibial spur about as long as apical width of tibia. Claws cleft.

*Abdomen* coriaceous above. Ovipositor about two-thirds as long as hind tibia. Sawsheath acuminate in dorsal view (fig. 7) with the apex about as wide as a cercus, but the cerci reach back only about two-thirds as far. Saw as in *A. sagmarius* KONOW (BENSON 1958, *Hanbks Ident. Brit. Ins.*, 6 (2 c) fig. 536 & 540). Length 6.5–7.5 mm. ♂ as ♀ but head is darker; the pronotum, tegula, coxae, trochanters and femora except extreme apices are entirely black and abdomen except hypopygium, genitalia, and apical margins of sternites obscurely. Wings hyaline; stigma brownish white medially; margins and rest of venation brown. Antenna with segment 3 about equal to the greatest measure of an eye. Malar space longer than distance between antennal sockets as 1.0 : 0.7–0.8. Apical tergite triangularly produced. Penis valve as in *A. sagmarius* KONOW (BENSON, 1958, *op. cit.* fig. 571). Length 5.5–6.5 mm.

*Switzerland, Valais*: Ferpècle, 5000–7000 ft. 2 ♂, 1 ♀, 9.VI.1935, 2 ♂, 3 ♀, 14.VI.1935, 4 ♂, 3 ♀, 21–27.VI.1935; 7000–8000 ft. 5 ♂, 22.VI.1935 (J. E. & R. B. BENSON); Les Haudères, Alp du Zaté, 6000–8000 ft. 1 ♂, 10–20.VI.1935 (J. E. & R. B. B.); Arolla, 7000 ft., 1 ♀, 12.VI.1935, 3 ♂, 18.VI.1935, 1 ♂, 29.VI.1935 (J. E. & R. B. B.); Aletschwald, 6000–7000 ft. 3 ♂, 9 ♀, 7–17.VI.1959 (J. E. & R. B. B.); Bettmeralp, 6000–7000 ft. 3 ♀, 5–16.VI.59 (J. E. & R. B. B.); Eggishorn, Märjelenalp, 7000–8000 ft. 1 ♂, 18.VI.1959 (J. E. & R. B. B.); near Verbier, c. 7500 ft. 23 ♂, and 8000–8500 ft. 3 ♂, 1 ♀ (Holotype), 27.VI.1959 (J. E. & R. B. B.). Total: 51 ♂, 21 ♀.

Specimens of this species collected in 1935 were sent to CONDE before the war and named by him *A. leptcephalus* THOMSON. This is an arctic species very similar in structure with almost identical saws (as in *A. sagmarius* KONOW see fig. 536 in BENSON 1958, *l. c.*) but distinguished readily by its much longer antennae, longer than C of forewing, with the 3rd segment longer than the greatest measure of an eye. *A. viduatinus* MALAISE from East Asia is very similar to the new



species even in saw and antennae, but its head is not contracted behind the eyes.

### **Amauronematus abnormis** (HOLMGREN)

*Nematus abnormis*.

HOLMGREN, A. E. 1883, *Ent. Tidskr.* **4**: 148.

*Amauronematus tolli*

KONOW, F. W. 1907. *Mém. Acad. S. Petersb.*, **18**: 20-21.

*Amauronematus abnormis* (HOLMGREN).

BENSON, R. B. 1958. *Handbks Ident. Brit. Ins.*, **6** (2 c): 179, 187 & figs.

I collected a single female of this species crawling on a carpet of *Salix retusa* L. on a hillock surrounded by snow near Lac Vaux, Mt. Rognieux at about 9000 ft. above Verbier on 27.VI.1959 when snow was actually falling. This is a high arctic circumpolar species known from Scotland but not previously from Central Europe. The species varies in the extent of yellow on the head and thorax as well as in the size of the wings. The Swiss specimen is 7 mm. long and has the head (except only for the mouthparts and a pair of temporal spots), thorax and abdomen almost entirely black. The wings are almost normal in size and venation, but that the extreme apex of the forewing is slightly emarginate. And, as is to be expected in females with well-developed wings, the mesonotal sutures are more strongly marked than in the short-winged forms.

### **Pontania crassipes** (THOMSON)

*Pontania crassipes* (THOMSON).

*P. arctica* (MACGILLIVRAY) syn. nov.

BENSON, R. B. 1960. *Bull. Brit. Mus. (Nat. Hist.) (Entomology)* **8**(9): 377-380.

A colony of a species of *Pontania* feeding on the catkins of *Salix reticulata* L. was found on an exposed slope at about 7500 ft. above Verbier. Some of the previous-year's galls attached to the undersides of withered leaves of the same *Salix* were found. The species was assumed at the time to be *P. arctica* (MACGILLIVRAY 1919) (= *reticulatae* MALAISE 1920), a circumpolar arctic species not previously recorded from Central Europe. Unfortunately I cannot now distinguish the adults any more for certain from those of *P. crassipes* on the length of the spurs. *P. crassipes* is common locally in Switzerland on *Salix herbacea* L., *S. arbuscula* L., etc. The main reason for keeping *P. crassipes* and *P. arctica* distinct was because of the different form of gall in the two species: the galls of *arctica*, at least in Europe, are developed mainly on the undersides of leaves of *Salix reticulata* with only a small scar above; whereas those of *crassipes* are transected by the leaf-blades of various arctic *Salix* other than *reticulata*. BENSON (1960) however has now shown that North American galls of *arctica* are also more or less transected by the leaf-blades of their host-plant; and after amassing much more material from several different host-plants it has become evident



that the length of the spur varies from colony to colony. I propose therefore to treat *arctica* as a synonym of *crassipes* for the present.

As is so often characteristic of common arctic insects *Pontania crassipes* is exceedingly variable not only in surface sculpture, size, shape, proportions, and colour pattern, but also in form of gall and host-range. In distribution it is arctic circumpolar.

From other species in the *viminalis-crassipes* group it can be distinguished by the following combination of characters: colourless wing stigma, swollen femora (hind femur measured from extreme apex to beginning of trochantellus is 1.0:3.5-4.0 as broad as long) and short antennae (3rd segment about as long as shortest measure of eye in ♀ and longest measure of eye in ♂). Its characteristic pea-shaped gall is attached to a main vein of a leaf and is usually developed almost as much above as below the leaf blade. The known host range is: *Salix reticulata* L., *S. herbacea* L., *S. polaris* WHLB., *S. arctica* PALL., *S. myrsinites* L., *S. lapponum* L. and *S. arbuscula* L.

### ***Pontania retusae* sp. nov.**

♀ Black with the following ± brownish: mandibles, labrum, tibiae and tarsi below. Wings hyaline; stigma and venation ± brown.

*Head* shining with feeble surface sculpture, and contracted behind the eyes. Malar space about two-thirds as long as distance between antennal sockets. Supraclypeal scarcely convex (as in *Amauronematus*). Frons slightly raised and flat above, without lateral carinae; anterior wall very feebly channelled medially. Hind ocelli about twice as far apart as from hind margin of head. POL:OOL as 1.0:1.1. Antenna scarcely as long as C of forewing; 3rd segment about as long as shortest measure of eye.

*Thorax* shining with obsolescent surface sculpture. Anterior mesonotal lobes with medial suture obsolete. Legs with hind femur about 1.0:4.5 as long as broad (measured from apex to beginning of trochantellus); hind tarsus scarcely as long as tibia; inner hind tibial spur longer than apical width of tibia. Wings normal.

*Abdomen* shining, but slightly coriaceous above; ovipositor about as long as hind tibia; sawsheath acuminate behind in dorsal view (fig. 6) with cerci not reaching to apex of sheath. Saw normal.

*Pubescence* on head, thorax and wings (especially on C and main veins) upstanding and in length up to the diameter of an ocellus; sparse on mesosternum and abdomen; antennal hollows glabrous. *Length* 4 mm.

*Switzerland*, Valais, Mt. Rogneux, Lac Vaux near Verbier, c. 9000 ft., at catkins of *Salix retusa* L., 2 ♀, 27.VI.1959 (R. B. BENSON).

The plants from which these specimens were collected had young galls developing on the unfurling leaves and beneath them some of the

previous year's galls attached to withered leaves. These galls, which are very probably the galls from which the *Pontania* emerged, were pea-shaped and almost equally developed above as below the leaf-blade. The patch of *Salix* was on a hillock surrounded by a deep and extensive snow-field, and snow was falling shortly before and after the time of their capture.

Although I have searched on and under hundreds of plants of *Salix retusa* L. for *Pontania* galls these were the first and only ones I have ever found. And after finding the galls I had to search assiduously before I could find any adults.

This species is undoubtedly closely related to *P. crassipes* and has the same short antennae, long pubescence and form of gall as that species; it differs however in its less swollen femora and its acuminate sawsheath. Since however our concept of *P. crassipes* has been broadened lately to that of an extremely variable species and most of its supposed near relatives have become its synonyms, it is possible that *P. retusae* might also later come to be regarded as but a form of *P. crassipes*.

### ***Pachynematus declinatus* (FÖRSTER)**

*Nematus declinatus*.

FÖRSTER, A. 1854, *Verh. naturh. Ver. preuss. Rheinl.*, **11**: 348, T. 6, f. 52.

*Pachynematus declinatus* (FÖRSTER).

ENSLIN, E. 1916, *Deuts. ent. Z., Beihefte*, **1916**: 471-472, & 493.

BENSON, R. B. 1955 (i), *Ent. mon. Mag.*, **91**: 104, ♂, figs 1 & 2.

*P. inopinatus* LINDQVIST.

BENSON, R. B. 1955 (ii), *Mém. Soc. R. ent. Belg.*, **27**: 78, nec LINDQVIST.

I described the male of this species from material collected in Valais in 1935 (BENSON 1955 (i)), but treated what I now know to be the females as representatives of *P. inopinatus* (BENSON 1955 (ii)). Two of these females taken at *Salix* by the Ferpèche Glacier, Valais, at 6000-7000 ft, 21-27.VI.1935 were sent to Conde before the war and named by him as *Pachynematus parvilabris* (THOMSON), which they certainly cannot be. The specimens were badly damaged during the war in the Berlin Museum and lacked saws when returned here afterwards. One further female was obtained from *Salix* scrub at about 8000 ft above Verbier on 27.VI.1959. This specimen has a 17-banded saw as in *P. glabriceps* LINDQVIST but the antennae are much longer than in that species, the 3rd segment being clearly longer than the greatest measure of an eye.

### ***Pachynematus ravidus* KONOW**

*Pachynematus ravidus* KONOW

ENSLIN, E. 1916, *Deuts. ent. Z., Beihefte*, 1916: 470-471.

On the Raxalpe in Lower Austria at over 6000 ft. in June 1957 I found this species plentifully on *Rumex alpinus* L., and likewise near Bettmeralp and in the Aletschwald in 1959 in alpine grassland. This

species is very similar to *P. rumicis* (L.) but apart from the differences given by Enslin the saw is divided into 9 segments with 7 ventral teeth (11 segments and 9 teeth in *rumicis*) and on the head POL is less than OOL as 1.0 : 1.4 (in *rumicis* it is greater as 1.0 : 0.9).

### SUMMARY

The following additions are made to the high-alpine sawflies of Central Europe : *Nepionema helvetica* BENSON, Gen. et sp. n., *Pristiphora borea* (KONOW), *Amauronematus latiserra* (MALAISE), *A. coracinus* LINDQVIST, *A. enslini* LINDQVIST, *A. variator* (RUTHE), *A. nimbus* BENSON, sp. n., *A. abnormis* (HOLMGREN), *Pontania retusae* BENSON, sp. n., and *Pachynematus ravidus* KONOW.

The following should be deleted : *Amauronematus amentorum* (FÖRSTER), *A. alpicola* KONOW, *A. distinguendus* ENSLIN *A. leptcephalus* (THOMSON) and *Pachynematus inopinatus* LINDQVIST.

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### Herrn Prof. Dr. O. Schneider-Orelli zum 80. Geburtstag am 10. August 1960

Am 10. August 1960 vollendete unser Ehrenmitglied Herr Prof. Dr. O. Schneider-Orelli das 80. Lebensjahr. Es ist dem Jubilar vergönnt, dank einem gütigen Geschick, aber auch dank einem gesunden Lebensoptimismus diesen Tag in beneidenswürdiger geistiger und körperlicher Frische zu feiern. Wenn dem Jubilar auch harte Stunden nicht erspart geblieben sind, so darf er doch auf ein glückliches, erfülltes und reiches Leben zurückblicken.

Prof. Schneider-Orelli, als Schüler des Berner Botanikers Prof. Fischer, hat nach seinem Eintritt in die Versuchsanstalt Wädenswil seinem festen Charakter entsprechend sich dort konsequent der bis anhin vernachlässigten angewandten Entomologie angenommen, und er hat nicht, wie dies sonst zu jener Zeit noch häufig der Fall war, einmal in Pflanzenpathologie gearbeitet und ein andermal nebenbei in Entomologie dilettiert. Eine solche Zwitterstellung war ihm durchaus zuwider und er kämpfte auch später immer dafür, dass entomologische Probleme auch durch Entomologen bearbeitet werden sollen, und dass die angewandte Entomologie nicht einfach als Anhängsel der Botanik behandelt werde.

Schon in seinen ersten entomologischen Publikationen zeigte sich bereits der Meister in der Problemstellung und Klarheit der Durch- und