

A REVIEW OF THE NORTH AMERICAN SPECIES OF IDIOCERUS.

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The members of this genus are easily recognized by their large size, broad, short heads, the eyes exceeding the pronotum in width, which in turn exceed that of the narrow apices of the folded elytra, giving the insects a wedge shaped appearance.

The vertex is short and parallel-margined, rounding in front to the face, ocelli on the face between the eyes, just above the origin of the frontal sutures. The male antennæ usually bear a disc-like swelling near the tip; this is wanting, however, in a few of the European and a number of the American species. The elytra are usually longer than the abdomen and rather narrowly folded behind. There is but one transverse nervure between the sectors and that is often wanting in *cratigi*, four apical and three antepical cells being the typical number. The elytra always possess a distinct appendix and the supernumerary cell is present in the wings.

Specific characters are found in the size and position of the spots on the vertex when present, in the size and shape of the outer antepical cell, the shape of the facial pieces, the shape of the antennal discs of the male and the general size and color. The genitalia are of less classificatory value in this group than in most of the *Bythoscopida*, the male organs presenting few variations that are available for use, their place being somewhat supplied, however, by the antennal discs.

In the female the shape of the last ventral segment and the length of the ovipositor are important characters in some cases.

The genus is widely and generally distributed throughout the North Temperate Zone. Europe has over thirty recognized species, and it is probable that that number will be reached in America when the fauna is better known.

The species of which the life histories are known are all exclusively tree-inhabiting forms in both larval and adult stages and are very limited in their range of trees, being confined to the different species of

Salix, *Populus* and *Crataegus*, the different species usually being confined to trees of a single genus and sometimes to a single species. The larvæ usually mimic the color of some part of the tree upon which they feed and are difficult to detect; they may be readily separated from those of other tree-inhabiting forms by their broad heads, prominent eyes and long roundly tapering abdomens.

As far as known all the species are two-brooded, the adults hibernating and depositing eggs in spring. In the case of *alternatus* the eggs are placed near the tip of the younger twigs, usually several in a place, often causing distortion or death to the part.

SYNOPSIS OF THE SPECIES.

- A. Crest of the vertex with two round black spots about twice farther from each other than from eyes,
 - B. Spots on the vertex large, scarcely more than their own diameter from the eyes—species in which the head is very deep and the pronotum arched (male antennæ without discs).
 - C. Outer branch of first sector of elytra again forked, usually forming a triangular antepical cell before curving away to the costal margin, species fulvous with light marking.
 - D. Clavus fulvous, usually a light stripe just outside the outer nervure, center of costa with a large black area. *maculipennis* Fh.
 - DD. Clavus with the basal half creamy yellow, except a black line along the scutellar margin, center of costa scarcely darkened. *provancheri* V. D.
 - CC. Outer branch of first sector of elytra usually simple, sometimes an oblique nervure running to the costa. Species light gray with a pair of large, angular, black spots on each, pronotum and scutellum in line with those on the head. *cratagi* V. D.
 - BB. Spots on vertex small, two or more times their own diameter from the eyes.
 - C. Nervures of elytra not distinctly alternating in color, the outer fork of the outer branch of first sector usually curving away to the costa without forming an antepical cell, or, at most, a small triangular one.
 - D. Species green, a dark line along the sutural margin of elytra, nervures indistinct (male antennæ without discs). *snowi* G. & B.
 - DD. Species brown, the elytra milky sub-hyaline with distinct tuberculate brown nervures (male antennæ with discs).

- E. Outer branch of first sector not forking again until some distance beyond its anastomosis with the inner branch, rarely forming a closed anteapical cell; face brownish fulvous without accessory markings. *brunnens* O. & B.
- EE. The outer branch of first sector forking at or before its juncture with the inner branch, often forming an anteapical cell; face yellow with accessory black markings *lachrymalis* Fh.
- CC. Nervures of elytra usually alternately light and dark, the outer anteapical cell long and narrow.
 - D. The cross nervure between the first and second sectors broadly white — male antennæ without discs. *monilifera*, O. & B.
 - DD. The cross nervure of elytra not falling in a light band.
 - E. Species 5 mm. long or over, dark colored. The face with six longitudinal stripes below, especially noticeable in the male; male antennæ with moderate discs at the end of longer filaments *alternatus* Fitch.
 - EE. Species smaller, not over 4.5 mm., lighter colored, face pale greenish or yellowish without stripes below, male antennæ with very large discs on filaments scarcely the length of the discs *verticis* Say.
- AA. Crest of the vertex without distinct round spots.
 - B. Male antennæ without discs, species uniformly tawny or becoming darker, with transverse band on elytra.
 - C. Species 5 mm. or under *rufus* G. & B.
 - CC. Species larger, over 5 mm. *mexicanus* n. sp.
 - BB. Male antennæ with distinct discs, species greenish or with darker markings on the sutures.
 - C. Species with distinct color markings on pronotum, scutellum or sutural margin of elytra.
 - D. A dark stripe along the sutural margin of elytra often interrupted by a light crescent (male antennal discs elongate). *suturalis* Fh.
 - DD. Pronotum and scutellum more or less marked with fulvous fading out along the suture (male antennal discs nearly circular) *amoemus* V. D.
 - CC. Species nearly unicolorous, the scutellar angles rarely black.
 - D. Size large (the largest in the genus), more than 5 mm. long.
 - E. Elytra pale greenish, the outer fork of first sector forming a triangular anteapical cell before curving away to the costa, male antennal discs large *pallidus* Fitch.

- RE. Elytra iridescent, yellowish, the tip darker, especially in male, the outer fork of first sector curving away to the costa without forming an antecapical cell; male antennal discs very small. *duzei* Prov.
- DD. Size smaller, less than 5 mm., yellowish or greenish, the elytra hyaline, showing the dark nervures of the wings.
 *nervulus* V. D.

IDIOCERUS MACULIPENNIS Fitch. (Plate III., Fig. 4.)

Idiocerus maculipennis Fitch. Homop. N. Y. State Cab., p. 59, 1851.

Bythoscopus maculipennis Walk. Homop., IV., p. 1161, 1852.

Idiocerus maculipennis V. D. Psyche, V, p. 388; Osborn, Proc. Ia. Acad. Sci., I., pt. II., p. 126 (Iowa); Van Duzee, Trans. Am. Ent. Soc., XIX., p. 262.

Chestnut brown with narrow light stripes on pronotum, scutellum, and clavus. Length, ♀ 5.75 mm.; ♂, 5.25 mm.; width, 1.7 mm.

Face, in the female, chestnut with broad circles around the large black spots on vertex, and small crescents under the ocelli light yellow; in the male, yellow with a chestnut stripe down the middle and a darker one each side from the corner of the eye down the genæ outside the loræ. Pronotum chestnut with a pair of black spots on the anterior margin, the posterior margin and three spots on the disc light yellow, scutellum with the margins and tip light yellow. Elytra brownish, the nervures darker, a narrow light stripe on the outer margin of clavus, and a hyaline band crossing the apex and broadening towards the costa where it sharply interrupts the broad dark margin.

Head scarcely wider than the short convex pronotum but very deep. The outer antecapical cell short, triangular, the nervure then curving away to the costa. Ultimate ventral segment of the female with the posterior margin rounding, slightly emarginate in the middle; male valve with the posterior margin acutely triangular, the sides concave.

Found abundantly on hawthorn and crab apple, to which the chestnut brown color of both adult and larvæ are well adapted. Specimens are at hand from New York, Ontario, and Iowa.

IDIOCERUS PROVANCHERI V. D.

Bythoscopus clitellarius Prov. Pet. Faune Ent. Can., III., p. 288, 1890.

Idiocerus provancheri V. D. Can. Ent., XXII., p. III, 1890; Osborn, Proc. Iowa Acad. Sci., I., pt. II., p. 126, 1892.

Fulvous brown, resembling *maculipennis*, but with a broad yellow stripe on the clavus. Length, ♀ 5.3 mm.; ♂, 5 mm.; width, 1.7 mm.

Face as in *maculipennis* in both sexes, pronotum lacking the black spots and the light margin, the two outer spots smaller, the middle one elongate; scutellum entirely rufus, darker in the male. Elytra fulvous brown, the nervures indistinct, scutellar margin black; just outside this to the margin of the clavus and extending back to just before the apex of the outer claval nervure where it rounds off is a distinct bright yellow area; costal margin with a hyaline spot before the tip.

Structurally very close to *maculipennis*, slightly smaller, readily distinguished by the bright yellow clavus.

Occurs, with the preceding, on the different species of *Cratægus*. Specimens are at hand from Canada, New York, Iowa, Colorado, and San Couvers Island, B. C. Mr. Van Duzee has furnished records* of its occurrence at Montreal, Winnipeg, and Hamilton (Jas. Johnson), Mt. Washington (Mrs. Slosson).

IDIOCERUS CRATÆGI V. D.

Idiocerus cratægi V. D. Can. Ent., XXII., p. 110. 1890; Osborn & Ball, a. Acad. Sci., IV., p. 231.

Olive drab with six black spots in two rows. Length, ♀ 5.25 mm.; ♂, 4.75 mm.; width, 1.8 mm.

Face, pronotum and scutellum light greenish yellow, a pair of triangular black spots on the anterior margin of each pronotum and scutellum in line with those on the vertex, a small approximate pair on the disc of the scutellum, a pair beneath the ocelli and a pair of elongate ones beneath the antennæ, elytra olive brown, the nervures dark. Head much broader than in the preceding species, eyes prominent, face deep but more strongly curved than in either. Elytra without an antepical cell in the outer fork of the first sector and often without a transverse nervure between the sectors. Ultimate ventral segment of female nearly triangular, the apex slightly angularly emarginate. Ovipositor broad and short, male valve large, roundly triangular, nearly half the length of the short, broad plates.

Occurs on *Cratægus* appearing a little later in the season than the two preceding. Specimens are at hand from Canada, New York, Iowa and Colorado.

* Kindly supplied from his notes, along with other records, included under other species.

IDIOCERUS SNOWI G. & B.

Hemiptera of Colorado, p. 79, 1895.

Pale green, elytral suture and two spots on vertex dark. Length, 5.25–7.5 mm.; width, 1.8 mm.

Face pale yellowish, two small round black spots on vertex, tip of clypeus bright green. Pronotum and scutellum unmarked. Elytra pale yellowish green, the apical nervures and margin slightly darker, a dark brown band along the sutural margin from the apex of scutellum to the apex of clavus. The costal nervure green. Legs and beneath yellowish, tarsi green.

Face short, rounding below; male antennæ not inflated; outer nervure of elytra forking at or before its juncture with the second, the outer branch forming a triangular antecapical cell, before curving away to the costa. Ultimate ventral segment of female moderately long, posterior margin with the corners rounded and the center emarginate; pygofers long, much exceeded by the attenuate ovipositor.

The dark marking on the suture is somewhat variable; when heavy this species resembles *suturalis*; when very pale, *pallidus*; but it is readily separated from either by the spot on the vertex, the simple antennæ in the male and the emarginate female segment.

Occurs on willows, apparently preferring the narrow-leaved varieties. Specimens are at hand from Iowa, Colorado and Ohio.

IDIOCERUS BRUNNEUS O. & B. (Plate III., Fig. 3.)

Proc. Davenport Acad. Nat. Sci., Vol. VII., p. 72. (Jan., 1898.)

Dull cinnamon brown, two black spots on the vertex. Broad with a depressed face. Length, 5.5 mm.; width, 2 mm.

Face tawny; a yellowish circle around the black spots and an interrupted line below; ocelli black; pronotum and scutellum cinnamon brown with lighter markings in the female, darker with black spots on scutellum in male. Elytra brownish sub hyaline with distinctly tuberculate dark brown nervures. Head broad, face much depressed, the front broad and convex, outer fork of first sector forking again some distance beyond the cross nervure, the outer branch curving away to the costa, rarely forming an antecapical cell.

Ultimate ventral segment in female very short, slightly produced and obsoletely notched in the middle; pygofers short, broad, only

slightly exceeded by the ovipositor; male valve roundly pointed, plates broad and short; antennæ with small, slightly elongate discs.

Occurs on willows. Specimens are at hand from Iowa, Nebraska and Colorado. The short, broad form and cinnamon color will readily separate this species from any other.

IDIOCERUS LACHRYMALIS Fitch.

Idiocerus lachrymalis Fitch. Homop. N. Y. State Cab., p. 58, 1851; id. reprint in Lintner's 9th Rept., p. 398, 1893; Van Duzee, Can. Ent., XXI, p. 8, 1889; Psyche, V., p. 388, 1890; G. & B., Hemip. Colo., p. 76, 1895.

Bythoscopus lachrymalis Walk. Homop., IV., p. 1161, 1851.

Large, pale, yellowish, washed with brown, a large spot against either eye and a line between the two spots on the vertex, dark brown. Length, ♀ 7 mm.; ♂, 5.5 mm.; width, ♀ 2 mm.; ♂, 1.5 mm.

Face yellow, usually a large triangular spot against either eye, a smaller one on the front just within and below either ocellus and a band between the two spots on vertex, dark brown. Pronotum pale yellowish, milky posteriorly, more or less marked with darker. Elytra milky white, the nervures distinct, dark brown, outer antepical cell very variable in size, often wanting. Ultimate ventral segment of the female strongly medially produced; male antennal discs large, twice longer than wide.

Mr. Van Duzee notes it from Franconia and Mt. Washington, N. H. (Mrs. Slosson), Mountains of Northwestern Colorado (Gillette.)

Specimens are at hand from Ontario, New York, and Colorado. This is a very variable species both in size and coloration and has been confused with several other species. When the spots on the face are present they will readily separate it from any other species; when wanting, as is often the case in the male, the short or wanting antepical cell, the produced female segment, and the long nearly parallel-sided disc of the male antennæ will serve to readily separate it.

The *I. productus* of G. & B., on examination of a type, proved to be founded on nothing but a pair of crushed specimens of the above species, the "remarkable form of the head" being due to the vertex having been pushed forward and crushed along a middle line—probably when the specimens were very fresh, as the coloring matter had somewhat segregated into the crushed area, but not forming a distinctly bounded black spot as shown in the cut accompanying the description.

IDIOCERUS MONILIFERÆ O. & B. (Plate III., Fig. 2.)

Idiocerus monilifera Osborn & Ball. Proc., Davenport Acad. Nat. Sci., Vol. VII., p. 71 (Jan., 1898).

Idiocerus monilifera Osborn. Proc., Ia. Acad. Sci., Vol. V., p. 233.

Broader than *alternatus*, brownish with light markings, face with a broad dark band, cross nervure of elytra white. Length, ♀ 5.50 mm.; width, 2 mm.

Face yellowish, a broad transverse black band between the ocelli and the spots on the vertex, this band produced downward against the eyes and sending a slender line towards the antennal pits. Front very broad, rounding away from the antennæ, a brownish band either side just inside the margin, arching across just below the antennal pits. Pronotum irrorate with fuscous except on a median line. Elytra sub-hyaline with the nervures alternately dark and light. The bases of all the nervures light, the cross nervure between the sectors broadly light. Ultimate ventral segment of female broadly rounding and shallowly notched in the middle, male plates very broad and short, antennæ without discs.

Found on cottonwood at Ames, Iowa.

IDIOCERUS ALTERNATUS Fitch. (Plate III., Fig. 1.)

Idiocerus alternatus Fitch. Homop. N. Y. State Cab., p. 59, 1851.

Bythoscopus alternatus Walk. Homop., III., p. 876, 1851.

Idiocerus alternatus V. D. Can. Ent., XXI., p. 8, 1886. Psyche, V., p. 388. Provancher, Pet. Fauna Ent. Can., III., p. 293. Harrington, Ottawa Nat., VI., p. 31. Osborn, Proc. Ia. Acad. Sci., 1, pt. II., p. 126. Cockerell, Trans. Am. Ent. Soc., XX, p. 365; G. & B., Hemipt. Colo., p. 73, 1895.

Idiocerus interruptus G. & B. Hemipt. Colo., p. 74, 1895.

Brownish fuscous alternating with white on pronotum and elytra. Face yellowish, usually a fuscous arc outside the two black spots. Length, ♀ 5.25 mm.; ♂, 5 mm.; width, 1.5 mm.

Face yellowish, irregularly mottled in the female, four stripes on the lower part in the male, usually a brownish crescent outside the round spots on vertex. Pronotum brownish, a light stripe on the middle extending on to the vertex and back across the scutellum: scutellum with the broad basal angles and two spots on the disc separated by a bifid brownish line, black. Elytra sub-hyaline, the nervures fuscous interrupted with white, the second sector with several short interrup-

tions before the transverse nervures, a large circular light spot covering the tips of the outer claval nervures and a smaller one at the apex of clavus. Ultimate ventral segment of female short, nearly truncate, the corners rounding; male plates long and narrow; antennal discs nearly circular.

Occurs abundantly on willows over a very wide area. The adults that hibernate are usually much darker than those of the summer brood. In some sections these have a distinctly rufus cast.

Specimens are at hand from Ontario, New York, Iowa and Colorado. Van Duzee has records of its occurrence in Ottawa, Canada, (Harrington), Ag. Coll. Mich. (G. C. Davis), Quebec (Provancher), California (Coquillett), Franconia, N. H. (Mrs. Slosson). An examination of two of the types of *interruptus*, through the kindness of Prof. Gillette, showed no character by which they could be separated from typical *alternatus*.

IDIOCERUS VERTICIS Say.

Jassus verticis Say. Jour. Acad. Nat. Sci., Phila., VI., p. 308, 1831.

Bythoscopus verticis Uhler. Bull. U. S. Geol. and Geog. Surv., III., p. 165, 1877.

Idiocerus verticis Van Duzee. Psyche, V., p. 389, 1890; G. & B., Hemip. Colo., p. 80, 1895.

Pale brownish fading to nearly white, except the black spots on vertex and scutellum. Elytra pale brownish, broadly interrupted with light. Length, ♀ 4.5 mm.; ♂, 4.25 mm.; width, 1.10 mm.

Face and ail below creamy or greenish yellow; ocelli and spots on the disc black. Pronotum light, washed with brownish, a few oblique dark spots on the anterior part of the disc; scutellum yellowish, basal angles black, tip white. Elytra white, washed with pale brownish, nervures brownish interrupted with white, inner sector with a single long interruption before the transverse nervure, suture with a light spot in the middle. Ultimate ventral segment of female short, truncate; pygofers rather long and narrow, exceeded by the ovipositor, male plate long and slender, antennæ short, with a very large disc which scarcely reaches the clypeus.

Missouri (Say), Denver, Colo. (Uhler).

Found at Ames, Iowa, on willows along with the preceding species, which it most resembles. It is usually of a lighter color, often nearly white. Its smaller size, lighter color, and shorter ovipositor in the

female will separate it from the preceding species, while the immense discs on the short antennæ render it a strikingly distinct species whatever its color.

In the pale examples the spots on vertex and scutellum are very distinct but in the more heavily irrorate examples they are obscured, while the white markings are very distinct. Thus answering Say's description.

It is probable that many of the references to this species also included *alternatus*.

IDIOCERUS RUFUS G. & B.

Hemiptera of Colorado, p. 80.

Reddish brown, face yellowish, elytra showing alternate light and dark nervures except in the reddest specimens. Length, 5 mm.; width, 1.5 mm.

Face light creamy yellowish, scarcely marked, ocelli brown, pronotum chestnut, a narrow light line and a pale spot either side on the disc, elytra sub-hyaline, the nervures obscured in the redder forms, alternately light marked in the darker ones, pattern of marking similar to *monilifera*. Ultimate ventral segment rounding, the center slightly excavated, male plate small, the styles broad and stout, antennæ without discs.

Found on cottonwood at Ft. Collins, Colorado, by Prof. Gillette, through whom the specimens were received. This species was described from two extremely rufus specimens. The majority of the specimens received were darker and showed the light markings on the elytra. The darker forms somewhat resemble *monilifera* but all those examined are smaller the face is narrow and lacks the characteristic dark band of that species.

IDIOCERUS MEXICANUS N. sp.

Cinnamon brown, scutellum of a brighter rufous color. Resembles *rufus* but is considerably larger. Length, ♀ 6 mm.; ♂, 5.75 mm.; width, 2 mm.

Head broad, vertex fairly broad, occiput and front nearly parallel, face rather long, triangular, obtusely pointed below, genæ with very straight margins; front and loræ distinctly tumid. Pronotum, width twice the length, posterior margin scarcely emarginate. Elytral veins distinct but not prominent, not tuberculate.

Color: head, pronotum, elytra, tergum, and touches on under surface and legs, cinnamon brown. The lower part of the face inclines to yellowish and the pronotum and scutellum have irrorations of this color, while the propleura, margins of tergum, the venter and femora are yellow or light stramineous.

Genitalia: Last ventral segment of female scarcely longer than preceding, pygofer broad, rugose or gibbous posteriorly, exceeded by the ovipositor. Male valve short, obtusely rounded behind; plates narrow, finely ciliate.

Described from one female and one male collected by Prof. C. H. T. Townsend, Jicaltepec, Vera Cruz, Mexico, June, 1896.

This species is marked by the large size, tumid front and lorie, and, for the specimens in hand, by the distinct cinnamon brown color.

IDIOCERUS SUTURALIS Fitch.

Idiocerus suturalis Fitch. Homop., N. Y. State Cab., p. 50, 1851.

Bythoscopus suturalis Walk. Homop., IV., p. 1162, 1852.

Idiocerus suturalis Van Duzee. Canada Ent., XXI., p. 8; Psyche, V., p. 388; Cat., 261; Gillette & Baker, Hemip., Colo., p. 80.

Pale yellowish, a dark brown stripe along the suture, elytral nervures indistinct. Length, ♀ 5.75 mm; ♂, 5 mm.; width, 1.50 mm.

Face rather long, genæ nearly straight-margined below; clypeus much expanded just before apex which extends below the genæ. Face and all beneath yellowish. Elytra yellowish hyaline, the apex dusky, sutural margins broadly marked with brown, sometimes interrupted by a white crescent, often continuing on to the scutellum and the posterior part of the pronotal disc, outer anteapical cell broad, triangular, the nervure curving away to the margin. Ultimate ventral segment of the female about three times wider than long, posterior margin with a roundly produced median lobe; male antennal disc elongate.

Specimens are at hand from New York and Colorado. Mr. Van Duzee has records of its occurrence for Ag. Coll, Mich. (G. C. Davis), Douglass Co., Kas. (F. H. Snow), Mt. Washington (Mrs. Slosson), Winnipeg (Jas. Fletcher).

This is a somewhat variable species. Those with the darker interrupted stripe are mostly males, though occasionally a female is found.

Van Duzee reports it from willow, poplar and birch.

IDIOCERUS AMOEMUS V. D.

Idiocerus amoemus Van Duzee. Can. Ent., XXVI, p. 89, 1894; Cat., p. 261.

Greenish, elytra hyaline, pronotum and scutellum olive or fulvous brown. Length, ♀ 5 mm.; ♂ 4.5 mm.; width, 1.5 mm.

Face shorter than in *suturalis*, genae decidedly convex, reaching the tip of the clypeus. Clypeus widest at apex, the side margins straight. Face unicolorous, yellowish green in the female, two brown stripes below in the male. Pronotum olive brown, washed with fulvous, often marked with lighter. Elytra hyaline, allowing the dark nervures and the green tergum to be seen, outer anteapical cell moderately long. Ultimate ventral segment of the female short, feebly rounded behind, the outer angles obsolete. Male antennal disc moderately large, nearly round.

Occurs on willows. So far specimens have only been received from Colorado and California.

IDIOCERUS PALLIDUS Fitch.

Idiocerus pallidus Fitch. Homop., N. Y. State Cab., p. 59, 1851.

Bythescopus pallidus Walker. Homop., IV., p. 1162.

Idiocerus unicolor Osborn. Proc. Iowa Acad. Sci., I., pt. 11, p. 12, 1892.

Idiocerus obsoletus Walker. Homop., III., p. 873, 1851.

Large, pale greenish, eyes reddish. Length, ♀ 6.5 mm.; ♂, 6 mm.; width, 2 mm.

Face and all beneath pale greenish; eyes reddish brown; pronotum greenish; scutellum greenish; rarely with dark markings on the angles. Elytra greenish, sub-hyaline, nervures indistinct, occasionally the elytra are hyaline showing the dark nervures of the under wing.

Tergum greenish, rarely in dark specimens blackish, a very broad, stout species. The outer anteapical cell long, triangular, rarely wanting. Ultimate ventral segment of female short, posterior margin medially produced into a broad, rounding lobe; pygofer scarcely inflated, exceeded by the stout ovipositor, by the length of the ventral segment; male antennal discs oblong, moderately large.

This is a wide-spread and abundant species occurring on willows. Specimens are at hand from New York, Iowa and Colorado, and it

has been taken for Quebec (Provancher), Ottawa (Harrington), Clear Creek Canon and Denver (Uhler), Philadelphia (C. W. Johnson).

An examination, by the senior author, of Walker's type of *obsoletus* from "Hudson Bay," led to the belief that it should be referred to this species.

IDIOCERUS DUZEEI Prov.

Idiocerus duzei Prov. Pet. Faune, Ent. Can., III., p. 292, 1890.

Idiocerus perplexus G. & B. Hemip. Colo.

Idiocerus pallidus var. Bak. Ent. News, Vol. VIII., p. 54.

Slightly larger than *pallidus*, light yellowish green, the elytra golden iridescent, tipped with fuscous. Length, ♀ 7 mm.; ♂, 6 mm.; width, 2 mm.

Face and below pale greenish white, pronotum greenish, fading out posteriorly; scutellum yellowish, sometimes marked with brown, the tip greenish. Elytra yellowish green at base, sub-hyaline with a golden reflection beyond, becoming smoky at the tip in the female and strongly fuscous in the male; tergum yellowish, sometimes fuscous on the disc. A still broader and stouter-appearing species than the preceding, with longer elytra, the outer branch of the first sector not forming an anteapical cell, or rarely a short triangular one, the outer nervure curving away to the costa. Ultimate ventral segment a little longer than in *pallidus*, the outer angles rounding; pygofer broader, the ovipositor exerted less than the length of the segment, male antennal disc smaller, less than three times the width of the filament.

The specimen from which Provancher described this species was determined as new for America by Prof. Van Duzee, who also determined two other specimens of this species, one from New Hampshire and one from Michigan. These specimens are somewhat darker than most of the Iowa and Colorado ones, but they agree in all the structural details.

Idiocerus perplexus G. & B. was stated to be only a variety of *pallidus* by Baker (Ent. News, Vol. VIII., No. 3, p. 54). An examination of the types, however, show it to be quite distinct from that species but identical with the above.

Found only on the cottonwood at Ames, Iowa. Specimens are at hand from New Hampshire, Michigan and Colorado. Records from Mr. Van Duzee are: Franconia, N. H. (Mrs. Slosson), Ag. Coll. Mich. (G. C. Davis), Quebec (Provancher).

IDIOCERUS NERVATUS V. D.

Bulletin Buffalo Soc. Nat. Sci., V., pt. 4, 1894 (No. 1); Cat., p. 261.

Small, stout, pale green or yellowish, the oblique dark nervures of the under wings showing through the hyaline elytra. Length, ♀ 4.75 mm.; ♂, 4.50 mm.; width, 1.20 mm.

Pale yellowish green, tarsi light green, elytra hyaline, the nervures of the under wing showing distinctly above the green abdomen, outer antepical cell long, as in *alternatus* and *verticis*. Ultimate ventral segment of female scarcely wider than long, posterior margin nearly truncate; male antennal discs small, nearly circular.

Occurs on willows throughout the greater part of the United States, though rarely in very great numbers. Specimens are at hand from New York, New Jersey, Michigan, Iowa, Colorado and Arizona. A very distinct little species, although other species often show the nerve character. It can be readily separated from *pallidus*, which it most closely resembles, by the smaller size and the long, nearly truncate, segment of the female.

UNKNOWN SPECIES.

IDIOCERUS RAMENTOSUS Uhl.

Bythoscopus ramentosus Uhler. Bull. U. S. Geol. and Geog. Surv., III., p. 165, 1877.

Idiocerus ramentosus Van Duzee. Psyche, V., p. 389, 1890. Cat., p. 262; Gillette & Baker, Hemip. Colo., p. 79.

Idiocerus inscriptus Uhler, in litt. (vide Van Duzee).

As described, this species should be "pale testaceous more or less clouded with rust brown and fulvous," "vertex with a round black spot each side, and a smaller black dot each side interior to the ocelli; face sometimes irregularly marked with small brown spots and lines, those above being arranged transversely and those below in a horse-shoe arc."

Specimens of both *lachrymalis* and *alternatus* have been received labeled *ramentosus* and it is probable that most of the references for this species should be credited to one or the other of these.

Some of the darker specimens of *rufus* show traces of black spots on the vertex and answer the description fairly well except for the face markings. If specimens are found with these also it is possible that

ramentosus will be found to occur on cottonwoods instead of willows, as described, and include both *rufus* and *moniliferæ*, although the material now at hand will not warrant such a conclusion.

IDIOCERUS STRIOLA Fieb.

Idiocerus striola Fieb. Verh. zool-bot., Gesell. Wien, XVIII., p. 153, 1868; Van Duzee, Cat., p. 262.

This was originally described by Fieber as a European species in 1868, and so listed in his catalogue, 1872, crediting it to "Sithka"* each time. It is evidently another of the alternate veined series and may well be *alternatus* of Fitch, as that species is already known to be widely distributed and the darker specimens, such as would be expected to occur in such high latitude, answer the short description.

Idiocerus distinctus G. & B. Hemipt. Colorado, p. 75.

The description of this species was drawn up from a single female and is wanting in several essential points, so that without an examination of the type, which unfortunately has disappeared from the Colorado collection, it can not be accurately placed.

Steamboat Spring, Colo., on willow (G. & B.).

Idiocerus mimicus G. & B. Hemipt. Colorado, p. 76.

The type of this species is also lacking from the Colorado collection, which is still more unfortunate, as there is a discrepancy between the description and the figure that accompanies it; the description giving the pronotum as unicolorous, while the figure shows four large black spots on the disc.

Fort Collins, Colorado, on black walnut (G. & B.).

* "Sithka" (Fieber), "Sitka" (V. D. in Catalogue).