

The elytral sculpture is related to that of the preceding species, but here the tubercles become more nearly equal in size and are confluent. There still remain however, two distinct but small tubercles on the declivity, and an extremely faint trace of a triseriate arrangement.

This species was collected by Mr. Henry Hemphill, Wahsatch Mts. near Ogden, Utah, and kindly sent to me by Mr. Henry Edwards, at whose suggestion I have given the above name.

C. angulatus Harris, Bost. Journ. ii, p. 200.—Form moderately elongate, black with tinge of blue or purplish, surface shining. Head elongate, front carinate, supra-orbital ridges strong, genæ moderately dilated, feebly incised beneath the eyes, surface impunctured. Eyes feebly prominent. Thorax a little longer than wide, posteriorly strongly constricted, in front of constriction hexagonal, the sides being angulate, hind angles rectangular, margin very narrow, disc convex, the anterior, median and basal impressions deep, surface smooth, shining. Elytra elongate oval, very slightly narrowed at tip, surface moderately deeply 16-striate, the outer three striæ somewhat confused, striæ punctured, intervals convex and smooth, margin very narrow, the inflexed portion of elytra smooth. Body beneath smooth, shining, impunctured. Length .80 inch; 20 mm.

From the time of its description this species remained unknown to us in nature until 1868, a period of nearly thirty years, when Dr. Leconte was enabled to study a specimen. It will be at once known by its carinate head and angulate thorax.

The anterior tarsi of the male are not dilated, the terminal joint of the palpi is however broader.

It is still very rare in collections, and is found in Oregon and Vancouver.

Synopsis of the species of STAPHYLINUS and the more closely allied genera inhabiting the United States.

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THE genera here included form a portion of a subtribe of the more comprehensive tribe Staphylinini, the characters of which are sufficiently dwelt upon in the Classification Col. N. A. pp. 63—64. They differ notably from the Quediini by the double thoracic margin as well as by the disappearance of the infra-orbital line on the head, which attains its highest development in the Bolitobii, becoming less distinct in the Quediini and disappearing entirely in the genera here included, and very rarely existing in a mere trace in certain Philonthus.

The metasternum posteriorly is deeply notched for the posterior coxæ, so that the transverse portion of the coxæ is covered by the metasternum as in the Quediini.

Characters of special moment will be noticed under the respective genera.

STAPHYLINUS Linn.

The species occurring within our faunal limits divide themselves naturally into two series.

The first contains those in which the head is sub-orbicular in form, the sides behind the eyes arcuate, the hind angles rounded. The thorax is also distinctly sinuate behind the middle and the scutellum pubescent but not velvety. The inflexed portion of the prothorax, that is, the smooth space between the two marginal lines, is here much narrower than in the following series, and the two lines never become absolutely confluent, they are however extremely close together.

To the second series a larger number of species belong. In these the head is subtriangular, the sides behind the eyes usually straight and either parallel or converging to the front, the hind angles suddenly formed and not rounded. The sides of the thorax are more or less arcuate, and not sinuate behind the middle. The scutellum is velvety. The inflexed portion of the thorax is broader than in the other series and the lines become confluent in front.

The thorax varies in this last group in punctuation; in some of the species of which *maculosus* may be taken as the type, the surface is very densely punctured and without lustre, and the pubescence very distinct and permanent. Others like *comes* and *cinnamopterus* have a rather coarser punctuation, but each puncture is distinctly separated from the others, the surface is thus more shining and the pubescence less permanent. Two species *exulans* and *prælongus* have the thorax irregularly sculptured.

The eyes in all the species are similarly formed with one exception, *femoratus*. In this the eyes occupy about two-thirds the length of the side of the head, while in the others hardly a third.

The other characters in the table require no further comment.

- A.**—Hind angles of head rounded, sides of thorax behind the middle sinuate.
 Constriction of neck not deeply impressed above.....2.
 Constriction of neck deep above and with golden pubescence.....4.
2.—Black, abdomen and legs entirely black.....**nigrellus.**
 Legs always pale, antennæ pale.....3.

- 3.—Abdomen entirely black; surface not metallic.
 Abdomen beneath with segments more densely punctured, and with golden pubescence along the anterior border.....**badipes**.
 Abdomen beneath sparsely punctured, pubescence black and inconspicuous.....**pleuralis**.
 Abdomen more or less red; surface distinctly metallic.
 Last two segments of abdomen alone red.....**saphyrinus**.
 Entire abdomen beneath red.....**luteipes**.
- 4.—Abdomen above very finely punctured, the second segment alone with a narrow apical border of golden hairs, beneath very sparsely punctate, hairs short, black.....**erythropterus**.
 Abdomen more coarsely punctate, second segment narrowly bordered at apex, 4—5—6 with spot of golden pubescence; beneath segments 3—6 with golden pubescence at the sides along the anterior edge of the segments.....**cæsareus**.
- B.**—Head usually subtriangular, suddenly narrowed behind, hind angles obtusely prominent. Sides of thorax arcuate posteriorly, never sinuate, rarely parallel.
 Thorax regularly and densely punctured over the entire surface, excepting at times a smooth median line.....5.
 Thorax coarsely and irregularly punctured, with smooth spaces at the sides of the disc.....12.
- 5.—Abdominal segments beneath densely and finely punctulate along their anterior portion and with golden pubescence.....6.
 Abdominal segments not densely punctulate, at most with the punctures very little closer anteriorly.....7.
- 6.—Abdominal segments above with golden pubescence at base and sides.
vulpinus.
 Abdominal segments with double row of velvety spots at middle.
maculosus.
- 7.—Thorax subopaque, the punctuation very dense, pubescence very evident...8.
 Thorax shining, pubescence scarcely evident, punctuation not very dense, the punctures being distinctly separate.....11.
- 8.—Elytra brownish or piceous, tip of abdomen always paler.....9.
 Elytra black (sometimes with golden spot), abdomen black.....10.
- 9.—Eyes normal. Legs piceous.
 Last ventral segment above and the sixth beneath pale. Thorax without smooth median line.....**mysticus**.
 Fifth and sixth segments beneath pale. Thorax with smooth line.
tarsalis.
 Eyes large, two-thirds the length of the head.....**femoratus**.
- 10.—Abdomen above with double series of small velvety spots.
 Elytra entirely black, surface with simple punctures.....**tomentosus**.
 Abdomen above without velvety spots.
 Elytra usually with large spot of golden pubescence, occasionally entirely black, surface scabro-punctate.....**fossator**.
- 11.—Body above brownish or piceous, not metallic.....**cinnamopterus**.
 Body above piceous, head and thorax sometimes variegated with paler spaces.
 Abdomen piceous, segm. 1—5 beneath with lateral pale spots...**comes**.

Body above with more or less metallic lustre.

Legs entirely black.

Abdomen black, basal segments above with pale silken pubescence.

Head, thorax and elytra violet.....**violaceus.**

Last two segments of abdomen red. Head, thorax and elytra blue.

rutilicauda.

Legs bicolored. Abdomen black with sericeous pubescence at the base of each segment.

Head, thorax and elytra bronzed.....**viridanus.**

12.—Thorax as wide as long, sides feebly arcuate, disc moderately densely punctured and with smooth spaces in front on each side, and at middle posteriorly; color decidedly æneous.... **exulans.**

Thorax longer than wide, sides nearly parallel, disc with coarse, deep and irregularly placed punctures; color black with very feeble æneous tinge.....**prælongus.**

S. nigrellus n. sp.—Entirely black, subopaque. Head orbicular, densely punctured, a fine median smooth line. Eyes slightly oblique, oval, truncate in front. Antennæ a little longer than the head, piceous. Thorax longer than wide, not wider than the head, sides feebly arcuate, posteriorly slightly sinuate, base more distinctly arcuate, surface densely punctate with a smooth median line. Scutellum punctured, finely pubescent. Elytra a little wider than the thorax, conjointly as wide as long, very densely and more finely punctured than the thorax. Abdomen finely punctured, less densely on the terminal segments, the last four having numerous large irregularly placed punctures. Body beneath and abdomen sparsely punctate and shining. Legs black, tarsi brownish. Length .60 inch; 15 mm.

The entire surface is sparsely clothed with short black pubescence feebly evident on the head and thorax, more distinct on the elytra, feeble on the abdomen.

This species can not be confounded with any other in our fauna, it being the only one entirely black in this section.

Occurs in Oregon and northern California.

S. badipes Lec., *carbonatus* Lec., New Species, 1863, p. 36.—Piceous black, moderately elongate, legs and antennæ pale rufous. Head orbicular, densely punctured, front more sparsely. Eyes oval, slightly oblique, subtruncate in front. Antennæ a little longer than the head. Thorax longer than wide and a little narrower than the head, sides posteriorly distinctly sinuate, surface very densely punctate with a smooth median line. Elytra conjointly a little wider than long, densely punctate and clothed with short brownish hair. Scutellum punctate and sparsely pubescent. Abdomen above moderately densely and finely punctate, sparsely clothed with short black hairs, each segment with sparsely placed coarse punctures, segments 1—5 with a small spot of golden pubescence at the middle of the anterior margin, beneath moderately densely and finely punctured along the anterior borders of the segments, more sparsely posteriorly, segments 2—6 with golden pubescence along the anterior border. Metasternum coarsely punctured. Length .50—.66 inch; 12.5—17 mm.

The differences between this species and *pleuralis* are mentioned

under the latter. The color above and beneath is entirely piceous, and invariable as far as I have seen.

Occurs from the New England States westward through Canada, New York and Michigan.

S. pleuralis Lec., Proc. Acad. 1861, p. 343.—Form moderately elongate. Head orbicular, piceous, surface moderately densely punctate, more sparsely in front and less coarsely than the thorax. Eyes round, anteriorly subtruncate. Antennæ a little longer than the head, rufo-ferruginous. Thorax piceous, a little longer than wide and narrower than the head, sides posteriorly feebly sinuate, base arcuate, apex truncate the angles distinct but obtuse, surface densely punctured with a narrow smooth median line. Scutellum tomentose with black pubescence. Elytra conjointly wider than long, broader than the thorax, densely punctate, color varying from brownish to ferruginous and sparsely clothed with short ferruginous pubescence. Abdomen piceous, finely but not densely punctate, last four segments with coarse and deep punctures irregularly scattered, surface sparsely clothed with brownish pubescence, sericeous along the anterior portions of the segments, beneath very sparsely punctate and with inconspicuous pubescence. Metasternum coarsely punctured. Legs usually pale rufous, coxæ and femora sometimes piceous. Length .60 inch; 15 mm.

In well preserved specimens the head and thorax are clothed with very short brownish hair, which is apt to be entirely removed by the usual methods of collecting.

This species may be confounded with *badipes* which differs in a denser punctuation of head and thorax, a small golden spot of pubescence at the middle of the anterior margin of each segment, and the abdomen more punctured beneath with sericeous pubescence along the anterior margin of each segment.

Occurs in Utah, Oregon and Vancouver.

S. saphyrinus Lec., Proc. Acad. 1861, p. 342.—Form moderately elongate, body beneath piceous, legs rufous, head, thorax and elytra blue, abdomen piceous, segments 6—8 red. Head orbicular, densely punctured with very feeble smooth line posteriorly. Eyes oblique, subtruncate in front. Antennæ rufous or rufo-piceous, attaining the middle of the thorax. Thorax a little narrower than the head, longer than wide, slightly narrowed toward apex, sides feebly arcuate, posteriorly sinuate, surface densely punctured with distinct smooth median line. Scutellum punctured, pubescent. Elytra as wide or a little wider than the head, conjointly as wide as long, densely punctured, punctures finer than those of the thorax, sparsely clothed with brownish pubescence. Abdomen sparsely punctulate, clothed with brownish pubescence and on the last three with reddish pubescence. Body beneath and abdomen sparsely punctate, last three segments of latter red and with rufous pubescence. Legs pale rufous. Length .40—.60 inch; 10—15 mm.

A very pretty and distinct species, the larger specimens resembling superficially *rutilicauda* which differs in the form of head

and thorax. The differences between this and *luteipes* are found under that species.

Occurs in California, at Tejon and vicinity.

S. luteipes Lec., Proc. Acad. 1861, p. 342.—Form moderately elongate, body beneath and legs pale rufous, above bluish, abdomen above piceous varying to partially rufous. Head orbicular, slightly transverse, surface moderately densely punctured and with feeble smooth median line. Eyes slightly oblique, subtruncate in front. Antennæ extending to middle of thorax, rufous or piceous, the basal joint always pale. Thorax a little narrower than the head, longer than wide, broader at apex than base, sides distinctly sinuate behind the middle, surface densely punctured with moderately wide smooth median line. Scutellum punctured, pubescent. Elytra as wide as the head, a little longer than the conjoined width, surface more densely and finely punctured than the thorax and sparsely clothed with brownish pubescence. Abdomen above sparsely and indistinctly punctulate, sparsely clothed with brownish pubescence. Body beneath and abdomen sparsely finely punctulate and sparsely clothed with rufous pubescence. Length .60 inch; 15 mm.

The head, thorax and elytra are always very distinctly blue, the inflexed portion of the latter being often paler or even rufous. The abdomen above may be entirely piceous or the sides only rufo-piceous, frequently the rufous color invades nearly the entire surface of the apical segments. The body beneath, abdomen and legs are entirely rufous, the sides of the metasternum and the apical margins of the ventral segments slightly darker.

The only species for which this might be mistaken is *saphyrinus* in which the body beneath and abdomen are black, the segments 6—8 of the latter bright rufous.

Occurs in California, from Mariposa to Los Angeles.

S. erythropterus Linn., Faun. Suecc. 842; Erichs. Genera Staphylinidæ p. 377; *cæsareus* ‡ Lec., Proc. Am. Phil. Soc. 1878, p. 599.—Form moderately elongate, piceous, elytra and legs pale. Head orbicular, densely punctured, a narrow smooth line at middle, nuchal depression moderately deep, surface sparsely clothed with short black pubescence and with a small spot of golden pubescence above each eye in front, and also a line of similar pubescence in the neck. Eyes oval, oblique, subtruncate in front. Antennæ attaining the middle of the thorax, piceous, base and tip paler. Thorax as wide as the head, a little longer than wide, sides very feebly arcuate, subsinuate posteriorly, base broadly arcuate, surface densely punctured with feeble median line, surface sparsely pubescent. Scutellum velvety. Elytra very little wider than the thorax, a little wider conjointly than long, surface subopaque, sparsely pubescent with brownish and black hairs intermixed. Abdomen feebly shining, sparsely finely punctulate and with a velvety aspect, sparsely clothed with short black hairs, the second segment margined at apex with golden pubescence interrupted at middle; beneath very sparsely punctate, feebly shining, sparsely clothed with black hairs. Body beneath rather sparsely punctate. Coxæ piceous, legs pale, rufous. Length .54 inch; 13.5 mm.

This species is the one referred to *cæsareus*, (Proc. Amer. Philos. Soc. 1878, p. 597), but with the differences indicated. In that species however, the golden pubescence is on the apical margin of the first segment, and golden lateral spots on the next following as well as at the sides of the ventral segments except the first. The determination of the synonymy of this and the next has been made from specimens sent me by Mr. Fauvel.

One specimen Detroit, Michigan, collected by Hubbard and Schwarz.

S. cæsareus Cederh., Faun. Inqr. 335; Erichs. Genera Staphylinidæ, 378; *ornaticauda* Lec., New Species, 1863, p. 37.—Form moderately elongate. Head orbicular, moderately densely punctured, a feeble smooth line posteriorly, black, sparsely clothed with black pubescence, a spot near each eye and also the constriction of the neck with golden pubescence. Antennæ piceous, rufous at base and tip. Thorax black, a little narrower than the elytra, slightly longer than wide, sides behind the middle distinctly sinuate, disc moderately convex, surface densely punctured, a narrow smooth median line, sparsely pubescent. Scutellum with golden pubescence. Elytra as long as the thorax, pale brownish or rufous, rufo-pubescent, finely punctate. Abdomen densely finely punctulate and with black pubescence, posterior margin of the second and a spot on each side of the fourth, fifth and sixth with golden pubescence, beneath very sparsely punctate, the last four segments with golden pubescence along their anterior margin interrupted at middle. Sides of pectus with golden pubescence. Legs rufous, coxæ piceous or black. Length .60 inch; 15 mm.

One specimen Canada, collected by Mr. H. Ulke. Easily known from every other species at present occurring in our fauna, by the spots of golden pubescence at the sides of the ventral segments above and beneath.

S. vulpinus Nord., Symb. 53, 34; Erichs. Staph. p. 379; *immaculatus* Mann. Brach. 22, 7.—Elytra uniformly brownish or pale castaneous not maculate. Abdomen finely punctulate clothed with black pubescence, along the base of each segment with golden pubescence forming a broader spot at the sides, last ventral segment above and beneath rufous. Coxæ piceous, legs entirely pale reddish-yellow. Length .70 inch; 18 mm.

This species resembles *maculosus* in most of its characters so that merely the differences will be noted.

Occurs in the Middle States, region usually with *maculosus* but much less common.

S. maculosus Grav., Micr. 165, 13; Erichs. Staph. p. 375; *viduatus* Fab., Syst. El. ii, p. 591; *erythropennis* Mann. Brach. 22, 6.—Elongate, moderately robust, piceous, opaque, legs and tip of abdomen pale. Head large, subtriangular, densely punctured and with short brownish pubescence. Eyes rather broadly oval, truncate in front. Antennæ a little longer than the head, piceous, two basal joints paler. Thorax as wide as the head, as broad as long, sides very feebly arcuate or nearly straight, base broadly arcuate, surface

densely punctured and opaque with very feeble trace of smooth median line, sparsely clothed with short brownish pubescence. Scutellum velvety. Elytra a little wider than the thorax as broad as long, surface very densely punctured and sparsely pubescent, color brownish variegated with darker spots. Abdomen subopaque, moderately densely punctured, clothed with brownish intermixed with golden hair, each segment with a double row of velvety spots at middle, the last segment paler; beneath feebly shining, sparsely punctulate, each segment more densely and finely punctulate along the anterior margin and clothed with golden hair. Body beneath densely and finely punctulate. Coxæ piceous, femora piceous with edges paler, tibiæ and tarsi yellowish. Length .70—1.00 inch; 18—25 mm.

This species is too well known to need further comment. It occurs abundantly in the entire Atlantic region.

S. mysticus Erichs., Staph. p. 926; *Lecontei* Fauvel mss.—Form moderately elongate, piceous, subopaque, terminal abdominal segment paler. Head subtriangular, densely and rather coarsely punctured, subopaque. Eyes broadly oval, subtruncate in front. Antennæ piceous, basal joints margined with paler, attaining the middle of the thorax. Thorax not wider than the head, a little longer than wide, sides nearly straight, base broadly arcuate, punctured like the head, with feeble trace of smooth median line posteriorly, and with the head sparsely clothed with short brown pubescence. Scutellum velvety. Elytra a little wider than the thorax, and conjointly as wide as long, surface densely punctured and with brownish pubescence. Abdomen moderately densely punctulate, sparsely clothed with brownish pubescence, segments 2—6 with double row of velvety spots, last segment paler; beneath rather densely punctate and with longer pubescence than above. Body beneath densely finely punctulate. Legs piceous, tibiæ and tarsi somewhat paler, femora densely punctulate. Length .64—.80 inch; 16—20 mm.

The color of this species on the upper side is usually dark brown, but the elytra are always somewhat paler than the thorax, specimens are occasionally seen with the elytra reddish brown, resembling the usual color of those of *vulpinus*. In its general aspect the species resembles *maculosus*, but is always much smaller and more slender.

Widely distributed over the country from New York to Missouri and Georgia, not rare.

S. tarsalis Mann., Bull. Mosc. 1843, p. 229; *submetallicus* Lec., Proc. Acad. 1861, p. 342.—Elongate, piceous, subopaque, fifth and sixth ventral segments pale. Head subtriangular, densely and rather coarsely punctured, sparsely clothed with short brownish pubescence. Eyes obliquely oval, subtruncate in front. Antennæ piceous, a little longer than the head. Thorax not wider than the head, a little longer than wide, sides nearly straight, base broadly arcuate, surface densely punctured with an entire smooth median line, sparsely pubescent. Scutellum velvety. Elytra a little wider than the thorax, a little longer than wide conjointly, densely punctate-scabrous and with dark brownish pubescence. Abdomen piceous above, moderately densely punctulate, with brownish pubescence, segments 1—6 with double row of elongate velvety spots; beneath piceous, last two segments usually paler, not densely punctu-

late, with brownish pubescence. Body beneath moderately densely punctulate. Legs piceous, femora densely punctate, tarsi usually paler. Length .60 inch; 15 mm.

The abdomen above in the majority of specimens is unicolorous, sometimes however the tip is slightly paler; beneath the fifth and sixth ventrals are often reddish brown. The species is very closely allied to *mysticus*, but the latter has no smooth median thoracic line while the present has. In well preserved specimens the pubescence on the elytra is slightly variegated, somewhat holosericeous.

Occurs from Sitkha to California and Arizona.

S. femoratus Fab., Syst. El. ii, p. 394; Erichs. Staph. 393; *varipes* Sachse, Stettin Zeitschr. 1852, p. 126.—Moderately elongate, piceous, head, thorax and elytra slightly æneous, last ventral segment and upper side of femora pale yellowish. Head rather small, subtriangular, coarsely densely punctured, sparsely pubescent, vertex flat. Eyes larger than usual, occupying two-thirds the length of the head, oval, truncate in front. Antennæ nearly reaching the middle of the thorax, piceous, basal joint margined with testaceous. Thorax a little wider than the head, a very little longer than wide, sides very feebly arcuate, base broadly so, surface punctured similarly to the head, with a smooth line posteriorly, sparsely clothed with brownish pubescence. Scutellum velvety. Elytra a very little wider than the thorax, slightly longer than wide, densely finely punctate-scabrous, subopaque, sparsely clothed with brownish pubescence. Abdomen finely sparsely punctate, and sparsely clothed with brownish hair, segments 2—6 with a feebly marked double series of velvety spots, last segment yellowish testaceous; beneath iridescent, moderately densely punctate, sparsely clothed with pale brownish pubescence. Body moderately densely punctate. Femora punctate, pale yellowish above, piceous beneath, tibiæ and tarsi piceous. Length .60 inch; 15 mm.

This species bears a certain resemblance to *exulans* but differs in sculpture, color of abdomen and legs. It differs abundantly from all our species in the size of the eyes as compared with the length of the head.

Occurs in the Southern States but appears to be rare, the only perfect specimen before me was given me by Mr. E. P. Austin, who received it from Georgia.

S. tomentosus Grav., Micr. p. 161; Erichs. Staph. p. 389.—Moderately elongate, black, opaque. Head subtriangular, very densely punctured and with short black pubescence. Eyes obliquely oval, subtruncate in front. Antennæ a little longer than the head, black. Thorax as wide as the head, a little longer than wide, sides nearly straight or very feebly arcuate, base broadly arcuate, surface very densely punctured with feeble trace of a smoother line posteriorly, clothed with short black pubescence. Scutellum velvety. Elytra a little wider than the thorax, as wide conjointly as long, very densely punctured and with short black pubescence. Abdomen above finely and moderately densely punctulate and with short black pubescence, segments 2—6 with a double row of velvety spots; beneath rather sparsely punctate, the first segment a little more densely, segments 2—6 a little more closely

punctured near the base. Body beneath moderately densely punctate. Legs black, femora closely punctate. Length .56—.64 inch; 14—16 mm.

The differences between this species and the immaculate varieties of *fossator* are mentioned under that species. It may also be noticed that the pubescence of the abdomen in this is always more distinct and coarser than in *fossator*, which has rather a velvety or sooty appearance.

Occasionally specimens occur in which the velvety spots of the abdomen are feeble or removed by abrasion, these are still more confusing but may be referred here by the elytral sculpture which is a genuine punctuation, while in *fossator* it is punctate-scabrous. Rarely individuals are seen with the base of the antennæ pale or with the tip of the abdomen slightly paler, specimens of this character have been sent me by M. Fauvel, under the names *basicornis* and *analis*, they are however genuine *tomentosus*.

Occurs from the Middle States to Louisiana.

S. fossator Grav., Micr. p. 164; Erichs. Staph. p. 386; *immaculatus* Fauv. mss. var.—Form moderately robust, black, subopaque, elytra usually with a large spot of golden pubescence at outer apical angle. Head subtriangular, densely coarsely punctured, front rather flat, surface with short black pubescence. Eyes obliquely oval, truncate in front. Antennæ piceous or black, attaining nearly the middle of the thorax. Thorax as wide as the head, as wide as long, very little narrowed in front, surface very densely punctured, a very narrow smooth median line posteriorly, sparsely clothed with short black pubescence. Scutellum velvety. Elytra a little wider than the thorax, as broad conjointly as long, surface densely punctate-scabrous with a slight violaceous tinge, clothed with short black pubescence, the outer apical angles frequently with large spot of golden red pubescence. Abdomen above black, subopaque, moderately densely punctate, sparsely clothed with short black pubescence; beneath distinctly iridescent not densely punctate, sparsely pubescent. Body beneath sparsely punctulate at middle, more densely at the sides. Legs black, femora moderately densely punctulate. Length .50—.72 inch; 12.5—18 mm.

Two varieties of this species are well known, the one with a large spot of orange colored pubescence at the outer apical angle of each elytron, the other entirely black. The first is easily known from any of our other species, the second may be mistaken for *tomentosus*. The latter species has a double row of velvety spots on the abdomen, and the elytra are of a pure black color, while *fossator* has no velvety spots and the elytra always show a slight violaceous tinge. In well preserved specimens the sixth abdominal segment above shows at base three small golden spots.

Occurs from Michigan to Georgia, living in fungi.

S. comes Lec., New Species, 1863, p. 36.—Form moderately elongate, piceous with feeble surface lustre, legs pale, abdomen paler at tip and with

pale spots at the side of each segment. Head subtriangular, coarsely and moderately densely punctured with sparse pubescence, surface feebly shining. Eyes slightly oblique, rather broadly oval. Antennæ a little longer than the head, piceous, basal joint pale. Thorax not wider than the head, a little longer than wide, sides nearly straight, base broadly arcuate, coarsely punctured with rather broad smooth median line, surface very sparsely pubescent. Scutellum velvety. Elytra a little wider than the thorax, conjointly as wide as long, densely finely punctured, subopaque, pubescence fine pale brownish, holosericeous. Abdomen moderately densely finely punctured, sparsely clothed with golden pubescence, segments 2—6 with indistinct double row of velvety spots; beneath sparsely punctate, the first two more densely and finely, sparsely clothed with yellowish pubescence, each segment with a pale yellow spot on each side, the terminal also pale at tip. Body beneath densely punctured. Coxæ piceous, legs pale, the femora punctured and with a longitudinal piceous stripe. Length .50 inch; 12.5 mm.

The color of this species above varies considerably. One specimen before me has the head and thorax piceous with slight æneous lustre as in *femoratus*, a second the color is pale brownish variegated with darker spots. The elytra in both cases are pale brown slightly clouded as in *maculosus*. The lateral pale spots of the abdomen are probably not constant, as in the paler specimen above noted the spots are large while in the other they are scarcely evident.

Occurs in Georgia and Florida, and is not common in collections.

S. cinnamopterus Grav., Micr. 164, 11; Erichs. Staph. p. 390; *zonatus* Grav. Micr. 162, 7; *badipes* Mann. Brach. 23, 9.—Rather slender, elongate, piceous, elytra, tip of abdomen, tibiæ and tarsi paler. Head densely coarsely punctured, the punctures however not confluent, surface rather shining and with feeble or no pubescence. Eyes rather small, oblique, subtruncate in front. Antennæ a little longer than the head, piceous, gradually paler toward the tip. Thorax as wide as the head, sides straight or feebly arcuate, base broadly arcuate, coarsely moderately densely punctured with a rather wide smooth median line, surface very sparsely pubescent, moderately shining. Scutellum velvety. Elytra a little wider than the thorax, as wide conjointly as long, densely punctulate, sparsely pubescent. Abdomen rather sparsely punctate, slightly iridescent, sparsely clothed with pale brownish pubescence, beneath iridescent, more coarsely punctate and with brownish pubescence. Body beneath moderately densely punctate. Femora piceous, punctate, tibiæ and tarsi pale rufous. Length .52—.60 inch; 13—13.5 mm.

This species is very variable in color and general aspect. The fully mature specimens are as described above. Specimens frequently occur in which the head, thorax and elytra are uniformly pale brown, while the abdominal segments are piceous with the apical and basal margins broadly paler. In those specimens in which the abdominal pubescence is well preserved, the pubescence is less distinct along the middle of the upper surface so that the appearance of a velvety spot is imitated. The pubescence appears to be very feebly persistent so that in most specimens the head and thorax are quite glabrous.

Occurs everywhere in our country from Maine to California, and common.

S. violaceus Grav., Micr. p. 132; Erichs. Staph. p. 392; *cupripennis* Mels. Proc. Acad. ii, p. 35.—Form rather slender, body beneath black, shining, head, thorax and elytra violaceous or cupreous. Head subtriangular, coarsely and sparsely punctured and shining. Eyes obliquely oval. Antennæ piceous, a little longer than the head. Thorax as wide as the head, as wide as long, sides feebly base more broadly arcuate, surface shining, coarsely and sparsely punctured with distinct smooth median line. Scutellum velvety. Elytra a little wider than the thorax, as wide conjointly as long, densely punctulate and subopaque, sparsely pubescent. Abdomen above black, shining, iridescent, segments 2—3 densely finely punctulate and with greyish sericeous pubescence, segments 4—7 coarsely sparsely punctate and with very little pubescence. Body beneath sparsely punctate, sides of metasternum more densely. Abdomen beneath very sparsely and moderately coarsely punctate and with sparse pubescence, segments 4—6 more finely and densely punctured along the anterior border and with the grey pubescence more evident. Legs piceous black, iridescent, femora sparsely punctate. Length .56—.60 inch; 14—15 mm.

The color above varies from violaceous to cupreous. In some specimens the thorax appears to have a slight sinuation immediately behind the anterior angles. This is the only species in our fauna with the basal segments of the abdomen differently clothed from the apical.

Occurs from Canada to North Carolina.

S. rutilicauda n. sp.—Form moderately elongate, piceous, head, thorax and elytra blue, last two segments of abdomen red. Head subtriangular, coarsely, not densely punctured, a feeble median smooth line. Eyes normal, obliquely oval, subtruncate in front. Antennæ piceous, a little longer than the head. Thorax as wide as the head, as broad as long, sides very feebly, base broadly arcuate, punctured similarly to the head. Scutellum densely punctulate with velvety pubescence. Elytra a little wider than the thorax, conjointly as wide as long, densely punctulate, very sparsely pubescent. Abdomen sparsely finely punctulate with dark pubescence, last two segments red with reddish pubescence. Body beneath sparsely punctulate, abdomen coarsely sparsely punctured and with short brownish hairs, reddish on the last two red segments. Legs piceous, femora sparsely punctured. Length .52—.60 inch; 13—15 mm.

This species bears a certain superficial resemblance to *saphyrinus* in the distribution of color but is similar in form to *fossator* or *tomentosus*. The head and thorax are entirely void of the usual pubescence, as is the case in all those species in which the punctures are distantly placed.

Two ♀ specimens from Oregon.

S. viridanus n. sp. (Fauvel mss.)—Form moderately elongate, piceous, head, thorax and elytra variable in color, either æneous, bluish, greenish or violaceous, epipleural margin usually pale. Head subtriangular, coarsely and rather densely punctured, moderately shining, very inconspicuously pubes-

cent. Eyes obliquely oval, normal in size. Antennæ piceous, attaining the middle of the thorax. Thorax broader than the head, as broad as long, slightly narrowed in front, sides feebly, base more broadly arcuate, surface densely and rather coarsely punctured, a smooth median line posteriorly, very inconspicuously pubescent. Scutellum velvety. Elytra not wider than the thorax, as wide conjointly as long, surface subopaque, densely punctate-scabrous clothed with brownish pubescence. Abdomen above sparsely punctate, moderately shining, slightly iridescent, sparsely clothed with brownish pubescence, with sparse golden pubescence forming an undulating band along the base of each segment, broader at the sides, segments 2—6 with a double series of elongate velvety spots; beneath piceous, shining, iridescent, sparsely punctate with brownish pubescence, each segment more finely and densely punctate along the basal margin and with sparse golden pubescence. Body beneath rather sparsely punctate. Legs variable in color, often entirely yellow, usually the femora are piceous, the upper and lower edges yellow, the tibiæ and tarsi yellow. Length .60—.64 inch; 15—16 mm.

This is the species heretofore labelled in collections *femoratus*, but M. Fauvel informs me that the latter name should belong to the species to which it is applied in the present paper.

Occurs in the New England States, Canada and New York and Michigan.

S. exulans Erichs., Staph. p. 374.—Form moderately elongate, piceous, head, thorax and elytra distinctly brassy. Head comparatively small, subtriangular, coarsely and moderately densely punctured with a smooth vertical space of variable size. Eyes obliquely oval, subtruncate in front. Antennæ piceous, attaining the middle of the thorax. Thorax a little wider than the head, slightly narrowed in front, as wide as long, sides feebly base more broadly arcuate, surface moderately shining, coarsely and moderately densely punctured, a smooth median line wider posteriorly, on each side small smooth spaces of variable size. Scutellum velvety. Elytra a little wider than the thorax, conjointly as wide as long, subopaque, surface densely punctured and scabrous and sparsely clothed with pale brownish pubescence. Abdomen above feebly shining sparsely punctulate, sparsely clothed with brownish pubescence with a little golden pubescence at the sides and the apex of each segment, 2—5 with a double series of velvety spots sometimes visible on the sixth also; abdomen beneath piceous, iridescent, sparsely punctate, sparsely clothed with brownish pubescence intermixed with yellowish near the base and sides of each segment. Body beneath rather finely but not densely punctate. Legs piceous, femora finely punctulate. Length .44—.56 inch; 11—14 mm.

This species could hardly be confounded with any other from its color and sculpture, it bears a certain amount of resemblance however to *comes* in which the legs are always pale.

Occurs from Canada to Georgia, but rare.

S. praelongus Mann., Brach. p. 24; Erichs. Staph. p. 391; *cicatricosus* Lec., New Species, 1863, p. 37.—Form moderately elongate, piceous black, head and thorax slightly æneous. Head subtriangular, comparatively small, coarsely very sparsely punctured and with a large smooth vertical space, slightly pubescent behind the eyes where the punctuation is dense. Eyes obliquely oval. Antennæ piceous attaining the middle of the thorax. Thorax

very little wider than the head, longer than wide, sides nearly straight, subparallel or slightly broader behind, base broadly arcuate, surface very coarsely punctured, rather densely at the sides, very distantly on the disc which has a broad median smooth space and one less defined on each side; surface glabrous slightly pubescent near the margin. Scutellum velvety. Elytra wider than the thorax, conjointly as wide as long, surface densely punctured and opaque, sparsely clothed with brownish pubescence. Abdomen above sparsely punctulate, last three segments with large punctures irregularly placed, sparsely clothed with brownish pubescence, segments 2—6 with a double row of velvety spots; beneath sparsely punctate and with brownish pubescence. Body beneath sparsely punctate more densely at the sides with brownish pubescence. Legs piceous, femora sparsely punctate. Length .50—.64 inch; 12.5—16 mm.

An easily known species by the nearly parallel thorax as well as by the very coarse and irregular punctuation.

Occurs from Massachusetts to Pennsylvania, and is more abundant near the sea-shore.

LEISTOTROPHUS Perty.

The principal difference between this genus and *Staphylinus* is found in the form of the maxillary palpi, the last joint being somewhat shorter and more slender than the preceding. The lateral lines of the prothorax are similarly confluent.

Two species occur in our fauna which represent distinct divisions of the genus, differing as follows:

Eyes large. Antennæ with joints 1—5 slender and hairy, joints 6—11 opaque, densely finely punctulate, subserrate, the terminal joint very obliquely emarginate, subacuminate.

Head and thorax concolorous; tip of abdomen with golden pubescence.

cingulatus.

Eyes rather small. Antennæ with joints 1—3 elongate, four oval, these hairy and moderately shining, 5—11 opaque, transverse, densely finely punctulate, the terminal emarginate and transverse, not acuminate.

Head reddish yellow; abdomen with segments 5—6 with grey silken pubescence **capitatus.**

L. cingulatus Grav., *Micr.* p. 166; *Erichs. Staph.* p. 360; *chrysurus* Kby. *Fauna Bor. Am.* p. 94; *speciosus* Mann. *Brach.* p. 21.—In addition to the above characters it will be observed that the tarsi are more slender than in the next species. This is especially the case in the last joint of the anterior tarsi. The hind angles of the head are also more abruptly formed. This species is so common as not to require any further description. Length .50—.60 inch; 13—15 mm.

Occurs everywhere east of the Rocky Mts. and in Vancouver.

L. capitatus Bland, *Proc. Ent. Soc.* 1864, p. 65.—Form moderately elongate, black, head pale rufous. Head suborbicular, rather suddenly constricted posteriorly, hind angles broadly rounded, surface finely and densely punctured, sparsely clothed with pale pubescence. Eyes, ovate, slightly oblique, subtruncate in front. Antennæ rufous, usually darker externally, a little longer than the head. Thorax a little narrower than the head, longer than wide, narrowed

posteriorly, sides feebly arcuate, behind the middle very distinctly sinuate, surface densely punctured, more coarsely than the head, median smooth line very feeble at middle, slightly more evident in front and very distinctly marked posteriorly, color piceous often with paler spots especially along the basal margin, surface sparsely pubescent, varying in color with the color of the surface from which it arises. Scutellum with cordiform velvety spot partially divided, sides punctured. Elytra a little wider than the head, conjointly as wide as long, surface densely punctured with small widely scattered smooth spaces, sparsely clothed with dark pubescence, irregularly marmorate with velvety, fringed at the tip with rufous hairs. Abdomen above black, finely punctulate, segments 2—4 with a velvety space at middle usually in form of letter H, the remainder of the surface of these segments sparsely clothed with dark pubescence intermixed with grey, segments 5—6 entirely clothed with greyish sericeous pubescence, last segment black; beneath moderately densely, finely punctured, and moderately densely clothed with grey sericeous pubescence over the entire surface. Body beneath densely pubescent and with grey pubescence. Legs black, pubescence brownish. Length .50—.60 inch; 12.5—15 mm.

The characters above given separate this species abundantly from any other known to me. The males have a larger head than the females and the sixth ventral segment is triangularly emarginate.

This species occurs in Ontario (Pettit), and New York (Schaupp), living in fungi.

HADROTES Lec.

Last two joints of maxillary palpi equal. Lateral lines of thorax distinct and separate. Body apterous. Anterior tibiæ feebly triangular, the apical angle slightly prolonged, posterior face with short stout spinules. Middle and posterior tibiæ gradually thicker to the tip and armed with numerous short, stout spinules.

H. crassus Mann., (*Staphyl.*) Bull. Mosc. 1846, ii, p. 509; *extensus* Lec., Proc. Acad. 1861, p. 342.—Piceous black, shining. Head and thorax smooth and shining, the former with punctures at the sides of the neck. Thorax as wide as long, slightly narrowed posteriorly, sides nearly straight, base broadly arcuate. Scutellum punctured. Elytra as wide as the thorax, conjointly as wide as long, surface glabrous wrinkled. Abdomen very coarsely but sparsely punctured, a smooth space at middle of each segment, surface sparsely clothed with brownish pubescence; beneath rather more densely punctured than above, with brownish pubescence, last four segments with a few erect hairs. Legs piceous, tibiæ and tarsi somewhat paler. Length .50—.68 inch; 13—17 mm.

Occurs from Alaska to Middle California.

CREOPHILUS Mann.

The fourth joint of the maxillary palpi is a little shorter than the third. The lateral lines of the thorax do not unite, the outer becoming entirely obsolete one-third from the anterior angle. The antennæ are short the outer joints gradually broader, the terminal longer but narrower than the preceding and distinctly emarginate at tip.

C. villosus Grav., Micr. p. 160; Erich. Staph. p. 349; Mann. Bull. Mosc. 1843, ii, p. 228; *bicinctus* Mann. loc. cit. p. 229; *fasciatus* Lap. Etudes, p. 111.—It seems to me necessary to unite the species above cited under one name. The only differences which exist are found in the vestiture of the under side of the body, some of the specimens having the abdominal segments 2—3 clothed with grey pubescence while others have 2—4 so clothed. This proves however to have no value as intermediate specimens occur. These two forms have moreover no geographical limitations, both occurring associated everywhere in our fauna. Erichson in his description says that the first three segments are cinereo-tomentose, this is not the case in any specimens I have seen, the second, third and the fourth partly are so clothed. The metasternum at sides may have either black or cinereous pubescence. Length varies from .48—.90 inch; 12—23 mm.

Occurs from Alaska southward over our entire territory, and extends probably into Mexico.

THINOPINUS Lec.

The fourth joint of the maxillary palpi is very little if any shorter than the preceding. The elytra are short imbricated at the suture, the wings absent. The anterior tibiæ are triangular, the outer apical angle prolonged forward. The middle and posterior tibiæ are gradually thicker toward the tip, the outer side muricate but without the spines as in the allied genera; the spurs are long and slender. The antennæ are short, not passing the hind angles of the head. The lateral lines of the thorax remain distinct but under the anterior angle approximate very closely.

One species occurs on the Pacific sea-shore from Alaska to San Diego.

T. pictus Lec., Ann. Lye. v, p. 216; Pacific R. R. Rep. 1857, App. 1, p. 35, pl. 1, fig. 12; *variegatus* Motsch. Etudes, 1852, p. 78; Mann. Bull. Mosc. 1853, iii, p. 188.—Color pale yellowish testaceous, variegated above with piceous spots. Head broadly triangular, hind angles obtusely prominent, surface glabrous, shining, neck with two piceous spots. Thorax broader than long, narrowed at base, sides in front arcuate, posteriorly sinuate, margin at sides very narrowly, at base more broadly reflexed, surface smooth shining, glabrous with a piceous oval ring on each side, varying from this to immaculate. Elytra short, each as wide as long, slightly opaque, obsoletely punctate, sparsely pubescent, with a piceous line forming an oval ring varying to immaculate. Abdomen above punctulate, more densely at the sides, clothed with very fine and short pubescence, with a double row of black spots of variable size, sometimes absent. Body beneath testaceous, abdomen moderately densely punctured, sparsely pubescent. Length .56—.74 inch; 14—19 mm.

The maculation of the surface is very variable, in one specimen before me piceous is the prevailing color above but I have not seen any entirely testaceous. The males have the abdomen more oval than the female and the sixth ventral rather deeply emarginate.