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THE
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Volume XI. No. 6.

July, 1900.

Whole No. 91.

Review of the Cactaceae of the United States.—V.

CEREUS BRANDEGEEI Coulter.

"Size, habit, and number of ribs unknown: ribs tuberculate, with areolae 10-15 mm. apart: spines at first variegated, dark and reddish, becoming more or less ashy-black; radials 10 to 16, rigid, terete, radiant, mostly uniform, 8 to 12 mm. long; centrals almost always 4, very stout and prominent, 3 to 4 cm. long, cruciate, conspicuously angled and compressed, sometimes twisted, the lowest usually the most flattened and sword-like (2 to 3 mm. broad): flowers red, 4 to 5 cm. long, with conspicuous woolly and spine-bearing areolae over the ovary and lower part of the calyx: ripe fruit not seen.—Type in Herb. Brandegee, Lower California, El Campo Allemand and San Gregorio. Specimens examined: Lower California (Brandegee of 1889)."—Coulter, Cont. U S Na Hb iii, 389. (Ap. 1, 1896.)

Orcutt, Review of the Cactaceae, i. 7. Jl. 3, 1897.

Plant caespitose, often 2 feet or more across, consisting of many cylindrical heads, mostly 6 or 8 inches high, 1½ to 2 inches in diameter, with 8 or 9 interrupted, strongly tuberculate, ribs. The young spines frequently tinged with brilliant magenta, the older spines often of an ivory white, with centrals of a deep magenta—making a very handsome appearance. Abundant in the vicinity of the mines at Calmalli, and eastward nearly to the shores of the Gulf of California. This has much the same aspect as *Cereus Engelmanni*, with similar variations in the color of the spines.

ECHINOCACTUS FORDII Orcutt

Orcutt, Review of the Cactaceae, 1:56.

Globose, 6 inches or more in diameter, with about 18 tuberculated narrow ribs closely set with clusters of stout ashy gray spines, 4 central, annulated, the longest 1¼ inches long, and hooked; 2 slender spines above with about 14 divergent radials; flower an inch across, about 32 rose purple petals in 2 series, 9 greenish stigmata, style tinged with red, filaments red at top and yellow at base, anthers orange yellow. Near Lagoon Head, Baja California. Named for Lyman M. Ford, of San Diego, who has taken a great interest in cacti. Apparently the same plant was distributed in 1894, from near San Quintin bay, as a form of *E. peninsulae*.

OPUNTIA BASILARIS E.-B.

"Humilis; articulis obovatis seu triangularibus glaucescentibus pubescentibus e basi proliferis; foliis minutis; pulvillis subconfertis fulvo-

villosis setas gracillimas demum numerosissimas fulvidas et subinde aculeolos setiformes caducos gerentibus; floris purpurei ovario obovato pulvillis plurimis instructo; stigmatibus 8 in capitulum congestis; bacca obovata late umbilicus (sicca?); seminibus magnis crassis subregularis. On William's River, the Colorado, and the Mojave, and down to the Gila: flowers April and May. Habit very different from any other of our *Opuntia*; the stout obovate or fan-shaped joints (5-8 inches long) originate from a common base, forming a sort of rosette. Leaves only 1 line long, 4-6 lines apart; pulvilli red-brown, somewhat immersed. Flower about 2½ inches in diameter; ovary with 40-60 pulvilli. Fruit apparently dry, thereby approaching the next section [*Xerocarpeae*]. Seed 3 lines in diameter, 2 lines thick. Mr. Schott has observed, on the dividing ridge of the California mountains, west of the mouth of the Gila, and again in the Santa Cruz valley, Sonora, a very similar but suberect species, 3 feet high, spineless, inclined to assume a purplish hue, which he seems to have confounded with *O. basilaris*. Can it be *O. rufida*, or is it an undescribed species?"—E, Syn 298 (42).

V. RAMOSA Parish.

"Spreading, and the joints freely branching above; joints and fruit glabrous; otherwise as in the species. Dry washes and gravelly benches of the Colorado and Mojave deserts, and occasionally in the less arid regions; dry ridges, 7000 ft. alt., on the northern side of the San Bernardino Mts., near Bear valley; San Mateo Pass; San Jacinto Plains as far as Box Springs; Temecula; Coast Range at least to the Santa Margarita River. This variety is the common form of the species in Southern California; only near the summit of the Cajon Pass have I seen plants basilar branched as defined by Engelmann and figured in Pac. R. R. Rept., iv. t. 13. f. 5."—Parish, Torr cl b 19:92.

OPUNTIA CAMANCHICA, E.

"Prostrata; articulis adscendentibus majusculis suborbiculatis; pulvillis remotis plerisque armatis; setis stramineis fulvisve parvis; aculeis 1-3 compressis fuscis apice pallidioribus, superioribus elongatis suberectis, caeteris deflexis; bacca ovata late umbilicata; seminibus majusculis angulatis hilo excisis. Llano Estacado, on the Upper Canadian River. A large, extensively spreading plant; the joints 6-7 inches long; spines 1½-2 or even 3 inches long. Fruit large, juicy. Seeds 2-3 lines in diameter, very irregular and deeply notched at the hilum.—E, Syn 293.

OPUNTIA ARBUSCULA E.

"Arborescens, erecta, capitato-ramosissima; articulis laete viridibus elongato-subtuberculatis; aculeis subsingulis porrectis vel subdeflexis; flore flavo-virescente. On the lower Gila, near Maricopa village: flowers June. A truly arborescent form, with a solid trunk of 4 or 5 inches in diameter, 7-8 feet high; joints 2-3 inches long, about 4 lines in diameter; tubercles indistinct, about 6 lines long; spine 9-12 lines long, often with 1 or 2 smaller ones under it. Flower 1½ inches in diameter."—E, Syn 309 (53).

OPUNTIA BULBISPINA, E.

"Radicibus fusiformibus; articulis parvis ovatis sæpe ex apice proliferis fragilibus; tuberculis ovatis brevibus; pulvillis parce setosis; aculeis teretiusculis scabrellis basi bulbosis, interioribus 4 cruciatis, inferiore longiore, exterioribus 8-12 radiantibus. Saltillo, Mexico. Spreading masses with joints an inch long or less; tubercles 4-6 lines long; interior spines 4-6, exterior ones $1\frac{1}{2}$ -3 lines long. Apparently near the South American *O. pusilla*, Salm, and perhaps belonging to the *Opuntia glomerata* rather than here [*Clavata*]. Fruit unknown."—E. Syn 304.

OPUNTIA ARENARIA E.

"Adscendens; articulis obovatis compressis seu teretiusculis tuberculatis; foliis minutis; pulvillis subconfertis pallide setosis; aculeis 1-4 robustioribus albidis fascatisve, cum inferioribus brevioribus 2-6 albis; floris sulphurei ovario obovato; petalis emarginatis; stigmatibus 5; bacca oblonga spinulosa; umbilico infundibuliformi; seminibus magnis irregularibus. Sandy bottoms of the Rio Grande near El Paso; flowers May. Spreading 2-3 ft., $\frac{1}{2}$ -1 ft. high; roots stout, creeping horizontally; joints $1\frac{1}{2}$ -3 inches long, 1-2 inches wide, and $\frac{1}{2}$ - $\frac{3}{4}$ thick, more strongly tuberculated than the allied species; leaves only a line long; pulvilli 3-5 lines apart, very bristly, especially on the old joints; upper spines 9-15 lines long. Flower 2-2 $\frac{1}{2}$ inches in diameter. Fruit about an inch long. Seeds 2 $\frac{1}{2}$ -3 lines in diameter. This is the only one of our Cactaceae on which the Cochenille has been found."—E, Syn 301 (45).

OPUNTIA CHLOROTICA E-B.

"Caule erecto aculeis flavis numerosissimis fasciculatis armato; articulis orbiculato-obovatis pallidis; pulvillis subremotis setas difformes confertas aculeosque 3-6 inæquales compressos stramineos gerentibus; floris flavi ovario pulvillis confertis stipato; petalis spathulatis. Western Colorado country, between New Mexico and California, from the San Francisco mountains to Mojave creek. Plant 4-6 feet high, forming large and sometimes spreading bushes; the trunk covered with spines 1-2 inches long; joints 8-10 by 6-8 inches in length; spines $\frac{1}{2}$ -1 $\frac{1}{2}$ inches long. Ovary with nearly 50 pulvilli, while the foregoing species [*Engelmanni*, etc.] have not more than 20."—E, Syn 291.

OPUNTIA MACRORHIZA E.

"Prostrata; articulis obovato-orbiculatis planiusculis; pulvillis setis fuscis et sæpe aculeis singulis binisve instructis; aculeis teretibus validis porrectis s. paulo deflexis basi apiceque fuscis ceterum albidis cum adventitio inferiore graciliore reflexo sæpe deficiente; floribus sulphureis basi intus rubellis; ovario sepalis subulatis deciduis 13 in axillis setulas fuseas brevissimas gerentibus stipato; sepalis interioribus 15-8 subulatis et (internis) ovatis acuminato-cuspidatis; petalis 8 sepala superantibus late obovato-spathulatis obtusis cuspidatis crosodenticulatis; stigmatibus 5 obtusis, adpressis, stamina numerosa æquantibus; bacca subpulposa clavata glabrata; seminibus marginatis.—

Naked, sterile, rocky places on the Upper Guadalupe. Flowers (in St. Louis) in June. Root a large and fleshy tuber, sometimes 2 or 3 inches in diameter; joints 3-4 inches long, about $2\frac{1}{2}$ - $3\frac{1}{2}$ wide, hardly attenuate at the base. Leaves subulate, about 5 lines long; areolæ $\frac{3}{4}$ -1 inch distant, more crowded toward the base and on the edges; spines (often wanting) 1 inch long, the smaller 4-6 lines long. Flower 3 inches in diameter; ovary $1\frac{1}{4}$ inch long; petals 1 inch wide, $1\frac{1}{2}$ inch long, pale yellow, red at the base. Fruit $1\frac{1}{2}$ inches long; the strongly marginated seeds comparatively few, $2\frac{1}{2}$ lines in diameter.—I have found the same plant in similar situations in Western Arkansas; and it is possible that it may be one of Nuttalls' new species (*O. mesacantha*, *O. cæspitosa*, or *O. humifusa*) of which I cannot find a description.—Nearly related to *O. vulgaris*."—Engelmann, *Plantæ Lindheimerianæ*, 206.

OPUNTIA LINDHEIMERI E.

"Erecta, robusta; caule lignoso; articulis (magnis) ellipticis basi attenuatis planis; pulvillis remotis ad margines confertioribus griseo-tomentosis, setis flavidis aculeisque paucis instructis 1-3 compressis validis deflexis varie divergentibus stramineis, nunc cum 1-2 aculeis adventitiis gracilioribus; flore . . . , bacca clavata elongata subpulposa glabrata; seminibus late marginatis.—About New Braunfels. Plant erect, often 6-8 feet high; stems terete ligneous, sometimes six inches in diameter, with gray bark, and very light, spongy wood. Larger joints 9-12 inches long, 5-7 broad. Areolæ $1\frac{1}{2}$ -2 inches distant on old joints; bristles on them 1-3 lines long. Spines all pale yellow, much compressed, indistinctly annulated, $\frac{1}{2}$ -1 inch long, various; the 3 larger spines, or the 1 longer, with 1 or 2 shorter spines. The fruit which Lindheimer has sent as belonging to this species resembles very much that of *O. vulgaris*, 2- $2\frac{1}{2}$ inches long, slender, with a deep umbilicus, very different from that of the following species. Seeds 2- $2\frac{1}{2}$ lines in diameter, not numerous. Young plants grown from this seed have the same compressed spines, but are brown at the base; the lower areolæ produce no spines, but a quantity of long, coarse hair.—I add here the following species [*O. Engelmanni*], though not properly belonging to the flora of Texas, because I suspect that it is also found at the mouth of the Rio Grande, within the limits of Texas, and here, and especially on the barren sand islands at the Brazos, near Point Isabel, the St. Louis Volunteers found large and impenetrable thickets formed by an *Opuntia* with large joints, covered with almost globose fruits, with innumerable small seeds and a very luscious deep red pulp. The fruit and seed are before me, but unfortunately I did not obtain a living specimen."—Engelmann, *Plantæ Lindheimerianæ*, 207.

Coulter Contr U S na hb 3:420, 461.

O. Engelmanni in part fide E—but it seems unwise to discard the long established name.

OPUNTIA LAEVIS Coulter.

"Joints light green, elongate-obovate, 30 cm. long and 10 cm. wide, gradually narrowed below, obtusely pointed above: pulvini small, oval (3-4 mm. long), 2.5-3.5 cm. apart, gray-tomentose, with numerous short pale bristles, unarmed: flowers yellow, tinged with red, about 6 cm. broad; stigmas slender, 8: fruit somewhat pyriform, 5-6 cm. long, deeply umbilicate, bearing about 40 pulvilli; seed very irregular, 4-5 mm. in diameter, with thick acute undulate margin. Type, Pringle of 1881 (distributed as *O. angustata*) in Herb. Coulter. Arizona. Specimens examined: Arizona (Pringle of 1881; Palmer 93, 95; Coues & Palmer, 247; Vasey 247). Besides the spineless character, the seeds are about half as large as those of *O. angustata*, to which species it has been referred."—Coulter, Cont U S Na hb 3:419.

OPUNTIA DAVISII E-B.

"Caule dense lignoso ramosissimo divaricato; articulis junioribus erectis elongatis basi attenuatis; tuberculis oblongo-linearibus; aculeis interioribus 4-7 subtriangularibus rufis vagina straminea laxa indusiatis divergentibus; aculeis inferioribus 5-6 gracilibus; bacca ovata pulvillis sub-25 aculeigeris stipata. On the Llano Estacado, near the upper Canadian river; common. Spreading and somewhat procumbent, about 18 inches high; the only one in this section with dense wood. Joints 4-6 inches long, rather slender; tubercles 7-8 lines long. Interior spines 1-1½ inches in length; lower ones 3-6 lines long. Fruits (all sterile, and perhaps not properly developed) an inch or more in length."—E, Syn 305 (49).

OPUNTIA KLEINIÆ DC.

"Erecta, ramosa, cinereo-viridis, ramis erectis cylindricis etuberculatis, fasciculis ordine spirali sinistrorso dispositis, areola velutina, aculeis biformibus, aliis setosis innumeris ex albido rufis, uno maximo inferiore patenti-deflexo gracili albido. Mexico. Coulter, No. 21. Caulis digiti majoris crassitie, caulem *Cacaliæ Kleiniae* referens. Folia minima, oblonga, decidua. Aculeus major, pollicaris. Ad priorem sp. accedit [*O. decipiens*]."—DC. Revue, 118.

OPUNTIA GRANDIFLORA E:

"Subadscendens; articulis majusculis; pulvillis remotis; setis tenuissimis; aculeis subnullis; floris grandis ovario elongato; petalis sub-10 latissimis; stigmatibus 5; bacca elongata clavata. On the Brazos, Texas. Joints often 5-6 inches long; pulvilli nearly an inch apart. Flowers 4½-5 inches in diameter, red in the center; petals 2 inches long or more, and 1½ wide."—Eng. Syn. 295.

Considered by Eng. l. c. as "probably only a southern variety" of *O. rafinesquii*.

Foerst 923.

OPUNTIA FILIPENDULA E.

"Glauca; radicibus nodoso-incrassatis; articulis minoribus orbiculatis seu obovatis seu oblanceolatis tenuibus; pulvillis approxinatis setas virescenti-flavas graciles numerosas gerentibus armatis vel inermibus; aculeis, si adsunt, 1-2 elongatis subangulatis cum 1-2 minoribus, omnibus albidis; floris purpurascens ovario gracili; stigmatibus 5; seminibus minoribus tumidis. Alluvial bottoms of the Rio Grande near El Paso, and eastward on the Pecos: flowers May and June. The long knotted roots, the small bluish joints, with the very small leaves and very long bristles, together with the purple flower, and thick very narrowly margined seeds, distinguish this species from all others. Plant 6-12 inches high; joints $1\frac{1}{2}$ -3 inches long, 1-2 wide; pulvilli 4-6 lines apart; lower spines 1-2 inches long. Flower $2\frac{1}{2}$ inches in diameter. Seed hardly 2 lines in diameter."—E. Syn. 294 (38).

OPUNTIA EMORVI E.

"Articulis cylindricis basi clavatis glaucis; tuberculis oblongo-linearibus elongatis; setis paucis; aculeis plurimis rufis, interioribus 5-9 validioribus triangulatis, compressis, exterioribus 10-20 pluriseriatis undique radiantibus; floribus flavis extus rubellis; bacca pulvillas 35-50 setosissimos inferiores aculeolatos gerentibus; seminibus valde inaequalibus irregularibus. Arid soil, from El Paso through Sonora to the desert of the Colorado: flowers August and September. The stoutest species of this section. Joints 4-6 inches long, curved, 1-1 $\frac{1}{2}$ inches in diameter; tubercles 1-1 $\frac{1}{2}$ inches long; longest spines 1 $\frac{1}{2}$ -2 $\frac{1}{2}$ inches long, $\frac{3}{4}$ -1 line wide; the exterior spines gradually smaller, and less angular. Fruit 2-2 $\frac{1}{2}$ inches long, partly armed with spines 4-8 lines long. Seeds from 2 $\frac{1}{4}$ -3 $\frac{1}{4}$ lines in diameter. Cotyledons oblique or accumbent."—E, Syn 303 (47).

CEREUS ORCUTTII Katharine Brandegee, Zoe 5:3 (13 Je 1900).

"Stems erect, branching, bright green, reaching a height of 3 m. and a diameter of 15 cm. with hard woody center; ribs 14-18, about 1 cm. high; areolæ round, about 6 mm. in diameter and about half that distance apart, densely covered with short, light gray wool; spines all slender, spreading, yellowish brown, irregularly 3-seriate; radials 12-20, about 12 mm. long, deficient above; intermediates about 10, $\frac{1}{3}$ to more than twice longer, less spreading, one of the upper spines of this row usually stouter and darker, porrect, often reaching a length of 7 cm.; centrals about 5, porrect-spreading a little longer than the intermediates; flowers greenish brown, darker outside, diurnal, about 4 cm. entire length; petals short-apiculate; ovary densely covered with short scales, almost completely concealed by thick, rounded tufts of yellowish wool, in which are imbedded dark brown bristles 4-6 mm. long; stamens lining the upper half of the tube; style tips acute. fruit not known." Lower California.

WEST AMERICAN MOLLUSCA.—III.

The first part of the proceedings of the academy of natural sciences of Philadelphia for 1900 contains the following articles pertaining to our subject:—

Dall, William Healey: Additions to the insular land-shell faunas of the Pacific coast, especially of the Galapagos and Cocos Islands. 88–106, t 8.

Pilsbry, Henry A.: Addendum to Dr. Dall's paper: note on the anatomy of *Guppya hopkinsi* Dall. 105.

—Note on the anatomy of the helicoid genus *Ashmunella*. 107–109, 3f.

—Mollusca of the Great Smoky mountains. 110–150.

The following descriptions are of new species, taken from Dr. Dall's paper:—

EPIPHRAGMOPHORA LEUCANTHEA.

“Shell with $5\frac{1}{2}$ rather convex whorls; pale lavender, nearly white below, with an obsolete white peripheral band, above which the whorl is more or less tinged with pale bluish gray, a translucent band above the peripheral one through which the dark brown with which the interior of the whorls is lined may show through more or less distinctly; nuclear whorls with wavy radial striae, visible under a lens, for a whorl and a half, translucent; succeeding whorls opaque, except as stated, polished, with rather distinct incremental lines and obsolete vermiculations or malleations; base rounded, perforate, with the umbilicus nearly closed by the columellar reflection; aperture rounded, the outer lip slightly reflected, white, with the throat brown internally; body without callus, pillar short, arcuate, with no thickening or denticle upon it. Major diam. 28, minor 23.5, alt. of shell 20, of aperture 15 mm.

Eastern side of Cerros Island, Anthony, 1896.

“This is evidently a derivative from *E. Veatchii*, from which it differs in the absence of the numerous interrupted brown bands, in the usually blunter and lower spire and more distinct and deeper sutures.”—Dall, 99, t 8, f 18, 20.

E. CRASSULA.

“Shell small, solid and heavy, smooth, with 5 whorls; spire rather pointed, suture distinct, not deep, last whorl evenly round-

ed at the periphery; color opaque white with more or less numerous very pale brown subtranslucent spiral bands, all or part of which may be absent; usually there is a peripheral white band and between it and the suture one or two translucent bands of which the anterior is most constant; from 2-4 narrower translucent bands may exist in front of the periphery; the base is rounded, at first minutely perforate, later imperforate and sealed by a reflection of the pillar lip; aperture rounded, slightly oblique, with a solid white, slightly reflected peristome, but no callus on the body; pillar broad, short with a conspicuous callosity. Alt. of shell 15, of aperture 6, lat. of shell 15.5, of aperture 7.5 mm.

“Natividad Island, 10 miles south of Cerros Island, Anthony, 1896

“This species is an offshoot of *E. levis* Pfr., from which it differs by its smaller, and much heavier shell, fewer whorls, conspicuous peristome and narrower, fewer and less interrupted banding of a paler tint.”—Dall, 100, t 8, f 3.

E. (MICRARIONTA) GUADELUPIANA.

“Shell small, thin, depressed, of a dark-brownish color with a narrow reddish band, bordered on each side by a pale streak, just above the periphery; spire little elevated, suture distinct; epidermis strong, in well-developed specimens slightly microscopically hirsute; sculpture of well-marked incremental lines, stronger on the spire, with occasional microscopic punctations; base more or less flattened, the last whorl with the periphery somewhat above the middle of the whorl, umbilicus narrow and deep; aperture sub-circular, very oblique with a strong whitish reflection of the peristome, the ends of the lip on the body approximated, throat with the bands showing through. Alt. of shell 6, diam. 10.5, aperture diam. 4.5 mm.

“Guadelupe Island, off Lower California, in N. Lat. about 29 degrees, Anthony, 1896; Snodgrass and Heller, 1899.

“This very well-marked little species is nearest to *E. Catalinæ*, but is well depressed, with a larger umbilicus and differently shaped aperture. It seems to be tolerably abundant, though most of the specimens received were defective.”—Dall 101, t 8, f 14, 15.

E. CATALINÆ.

“‘*Helix tenuistriata*’ W. G. Binney (as mutation of *H. Gabbi*), Land and fresh-water shells of North America, part 1, page 175, f 305, 1869; not of A. Binney, 1842.

“*Arionta Gabbi*, W. G. Binney, U S Na mu b No. 28, 148, f 130, 1885.

“This form was collected on Catalina Island by H. Hemp-hill, and, while obviously a member of the *Gabbi-facta* group, seems perfectly distinguishable from the other members of that group. There is a very large series of *Gabbi* and *facta* in the collection of the National Museum, and, notwithstanding their variability I do not find any specimens which are not readily referred to one or the other, and none intermediate between these and *catalinæ*. The name *tenuistriata* had previously been used specifically by A. Binney, and was repudiated for this shell by his son. As the original *tenuistriata* A. Binney has never been identified, and in the case of the present species the name would have to rest anonymous, it seems better to apply a local name to it which is free from any uncertainty. It has a small deep umbilicus partly shaded by the reflected pillar lip and a broadly reflected peristome, the ends of which upon the body are not approximated. It measures as follows: Alt. of shell 7, diam. 12, diam. aperture 4.5 mm. There are $5\frac{1}{2}$ rounded whorls and the entire shell is finely spirally striate. It is also found fossil on Santa Barbara Island, but the fossil specimens are often considerably larger than the largest living specimens now known; one measures 15 mm. in major diameter and nearly 10 mm. in height.”—Dall, 103.

E. ORCUTTI.

“Shell globose, moderately elevated, polished, with nearly 6 moderately convex whorls forming a dome-like spire; color purplish brown, lighter toward the umbilicus; a narrow pale band on the last whorl bordered behind by a darker brown, poorly defined, similar band, both being above the periphery and the suture in the earlier whorls being laid on the anterior edge of the darker line; nucleus flexuously radiantly wrinkled, pale colored; subsequent whorls with fine incremental wrinkles the ridges of which are cut by revolving, partly obsolete incised lines; as a rule these lines are not deep or continuous, cutting merely the tops of the wrinkles and not the furrows between them; suture distinct, last whole rounded, plump, toward the aperture descending below the pale band; base plumply rounded, the umbilicus covered by a reflection of the pillar-lip with a minute chink behind it; aperture very oblique, thickened, whitish, reflected, especially near the pillar;

throat livid brownish with the bands well indicated. Major diam. of large and small specimens, respectively, 24 and 22.5, minor diam. 20 and 18.5, alt. 19 and 16 mm.

“Habitat: Rosario mesas, in Northern Lower California, in May, 1886, by C. R. Orcutt.

“This form much resembles in shape the typical *E. Kellettii*, from which it differs in the absence of the yellow flecking and the different surface sculpture. *E. Kellettii* is also a more globose shell. The same stock, doubtless, was the origin of both species, as well as several others.”—Dall, 104–105, t 8, f 19.

Under living and dead Maguey plants (*Agave shawii*), with *levis* and *Stearnsiana*, exceeding rare in comparison. Major diam. of largest specimen obtained 27, minor 22, alt. 19 mm. This is from the type locality of *Stearnsiana*, which was much more abundant and differing not at all from San Diego specimens. Orcutt No. 1321. It has more the aspect of the *tudiculata* than the *Kelletti* group. One specimen was quite elevated, 24 mm alt.

E. STEARNSIANA.

Under *Helix*.—“Shell narrowly umbilicated; sub-globose, solid, of a dirty white color, irregularly mottled with crowded ashy blotches, grouped into revolving series below, with a decided wide, brownish revolving band above; with delicate oblique incremental striae, unequally cut by revolving lines; spire elevated; whorls 5, rather convex; aperture oblique, semi-circular; peristome simple, acute, its columellar termination white, expanded, reflected over the half concealed umbilicus. Greater diam. 22, lesser 17; height 12 mill.

“*Helix stearnsiana* Gabb, Am J Conch 3: 235, t 16, f 1 (1867).

“Lower California, from Sta. Tomas to Rosario, under stumps of Maguey. (Gabb.) The shell figured and described was received from Dr. Newcomb. It may not be entirely mature.”—B-B, 177, f 310.

“San Martin Island, in N. Lat. 30 degrees, 30 minutes, Anthony, 1896.”—Dall Phila ac pr 1900, 101.

EPIPHRAGMOPHORA KELLETTI.

Under Helix.—“Shell narrowly umbilicated, depressed-globose, thin, wrinkled, granulated, fulvous; spire subturbinated, with dirty reddish blotches and one red revolving band; whorls 6, rather convex, the last with a white band at its periphery, and inflated on its under surface; aperture roundly lunate, light red and banded within; peristome somewhat reflected, its columellar portion dilated, reflected, covering the umbilicus. Greater diam. 22, lesser 19; height 19 mill. (Forbes.)”—B-B 176, f 309.

“*Helix kellestii*” Forbes PZS 1850 55 t 9 f 2, a, b.

“*Epiphragmophora (Micrarionta) kellestii* Pilsbry Cat land shells of Am north of Mexico 6, 1897.

“The measurements of the type are major diam. 22, minor diam. 19, alt. 19 mm. No locality is mentioned.”—Dall Phila ac pr 1900, 103.

V. ? *Clementina*:—“Shell small, thin, pale translucent brownish in color with obscure revolving series of very minute yellow or whitish flecks; whorls 4, the nucleus wrinkled transversely, reddish, slightly flattened, the succeeding whorls rather convex with a distinct suture; a very narrow dark reddish-brown band, with a hardly visible pale border in front of it, revolves above the periphery; sculpture of rather well-marked incremental rugæ, cut on the upper part of the last whorl by microscopic spiral striation, to which is added a partly obsolete oblique striation which is visible, under magnification, chiefly in patches; the effect of the whole is to give the surface a very fine shagration; the last whorl near the aperture descends strongly and the plane of the aperture forms an angle of about 45 degrees with the axil of the shell; base full and rounded, the umbilicus completely covered by a reflection of the pillar lip; aperture rounded, the peristome narrow, whitish, slightly thickened and reflected. Major diam. 15, minor diam. 12, alt. 11 mm.; other specimens are slightly larger. Habitat: San Clemente Island, Cal., U. S. Fish Com.”—Dall Phila ac pr 1900, 103-104.

E. LEVIS.

Under Helix.—“Shell perforate, globose, thin, smooth, obliquely striate, obsoletely granulated, white, varied with regular

series of spots or bands of horn-color; spire short, rather acute; whorls 5, scarcely convex, the last inflated; aperture roundly lunar, within somewhat yellow; peristome acute, somewhat thickened within, its columellar portion dilated above, arched and reflected, almost covering the perforation. Greater diam. 16, lesser 14; height 13 mill.

“Var. b. The columellar portion of the peristome with a single obtuse, tooth-like callosity.

“*Helix levis*, Pfeiffer *Mon Hel Viv* 1:54; 3:128; *Zeits f Mal* 1845, 2:152; in *Chemnitz ed* 2, 1:249, t 36 f 16, 17 (1846).—Reeve *Con Icon* 1214.—W. G. Binney *Terr Moll.* 4:18 t 76 f 10.

“*Polymita levis*, Tryon, *Am V Conch* 2:320 t 5 f 21? (1866).

“Columbia River. Dr. Newcomb doubts its being a Californian or Oregon species.”—B 180 f 316. Figure is marked “var.”

“Rosalia bay, mainland of Lower California, in N. lat. 28 degrees, 30 min., Anthony 1896. Erroneously referred to the Columbia river by Pfeiffer.”—Dall *Phila ac pr* 1900, 100.

E. AREOLATA

Under *Helix*.—“Shell perforated, orbicularly conoid, striated, shining, white, variously ornamented with revolving interrupted reddish lines; spire depressed conoid; whorls five, rather convex, the last scarcely descending, somewhat convex at base; aperture roundly lunar, smoky within; peristome acute, somewhat thickened within, its columellar portion shortly arched, dilated, reflected, with one tooth-like callosity (sometimes wanting), and almost covering the umbilicus. Greater diam. 26, lesser 23; height 18 mm.

“*Helix areolata*, Sowerby, *Brit. Mus.*—Pfeiffer in *Zeitschr f Mal* 1845, 2:154; *Mon Hel Viv* 1:152; in *Chemnitz ed* 2, 1:248, t 36 f 10–13.—Philippi, *Icon* 2, 15, 184, t 9 f 4 (1847).—Gould, *Terr Moll* 3:15.—W. G. Binney *Terr Moll* 4:19 t 76 f 3, 11.—Reeve, *Con Icon* 664.

“*Polymita areolata*, Tryon *Am J Conch* 2:319, t 23 (6) f 5 (1866).

“*Arionta veitchii*, Tryon, *Am J Conch* 2:316 t 5 f 19 [1866].

“The specimens figured are from Cerros Island, California.

The species is also quoted from Oregon, and is referred by Newcomb to Margarita Bay."—B-B 177-178, f 311.

Margarita bay, Lower California, Newcomb; Natividad Island, Anthony, 1896. Mistakenly referred to Oregon by Tryon.

"Though doubtless similar in origin and in coloration, *areolata* is smaller than *Veatchii* and has a more depressed spire, and on the whole is easily separable from the latter if a good series is compared."—Dall Phila ac pr 1900, 100.

The 4 f in B-B f 311 represent levis in the 2 outer and *Veatchii* in the 2 inner f.

E. PANDORÆ.

Under *Helix*.—"Shell imperforate, globose-conic, rather solid, reddish above, violet on the apex, ashy below, bound with numerous, interrupted, light blotches and lines; whirls five, rounded; suture impressed; aperture subcircular; peristome narrowly reflected, white, its ends approaching; throat bluish; columella thickened, rounded. Greater diameter 17, lesser 16; height 14 mm.

"*Helix pandoræ*, Forbes, Zool soc pr 1850, 55 t 9 f 3 a, b.—Con Icon 671.—Pfeiffer Mon Hel Viv 3:127; in Chemnitz ed 2, 3:467 t 156 f 17, 18 (1853).—Gould Terr Moll 3:15.—W G Binney Terr Moll 4:18 t 76 f 8.

"*Helix damascenus*, Gould, Boston Soc Nat Hist pr 6:11 (O 1856).

"*Polymita pandoræ*, Tryon, Am J Conch 2:320 t 6 f 8 (1866).

"Margarita Bay, Lower California. The specimen figured wants the characteristic revolving lines and blotches."—B-B 179-180 f 315.

Stearns in N Y ac annals 2:136 says he regards "*H. areolata*, *pandoræ*, *Veatchii* and *levis* as varieties of a single species."

EDITORIAL.

A certain "institute of science" advertises in various mediums, otherwise usually respectable, like the *Scientific American*, offering to send free a book on the wonders of personal magnetism and hypnotism. The book, accompanied by numerous circulars and testimonials, was duly received upon application. It contains much that is true; quotes many eminent men, like Presidents Jordan, Eliot, and others, no doubt correctly; and some startling claims are put forward of the certainties in the reach of any one sending \$5 for their wonderful secrets ("former-price \$25.00—reduced for a short time only," as I recollect the circular's wording.) Skillful dovetailing of truth with falsehood is often effectual in parting the fool and his money, but until this remarkably "liberal" institute accedes to the editor's proposal for the testing of the alleged discoveries and methods, we would advise our readers to be cautious. The wonders of nature are yet beyond the comprehension of the human mind, and some truth is at the foundation of all great popular error, but only the student—the specialist we might say, can unerringly detect the true diamond among false stones, or winnow the wheat from the chaff.

"Manifest destiny" seems to point to national expansion. With the East Indies and the West Indies and the open door to China commerce must advance. There are too many millions of idle capital in the United States to neglect the opening vista. Money rules; monopoly has seized the saloons of Manila and may soon grasp the Opium trade of the Orient; gigantic trusts are fast throttling individual effort at home; the horizon looks dark to many—but there is a glorious dawn beyond.

NOTES AND NEWS.

It should be noted that *Epiphragmophora Harperi* was named in honor of Prof. George W. Harper, for nearly half a century devoted to educational work in Cincinnati, and until lately principal of Woodward High School—having resigned that position to devote his time more fully to scientific research; geology and conchology are his specialties.

Epiphragmophora Bowersi was named in honor of Dr. Stephen A. Bowers, a veteran in scientific and other good work on the Pacific coast, now state mine examiner for California.

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