Dr. A. Kellogg in the chair:

Mr. W. J. Steene, by the Ed. of the Pacific, presented a curious specimen of cabbage, grown on the Sacramento bottoms, which, instead of a head formed of leaves in the usual manner, has a globular head formed by an enlargement of the top of the main stock, five inches in diameter, and weighing some two pounds or more, perfectly sound, with a thin rind, and of the consistency of the inner portion of a common cabbage stump. It has the shape and appearance of a round, field turnip, except that it has perfectly formed cabbage leaves on its sides and top, occurring at intervals, as on the ordinary cabbage stock.

Dr. Kellogg exhibited a drawing and specimens of a plant from the sea shore and salt marshes of the Bay of San Francisco, the Frankenia grandifolia. This plant is often coated with crystals of salt, which has given it the common name of Salt-weed. It is a low herb very much branched, the limbs opposite, with dense clusters of somewhat wedged-shaped leaves folded back or rolled up; within these, are unbosomed small pink flowers—stamens usually 6, pistils 3.

Dr. Ayres presented descriptions of the following species of fish, believed to be new:

*Labrus pulcher*, Ayres. This species, one of the finest of our fishes, makes its appearance in the market about the first of August, and continues in season till nearly the close of February. They are sold by the fishermen under the name of Blackfish, and are also not unfrequently called Sheephead. Specimens are often seen weighing six to eight pounds. My description is taken from one sixteen and a half inches in length, weighing two pounds and a half.

Form very similar to that of *Tautoga Americana*. Greatest depth one-fourth the total length. Length of the head, five inches and one-fourth. Forehead protuberant, especially in large individuals, from an accumulation of fat immediately above the eyes.

Lips thick, loose and fleshy.

Teeth on the intermaxillaries and in the lower jaw alike—consisting externally of a single row, stout and conical, of which the two anterior pairs are much larger than the others and project forward; within this external row is a band of blunt, rounded teeth, not arranged in regular rows, scarcely projecting above the membranes.

No teeth on the palatine bones or the vomer. Teeth on the pharyngeals, merely flat, tesselated tubercles; on the inferior pharyngeal, a few of the anterior ones are distinct, conical.

Edges of the operculum and preoperculum destitute of spines or serrations. Scales deeply imbedded, not conspicuous, elongated subquadranular, covering the body, the operculum, and the sub-operculum; extending but slightly on the verticle fins.

The rays of all the fins are enveloped in a thickened, partially opaque membrane.

The spinous portion of the dorsal fin is four inches and four-tenths in length; the spines are stout and strong, and one is continued by a fleshy prolongation one to two-fifths of an inch in extent; thus making the height of this portion...
of the fin about an inch and one fourth. The membranous portion is two inches and one-fourth in length, rounded, two inches and one-fourth in height of the central rays. The anal fin, cotelinal with the dorsal, is two and three-fourths inches in length, two and a half inches in height. The pectorals have nine-tenths of an inch in length, two inches and three fourths in height. The ventrals a little posterior to the pectorals are four-tenths of an inch in length, two inches and one-fourth in height. The caudal, slightly concave, is two inches and a-half in height of the external rays, four inches in breadth when expanded.

D. 12-10; A. 3-12. P. 18 V. 1-5 C. 14.

In color, this fish is of a dark blackish brown, lighter beneath, with the chin nearly white. In many specimens, a broad, vertical red band encircles the body from the angle of the operculum about an inch and one fourth. The cirri of the head are a single pair; one about one-fifth of an inch in height, fimbriated, at the posterior superior border of each orbit. The whole head has much less of a spinous and grotesque appearance than that of its eastern congener, H. Acadianus.

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Scales none. Skin smooth. Lateral line uninterrupted, concave upward. Teeth fine and crowded in the lower jaw, on the intermaxillaries, the palatine bones, and the vomer.

The first dorsal is one inch and a-half in length, seven-tenths of an inch in its greatest height. From the first ray there is a gradual shortening to the fourth; the fifth is then nearly as high as the first, and thence the fin decreases to its termination—thus showing a partial division, though this division is less than in the Acadianus. The second dorsal may almost be deemed a continuation of the first. It is two inches in length, eight-tenths of an inch in height, becoming lower posteriorly. The first dorsal arises half an inch anterior to the angle of operculum.

The anal terminates half an inch from the caudal, its last ray being on the same plane with the last of the second dorsal. It is one inch and three-tenths in length; six-tenths of an inch in greatest height, becoming lower at each end. The pectorals, of the cottoil form, are three-fourths of an inch in length; seven-tenths in height.

The ventrals, half an inch posterior to the pectorals, are nine-tenths of an inch in height. The caudal, nearly square, is an inch in height.

In color, this fish commonly shows a motting of light and dark greenish olive, with darker (often blackish) blotches. The fins partake of the hue of the part where they are situated; all exhibit either bands or blotches. The rays of the first dorsal are feebly spinous; those of the second dorsal, anal, and ventrals are articulated, simple; a few of the upper rays of the pectorals show a slight tendency to division: those of the caudal are branched.

H. Acadianus of the rocky shores of our Atlantic States. It is, however, entirely distinct from it, the structure of the head alone being enough to separate it at once; it is in all respects a finer looking fish.

September, 11. 1854.

Dr. Kellogg in the chair.

The Committee on Botanical Garden reported progress and was continued.

Mr L. W. Sloat exhibited a proof-sheet of the proceedings of the last meeting, (taken from the columns of the Pacific) as a specimen of the manner in which the proceedings of the Academy
may be published in a permanent form, and at a trifling expense.

On motion of Dr. W. P. Gibbons, it was

Resolved, That the Publishing Committee be directed to publish 250 copies of the Proceedings of the Academy, (in the form exhibited by Mr. S.) and that the subscription of the same be three dollars a year.

Dr. Kellogg presented a drawing of a plant given him by Mr. Wallace of Los Angeles, called by the Mexicans, *Chiuta*. It belongs to the Labiatae family, but the genus is unknown.

The seeds, that are about the size of flax seeds, are said to be very mucilaginous, and are used medicinally in fevers and dysenteries, and other irritations of the bowels. Dr. K. thought it deserving the attention of the Academy as a remedial agent.

Dr. H. Gibbons exhibited a head of bearded wheat, said to grow wild in the mountains. It measured about seven inches in length.—The grains are quite large and nearly half an inch long. Some doubt was expressed whether it belonged to the genus Triticum, or to a new genus.

Dr. Wm. O. Ayres presented the following communication:

In our markets we find fishes constantly offered for sale, in great numbers, under the name of *Rock Fish* and *Rock Cod*. They bear always a high price, and constitute one important item in the sum total of our fisheries, and of course in the resources of the State. They are taken in rocky localities along the coast and in the Bay, and the title Rock Fish applies to them very well. One more inappropriate, on the contrary, than that of Rock Cod, could scarcely have been selected—inasmuch as they are widely removed from the family in which the Codfishes are classed. Five distinct species of them we have already detected here, all belonging to the genus *Sebastes*, and four of them believed to be new. Of this genus we were not previously aware of the existence of more than one species, (*S. Norvegicus*, Cuv.) in the United States.—it is the *Hendurgan* of the Massachusetts Bay fishermen. Three of our species are very closely allied; a description is accordingly given of the one that appears most nearly typical (*S. nebulosus*) and of the other two (*S. ruber* and *S. parvus*) the points of specific distinction from *nebulosus* alone are needed.

*Sebastes nebulosus*.—Ayres My description is drawn from a specimen thirteen inches in length, weighing two pounds and a half, which may be deemed about their average size.

**Form** compressed; head large, four inches in length; greatest depth an inch anterior to the opercular angle, being there equal to the length of the head; body tapering thence to the tail; width of the head, two inches and three-fourths, width diminishing posteriorly; crests of the orbits elevated.

**Scales** covering the body, operculum, preoperculum; suboperculars, suborbitals and top of the head to the anterior border of the orbit.

**Head spines**; a row of five spines forming a crest on each side of the head, viz: a nasal spine, one at the anterior superior border of the orbit, one on the summit of the orbit half an inch in length, one posterior to the orbit three-tenths of an inch in length, one posterior to this, and nearer the median line eight tenths of an inch in length; the last three are horizontal, and are rather stronger ridges with a free spinous apex; the preoperculum is bordered with (commonly) five flat spines about two-tenths of an inch in height; the opercular bone ends in two flat, strong, free spines, the upper one being one-fourth of an inch in length; the membranous operculum projects about four-tenths of an inch beyond these; the suboperculum terminates posteriorly in a concealed spine; even the anterior suborbital shows on its inferior border an indication of spinous points; the bones of the humeral cincture exhibit three well marked spines.

**Eyes** an inch in longitudinal diameter—*Nostri* immediately anterior to the eyes, the anterior orifice having a membranous elongation of its posterior border, two-tenths of an inch in height.

**Teeth** fine and crowded in the lower jaw, on the intermaxillaries, the vomer, the palatine bones, and superior and inferior pharyngeals; those on the superior pharyngeals, are in three patches on each side.

**Lateral line** nearly straight.

**Dorsal fin** arising a little anterior to the opercular angle; the spinous portion is four inches and a half in length, the spines stout and strong, increasing in length from the first which is only six-tenths of an inch, to the fourth which is two inches high, the height diminishing thence posteriorly; the membranous portion of the fin is two and a half inches in length, rounded an inch, inch and a half in height. The anterior portion of the spinous part of the fin presents a beautiful serrated appearance, from the fact that the membrane is attached to the anterior border of each spine at some distance from the summit.

The **anal fin**, terminating two inches from the caudal, is an inch and three-fourths in length, which is not quite equal to the height of the soft rays.

**Pectorals** rounded, two inches and a half in height, three-fourths of an inch in length, the inferior rays are thickened, undivided, free at their tips.
Ventrals a little posterior to the pectorals rounded, two and one-fourth inches in height.
Caudal slightly rounded, one inch and a half in height, three inches and a half when expanded.
Small scales extend far up on all the fins.
Branchial rays seven.
In color this fish is finely mottled with dusky yellow and dark brown; on the fins the latter hue predominates, and the lighter mottlings have rather a bluish aspect.
Sebastes paucispinis.—Ayres. Length five and a half inches; depth one inch and one-tenth; length of head one inch and seven-tenths. Being a trifle less than one-third the total length. Form elongated, much compressed.
Scales very small, covering all parts of the fish except the fins, the throat, and the space anterior to the eyes.
Spines of the head, not largely developed. The preoperculum has about five, distinct, flat, sharp spines; the largest about a line in length. The operculum has two, distinct but small; the membranous part projects slightly beyond them. The suborbital, on the anterior inferior border has three or four, quite small. The other parts of the head have none, except that a slender, inconspicuous ridge along the border of each parietal bone is free at its tip. A very small spine at the summit of the humeral cincture.
The lower jaw is longer than the upper and projects beyond it in such a manner that when the mouth is closed it prolongs the line of the dorsal aspect of the head. The line of closure of the mouth is very oblique upwards, the gape large, so that the point of the maxillary lies beyond the middle of the eye.

Teeth fine, crowded, and even, in the lower jaw on the intermaxillaries, the vomer, the palatine bones, and the pharyngeals; those of each superior pharyngeal are in three patches.
Lateral line following nearly the curve of the back.
The first dorsal fin arising above the opercular angle is an inch and a half in length; the rays increase in height to the fourth, which measures eleven-twentieths of an inch, as do the two succeeding, and thence the height decreases, the last ray seems to constitute rather a part of the second dorsal, it is higher than the one preceding.
Second dorsal fin an inch in length, half an inch in height; height diminishing posteriorly. Anal about coterminal with the second dorsal, rounded, sixth-tenths of an inch in length; height equal to the length.
Pectorals rounded one-fourth of an inch in length, nine-tenths of an inch in height, destitute of any thickened membrane, the four lower rays simple.
Ventrals even with the pectorals, three-fourths of an inch in height.
Caudal somewhat concave, three-fourths of an inch in height of the external rays.

D. 13-13; A. 3-7; V. 1-6; P. 5; C. 12.
Color plain reddish brown above, lighter beneath.

On motion of Dr. Ayres, it was
Resolved, That the Recording Secretary be directed to publish the proceedings of each meeting of the Academy in the Pacific, as soon after the meeting as practicable.
Omitted in Proceedings of Sept. 4.—Col. Nevins presented to the Academy a receipt in full for the rent of his office and furniture, which have been used by the Academy from the 18th of April, 1853, to the last day of July, 1854, for its weekly meetings and for storing its Library and Specimens and for the stationery used for its minutes and other purposes, being a donation to the Academy worth at least three hundred dollars. Whereupon it was, on motion,

Resolved, That the thanks of the Academy be tendered to Mr. Nevins, for his liberal donation, above specified.

California Academy of Natural Sciences, San Francisco, September 18th, 1854.

Selim Woodworth, Esq., presented as donations to the Cabinet, specimens of ferruginous earth, resembling what is commercially termed “Hartford Clay,” and used by the frame gilders here for the same purpose.—Also a bottle of the earth ground in oil for painting purposes, for which it seems extremely well adapted. It dries quickly with a good gloss, and in a short time becomes hard like enamel. It is found in Mulate Island or Red Rock in San Francisco Bay, in large quantities, and can be delivered in the city at a very low price.

The crude earth was referred to Dr. W. P. Gibbons for examination and analysis, and the preparation in oil to Mr. H. G. Bloomer.

Mr. Walter Van Erven Dorens presented the skull of an Indian from the interior of the State, exhibiting the common form of such skulls as altered by compression.

Major J. R. Snyder gave specimens of Lignite from Red Bluff, on the Sacramento river.

Col. Ransom furnished specimens of asbestos in serpentine from Fort Point.

Mr. Loomis presented specimens of crystalline lime-stone from Point Quentin on San Francisco Bay.

Mr. De Groodt gave a scorpion from the region of the southern mines.

Dr. Wm. O. Ayres presented the following communication:

At the last meeting of the Academy it was stated that we have in our market five species of the genus Sebastes; two of them were described, nebulosus and parvus; two others were mentioned, ruber and variabilis, as very closely resembling nebulosus. Subsequent examination has induced me to doubt the necessity of separating parvus, from ruber and rather than introduce a name which would presently become only a synonym, I will indicate the type as a mere variety of ruber.

Sebastes ruber.—Ayres. This species is very closely allied to S. nebulosus (Proc. Cal. Acad. Nat. Sci page 5.) It may be thus distinguished.—ruber has the crests of the orbits scarcely elevated above the surface of the head; in nebulosus they are very prominent, forming quite a deep furrow between them—ruber has a pair of small, flat spines on the top of the head not found in nebulosus; they are before and a little within the last pair mentioned (loc. cit.)—ruber has all the spines less strongly developed than nebulosus—in ruber the thickness and bulk of the head, as compared with the entire fish, are decidedly less than in nebulosus—ruber has the anterior inferior border of the operculum serrated; in nebulosus it is plain—ruber is of a bright red color, nearly uniform, except that it grows lighter beneath; nebulosus is clouded as described—ruber grows to a greater size, often weighing ten to twelve pounds; nebulosus seldom exceeds four pounds.

Sebastes ruber, var. parvus.—Ayres. This is distinguished from the typical form, by having the head more depressed, with the top more flattened, the spines of the head more slender, the lower jaw longer, the body more compressed, the color dark brown, and by its small size—being seldom found to exceed half a pound in weight. I had examined multitudes of specimens, and found no evidence of any blending of the two forms, but one or two at length presented a partial union of the characters to such a degree that we will not separate them as yet.

Sebastes variabilis, Cur. Under this name I place a species of Rock Fish, which is not uncommon in the markets, of a plain blackish brown color, lighter beneath, with no spines on the top of the head, except occasionally a slight indication of a nasal spine, with the edge of the suborbitals nearly smooth, and having a weight of one to two pounds. Cuvier’s specimens were derived from the Alcadian Islands, and the only transcript of his description in my possession is so brief, as to render it a little uncertain whether our fish is identical with his; it may yet prove distinct. The fin-ray formula agrees closely.
Of the Rock Fish which have been described in this communication and the one preceding, *S. ruber* is the most important commercially; it is consumed in large quantities daily, and is like the others, an excellent fish. *S. nebulosus* is less numerous, though still quite common. *S. variabilis* cannot be considered common, and of *S. paucispinis* I have seen but a few specimens.

*Centrarchus maculosus*.—Ayres. This species is very common in our markets, where it is sold under the name of *Perch*, as are also several of the viviparous fishes. It is brought from the waters of the Sacramento and San Joaquin, and is one of our most esteemed fishes. The specimen from which my description is taken is of about the average size; it is eight and three-quarters inches in length.

**Form** oval, compressed; greatest height two inches and nine-tenths, just behind the pectorals. Back arched; forehead slightly concave; length of the head, equal to the height of the body.

**Scales** large and firm, covering all parts except the fins, the top of the head, the throat, and the space anterior to the eyes.

The posterior angle of the opercleum is rounded and furrowed, presenting the appearance somewhat of a large scale; the edges of the peroperculum, interoperculum, suboperculum, scapular bone, and anterior suborbital are also finely denticulated.

**Lateral line** nearly concurrent with the back; number of scales in its course about forty-two.

**Teeth** fine, even, and crowded, in the lower jaw, on the intermaxillaries, the vomer, palatine bones and pharyngeals.

The dorsal fin arises a very little posterior to the opercular angle. The spinous portion is two inches and one-fourth in length, arched, highest at about the eighth ray (three-fourths of an inch,) the first rays very short; the last spinous ray seems to constitute rather a part of the succeeding soft portion of the fin, and is higher than the rays preceding it. The soft part of the dorsal is rounded, one inch and one-eighth in both length and height.

The anal is coterminal with the dorsal. The spinous portion is eight-tenths of an inch in length, the spines increasing in length to the last, which is nine-tenths of an inch high. The soft part of the fin is an inch in length, the height being a little greater. The spines of both anal and dorsal are stout and strong, those of the anal especially.

**Pectorals** rounded, an inch and a half in height.

**Ventrals** fan-shaped, an inch and one-tenth in height.

**Caudal** slightly concave, an inch and three-fourths high.

D. 13-11; A. 6-10; V. 1-5; P. 15; C. 16.

Color, when dead, dark grayish brown on the upper parts, becoming lighter beneath; with large, irregular, dark blotches on the sides, extending both above and below the lateral line. The fins resemble in color the part of the body on which they are situated; the living fish I have not had an opportunity of seeing.

The only *Centrarchus* with which this need be compared is the *aeneus*, L. S. The resemblance here is indeed close, and *maculosus* may, without doubt, be considered the representative in our Pacific region of *aeneus* in the eastern. The Californian fish may be distinguished by the more arched dorsal outline (that of the forehead being on the contrary concave,) by the greater height of the spinous portion of the dorsal fin as compared with the soft rays of the same fin, by the difference in position of the origin of the anal fin, by the form of the opercular angle and by the colors.

In one or two points this species fails to comply with the definitions of the genus *Centrarchus* as hitherto given. And we may here remark that our researches have proceeded far enough to show that a complete investigation of Californian Ichthyology will probably result in numerous modifications of established genera, extending, perhaps, the limits of some, while those of others will be narrowed.

Committee on Botanical Garden, reported unfavorably to the acceptance of the offer of Messrs. Chipman & Augenbaugh of four acres of land in Alameda for Botanical Garden.

After some remarks adverse to the project by Dr. W. P. Gibbons, Dr. Ayres, Mr. Sloat and others, it was unanimously

Resolved, That on account of the onerous conditions exacted by Messrs. C. & A., their offer be respectfully declined.

*California Academy of Natural Sciences,*

San Francisco, September 25th, 1854.

Dr. H. Gibbons in the Chair.

Mr. H. G. Bloomer reported progress on the examination of the earth and paint presented by Mr. S. Woodworth at the last meeting. He exhibited specimens of paints made by himself, laid on wood and glass. Also
specimens of Bridgewater earth, giving preference to the former.

Dr. H. P. Sartwell, corresponding member, transmitted a series of meteorological observations, made by him at Penn Yan, N. Y., during the months of March and June, 1854.

Dr. H. Gibbons presented a series of observations on the temperature of the ocean between San Francisco and San Juan Central America, made by Dr. Fitch, Surgeon of the steamer Pacific, on her trip to and from San Juan in the month of July, 1854.

Dr. G. accompanied them with some remarks on the climate &c., of the coast between the two places.

Dr. W. P. Gibbons exhibited the skull of a rat caught in this city, showing a curious abnormal formation of the upper and lower incisors.

David Chambers, Esq., presented as donations to the cabinet specimens of silver and copper ore from the Andicollo mines, 40 miles interior from Coquimbo, Chili.

California Academy of Natural Sciences, San Francisco, October 2d, 1854.

Dr. H. Gibbons in the chair.

Adelestan Jardin was elected Corresponding member.

Dr. W. P. Gibbons exhibited a young rat, of very singular abnormal formation, having two pair of hind legs. The surplus pair are perfectly formed, and placed on a fleshy substance projecting from the posterior extremity of the body; the feet are turned in a direction opposite to that of the normal feet.

Mr. Joel Clayton presented as donations to the Cabinet, specimens of coal from Puget's Sound,—also specimens of sand stone composing the roof of the coal formation.

Dr. Kellogg presented a drawing of a Commelyna, "pretty widow," or "widow's tear," supposed to be a new species, from Salada Creek, Texas.

Dr. W. O. Ayres exhibited two new fishes, Morrhua Californica and Grystes lineatus, with the following descriptions.

Morrhua Californica—Ayres. The Tomcod, as this species is called by our fishermen, is, without doubt, closely allied to Morrhua pruinosa, Mitch. the Tomcod and Frostfish of our Atlantic coast, and may be deemed its representative here. It differs from it, however, in form, in the relative proportions of the head, in the position and size of the fins, &c. A description touching the points in which it is distinguished from pruinosa is therefore, all that is needed.

The specimen employed is seven inches in length; about their average size.

The length of the head is one-fourth of the total length; in pruinosa it is only about one-sixth.

The protrusion of the abdomen is much less, as compared with the bulk of the body posterior to it, the vertical diameter at the origin of the third dorsal being two-thirds of the greatest depth, while in pruinosa it is only one-half.

The first dorsal is one inch in height, three-fourths of an inch in length, acutely triangular, the first ray longest.

The second dorsal, separated from the first by an interval of one-fourth of an inch, is one inch in length, seven-tenths of an inch in height.

The third dorsal, distant half an inch from the second, is nine-tenths of an inch in length, three-fourths of an inch in height.

The first anal, originating opposite the termination of the first dorsal, is one inch and one-half in length, which is just double the height.

The second anal, one-fourth of an inch from the first, equals the last dorsal in length, and is coterminus with it; it is half an inch high.

The pectorals are more pointed than in pruinosa.

The ventrals, corresponding in situation, are nine-tenths of an inch in height, first and second rays free at tip, second longest.

Caudal nearly even.

The lateral line, arching somewhat above the pectoral, does not assume a straight course till nearly opposite the end of the second dorsal.

Color commonly plain greenish brown above, lighter on the sides, silvery beneath; irides silvery.

Dr. 12-16-18; A. 23-20; P. 20; V. 6; C. 26, with about eleven short ones.

M. Californica is taken abundantly in the Bay of San Francisco.

Grystes lineatus—Ayres. Form elongated, compressed. Length twelve inches and one-fourth; greatest depth a little more than one-fifth the total length; length of the head equal to the greatest depth. Head somewhat
pointed, with the dorsal surface ascending, so that the greatest depth of the body is about opposite the origin of the pectoral fins; dorsal outline descending thence to the tail.

Scales not large, but firm and distinct, covering the body, head as far as the eyes, operculum and preoperculum. The scales also ascend some distance on the caudal fin and soft dorsal, less on the pectorals, and very little on the anal, spinous dorsal or ventrals. Each scale is toothed on its free portion, elongated, with the sides nearly parallel and its attached extremity truncate, and in its entire form and structure resembles much more nearly the scale of a Platessa than is common among fishes of this family. The scales are so imbricated that a very small part of each is exposed.

A remarkable character among the scales suggests the specific name employed. There are on each side five lines, each having the features of an ordinary lateral line; i.e., each scale along the line is grooved or perforated for the passage of a duct. The first, originating with its fellow of the opposite side about half an inch anterior to the first dorsal, runs close by the base of the dorsal, terminating abruptly at about the posterior third of the second dorsal. The second, about a third of an inch below the first, runs nearly parallel with it, the whole length of the body.—The third is in the common position of a lateral line, arising near the upper angle of the branchial aperture; it follows the curve of the back. The fourth arises below the base of the pectoral, passes above the base of the ventral, and terminates abruptly a little in advance of the base of the anal. The fifth arises, by a single line with its opposite fellow, near the throat, passes back, undivided between the ventrals to a point about an inch posterior to those fins, divides and passes along the anal fin to the caudal.

No spines or serrations on the gill-covers, or any part of the head. A flat, fimbriated, fleshy process, one-fourth of an inch in height, on the posterior superior border of the orbit.

Nostrils a little anterior to the eye, tubular.

Jaws quite protractile, the pedicle of the intermaxillary being nearly three-fourths of an inch in length; the maxillary, when the jaws are closed, is received almost wholly under the arch of the anterior suborbitals.—Lips thick and fleshy.

Teeth small, but strong, even, rather blunt, crowded, in the lower jaw, and on the intermaxillaries, the band of them decreasing to a single row posteriorly. Similar teeth on the pharyngeals, the vomer, and a few on the anterior part of each palatine bone.

Eye half an inch in longitudinal diameter; distant twice its own diameter from the snout.

The first dorsal, arising a little anterior to the opercular angle, is two and one-fourth inches in length, one inch and a half in height, rising somewhat abruptly so that the fin is highest at about the third and fourth rays. A membrane is continued from its last ray to the first of the succeeding fin, so that the two fins might almost be counted as one. The rays are spiny but not rigid.

The second dorsal, continued from the first, is three and three-fourths inches in length, one inch and one-fourth in height, rounded; the rays are very little branched.

The pectorals are an inch in length, two inches and a half in height, rounded, all the rays free at their tips, the lower ones especially.

The ventrals are posterior to the pectorals, rounded, two inches in height.

The anal arises and terminates on the same plane with the second dorsal; it resembles that fin also in form, height, and division of the rays, but has the rays free at their tips.

The caudal is nearly even, an inch and a half in height; rays much branched.

D. 21. 1.25; A. 25; P. 19; V. 1.5; C. 16.

In color this species has commonly a dark grayish brown ground, more or less mottled; over this are scattered light blue specks and cloudings, which are most abundant on the cheeks. Numerous small circular spots, of a rich reddish brown, are found on the sides.—Abdomens lighter than the back and sides.—The pectorals are very beautifully marked with narrow light and dark stripes; the other fins correspond nearly in color with the parts on which they are situated, though all are in some degree clouded.

This is certainly one of the most beautiful fish brought to our markets. By some of the fishermen it is called Sea Trout, probably because of its elegant form and the spots on its sides; others do not distinguish it from the species of Sebastes, in company with which it is caught, and call it Rock Fish. It has, however, little resemblance to either. While its true position may be deemed somewhat doubtful, it is judged better for the present to arrange it with the genus Grystes, rather than to attempt a new generic division, as would otherwise be required.

G. lineatus is taken in the Bay of San Francisco, but is apparently not abundant. I have seen no specimens much larger than the one described.
OCTOBER, 9th, 1854.

Col. L. Ransom in the chair.

Donations to the Cabinet. Mr. Ross gave a bottle of Mineral water from a spring three miles east of Oakland.

Mr. Loomis presented specimens of crystallized quartz from Mendocino.

Dr. Trask furnished specimens of Salt, crystallized from sea-water, from the Island of Carmen, Gulf of California.

Dr. Kellogg presented a drawing of a Malvaceous shrub, furnished him by Dr. Trask. It was originally discovered on the Island of Anacapa, and is now found growing luxuriantly in gardens near Santa Barbara. It is from 12 to 15 feet high, branching, and nearly 8 inches in diameter at the base. The flowers, which it bears in great profusion, are of a beautiful bright pink color, with the petals reflexed when the flower is fully developed.

Dr. Kellogg also presented a drawing of a very large species of Viola in fruit, from a specimen furnished by Dr. Andrews, the flower of which has not yet been seen.


Dr. W. C. Ayres exhibited a new species of fish, the *Clypecottus robustus*, and gave the following description of it.

*Clypecottus robustus*.—Ayres.—This species often attains a weight of five or six pounds, though my description is drawn from one only seven and one fourth inches long.

**Head** large, broad, depressed; body tapering posteriorly, becoming compressed near the caudal fin. Length of the head, to the opercular angle, a little more than one-third of the entire length; breadth two inches and one fourth. Eyes far forward, rendering the forehead very abrupt, almost vertical. Gape of the mouth small, not extending beyond the anterior line of the orbits.

Head strongly spinous, mailed (as in *Trigla* and *Prionotus*) only a few small spaces being left naked by the bony plates which encase it. The plates are rough with granulations, which on some are arranged in rows. The preoperculum has commonly four spines; the first is at the posterior, superior angle, straight, stout, three fourths of an inch in length, pointing directly backward; the second is a little below this, about a fourth of an inch in length; the third is shorter; the anterior inferior angle forms the fourth, strong and well marked, about equal to the second in length. The operculum, along its superior border, has a stout, angular, straight, sharp pointed ridge, seven tenths of an inch long, perfectly analogous to the first preopercular spine (though no part of it is free,) the two lying parallel, side by side, similar in appearance, ooth granulated, nearly coterminal; the membranous operculum extends a little beyond the ridge; the inferior angle presents also a spine, comparatively feeble, partly concealed. The gill-covers, when extended, give the head an aspect as formidable as that of any of the Acanthocotti. Each nasal bone forms a small spine. The crests of the orbits are somewhat ridged, though not spinous, and from each a ridge passes backward the length of the head.

The lateral line is marked by an imbricated row of strong, granulated plates, similar to those covering the head. The largest, those nearest the head, are half an inch across vertically, which is about twice their longitudinal diameter. They are obscurely ridged not spinous. The other parts of the surface are destitute of plates or scales.

*Teeth* even, fine, and crowded on the lower jaw, intermaxillaries and vomer; none on the palatines.

The first dorsal arises a little in advance of the opercular angle, and is an inch and one fourth in length, rounded. The greatest height (equal to half the length) being at the third and fourth rays. The rays are spinous, but not rigid.

The second dorsal, separated from the first by an interval of one fourth of an inch, is an inch and a half long, an inch high, rounded; rays very slightly divided—this is true of the articulated rays of all the fins except the caudal.

The anal, opposite the second dorsal, is entirely similar to that fin in height and in form but is a little shorter; the rays are free at their tips.

The pectorals, on a base of an inch and one fourth extending forward almost to the anterior preopercular spine, are an inch and six tenths in height, rounded, of the cottoid form; there are no separate or detached rays.

The ventrals, opposite about the middle of the insertion of the pectorals, are an inch in height; the last ray is so connected to the body by membrane as to restrain the motions of the fin to a certain degree.

The caudal, nearly square, is an inch and a fourth in height, on a base of half an inch; rays branched.
Color greenish olive, lighter beneath, with dark blotches amounting sometimes to imperfect bands. Fins corresponding in color with the part on which they are situated; pectorals transversely banded.

This species presents a combination of characters so far distinct from any previously known in this family that a new generic division, with the following definition becomes necessary. We will call it.

 Clypeocottus.—Ayres.—Head large, depressed; small, even teeth in both jaws, and on the vomer, none on the palatine bones; opercular apparatus with large spines; head mailed, as well as the lateral line; no scales; gill openings large; branchiostegous rays six; two dorsal fins.

( Since this description was printed Mr. Charles Girard has kindly sent me a copy of a paper read by him before the Phil. Acad. Nat. Sciences in August, characterizing new fishes from California. This genus is these defined with the name Aspicoitus; the species he calls A. bison. These names have the priority of date and of course C. robustas is suppressed. W. O. A.)

A. bison is taken in the Bay of San Francisco, and along the coast. Like the other Sculpins it is highly prized by the Chinamen, though scarcely eaten by others. It does not appear to be abundant.

I may take occasion here to correct a mistake made by Mr. Charles Girard in his paper: "On the genus Cottus" read before the Boston Society of Natural History, Oct. 17, 1849. He claims that "C. variabilis Ayres, is the young of the A. Grenlandicus," and argues from this "the importance of studying these fishes throughout their different stages of growth" (Proc. B. S. N. H. Vol. 3, page 187.) At a subsequent meeting of the same society, I presented a comparison of the two species, showing in what respects they differ. Mr. Girard, who was present, "remarked that he thought two species had been confounded under C. Grenlandicus," and he should be pleased to find that one of them was that described by me as C. variabilis.—But this does not meet the point. Without at all raising the question whether C. Scorpius, Fabr. is identical with the Massachusetts fish which was so long referred to it, the C. Grenlandicus of Dr. Storer's Report, I wish to state my full conviction that my variabilis is not the young of any species, certainly not that of the Greenland Sculpin which is common near Boston; I have critically examined too many specimens of both species to leave any doubt on the subject. The reasons for this conviction it is not necessary to give here as a synopsis of them may be found in the Proc. B. S. N. H. Vol. 3, page 312.

We have therefore three Acanthocottus on the coast of New England, and if as seems probable the one hitherto called Grenlandicus is distinct from the true Greenland fish, it remains as yet without a specific name, variabilis having been incorrectly referred to it. Their synonymy will be as follows:


I have purposely avoided extending the comparison beyond, the limits of New England, because at New York two additional species are reported, at least one of which seems of doubtful value.

San Francisco, Oct. 16, 1848.

Dr. H. Gibbons in the chair—

Dr. C. F. Winslow was elected a resident member and Lieut. Stone, U. S. N. a corresponding member. L. W. Sloat Esq. presented a Centipede from the vicinity of Calaveras County.

Dr. H. Gibbons presented the fins of a Flying fish and bones of the wing of an Albatross.

Dr. Kellogg presented for Mr. J. G. Swan of Shoal Water Bay, Washington Territory, three drawings made by Mr. Swan, of a species of Napea, an Epilobium, and of the shrub known as "Salal"—with dried specimens. Also the skull of a Chinook female, and geological specimens from Copales and Quenicult Rivers.

Mr. H. G. Bloomer presented a white in crustation from the mineral spring, some four miles from Oakland, and a bottle of the sulphuretted water from the same locality.—Col. Nevins presented for Dr. Charles H. Raymond, the fifth annual Report of the Board of Regents of the Smithsonian Institution, History and description of the skeleton of a new sperm whale, with plates, and a Guide to Zoological Gardens, London.

Mr. L. W. Sloat for W. B. Olds, Esq. presented Cuvier's "Animal Kingdom," in 4 vols. The thanks of the Academy were tendered to Mr. Olds for his valuable donation.
On motion of Mr. Nevins—

Resolved, That the Curators examine and report at their earliest convenience whether there are in the Cabinet any surplus specimens which can be spared as donations to a Cabinet for the Public School at "North Beach" in this city.

SAN FRANCISCO, Oct. 23, 1854.

Dr. H. Gibbons in the chair.

Dr. William Jelly was elected a resident member.

Rev. J. S. Diehl presented specimens of volcanic glass from Grass Valley, crystallized quartz from Murphy's, astalactite from Sierra County, and pyrites from El Dorado county.

Dr. H. Gibbons exhibited a series of specimens obtained in sinking a shaft in search of coal near Saucelito. Coal is found in small quantities on the surface near the Bay, and the exploration was made to the depth of 150 feet, without success, also several insects from Texas and a Gryllotalpa, or mole cricket from California.

Dr. A. Kellogg, for Julius Froebel, Col. W. W. Warren and Dr. J. B. Trask, presented numerous varieties of California flower seeds.

Dr. H. Behr presented a specimen of a parasitic shrub, Cuscuta to which he applies the provisional name of Ceanotha.

Dr. Wm. O. Ayres, presented the following communication, illustrating it with specimens of the fishes described:

Brosmius marginatus, Ayres.—Length fourteen inches and three fourths; greatest depth three inches and one fourth. Form elongated, nearly cylindrical at the head, body compressed, compression increasing toward the tail; length of the head equal to the depth of the body. Head rounded in front; muzzle blunt; upper jaw received under a loose fleshy fold of the skin; lower jaw the shorter, overlapped by the nearly semicircular curve of the internaxillaries which form the entire border of the upper jaw.

The entire fish is covered with a very thick viscid mucous secretion, which is much tinged with red pigment, and stains the hands when the fish is handled.

Scales very small, scarcely discernible until the skin is dry, covering the body, but not the head, or cheeks. Lateral line by no means conspicuous, nearly straight.

The skin, about the head particularly, is thick and loose, causing the lips to appear fleshy, and almost concealing the opercular pieces. The border of the preoperculum is smooth; the operculum ends in a sharp, decided spine, which however is concealed by the integuments.

Teeth fine, somewhat uneven, crowded, forming a narrow band in the lower jaw, on the internaxillaries, the vomer, and the anterior part of the palatines. Gape of the mouth easily extending an inch and a half.

Eyes three fourths of an inch from the snout, four tenths of an inch in diameter, distance between them seven tenths of an inch; the thick investing membrane causes them to have the peculiar aspect of the eyes of Eels.

Nostrils with the anterior orifice slightly tubular, terminal; the posterior orifice one fourth of an inch distant.

A singular, conical, anal papilla, about three fourths of an inch in height, half an inch in diameter at base; with the apex obliquely truncated, semicartilaginous, and longitudinally divided, corresponding to a septum, on each side of which a seminal duct passes, the specimen being a male. The anal orifice is on the anterior base of this tubercle.

Some of the openings of the mucous or water ducts, on the head, are uncommonly large, one in particular on the border of the preoperculum being a tenth of an inch in diameter.

A single elongated dorsal fin occupies nearly the entire length of the back. It arises over about the middle of the pectorals, and extends to the base of the caudal, from which latter it is distinctly separated, though the interval is small. It is enveloped in a membrane so thick that an enumeration of the rays is almost impossible; this is true of all the fins. In consequence of the very gradual manner in which the fin arises from the body, its height cannot be accurately given; it is about three fourths of an inch. All the rays are soft, articulated, brachied.

The anal arising three inches posterior to the dorsal, and coterminal with it, is similar to that fin in structure, form, and height.

The pectorals are rounded, an inch in length, two inches and one fourth in height; the carpals, however, are flattened, forming a sort of a pedicel on which the fin is supported so that the height of the rays is only an inch and three fourths.

The ventrals are anterior to the pectorals. Each consists of a single filamentous ray, an inch and nine tenths in length; the pelvic bones are suspended to those of the shoulder.

The caudal is small, rounded, an inch in height.
In color this fish is of a plain dark brown on the head, back, and sides, nearly white on the abdomen, with the throat reddish. All the fins are tipped with a very vivid red, and the entire mucous secretion, as already mentioned, is tinged with red.

I have seen but a single specimen, which was procured in the market; it was taken near the entrance of the Bay of San Francisco.

The species is classed here under the genus Brosmius, though the absence of any barbule at the chin, and the structure of the ventral fins suggest a doubt as to the propriety of such a course. As has been the case, however, in other instances, it has been deemed advisable to avoid an attempt at a new generic division, unless such division appears absolutely demanded, since there are in California, as yet, no means of making accurate comparisons with any fishes of allied form.

Brosmius marginatus does not seem to be known to our fishermen, by any distinctive appellation. From its resemblance to B. vulgaris it may be very properly named Californian Cusk.

Syngnathus griseo-lineatus, Ayres.—This curious little fish of which I have seen as yet but the single specimen here exhibited, is somewhat closely allied to two or three species already well known; a comparative description is therefore all that is needed.

The length of the specimen is ten inches and one fourth; its greatest depth, one third of an inch, length of the head, one inch and seven tenths.

The dorsal fin arises four inches and four tenths from the tip of the jaws, is one inch and one tenth in length, one fourth of an inch in height. The anal is only about one tenth of an inch posterior to the origin of the dorsal.

There is a slight depression between the eyes, with a slender median ridge which is prolonged upon the beak; there is no ridge on the occiput. There are nineteen plates anterior to the anal fin, thirty nine posterior. There is no sudden depression before the eyes, the greatest depth of the beak being two thirds of that of the head.

The forms and arrangement of the plates, the angulation of the body, the form and granulation of the opercula, the form of the mouth &c., present nothing demanding notice. The color is plain, dark grayish brown becoming a little lighter beneath, with very numerous narrow, irregular, longitudinal lines of small extent, which are light gray. The fins are plain.

D-36; P-12; A-3; C-10.

From S. Peckianus, Storer, our only Atlantic species well determined (though several others have been attempted) S. griseo-lineatus is distinguished by the length of the head, the occipital surface, the depth of the beak, the position and form and number of rays of the dorsal fin, and the position of the anal.

With S. Californiensis, Storer, it agrees in the length of the head; it differs from it in the depth of the beak, the position and form of the dorsal fin, and the number of plates posterior to the anal.

From S. brevirostris, Girard, it is at once separated by the length of the head, the anal fin, and the position of the dorsal; from S. leptorhynchos, Girard, by the form of the beak, the development of the anal fin, and the color. To S. typhle, L. it is closely allied; it is distinguished by the length of the head, the depth of the beak, the position of the dorsal and the size of the anal.

Other species of Syngnathus will very probably yet be found in our waters. They may be sought in any of the shallow, sheltered bays. Commercially they are of course, from their size, of no value.

Dr. Kellogg exhibited a drawing of the Hydrocotyle ranunculoides or Pennywort, from the vicinity of San Francisco. A specimen of a new and undescribed species was also exhibited from the same locality.

Dr. Kellogg also presented a drawing and specimen of the Lavatera assurgentiflora. K. Royal Mallows. Stem arborescent; leaves cordate seven-lobed; lobes acute, irregularly toothed, surface soft, close minute stellate pubescence beneath; petals 4 to 5 inches long, slender; stipules minute, lance-linear, sessile, caducous; peduncles axillary, solitary, assurgent, (about one-third the length of the petiole) short, articulated (one-half inch) below the flower; the involucel 3-parted, persistent, segments broad lanceolate, sub-acute; calyx 5-parted nearly to the middle, divisions ovate-lanceolate, acute and acuminate, obscurely 3-nerved, stellate pubescent; petals obcordate on long claws, lateral tufts of silky pubescence at the junction with the staminal tube, petals at length reflexed, styles 5, pubescent, stigmatas filiform or simple (not capitate nor stigmatose) carpels 8 or 9.

This deciduous shrub, from the island of Anacapa, off the coast of Santa Barbara, and now to some extent cultivated, is one of rare beauty and grace; the rising, falling, and finally ascending curves of the flower-stem, are quite characteristic; the reflexed petals as the flowers fade, is also a rare feature with the mallows tribe, which are usu-
ally involved and twisted up before falling off.
As an ornamental shrub or tree, for it attains to the height of fifteen feet, it will be highly esteemed when more generally known. The flowers are purple, about two and a-half inches broad, and in this climate continue long in bloom.

It is remarkable that a Mediterranean genus should make its appearance here; but there are several other similar vegetable productions, besides the evident analogies and types of Western Europe, which mark California truly the "Italy of America."

SAN FRANCISCO, Oct. 30, 1854.
Dr. Kellogg in the chair.

Donations to the Library.—H. G Bloomer presented the 3d Vol. of Loudon's Arboretum et Fruticetum.

Dr. Kellogg exhibited a drawing and specimen of a new species of Hydrocotyle—the provisional name given was H. prolifera.

Description.—Glabrous; leaves peltate, orbicular, slightly emarginate at the base, coarsely crenate, 1 to 2 inches in diameter; scape slender, as long or longer than the petioles; umbels proliferous in 3 whorls below the fourth or proper terminal umbel; fruit slightly emarginate at base and summit, and ribbed on each side; petioles six inches to one foot in length; twelve to twenty flowered in each umbel, pedicels 1-4 to 1-2 an inch in length.

This species of Pennywort is less robust than the H. ranunculoides, growing also with it in marshes.

The Editor of the Pacific presented a specimen of fruit of the California Chestnut, Castanea chrysophylla, from Sierra Co. Also specimen of Ceanothus prostratus.

Dr. Winslow exhibited a Fossil bone, found forty-eight feet below the surface, at the foot of Telegraph Hill, corner of Kearny and Pacific Streets.

SAN FRANCISCO, Nov. 27, 1854.
Dr. H. Gibbons in the chair.

Dr. R. B. Cole was elected a resident member; Dr. A. Chase of Downieville a corresponding member.

Dr. H. Gibbons exhibited some Peanuts (Arachis hypogaea) being part of a crop of several hundred pounds, raised the present season at Alameda. The plants were cut off by the frost, in the beginning of November, which reduced the crop very materially.

Dr. A. Kellogg exhibited a drawing and specimen of a plant from the vicinity of Los Angeles, having some resemblance to Lonicer.

Dr. Wm. O. Ayres presented descriptions, illustrated by the specimens described, of the Sturgeons found in our waters.

Acipenser acutirostris, Ayres.—Length eleven inches; greatest depth, at about the fifth dorsal plate, one seventh of the total length. Head one fourth of the total length. Eyes midway in the length of the head. Distance from the nostrils to the snout, one inch; breadth of the head at the nostrils, six tenths of an inch. Anterior border of the mouth beneath the eyes.

Top of the head sloping forward in its whole length, until the snout becomes thin and horizontal, but it does not "shelve off suddenly before the nostrils" as in A. transmontanus.

Plates of the body all carinate, each carina ending in a spine directed backward. The dorsal plates are the most strongly developed; the lateral series the least so. Skin between the rows of plates studded with minute stellated tubercles.

Two pairs of barbels, half an inch in length, midway between the snout and the mouth.

Upper lobe of the caudal fin slender, very acute, equaling the head in length. Pectorals, ventrals, and anal rounded; pectorals one inch and one fourth in height; length of the anal half that of the dorsal with which fin it is coterminal.

Plates of the dorsal series, in this specimen, eleven; of the abdominal, eleven on one side, ten on the other; of the lateral, forty-nine.

D. 45; P. 49; A. 29; V. 28; C. 22-88.

Acipenser medirostis, Ayres—Length twenty-three inches; greatest depth, at the third dorsal plate, one ninth of the total length, bo-
ing equal to the breadth of the head; head forming one fifth of the total length.

Eyes midway in the length of the head, half an inch in diameter. Mouth with its anterior border just behind the plane of the middle of the pupils. Distance between the eyes one inch and three fourths.

Dorsal outline sloping gradually from about the third plate to the tip of the snout. Top of the head with a longitudinal depression between the eyes. Head covered in all parts with very sharply granular plates.

Plates of the body all carinate, spinous, like those of *acutirostris*. Skin between the rows of plates studded with numerous stellated tubercles.

Two pairs of barbels, each about an inch long, nearer to the mouth than to the snout.

Upper lobe of the caudal fin not so slender as in "acutirostris," scarcely equalling the head in length. Pectorals somewhat pointed, three inches in height. Anal situated almost wholly behind the dorsal, its origin only being beneath the posterior portion of that fin.

Plates of the dorsal series eleven or twelve; of the abdominal ten or eleven; of the lateral twenty five to twenty seven. These plates are larger and more exter than in "brachyrynchus," scarcely so large as in "acutirostris."

D. 35; A. 24; V. 27; P. 42; C. 20-75.

Color grayish brown, lighter beneath.

*Acipenser brachyrynchus*, Ayres—This species attains a greater size than any other fish sold in the markets of San Francisco. They commonly weigh from twenty five to fifty pounds, though those of one hundred pounds to one hundred and sixty are by no means uncommon. But even this is not their limit; Sturgeon have been offered here for sale weighing more than three hundred pounds.

The species is allied, very closely indeed, to Le Sueur's "A. rubicundus" which inhabits Lake Erie and the connected waters.—The relative dimensions therefore, and other points by which it may be distinguished from *rubicundus* are all that need here be given. My description is taken from a specimen only thirty six inches in length.

Head sloping gradually from the first dorsal plate, flat transversely between the eyes; with the snout very short, blunt, rounded, extending but two inches in advance of the eyes; distance between the round vertical eyes, three inches; head a trifle less than one fifth of the total length.

Greatest depth of the body one eighth of the length.

The anterior border of the mouth lies further back than the posterior margin of the orbits. Four barbels are placed about one third of the distance from the snout to the mouth.

The length of the rounded anal fin is half that of the dorsal, with which it is c-terminal. The pectorals are rounded, their height not quite equalling the depth of the body.—The lower lobe of the caudal fin is relatively larger than in "acutirostris?" or "medirostris?" the upper lobe is a little longer than the head.

The plates of the body are small, and by no means prominent. Those of the dorsal series are scarcely carinate, the others somewhat more rigid, the posterior ones of the lateral series becoming even spinous. Dorsal plates 12 or 13; abdominal 9 or, 10 lateral 42 to 47.

D. 49 (highest at the tenth ray); A. 31; V. 36; P. 45; C. 20-86.

Color greenish brown, lighter beneath; plates grayish white.

*Acipenser brachyrynchus* is very abundant in our waters, and is the one sold by all the fishermen as the Sturgeon, the other species being seldom seen. Those offered in the markets of San Francisco are taken chiefly in the Bay of San Pablo, though they are common also in the Bays of San Francisco and Suisun, and in the lower waters of the Sacramento and San Joaquin. They are taken at all seasons of the year with hooks, small fish being used as bait. The amount sold annually, in this city alone is very great, and the fishery consequently one of much importance, though there are no means of arriving at any very precise data in regard to it. The manufacture of caviare from the roe, and of isinglass from the swimming bladders of these fish, may hereafter become in California, from the abundance of the material, a source of very profitable employment and much wealth.

That other species of Sturgeon remain to be yet discovered within the State is very probable.

Dr. C. F. Winslow read a note from E. G. Smith of Auburn, Placer Co., accompanying a fragment of a tusk recently exhumed on Cape Horn Bar. The portion was not of sufficient size to be accurately identified.
Col. L. Ransom presented a variety of plants from the Tejon Pass, which were referred to Dr. Kellogg; with them were fine specimens of Olives from the Mission of San Fernando.

San Francisco, Dec. 4, 1854.

Dr. H. Gibbons in the chair.

Mr. P. Edwards Connor was elected a corresponding member.

A fragment, about eight inches in length, of a tusk found at the depth of twenty feet on Cape Horn Bar, was presented by Dr. Gibbons on behalf of Mr. T. Mitchell. The length of the tusk before being broken was five feet, ten inches; its circumference at the base twenty four and a half inches; it was hollow for three feet. The specimen was from the same source as that reported at the last meeting.

Dr. Gibbons exhibited a number of Oak-galls of remarkably regular sphericity and uniform size, about one third of an inch in diameter. They occurred under a few of the trees in Oakland, nearly covering the ground.

Dr. H. Behr presented the following description of a parasitic shrub, found in the vicinity of San Francisco.


Planta tota, excepta, corolla, candida, colore violaceo suffusa, semel adhuc in Ceanotho a me reperta.

Dr. Wm. O. Ayres presented the following descriptions of fishes.

*Osmerus elongatus*, Ayres—The species which is sold so abundantly in our markets under the name of "Smelt" is Girard's *Atherinopsis californiensis*. It furnishes, however, another instance of the misapplication of common and well known names to animals on this coast, since it belongs to a family of fishes widely distinct from that in which the smelts are classed. But in company with it, and sold under the same name, we find now and then a specimen of the present species. It is, of course, the one to which the name "Smelt" should be applied, as it is a near relative of the Smelt of our North Eastern States (Osmerus viridescens, Le S.) and of the smelt of Europe (*O. eperlanus*, Art.) while the Atherinopsis has no claim whatever to the name. The latter, however, being much the most abundant, has appropriated the title, and the *Osmerus* is scarcely distinguished by the fishermen or their patrons; nor is it perhaps important that it should be, as the one species is equally delicate and savory with the other.

My description is taken from a specimen seven inches in length; a few are found a little larger. It is so closely allied to *O. viridescens* that the points of distinction from that species only need be indicated.

The *form* is more elongated and compressed. The depth of the specimen described is only nine tenths of an inch; this depth remains almost precisely the same, from the pectoral fins to some distance beyond the dorsal fin. The head is less than one fifth the total length.

The *lateral line* is not above the silvery longitudinal stripe, but runs very nearly through the middle of it.

The *teeth* generally are not so long and stout, while the outer palatine row is almost entirely deficient.

The *dorsal fin* commences further back, and is not relatively so high. The adipose fin is nearer the caudal.

In *colors* the two species agree, even to the dark band at the base of the caudal; the numbers of the *fin rays* also correspond.

*Mustelus felis*, Ayres—This pretty little Shark appears to be not at all uncommon along the coast, and within the entrance of the Bay of San Francisco. It belongs to the division which includes those known as *Dog-fish*, none of which ever attain any great size. My description is taken from a specimen forty nine inches in length.

*Form* elongated, quite slender, the greatest depth, anterior to the first dorsal fin, being only six and a fourth inches. Head somewhat depressed; muzzle rather blunt.

*Eyes* an inch and a half in their longitudinal diameter, distant a little more than their own diameter from the snout. Behind each eye is a small spiracle. The anterior border
of the mouth is about on the plane of the front of the pupil.

Teeth small, in many rows, flat, somewhat acute, each with a central point and one or more pairs of tubercles at its base.

Branchial apertures five, the largest an inch in extent, the posterior one being above the base of the pectoral fin.

The first dorsal fin is fifteen inches from the snout. It forms nearly an equilateral triangle, three and a half inches in height; the posterior portion of its base for two inches and a half is free.

The origin of the second dorsal is fifteen inches from that of the first. The height of the two fins is about equal; the base of the second is a little less than that of the first.

The origin of the anal is nearly on the same plane with that of the second dorsal, but as its base is longer it reaches nearer the caudal than that fin; it is two inches in height.

The ventrals are about midway between the two dorsals.

The pectorals are narrow, pointed, their height equalling the depth of the body.

The caudal exhibits beneath two triangular lobes, the anterior one being both higher and longer than the posterior.

In color this fish is of a light bluish gray, with numerous irregular dark slate colored spots upon the back and sides; beneath nearly white. The spots, which are of all sizes from those five inches across to mere points, give it at a little distance so much the appearance of one of the spotted Cats, as to suggest the specific name which has been adopted.

*M. felis* is allied in many respects to *M. canis*, Mitch., so common on our Atlantic coast; it may be deemed its Pacific representative.

The November No. of The American Journal of Arts and Sciences was received from the publishers.

Dec. 11, 1854.

Dr. A. Kellogg in the chair.

Dr. C. W. Brink was elected a resident member.

Dr. Kellogg exhibited specimens of a Polypondium from Mr. Swan of Shoalwater Bay, also Gaultheria shallon, Ph. called by the Indians "Sallal," from the same source; the Indians use the Polypondium in the preparation of their tobacco, calling it "Wild Liquorice."

Dr. W. P. Gibbons presented a drawing of a Mollusk, from Saucelito, promising a description at a future meeting; also, on behalf of Mr. Burr, a specimen of Sylvicola Townsendi, Nutt.

Dr. Wm. O. Ayres read the following descriptions of fishes.

*Catosomus occidentalis*, Ayres.—This fish is very closely allied to *C. Bostoniensis*; so closely indeed that a full description is not here needed; the points only in which the two fail to agree require to be noted.

In *C. occidentalis* the head is relatively broader, the distance between the eyes being equal to the distance of the eyes from the snout.

The posterior aperture of the nostrils is nearly circular, much larger than the anterior.

The dorsal fin arises, in advance of the middle of the body, not including the caudal fin; its length and height are equal being one sixth of the distance from the snout to the tip of the central caudal rays. The first four rays are simple, not articulated, the first three being very short; the fifth is simple, articulated, not quite equaling the sixth which is the highest.

The pectorals arise from a base so narrow that their length is contained in their height about four times and a half; their height is not quite equal to that of the dorsal.

The origin of the ventrals is a little posterior to the middle of the dorsal.

The anal is somewhat pointed, its length contained twice and a half in its height; its tip does not quite reach the base of the caudal.

The caudal fin is concave, the height of the central rays being contained once and a half in that of the external.

D. 4-12; A. 2-7; V. 1-9; P. 18; C. 17 with accessories.

In general form and proportions, structure of the mouth, lateral line, scales, gill covers, color &c., the two species can scarcely be distinguished.

*C. occidentalis* appears to be quite common in the Sacramento and San Joaquin. Those which we see in the markets here average about a pound in weight; they probably grow but little larger than that. They are not held in great esteem.

*Gila grandis*, Ayres.—My description is taken from a specimen sixteen and three fourth inches in length.

*Form* elongated, subcompressed. Nape rising a little abruptly from the head; back thence but little arched in its entire length. Head small, nearly straight (in large speci-
mens slightly concave) in its dorsal outline, its depth at the origin of the nape a little more than half its own length; length of the head not quite one-fourth of the total length. Greatest depth of the body equal to the distance from the snout to the border of the preoperculum, being one-sixth of the total length; thickness of the body anterior to the dorsal fin, equal to the depth of the head.

Mouth oblique, lower jaw the shorter, the tip of the intermaxillary reaching the plane of the middle of the pupil. Eye nearly circular, distant two-and-a-half times its own diameter from the snout, which diameter is contained seven times in the length of the head.

Lateral line curving gently downward, for about two inches, thence running nearly straight to the caudal.

The dorsal fin, arising at a point midway between the snout and the tip of the central caudal rays, has its length equal to the depth of the head at the line of the pupils, and its anterior height equal to the greatest depth of the head, which is just double the height of the last ray. The first two rays, which are not articulated, are short (the first being scarcely perceptible); the third is the longest of all.

The ventrals are rounded, situated a little in advance of the dorsal; their tips do not reach to the vent.

The anal arising just posterior to the point to which the rays of the dorsal fin reach, is similar to that fin in form, but a little less in both length and height.

The pectorals are somewhat pointed, their height a little greater than that of the dorsal.

The caudal is concave, the height of the central rays being two thirds of that of the outer ones.

D. 2-8; A. 2-8; V. 1-10; P. 17; C. 19 with accessories.

Scales moderate in size; about seventy eight along the lateral line, and fourteen in an oblique line above it, counting from the origin of the dorsal fin.

Color greenish brown above, becoming lighter on the sides; silvery beneath.

G. grandis is by far the finest fish, of its family, known to inhabit the waters of this continent. The size to which they attain, their beauty of form, their vigor, and activity give them a place among our Cyprinidae such as the Salmon has among the Trouts.—They bite with great sharpness, and might afford much sport to those piscatorially inclined. But in this land of intense activity few can as yet afford the leisure for such recreation, and rod-fishing is here almost entirely unknown. This species, which is very abundant in the Sacramento and San Joaquin and their branches, is taken in nets, and brought in large quantities to this city. They are sold under the name of Salmon Trout, though a greater misnomer could scarcely have been devised. Those of twelve to sixteen pounds are very common, and I have been assured by intelligent fishermen that specimens have been offered here for sale weighing thirty pounds. The largest I have seen was thirty-six inches in length.

As an article of food they are not held in high estimation.

The interesting anatomical peculiarity which I demonstrated six years since in the structure of the genus Leuciscus (Proc. B. S. N. H. vol. 3, page 46,) viz: the existence of two supplementary needle-like bones, suspended beneath the interbranchial series, to afford a point of origin for the delicate muscles which separate the inferior pharyngeal bones, is fully manifested in this species, as well as in the other California types, allied to this, to be presently described.

Dec. 18th, 1854.

Dr. A. Kellogg in the chair.

A communication was read from Mr. J. G. Swan of Shoalwater Bay, giving the results of a series of experiments concerning the application of Tar to cordage, made by him in 1845, at the Navy Yard in Charlestown, Massachusetts, by order of the Navy Department.

The object aimed at was, to prevent the rigidity in cold weather, and the loss of strength, consequent upon the common mode of tarring. To accomplish this, Mr. Swan made use of a mixture containing twenty five parts of oil of tar, three parts of sperm
oil and two parts of olive oil; one part of this to be added to twenty-five parts of common tar. Rope prepared in this manner was subjected to abundant tests. It was found to be equally pliable in cold and warm weather; a twenty-six inch cable, made for the Ship of the Line Columbus, was handled as readily in January as in August. The strength of Russia hemp was found to be actually increased by this mode of tarring, about five per cent, whereas by the common mode it was diminished about twelve per cent.—With American hemp a like increase of strength was not gained.

Mr. Swan deems that a portion of the advantage is derived from the lower temperature at which the tar can thus be applied.

Mr. T. J. Nevins exhibited a number of specimens of Ostraea and Mytilus from Contra Costa.

Dr. A. Kellogg exhibited a drawing and specimen of a Willow brought from the Tejon Pass by Col. Ransom, allied to S. mceana, Mx.

Dr. W. P. Gibbons exhibited a drawing of a naked Mollusk from Saucelito, promising a description at a future meeting.

Dr. A. Kellogg presented the following description of a Fern from Shoalwater Bay.

Polypodium falcatum, Kellogg.—Sickle-leaf Polypod or Liquorice Fern. Frond deeply pinnatifid, segments alternate, long lance lalate, attenuate, acuminate, doubly serrate, upper and lower divisions smaller by degrees, terminating above in a long slender acumination. Sori numerous, 20 to 24 in two rows, one on each side of the mid-rib, rachis glabrous from 1 to 1 ½ feet in height. Root compressed tuberculate 1-4 to 1-8 inch broad, greenish russet color, branching laterally, radicles numerous, rhizoma often covered with scales. Epiphytic on old decayed trees, stumps, roots and clefts of rocks.

This species was sent from Washington Territory by Mr. J. G. Swan. It is highly esteemed as a medicine, both among the natives and others, thought to be antisyphilitic, also used in the preparation of tobacco, imparting to it a sweetish liquorice flavor.—The Polypody upon oak trees was famous among the ancients for the cure of melancholy and madness, &c.

Dr. Wm. O. Ayres presented descriptions, with the specimens, of two new Cyprinoid fish.

Lavinia gibbosa, Ayres—The length of the specimen employed in description is eleven and a half inches; the species appearing seldom to exceed this size to any great degree.

Form robust, the depth being contained only three times in the length not including the caudal fin; the depth at the caudal fin equals half the greatest depth; the thickness anterior to the dorsal fin is about two thirds of the depth at the same point. Head rather small, though not distinguished from the body by any depression, and not at all concealed in its dorsal outline; length of the head contained five times in the total length.—Eyes nearly circular, with their diameter not quite equalling one fifth of the length of the head. Mouth small, with its line of closing oblique; the tip of the maxillary not reaching to the edge of the orbit; the lower jaw shorter than the upper.

The posterior border of the opercular apparatus forms a regular curve. Anterior aperture of the nostrils smaller than the posterior.

The lateral line curves gently downward, nearly as far as the insertion of the ventral fins, and thence runs straight to the caudal fin.

The origin of the dorsal fin is nearer to the caudal rays than to the tip of the snout. The first three rays are merely rudimentary; the fifth is the highest, equaling one sixth of the length of the body; the length of the fin is two thirds of its height.

The anal arises posterior to the termination of the dorsal, but not so far back as the rays of that fin reach when depressed. Its height and length are both a little less than those of the dorsal.

The ventrals arise a very little in advance of the dorsal; their height equals the depth of the body at the caudal fin.

The pectorals are rounded, equaling the ventrals in height.

Caudal fin concave, the height of the outer rays very nearly equalling the length of the head.

D. 4-8; A. 2-8; V. 1-9; P. 16; C. 19, with eight accessories.

Scales rather large, about fifty seven along the lateral line, and ten in an oblique row above it at the origin of the dorsal fin. The scales are largest at about the middle of the side.

Color greenish brown above, lighter on the sides; silvery beneath; opercular pieces tinged with purple; all parts of the fish clouded.
with numerous black points in the male, especially during the spawning season.

*L. gibbosa*, like the other fishes of this family, is not held in great estimation as an article of food. It is taken in some numbers in the lower waters of the Sacramento and San Joaquin in nets. It is sold by the fishermen here, under the name of Chub, and is also very absurdly called by some of them Pike. Indeed this family of Cyprinidae seems to be a favorite one with them for exercising their ingenuity in the misapplication of names. *Gila grandis*, as stated (Pr. Cal. Ac. Nat. Sc. vol. 1. page 19,) they call Salmon Trout, and *Lavinia compressa*, following the same principles of nomenclature they name Herring.

*Lavinia compressa*, Ayres.—This species is brought to our markets in company with the preceding, which it about equals in size. My description is taken from a specimen eleven and a half inches in length.

*Form* elongated, compressed; the greatest depth contained in the length not including the caudal fin, three and a half times; depth at the caudal fin, a little more than one-third of the greatest depth; thickness in front of the dorsal fin a little more than one-half of the depth at the same point.

*Head* rather small, with the upper and lower outlines tapering to a somewhat acute snout, but without any depression separating the head from the body, and with the dorsal surface of the head not concave. Length of the head contained in the total length not including the caudal fin, four and a half times; length of the head not including the caudal fin, four and a half times; thickness in front of the dorsal fin a little more than one-half of the depth at the same point.

*Posterior aperture of the nostrils* the larger, with a slight valvular projection on its anterior border. The *lateral line* curves gently downward, nearly as far as the ventrals, then ascends, and does not assume a straight course till it has nearly passed the anal fin. The *dorsal* fin arises further back than in *L. gibbosa*, being nearly equidistant between the snout and the tip of the central caudal rays. The height of the fin, which exceeds its length by not quite one fifth, is a little less than one sixth of the total length.

The *anal* fin arises about on a plane with the termination of the dorsal; its height and length are both a little less than those of the fin.

The *ventrals* arise a very little in advance of the dorsal; their height equals the length of the fin.

The *pectoral* fins are rounded, equalling the ventrals.

*Caudal* fin concave; the height of the outer rays equaling the length of the head.

*Gila microlepidota*, Ayres.—This species which is brought, not unfrequently, to our markets, appears seldom to exceed twelve inches in length. It is sold by many of the fishermen under the name of Fan-tail, from the peculiar form of the caudal fin; like the others of the Cyprinidae, it is not much esteemed.

*Form* elongated, subcompressed, rather slender, tapering most posteriorly. Greatest depth contained about live and a half times in the total length; length of the head, about four and a half times in the same; depth anterior to the caudal not quite one third of the greatest depth. Head tapering regularly from
the back, with a straight dorsal outline, nape not elevated.

Mouth small, the tip of the maxillary by no means reaching the border of the orbit; lower jaw received beneath the upper.

Border of the opercular apparatus forming a smooth and regular curve.

*Lateral line* curving gently downward, passing nearer the ventrals than the dorsal fin, thence rising, and at length running straight to the caudal fin.

*Scales* small, numbering about a hundred and ten along the lateral line, and twenty-four in an oblique line above it at the origin of the dorsal fin; they are strongly impressed with radiating striae.

The *dorsal* fin arises a little nearer to the caudal rays than to the snout. Its length equals the distance from the snout to the border of the preoperculum, being contained seven times in the length to the tip of the central caudal rays; the height of the fifth ray, which is the longest, is greater than the length of the fin.

The *anal* arises posterior to the termination of the dorsal; it resembles that fin in form but is smaller, its length equaling only the distance from the snout to the middle of the eye.

The origin of the *ventrals* is posterior to that of the dorsal, which fin they very nearly equal in height.

The *pectorals* are rounded, and slightly exceed the ventrals in height.

The *caudal* is large, deeply concave, the height of the external rays exceeding the greatest depth of the body, the height of the central rays half that of the external. The great number and prominence of the accessory rays causes the fin to spring out suddenly from the caudal portion of the body, thus giving occasion for the name by which the fish is designated, as already mentioned.

*C. 4-10; A. 3-8; V. 1-10; P. 17; C. 19,* with twelve accessories.

*Color* dark grayish brown above, lighter on the sides and beneath, a darker band passing from the base of one pectoral across the nape to the base of the other.

*G. microlepidota* is taken in the lower waters of the Sacramento and San Joaquin, in company with the other species of this family described in the *Proceedings of the Academy*. The form of its head indicates the propriety of a different generic position, and it is also separated from *Gila* by the structure of its inferior pharyngeal bones. But from the same reason that has been given in previous instances (the absence of any means in California of comparison with established forms, and the lack even of works of reference containing the divisions of the *Cyprinidae*, as at present recognized) it has been deemed advisable not to propose at present a new generic name.

Seven types of this family are brought to our markets, representing four genera, and liable probably to still further generic division, viz:—*Gila grandis*, Ayres; *Gila microlepidota*, Ayres; *Pogonichthys inaculobus*, B. and G.; *Lavinia gibbosa*, Ayres; *L. compressa*, Ayres; *L. exilicauda*, B. and G.; and *Catostomus occidentalis*, Ayres. It is extremely probable that others also occur, but apparently not in any great numbers. In particular we may look for *Lavinia crassicauda*, B. and G., which we have as yet not seen. Of other smaller *Cyprinoids*, five or six California species have been already detected, but scarcely of sufficient size to be marketable, and beyond question many yet remain concealed in our lagoons, lakes, and mountain streams.

Dr. Trask presented, on behalf of Mr. Humphrey of Marysville, a cluster of Quartz Crystals of remarkable size and beauty, from Rich Gulch on Feather river.

Also, a tooth of a Mastodon from Sonora, in the name or Mr. Gunn.

Also, specimens of Sulphuret of Copper and Blende from Hope Valley, Utah Territory, in the name of Maj. G. C. Shipman, Jackson.

Also, a copy of Stansbury's Expedition, from Mr. B. F. Washington. The thanks of the Academy were voted to the donors.

Dr. Trask also presented eighty specimens of land and marine shells, from China.

**ANNUAL MEETING.**

January 1, 1855.

Dr. A. Kellogg in the chair.

On motion of Dr. J. B. Trask,—

Resolved, That the Academy adjourn until Saturday evening, January 6th, at seven o'clock, for the reception of the Annual Reports of the Trustees, and other Officers—the election of officers for this year—and the transaction of such other business as may come before the Annual Meeting—and that every member be earnestly requested to be present.

Adjourned.
Jan. 6th, 1855:

Annual meeting by adjournment. Col. L. Ransom in the chair.

Reports were received and placed on file from the Trustees, the Treasurer, the Librarian, the Curator, and the Corresponding Secretary.

The following officers for the year ensuing were elected:

President—Dr. A. Randall.
First Vice President—Col. L. Ransom.
Second Vice President—Dr. H. Gibbons.
Recording Secretary—Dr. C. F. Winslow.
Corresponding Secretary—Dr. W. P. Gibbons.
Treasurer—Mr. T. J. Nevins.
Librarian—Mr. T. J. Nevins.
Curator of Zoology—Dr. W. O. Ayres.
Curator of Botany—Dr. T. L. Andrews.
Curator of Geology and Mineralogy—Dr. W. P. Gibbons.
Committee of Publication—Mr. Wm. Heffley, Dr. W. O. Ayres, Dr. H. Gibbons.

Jan. 8th, 1855.

Col. L. Ransom, Vice President in the chair.

The minutes of the last meeting were read and approved.

Mr. Davis of Mercantile Library Association presented two specimens of stalactite and stalagmite, taken from a limestone cave in Santa Cruz, Cal.

Dr. Kellogg exhibited a specimen of Cupressus Thyoides or White Cedar from the headwaters of the Sacramento; also the drawing of a new variety of Quercus provisionally named Quercus Ransomi, from the vicinity of the summit of Tejon Pass.

Mr. Sloat presented a specimen of Gryllotalpa from Mr. Mathews.

Dr. Ayres read the following paper on two species of Liparis.

Liparis pulchellus, Ayres—Of this singular little fish, but a single specimen has yet been observed. It was among a number of small fishes, at a fish-stall in one of the markets, and was probably taken in company with them, in some of the shallow waters of the Bay. It is six inches in length.

Form elongated, much compressed posteriorly, breadth and depth nearly equal anteriorly. Head subquadrangular, the sides being nearly vertical, with the upper and lower surfaces horizontal. Dorsal outline of the head sloping to the snout, which is very abrupt, appearing as though truncate transversely.

Breadth of the head contained six times in the total length; length of the head a very little greater than its breadth or depth.

Eyes placed midway in the length of the head; distance between the eyes equal to half the length of the head; diameter of the eye equal to half the distance between the eyes.

Gill-opening above the base of the pectoral fin, small, only about equaling the diameter of the eye; the minute, slender opercular bone forming a small projection backward covered with the skin.

Mouth equaling in transverse diameter the distance between the eyes, but extending very little posteriorly, by no means reaching the line of the orbits. Lips smooth and fleshy. Teeth numerous, even, fine in each jaw, arranged in tesselated regularity, like those of some of the Rays; each tooth has a central prominence, causing its apex to appear partially tridentate. Similar teeth are found on the pharyngeals; none on the palatines or vomer. Lower jaw shorter than the upper. Mouth nearly terminal.

Anterior aperture of the nostrils tubular, about half way from the eye to the snout; posterior aperture smaller, seeming like a mucous orifice near the orbit.

Mucous pores numerous and large, especially about the head.

Skin smooth, scaleless, so loosely attached by cellular tissue to the muscles beneath as to be largely movable.

Dorsal, anal, and caudal fins united, so as not to be distinguished.

Dorsal fin single, elongated, arising far forward (less than half an inch from the head,) its greatest height, which is in its posterior half, equaling half the length of the head.

The anal arises about half an inch posterior to the origin of the dorsal, which fin it equals in height.

The rays which occupy the place of the caudal fin are, like those of the true dorsal and anal all simple; a few of the central ones project beyond the general outline of the fins, and indicate a true caudal, giving a rounded lanceolate termination.

The pectorals arise each from a base equaling in length the breadth of the head, and extending forward beneath the throat so as almost to meet its fellow of the opposite side, the two when closed covering and concealing the ventral disc. The upper portion of the fin, equals in height the length of the base; it then diminishes to less than half that height, while further forward still the height increases and the rays are free at their tips, the extreme anterior rays being again very short.

[feb. 1.]
The ventrals are imbedded in the disc common to this family; it is oval, about equal in length to the greatest height of the dorsal fin.

The rays in the dorsal, caudal, and anal fins are about ninety eight, though it is not easy to enumerate them; of these about forty-seven belong to the dorsal, eleven to the caudal, and forty to the anal.

Color light olive brown, with numerous narrow, waving lines of darker brown running longitudinally, and forming in some instances rings and irregular figures; abdomen and throat white; some small brown and white spots on the sides, one series faintly indicating a lateral line with a slight downward curve.

_Liparis mucosus_, Ayres—This species is closely allied to the last, _L. pulchellus_; it differs chiefly in the form of the head, the form and connection of the dorsal, anal, and caudal fins, and the colors.

The head is longer, its length being contained in the total length (excluding the caudal) four times; in _pulchellus_ the proportion is one to five. The snout is rounded anteriorly, not truncate. The eye is smaller; its longitudinal diameter contained nearly six times in the length of the head.

The dorsal and anal fins both arise at about the same points as in _pulchellus_, and in their height and structure correspond well with those of that species; they are not, however, continuous with the caudal, but terminate at its base, leaving that fin separate and distinct, with a rounded extremity.

The dorsal is emarginated, a short distance from its origin, giving in a degree the appearance of an anterior dorsal. In color, this species is of a plain greenish olive, lighter beneath.

In the branchial aperture, the form of the operculum, the teeth, the nostrils, the pectoral fins, the ventral disc, the loose attachment of the skin, &c., this species agrees well with _pulchellus_.

Only two specimens have yet been observed, each a little over five inches in length.

Commercially, these small Sucking Fish are, of course, of no value. Their peculiar structure and habits, however, may well attract attention to them. By means of their ventral disc they attach themselves to stones and other objects, so strongly as to require much force for their removal. They belong to the same group of fishes with the Lump Fish of our Atlantic coast, the Cock Paddle of the Scotch.

Dr. Winslow exhibited a fragment of the lower jaw of an extinct elephant found in the drift of Texas Flat, in the neighborhood of Columbia, fifteen feet below the surface. It was 7 1-2 inches in length and the same in depth and contained the impression of a tooth, and the maxillary canal in a fine state of preservation. The fragment appeared somewhat rounded by attrition among the drift of the mining region, but on the whole is beautifully preserved. Though teeth of the _Elephas primigenius_ correspond in shape to the impression on this fragment, probabilities favor the conclusion that the extinct elephants of this slope of the Continent differ wholly from those which ranged over the eastern regions of North America and other parts of the globe. This fragment belongs to Doctor Graves of Columbia.

The following resolution was adopted.

That it be the duty of the Recording Secretary to notify in writing, all persons who may be elected as resident members of the Academy; and that the Corresponding Secretary do the same to Corresponding and Honorary members as soon after their election as possible. Adjourned.

_San Francisco_, Jan. 15, 1855.

Col. L. Ransom in the chair. Mr. Charles Girard was elected honorary member of the Academy.

Mr. Damran, of the Custom House, presented the following works: Capt. Marcy's Exploration of Red River; Cruise of the Dolphin; Lieut. Gibbons' Report; Report of Smithsonian Institution for 1853; Report of the Superintendent of the U. S. Coast Survey, for 1852, and Sitgreave's Expedition.

The thanks of the Academy were tendered for the donation.

Mr. Columbus Cooper of Oak Ranch, Sierra County, Cal., through Editor of Pacific, presented a Meteorological Table, taken by him at his residence, at the supposed height of eight hundred feet above the bed of the Yuba River, at Downieville. The thanks of the Academy were tendered to Mr. Cooper, and his communication was referred to Dr. H. Gibbons.

Mr. H. G. Bloomer presented five volumes of the Edinburgh Encyclopedia.
The Lyceum of Natural History of New York presented Nos. 1, 2, 3 and 4 of vol. VI of its Annals.

Mr. Nevins presented thirty specimens of coral, and fifty-six specimens of marine shells, from the Society Islands and vicinity.

Mr. Charles D. Gibbes, corresponding member, presented 59 specimens of minerals, fossil woods, bones and shells, also a specimen of *Geococcyx affinis*, Wag. found in the vicinity of Tulare Lake. The thanks of the Academy were voted for the donation.

Dr. A. Kellogg presented 250 specimens of California plants, and drawings, with the specimens of the *Quercus Ransomi*, Kellogg, and of the *Trichostema lanatum*, and read the following descriptions:

*Quercus Ransomi*—Kellogg.—Leaves oblong-oblanceolate, sinuate, wedge form at the base, lobes sub-acute, mucronate, pubescent beneath, on very short petioles; calyx bowl-form, margin thin, well defined, scales ovate, long, acute pointed, closely appressed, uppermost minute; whitish glaucous pubescent; acorn elliptic-acute, base small; sessile, in pairs, and solitary.

This oak was found by Col. L. Ransom, of the U.S. Survey, on the highest mountains near Tejon Pass. The bark and leaves resemble the white, and post oaks (*Q. alba*, and *Q. obtusa*), it is also closely allied to *Q. Gambelii*; but differs in the more acute and mucronate lobes of the leaf, sessile cup, longer and more pointed acorn, &c.

He also exhibited specimens, and a drawing of another species, supposed to be new. The name *Quercus arcoglandis*, Kellogg, was given, or *Spur Acorn Oak*. Leaves evergreen, coriaceous, ovate-oblong, sub-cordate, slightly repand-toothed, mucronate, margins recurved, sub-glabrous beneath; fruits sessile or sub-sessile, in pairs, and solitary; gland ovoid at base, point long, conic sub-acuminate, mucronate; cup sub-hemispherical, scales glabrous, ovate, obtuse, thin, closely appressed, light chestnut color. Found by Col. Ransom, near Tejon Pass. This species resembles the *Q. ozyurnena*, *Q. Emoryi*, *Q. agrifolia*, &c., but the leaves are less spinose than most of our evergreen holly leaf oaks; the veins beneath are not prominent, the leaves are small, one inch to an inch and a half long, petioles about one-third the length, foliage dull green; cup flatter, and its general characteristics less robust.

Dr. K. exhibited a drawing and specimen of *Trichostema lanatum*, or the Buff Blue Curls. This species, peculiar to California, is remarkable for its beauty, and worthy of the attention of our florists. It is clothed with a velvet or buff coat, of bright, purplish lilac pubescence, and is withal very fragrant. The very long arching and curling filaments like a lady's curls, have given this order the appropriate common name of Blue Curls. In this species the curls extend out beyond the flower two inches or more. The public are indebted to Dr. Andrews for its introduction here.

Dr. Willard, of this city, presented specimens of asphaltum found near Los Angeles. The thanks of the Academy were tendered for the donation.

January 22, 1855.

Col. L. Ransom in the chair.

Prof. S. F. Baird was elected an Honorary Member of the Academy.

Mr. Geo. M. Green presented a very beautiful specimen of the Great Egret Heron, *Ardea egretta*, Gmel. shot by him near the Lake House. The bird appears to be quite rare along this coast. The thanks of the Academy were tendered to Mr. Green for the donation.

Mr. Dosh of Shasta City presented specimens of a Grass from the head waters of the Sacramento, known there as Native millet; it was referred to Dr. Kellogg.

Dr. Wm. O. Ayres presented the following descriptions of fishes, with the specimens from which they were drawn.

*Leiostomus lineatus*, Ayres—Form elongated, compressed. Back gently arched, dorsal surface of the head sloping, snout rounded. Greatest depth contained a little less than four times in the total length. Length of the head a trifle less than the depth of the body.

*Mouth* received beneath the rounded snout, the tip of the maxillary not quite reaching the plane of the posterior border of the pupil, lower jaw the shorter. *Teeth* fine, even and crowded in both jaws, with similar stronger ones on the posterior portion of the pharyngeals; none on the palatines or vomer. Upper jaw almost entirely covered by the infra orbitals.

*Scales* thin, pectinate, rounded on the exposed portion, truncate anteriorly, covering all parts of the body and head except the throat, branchial membrane and parts of the jaws.

*Eyes* nearly circular; their diameter contained a little more than five times in the length of the head.

*Operculum* ending in two concealed, flattened points scarcely spinous. Posterior border of preoperculum minutely denticulate.

*Lateral line* arching very gently for nearly half its length, running thence straight to the caudal fin.

The *first dorsal fin* arising at a distance from
the snout, equal to one-third of the length of the fish not including the caudal fin, has a height half as great as the distance of its origin from the snout. It is elevated in front, the rays becoming shorter posteriorly.

The second dorsal, continuous from the first, has its greatest height about two-thirds of that of the first, the height diminishing posteriorly. The united length of the dorsals is a little less than half the entire length, of which the second occupies somewhat the greater portion. The rays of the first are feebly spinous, those of the second little branched.

The anal arising a very little posterior to the plane of the middle of the second dorsal, has its length and height about equal, both being nearly the same as the greatest height of the second dorsal.

The Pectorals are slender, pointed, their length contained more than four times in their height, which latter nearly equals the length of the first dorsal.

The ventrals are pointed, the third ray projecting beyond the others in a filamentous tip, making the height equal to that of the pectorals; their insertion is posterior to that of the pectorals.

The caudal is concave, its greatest height a little more than that of the first dorsal.

D. 14. 1-20; A. 1-11; P. 1-17; V. 2-5; C. 16, with accessories.

The ground color is a light grayish brown, becoming silvery beneath; this is crossed by numerous, narrow, obliquely longitudinal, somewhat waving lines of rich umber brown, giving a very pleasing appearance to the fish; these lines are at first somewhat indicated on the head. The dorsal and anal fins are somewhat clouded, the others lighter.

L. lineatus is apparently not very common.—It is taken in the Bay of San Francisco, at nearly all seasons of the year, but never in great numbers. It seldom exceeds eleven inches in length. It is called by the fisherman, Cuvina, Cognard, and Little Basse.

It is not very closely allied to any of the previously described species of the genus.

Leptogunnellus gracilis, Ayres.—Form compressed, very much elongated; the greatest depth (at one fourth of the distance from the snout to the tail) contained in the total length, twelve times, diminishing hence very gradually each way; greatest thickness equal to half the depth; length of the specimen described, eleven inches.

Head destitute of spines or fleshy projections, forming a little less than one seventh of the total length, flattened on the top, muzzle somewhat pointed, lower jaw the shorter. Eyes near the top of the head, approximately, elliptical, their longitudinal diameter contained not quite six times in the length of the head, distant rather more than their own length from the snout.

Branchial aperture free, isthmus narrow, branchial rays six.

Lateral line curving a little downward for three fourths of an inch, thence running straight to the caudal fin, not conspicuous.

Scales minute, soft, not ciliate, covering the whole body, and the cheeks anterior to the preoperculum, not extending on the fins.

Teeth fine, even, and forming a single row in the lower jaw, and on the anterior part of the palatines; crowded on the intermaxillaries, those of the outer row being a little larger than the others; none on the vomer. Mouth of moderate size, almost horizontal, the tip of the maxillary nearly reaching the plane of the anterior border of the pupil.

Opercular apparatus destitute of spines; operculum ending in a flat, feeble, somewhat acute point.

The dorsal fin, arising a little anterior to the opercular angle, extends the entire length of the back. Its greatest height, at about one third of the length of the fish, is not quite one half the depth of the body; this height is maintained posteriorly with very slight decrease, anteriorly it diminishes until the first rays become very short. Rays all spinous, projecting with sharp points above the membrane; the first two scarcely connected by membrane with those succeeding; a membrane extending from the last ray to the very base of the caudal fin.

The anal fin, arising at a distance from the snout a little greater than one third the total length, does not quite reach the caudal. Height about equaling that of the dorsal; rays articulated, branched.

The pectorals, rounded, have their height a little greater than the depth of the fish.

The ventrals are half as high as the pectorals, a little anterior to which they are placed.

The caudal, rounded, scarcely equals the pectorals in height.

D. 71; A. 47; P. 16; V. 5; C. 13.

In color this species is of a light greenish olive, with numerous dark blotches in the form of narrow, irregular lines, extending over the back, upper part of the sides, dorsal fin and caudal, on which latter they constitute tolerably regular transverse bands; lower portion lighter; irides silvery. Entire fish translucent.

The grouping of characters here described indicate a new generic division, closely allied to Gunnellus, to be thus limited—

Leptogunnellus, Ayres.—Body elongated, much compressed; Forehead not abrupt. Mouth of moderate size. Small even teeth in the jaws and on the palatines; outer smooth. Dorsal rays all spinous. Ventrals well developed. Branchial aperture free.

L. gracilis is apparently rare. But a single specimen has yet been seen, which was obtained
at a fish-stall; it had been taken in the Bay of San Francisco.

SAN FRANCISCO, Jan. 29, 1855.

Col. L. Ransom in the chair.

Rev. I. S. Diehl deposited the skin of a Wild Cat.—*Lynx rufus*.

Mr. Eugene A. Upton presented a series of fine specimens belonging to the Serpentine group, consisting of tremolite, asbestos and chlorite schist—also green stone trap and vitruous scoria. The thanks of the Academy were tendered to Mr. Upton for his valuable donations.

Dr. J. B. Trask exhibited a portion of the jaw of a Mastodon, containing two molar teeth, found near Columbia.

Dr. Kellogg presented sixty specimens of Californian and other plants.—also a drawing of native millet.

Dr. Kellogg exhibited a specimen and drawing of a Linariad considered new—it was found by Dr. Andrews near Punta de los Reyes.

*Antirrhinum velzillo-calypodatum*, Kellogg.—Stem erect, branching, extremities and branches long filiform, pubescent, glandularly pilose, and slightly viscosous on all parts, except stem and leaves below, leaves and branches opposite below, alternate above; ovate acute at both ends, 3-nerved, smooth sub-pubescent on long petioles below, gradually diminishing above until sessile, subcoriaceous and very minute. Flowers axillary on short peduncles; calyx 5-parted, upper division very large, leafy, ovate, acute, mucronate 3-nerved, as long or longer than the flowers' lower divisions, two on each side, linear-lanceolate mucronate (1-nerved) intermediate lateral divisions smaller or sub-equal, as long as the tube; corolla personate, palate very prominent, limb 5-parted, upper lip reflexed, 2-parted, divisions oblong emarginate, lower lip 3-parted, divisions obovate emarginate, middle lobe largest, lateral lobes reflexed, tube sub-cylindric, pubescent, gibbous at the base on the lower side, pseudo-spur compressed.

Stamens 4, inserted into the tube of the corolla, didynamous, included, filaments twisted commissure, stigma, 2-lobed, upper longer lobe beaked; capsule 2-celled many-seeded, oblique at base; seeds oblong-ovate. This plant is one of the Linariads of Linley, commonly known as Figworts, Snapdragons, or Tead-flax &c. This description is taken from a dried specimen, of which we have seen but one, further examinations are needed to determine its complete characters; our specimen has no mature fruit. The peculiar leafy division of the calyx is about one third longer than the flower, the tube about half an inch long, it appears to be an annual plant, somewhat like flax.

Dr. K. also repeated on the native Millet referred to him, accompanied with a drawing and description.

This specimen furnished by Mr. Dosh of Shasta is from the head valley of the Sacramento River. It is remarkable for its size, being ten to twelve feet high, bearing a head from ten inches to one foot in length, dense clustered, and very prolific. Horses and cattle eagerly devour it.—When we consider the great changes caused by culture, there is no doubt but this will prove a valuable acquisition to the farmer. It furnishes the most wholesome food for birds; it also abounds in farina to such an extent as to be capable of furnishing flour for domestic and economical purposes. It is quite similar to the *S. Italica* and *S. Germanica* or Italian and German Millets, the stalk with its large swelled joints emulates the common Broom-Corn, the ripe grain is shining with a light golden tinge.

*Setaria californica*, Kellogg.—Sheaths hirsute and ciliate at upper point where the laminae first embrace the stem; the compound panicle spike, cylindric, very long, erect, in heaped clusters or spikelets; bristles in bundles, about four, bearded upwards, three or four times longer than the seed; valves three, two ovate concave sub-equal ⅔ to ⅔ shorter than the seed (outer very small), 5-nerved, rachis densely hirsute, seed channelled and slightly flattened on one side. It is to be hoped flowering specimens will be sent by our friends in that vicinity to enable us to complete the description.

Dr. K. also exhibited a drawing and specimens of the *Dendromicon rigidum*, or California Yellow Rose Tree.

The comparatively recent discovery of this beautiful flowering shrub in California, has elicited much interest among botanists, as forming a connecting link between the Poppyworts and Rock-roses.

Col. L. Ransom in the chair.

Dr. H. Gibbons presented a specimen of Magnesian Limestone from the border of the hills east of Oakland.

Dr. Kellogg presented various native flower seeds.

Mr. Geo. E. Drew presented thirty six specimens of earth &c, from an Artesian well at Stockton four hundred feet in depth, illustrating the stratification at that place. The thanks of the Academy were voted for the donation.

Dr. Kellogg exhibited a drawing and speci-
mens of the Olive, *Olea Europaea,* with notes illustrative of its emblematic use in all ages.

This native Asiatic tree is well acclimated in California, from San Jose, south at all the old Missions; these specimens were brought by Col. L. Ransom of the U. S. Survey, from San Fernando.

Along our sea-coast declivities and sloping valleys where the soil is sweet, or free from stagnant moisture, and mostly composed of calcareous and granitic, or schistous and micaceous debris, commonly known as "flat gravel," the olive is very thrifty and prolific. It grows to the height of twenty or twenty-five feet with a trunk of eight or ten inches in diameter, and forms a picturesque ornament to avenues, and out-grounds, as well as in plantations; an eminent instance, among the many that claim our notice, of the bountiful resources with which Providence has blessed our State. No tree is more useful in every point of view, than the olive—its extreme longevity—graceful branches—evergreen foliage—close-grained useful wood—rapidity of growth and early maturity, yielding after the second year, and bearing for ages—ease of propagation, by simply planting a chip of the stump, or a cutting, in short for unnumbered reasons, it cannot fail to recommend itself to the attention of the public. There are several species, with some varieties in the form of the fruit and foliage not necessary to notice.

Dr. Wm. O. Ayres presented the following description (with the specimen) of a Lamprey from this vicinity.

*Petromyzon plumbeus*, Ayres.—Form elongated, slender, sub-cylindrical anteriorly, compressed posteriorly; length of the only specimen yet observed, four inches and three fourths.

Eyes large, distant twice their own diameter from the anterior border of the head; length of the head, to the posterior margin of the orbit, not quite one twelfth of the total length.

Branchial orifices small, circular, disposed in nearly a straight line on each side, occupying a space about equal to the distance from the anterior one (which is near the eye) to the front of the head. Mouth provided with smooth fleshy lips, not quite united posteriorly.

The appendages, commonly described as "teeth" are only two, near the lips, one superior, and one inferior, both elongated transversely. The superior is low in the middle, and elevated to a point at each end, causing it at first sight to appear double. The inferior is serrated, having eight or nine smooth nearly even points. In the throat is a partial, smooth, horny ridge, or rather ridge.

The *first dorsal* fin arises a little nearer to the tip of the caudal than to the front of the head; it is very low, arched, and has a length about equaling one eighth of the length of the fish.

The *second dorsal*, separated from the first by an interval equaling about half the length of that fin, is at first low, rises to a height about twice that of the first dorsal, then decreases until at a point half an inch from the tip of the caudal its height is very small, and continues nearly evenly so through the remainder of the dorsal space. At the extremity of the body, and in all the region occupied in other species by the anal, scarcely even the semblance of a fin can be traced.

This species is of a plain, uniform lead color, inclined to green, above; bright silvery beneath. *P. plumbeus* is apparently quite distinct from any previously recognized type of this genus.—The only one from which it is not widely separated in the arrangement of the "teeth" is the large species described as inhabiting the Columbia River, *P. tridentatus*, Gaird. With any of the European forms, or those found on the eastern slope of this continent it is scarcely necessary to compare it; the "teeth," the fins, the colors, the size distinguish it from *tridentatus*. It is undoubtedly always a small fish.

The specimen described was taken in the Bay of San Francisco, in November 1854.

I have not been able, as yet, to ascertain the occurrence of Lampreys in any of the rivers of California.

A letter was received from the Royal Academy of Sciences at Berlin, acknowledging the receipt of the first No. of the Proceedings of this Academy; also a letter from Prof. Henry of the Smithsonian Institution, promising to send to the Academy a suite of Meteorological and Magnetic instruments.

On motion of Mr. Sloat, it was resolved, that the proposition of Dr. W. P. Gibbons to deliver a course of Chemical Lectures, in aid of the funds of the Academy, be accepted.

Mr. Heffly was elected Recording Secretary.

Feb. 12, 1855.

Col. L. Ransom Vice President, in the chair.

Dr. J. B. Trask, presented three specimens of *Naiades,* with descriptions, from the Sacramento River, and Lagoons.

*Anodonta Randallii*, Trask.—Shell, obtusely triangular, rather thick, posterior margin slanted, attenuate, obtusely rounded, anterior margin roundly-pointed, posterior margin sub-accuminate near the line of the ventral margin, ventral margin nearly straight, slightly compressed along the line of the edge laterally and internally, rather acutely rounded at the posterior end, an elevated ridge extends from the umbo to the posterior angle of the ventral margin, umbones much corrugated, rather indistinct, lateral ridge sub-acute and rounded, becoming somewhat obsolete as it approaches the umbo, dorsal line arcuate inclu-
the ligament, lateral ridge of the shell forming the chord of a circle equal to 105°, epidermis rough, finely wrinkled anteriorly, very dark brown, semi-opaque, surface of the shell often very much denuded.

**Interior of the Valves.** Muscular cicatrices two, anterior deep and at times granulated, posterior confluent, the cicatrices usually with raised tumid edges; pallial line rather deep in old specimens, rather indistinct posteriorly in young shells, nacre opaque reddish brown, pearly, annual lines imperceptible within, but distinct externally, internal cavity deep, cavity of the umbo deep; Length three and one tenth inches, Diameter one and two tenths. The habitat of this Shell is the Sacramento and San Joaquin Rivers. I have not found it at any point north of the confluence of the Feather and San Joaquin Rivers. I have not found it at any point north of the confluence of the Feather and San Joaquin Rivers.

The shell is not plentiful, as one only was obtained during three days dredging; it is difficult to obtain good specimens, or even any considerable number, from the fact that the Indians place a high value on them, their use being the manufacture of ornaments for their persons.

I have some hesitancy in placing this shell with the genus *Anodona*, since there is in some specimens, the semblance of a rudimentary tooth. In the majority of shells which have come under my observation, this characteristic is wanting or at least so obscurely defined as to render it extremely difficult to determine the point with any degree of certainty. I have never seen the animal but once, and that was in such a state of decomposition as to render any diagnosis from this source of no value. I have, from these circumstances placed this shell in the genus *Anodona* until such time as there are more evidences for its removal than are now in our possession. A specimen of this species is in the cabinet of Col. L. Ransom, from the upper San Joaquin, which measures three and eight tenths inches in length and one and seven tenths in height—it is the largest that has yet been taken in our waters.

*Anodonta triangularis*, Trask.—Shell, thin, contour nearly triangular, inequi-lateral, equi-valved, compressed; anterior margin truncated; ventral margin nearly straight for the central half of its length; valves slightly compressed near the ventral margin producing a flattened elevation on the inner disks; posterior extremity obtusely rounded; dorsal margin elevated into a high connate wing; beaks nearly obsolete; epidermis greenshiny in young and dark brown or nearly black in old specimens; annual lines somewhat prominent externally, raised on the inner disks; pallial line entire; cavity of the valves shallow; nacre white, slightly iridescent; dorsal ligament strong; valves closed. Length three and three tenths, Height two and two tenths, Diameter seven tenths.

The habitat of this Shell is the Sacramento River, and it has not to my knowledge been found above the American Fork. It is seldom seen by the fishermen engaged on that stream, notwithstanding high prices have been offered for them; within 18 months I have procured three specimens only. The outline of this shell alone would separate it from the lake specimens, which are found in great abundance.

*Anodonta rotundata*, Trask.—Shell inequi-lateral, compressed; umbo rather flat; dorsal line straight; projection of the epidermis above the dorsal line arcuate, horny and brittle; anterior margin rounded; ventral margin regularly arched and smooth; dorsal margin elevated into a high connate wing; darkish brown colored line surrounding all the margins; muscular impression rather indistinct; posterior cicatrice confluent; pallial line small but easily perceptible, conforming to the marginal border; epidermis yellowish brown, polished, finely corrugated near the margins and becoming darker; substance of shell thin; annual lines transverse, elevated externally and perceptible on the disk; cavity of the beak shell; nacre bluish white, pearly, at times mottled with yellowish spots. Length three and six tenths inches, Height one and nine tenths, Diameter seven tenths.

This shell is found in the lagoons of the Sacramento Valley; but has not to my knowledge been taken in the river. The plates were drawn from an adult specimen; it differs from the preceding species in its general contour, in being more expanded between the dorsal line and ventral margins, and in the much greater acuteness of that line, with the projection of the epidermis beyond, as delineated in the figure. The arched form of the ventral margin in this specimen, and the roundness of the anterior, compared with those of the *A. triangularis*, will separate it from that shell.

Dr. Winslow, exhibited two embryonic specimens of a species of *Shark-Ray*, inclosed in the egg-case.

Dr. H. Gibbons exhibited specimens of the Redwood and the Mammoth Tree, with the cones of both, showing the analogy between them, and the propriety of placing them in the same Genus *Taxodium*. The Genus *Wellingtonia*, which Lindley had framed for the gigantic tree of California, was at best, named in bad taste. If the name of a hero, unknown to science, were at all appropriate for a genus of plants, an American hero, might easily have been found, to give a name to the giant of the American forest. But there is not likely to be any difficulty about the name, as Dr. Torrey and other botanists, both at
home and abroad, now concur in abolishing the new genus, and placing the so called Wellingtonia gigantea in the old genus Taxodium, retaining the specific name gigantea.

Dr. H. G. also presented specimens of Trillium, Asarum, and other plants, from Alameda county.

Col. R. D. Cutts presented the skin of a Fox.

Messrs. Ellery & Doyle presented an antiquated work on Natural History, published at Edinburgh, in the last century.

Feb. 19, 1855.

Col. L. Ransom, Vice President, in the chair.

Col. R. D. Cutts, of the U. S. Coast Survey, was elected corresponding member.

H. G. Bloomer, Wm. Heftly, Dr. A. Kellogg, were elected Library Committee.

Donations. Report of the Smithsonian Institute, for 1854, presented by the Institute.

Dr. Behr, presented a species of Nepa.

Dr. J. B. Trask, read the following paper on a new species of Alasmodon, from the Yuba River. He also presented three specimens of the shell.

Alasmodon Yubaensis, Trask.—Shell, thick, transversely elongate; umbones low, situated rather below the line of the hinge margin, and near the middle of the anterior third, very much eroded, hinge and ventral margin unequally curved, shell broader before than behind, anterior margin bluntly and regularly rounded, slightly obtuse below, dorsal margin and ligament rather flatly arched, (in young shells the dorsal line from the end of the ligament posteriorly is often angulate) posterior margin obtusely rounded in mature specimens, its superior portion comprising the posterior third truncated, or but very slightly arched; edge of the valves thick anteriorly and rounded, thin posteriorly and rather sharp, slight ly everted, shell gaping at both ends, (in young specimens the valves at the posterior end are closed) broader before than behind, considerably inflated from the umbones along its posterior slope, epidermis neatly black, opaque, smooth toward the beaks, rather roughly corrugated from the middle of the disks to the margins, surface undulated with annual lines of growth. WINDOW, smooth; color lIce-greenish and iridescent posteriorly; raysed upon the surface beyond the pallial line, and seen by direct or transmitted light; cardinal teeth one in each valve, erect, that in the right valve sub-ominate, bluntly rounded at the apex, grooved on the upper part, pitted at the posterior base, tooth in the left valve erect, flat, sub-triangular, three small oblique grooves upon its upper surface producing small denticulations on the edge; five small transverse grooves on the under surface; tooth sub-acutely pointed; pallial line impressed anteriorly, obsolete posteriorly; anterior cicatrices distinct, deep, posterior confluent, shal; nacre not extending to the margins, leaving a narrow border surrounding the latter; a somewhat tumid elevation of the shell between the pallial line and margin anteriorly. Length, four and five twentieths inches; height, one and six tenths; breadth, one.

The habitat of this shell is the Yuba River, and the specimens on which this description is based were taken from that stream about forty miles above its confluence with the Feather, by Hon. C. E. Lippincott, from whom they were procured. The shells are somewhat abundant, and have often been found at considerable depths imbedded in the gravel drift of that stream. There are shells of this genus in many of the running streams of this country, but thus far there seems but little diversity in the species, with the exception perhaps of the more northern rivers.

This shell represents A. arcuata, of the Atlantic coast, but differs from that shell as described by Dr. Gould, and also from the description of Dr. DeKay. The particulars which separate it from the Atlantic species are the following: A. arcuata, has two cardinal teeth in the left valve; our species has but one, or even a denticulation on that valve that could be considered even rudimentary. The form in the one is pyramidal and has from three to five grooves, while the California shell is flat and sub-triangular, having scarcely three distinct grooves upon its surface, which is a constant character.—The tooth in the right valve is erect and has no twist as that described in the Atlantic species.

The beaks in our species are situated near the middle of the anterior third, and their summits are below the line of the hinge margin, and it is much broader before than behind; the color of the inner disks being so distinct from that of the Atlantic species, and the rays visible on the inner surface beyond the pallial line, are sufficient with the above to separate our shell from those east of the Rocky Mountains.

The difference of climate and the space of a broad continent between, would have the effect to produce wide differences in specific character of allied genera. I therefore consider this species as undescribed and have selected the name of the stream from which it was taken, for its specification.

The corresponding secretary, read a letter from Dr. D. W. Hatch of Sacramento, in which he promises a copy of his Meteorological Journal, and one from Prof. Nooney, dated at Washington, recommending the Society to send copies of the Bulletin, to the Smithsonian Institute for exchange with foreign scientific bodies.
Provided with a firm row of teeth, like those on the vomer but smaller. In the lower jaw four or five strong canine teeth in front, similar to those above and interlocking with them as the mouth closes; all the jaw posterior to these filled with strong molar teeth. Pharyngeals with small, rounded teeth.

Lips loose and fleshy. Nostrils nearer to the eye than to the snout.

Opercular apparatus without spines or processes of any kind; operculum very thin, almost membranous. Isthmus broad; branchial aperture equaling in extent the distance from the snout to the posterior border of the orbit.

Skin smooth, with a somewhat copious mucous secretion. Scales minute, rounded oblong, imbedded in the skin, not imbricate, scarcely visible without close examination, becoming less abundant anteriorly, and entirely disappearing before reaching the pectoral fins; all anterior to this being scaleless.

No trace of a lateral line.

Dorsal, anal, and caudal fins entirely continuous. The dorsal fin, arising almost at the back of the head, continues to increase for nearly a fourth of its length, attaining thus a height equal to the depth of the head of the fish. A little posterior to this the elevation becomes less, and the fin gradually decreases in height until, near the caudal extremity, it has only one third of its greatest elevation.

The anal fin, arising at a distance from the snout, a little greater than one fifth of the total length, is similar to the dorsal in form, having, in most parts, about two thirds the height of that fin. The rays at the extremity of the body, which represent of course the caudal fin, are about equal to the longest rays of the anal. The rays of the anal and caudal are articulated, little branched. Those of the dorsal are single, not articulated, flexible; the point at which these simple rays join the articulated rays of the caudal is not marked by any depression in the outline of the fin. The junction of the anal and caudal cannot so readily be determined, as the rays of both are articulated.

The pectoral fins are rounded, scoloped on the margin by the projection of the rays, their height a little greater than the depth of the head.

No central fins.

Dorsal rays about 250; anal and caudal, about 233; P. 19. All the rays are enveloped in a somewhat thickened membrane.

In color perhaps no more beautiful fish than this has yet been found in our waters. It is elegantly mottled with light ash, grey and dark olive green, disposed in irregular rings, lines, and blotches, which cover the head and body. They extend also upon the dorsal fin, which in addition bears a remarkable row of large, brilliant, sharply defined ocellations: these are of such size as
to occupy about half the height of the fin, each consisting of a light ring enclosing a much darker space. At about the middle of the length, these rings (in one specimen) become blended, forming then a black band with a light line above and below it which extends to the caudal. The anal is dark brown, (black near the tail) with a border almost white in its whole length.

These notes of the coloring are taken from a young specimen only twenty two inches long.—In another, fifty two inches in length, the colors though not essentially different were less brilliant.

We find here grouped the arched head, the mouth, the remarkable dentition, the branchial aperture, the surface, the scales, the structure of the fins, belonging to Anarrhicas. But they are associated with an eel-like elongation of body and a corresponding complete union of the vertical fins, which must remove it from that genus. The fish has in fact, at the first glance (excepting the head) much the aspect of a Muraena. Its generic features may be thus stated.

Anarrhichthys, Ayres.—Head smooth, arched, obtuse. Body very much elongated. Scales small. Dorsal, anal, and caudal fins united.—Canine teeth in the front of the jaws; blunt, rounded teeth on the vomer and palatines and in the lower jaw; none on the superior maxillaries. No ventral fins.

A. ocellatus is apparently rare. Only two specimens have yet been seen, which by a singular coincidence were brought into the market within two days of the same time. None of the fishermen had seen the species previously. The stomach of the larger specimen contained fragments of a Sea-Urchin, apparently a Cidaris, so that their habits appear to be like those of the species of Anarrhicas. Both specimens were taken in the Bay of San Francisco.

Dr. H. Gibbons in the chair.

A valuable collection of fossil shells was presented in the name of Dr. Antisell from Santa Margarita. The thanks of the Academy were voted for the donation.

A letter from Mr. Philip B. Carpenter of London, to the Rev. Mr. Cutler of this city, was read, asking for authentic information or exchange of specimens in illustration of the Mollusca of California.

Dr. Wm. O. Ayres presented specimens of the following fishes—Ophiodon elongatus, Gir., Leptoguennellus gracilis, Ayres; Scorpaenichthys marmoratus, Girard; and Catostomus labiatus, Ayres, with a description of the last mentioned species.

Catostomus labiatus,—Ayres.

Form elongated, fusiform, somewhat compressed. Greatest depth, which is equal to the length of the head, contained in the total length not quite six times. Dorsal outline gently arching from the dorsal fin to the snout. Head subquadranular in transverse section; elongated in front of the eye, so that the distance from the eye to the border of the operculum on its own plane, is contained nearly twice in the distance from the eye to the tip of the snout. Length of the eye about one fifth of the length of the head.

Nasal fossa nearly immediately anterior to the eyes; the posterior aperture much the larger, oval, covered by a large crescentic valve from its anterior border.

Mouth large and very protractile, the pedicels of the internamillary being long and the tissues lax. Lips quite large and thick, papillose, the papillae imperfectly arranged in rows; the posterior lip deeply lobed.

Lateral line nearly straight, curving but slightly downward near its origin. From its anterior extremity two rows of tubes diverge; one passes directly across, on the line separating the head and body, till it meets the tube from the opposite side; the other passes forward, and quickly divides into two branches, one running along the supraorbital space and terminating at the nasal cavity, and the other curving down and passing along the suborbital bones in their whole length. These rows of tubes are quite prominent.

Scales largest on the posterior portion of the body, quadrangular, longer than high, with numerous radiating furrows. Sixty four scales along the course of the lateral line, and eleven above it in an oblique line at the origin of the dorsal fin.

Dorsal fin, trapezoidal in form, arising at a point equidistant from the snout and the base of the caudal fin. Its length, which is a little less than its height, is equal to the length of the head anterior to the preopercular border. The fourth ray, unbranched, is the highest, the first two being very short; the last ray has a little more than half the height of the fourth.

The ventrals, rounded, arising posterior to the middle of the dorsal, have a height not quite equaling the length of that fin.

The anal, somewhat acutely rounded, with a height equal to the length of the head, is separated from the ventrals by a space nearly equal to its own height. The fifth and sixth rays are highest, the first very short; the last ray has a little more than half the height of the fourth.

Caudal concave, the central rays only a little more than half as high as the external, which are about equal to the anal.

D. 3-12; V. 2-10; P. 17; A. 2-7: O. 18, with six accessories.

Color dark blackish brown above, becoming lighter on the sides, and white beneath.
C. labiatus must be rather rare as but a single specimen has yet been observed; it was taken at Stockton, was seventeen and a half inches in length. It was brought to market in company with a number of C. occidentalis, from which it was not distinguished by the fisherman who called them both Sucker.

We knew in California, previous to the discovery of this species, but one representative of the genus Catostomus, C. occidentalis, Ayres. By a somewhat singular coincidence this latter had been described by Prof. Aggassiz (Am. Jour. Sc. and Arts, Vol. 19, p. 94,) and by myself (Proc. Cal. Ac. Nat. Sc. Vol. 1, p. 18, under the same specific name, at almost the same time, but the reading of my paper and the publication of our Proceedings have priority by a few days. Prof. Agassiz' account of course did not reach us till several weeks later.

From C. occidentalis, the present species is distinguished by the following characters—the head, anterior to the eyes, is more elongated; the centre of the eye is decidedly nearer to the lower angle of the subopercle than to the anterior edge of the upper lip; the mouth is larger, the lips thicker; the opercle and subopercle are smaller; the dorsal fin is situated further back, and is smaller, its length being less than one seventh of the length to the tip of the central caudal rays; the pectorals are larger; and the anal is much more developed.

From C. communis it differs in the greater length of the head, the larger mouth, the thicker lips, the form of the dorsal, and the greater development of the anal; and from C. Bostonensis in nearly the same points.

To Lesueur's C. aureolus it has much resemblance, but from that it is now generically separated, as in the recent revision of the old genus Catostomus by Prof. Aggassiz, aureolus is included in the genus Ptychostomus.

In a paper read by me before the Academy some months since, the remark was made that further investigations in our Californian fauna would probably show a necessity for many modifications among existing genera. In the present species we have a partial illustration of the truth of this. In the revision of this group of fishes already mentioned, Prof. Aggassiz after much study has set forth the characters which in his judgment should indicate generic divisions, attaching much (though not undue) importance to the inferior pharyngeal bones and the teeth upon them. In the arrangement thus proposed by him, the species new under consideration belongs evidently to Catostomus proper. And yet we find the pharyngeal teeth (but not the pharyngeal bones themselves) much more nearly corresponding to those of Ptychostomus. They increase in a very even manner from above downward, so that those of the middle of the arch are not "already of the same cast as those of the lower part of the comb," in fact they do not assume that cast till quite near the lower part. We find "the inner edge of the lower ones square," while in the middle and upper ones the inner margin rises into a rather sharp cusp. Still the body of the bone is that of Catostomus and we have thus a blending of the characters of the two genera.

Without question other types of this group of fishes will yet be discovered on this side of the mountains. Quite a remarkable representative of the Chondrostomi was found by the U. S. Exploring Expedition, under Capt. Wilkes in the Columbia River. It is Aerochetus alutaceus, Agass. and Pick.

Dr. Ayres in the chair.

Dr. Antisell was elected a Corresponding Member, and Mr. Julius Froebel a Resident Member.

On motion it was ordered

That copies of the proceedings of the Academy be furnished to the San Francisco Journal, to be published in the German language.

Dr. Kellogg exhibited a drawing and specimens of Arabis blepharophylla, or Cal. Purple Rock-cress.

This beautiful purple flowered Rock-cress, as its common name implies, is only found in rocky localities. It has been supposed to be from the interior of this State, but it is found abundantly on the rocky peaks of mountains and high hills in this vicinity, and along the coast; this habit of growing on high hills has also obtained for it the names of Purple Alpine Wall Flower, &c.,

It is a perennial cruciferous plant: 4 to 6 inches high, the flower stem rising from a cluster of radical leaves, obovate-spatulate; those of the stem oblong, sessile, all toothed and naked, except the margins, which are ciliate with simple or forked white hairs; the hairs on the calyx stellate, petals purple, obovate, crenate on slender claws &c.

For ornamental purposes this plant is superior to many of our cultivated species.

Dr. Ayres presented the following description of a new iehthyic type, together with a specimen of the species described.

**Mylopharodon roberti**, Ayres.

*Form, elongated, fusiform, compressed; ventral outline more arched than the dorsal; dorsal outline ascending without curvature from the...*
snout to the nape, hence arching very slightly, the line of union of the head and body not marked by any depression or change of form. The greatest depth contained not quite five times in the total length. Length of the head a little greater than the depth of the body. Depth of the head at the plane of the eyes equal to the distance of the same plane from the snout.

Mouth oblique, gap tolerably free, the plane of the tip of the maxillary passing about midway between the nostrils and the eye. Lower jaw the shorter. Lips smooth, a little loose and fleshy, not corrugated. Each jaw provided with a firm, thickened layer, placed along the inner border of the lip; this layer is narrow, and becomes more attenuated as it passes back along the jaw until, before reaching the angle of the mouth, it terminates; it is whitish, with a slight tendency to plication transversely; its connection with the mucous membrane both of the roof of the mouth, and of the lips is feeble, so that it is quite easily detached; it corresponds to the lips of the Suckers, though the structure of the mouth is not at all like that of these fishes. No traces of barbels are discernible.

Eyes very nearly circular, their diameter contained a little more than seven times in the length of the head.

Posterior aperture of the nostrils much the larger, nearly circular, covered by a crescentic flap from its anterior border.

The posterior superior and posterior inferior borders of the operculum meet at nearly a right angle, but as the suboperculum continues the border of the opercular apparatus from this point, this border becomes nearly a rectilinear curve, only slightly angulated.

Scales of moderate size, not varying much in dimensions on different parts of the body, about eighty two along the course of lateral line, and seventeen in an oblique line above it at the origin of the dorsal fin. Scales oval, not much angulated; concentric lines very fine; radiating lines of the posterior portion numerous, encroaching somewhat on the lateral portions. Those forming the lateral line have the tube commencing near their anterior border.

The dorsal fin, trapezoidal in form, arises at a point, a little nearer to the snout than to the tip of the central caudal rays. Its length is equal to the depth of the head at the plane of the pupils; its height is a little greater, the fourth ray (which is simple, articularized) being the highest and just double the height of the last ray; the first two rays are very short.

The ventrals, arising a little in advance of the dorsal, which they equal in height, are rounded. Their tip does not quite reach the vent.

The anal, similar to the dorsal in form, is a little less in both length and height. It arises a little in advance of the point to which the rays of the dorsal reach. The fourth ray, branched, is the highest, the first being very short.

The pectorals, rounded, have a height equal to the distance from the origin of the ventrals to that of the anal.

The caudal is beautifully waved on its posterior margin, each lobe being convex. The height of the central rays is half that of the external. D. 3-8; A. 2-8; V. 1-9; P. 17; C. 19, with eight or nine accessories.

Color dark; greenish brown above; becoming lighter on the sides, abdomen white.

Lateral line convex downward, passing nearer to the ventral fin than to the dorsal. A similar row of tubes is continued forward from upper angle of the branchial aperture, descends behind the eye, turns forward beneath it, and occupies the entire length of the chain of suborbital bones. Another row, imperfectly manifest, crosses the top of the head; at its line of junction with the body.

M. robustus appears to be by no means common. It is brought to market from the San Joaquin, in company with Gila grandis from which it is not distinguished by the fishermen, both being sold under the singularly inappropriate name of Salmon Trout. It has in fact much resemblance in external characters to that species, though the body is stouter, and the head relatively larger not being concave on its dorsal surface and as it were separated from the body. In contour it is quite like the Dace of the Connecticut River, (Leuciscus pulchellus; Storer.) But it is readily removed from these species, and from every other Cyprinid hitherto described, by the structure of the teeth on the inferior pharyngeal bones. The bones themselves are short, strongly curved, and very stout; somewhat resembling in form those of L. pulchellus already mentioned, though much more robust than those of any other Californian type of this family. The teeth are arranged in two rows. Those of the external row are four, (in some instances five) in number, remarkably thick and strong, rather short, each provided with a broad enamelled crown which is truncate obliquely inward, thus affording a large smooth grinding surface; they are closely placed, the crowns nearly touching each other. The inner row is but an imperfect one, consisting of two teeth, or at the most three, which are small with their crowns blunt, but not truncate as in the outer row.

We find in this formation an intermediate condition between that of the open-mouthed Cyprinidae, and that of the tribe of Catostomi. We have the pharyngeals, the same number of teeth with their nearly cylindrical bodies which represent the former, while we have also the abruptly truncated summits which occur in the latter. And as another illustration of the passage toward the Catostomi we have the thickened de
posite along the lips. One feature not yet indicated allies this type to the first mentioned tribe—the presence of the pair of slender bones suspended beneath the interbranchial series for the attachment of the muscles which separate the inferior pharyngeals; these bones appear to be wanting in all the Catostomi.

A new generic division therefore seems needed, for which the characters specified suggest the name.

**Mylopharodon**, Ayres.

Scales, fins, and lateral line very similar to those of Lavinia. Mouth rather large. Lips not corrugated. A thickened deposit, slightly rugose along the inner surface of each lip. Pharyngeal teeth in two rows; those of the outer row blunt, truncate abruptly.

The position which this genus must occupy has been already shown.

It may here be stated that for the fish with which this is associated in name by the fishermen, the one already described by me as *Gila grandis*, a new genus must presently be constructed.

*M. robustus* attains a weight of six to eight pounds, being thus the second in size of the California Cyprinidae with which we are yet acquainted.

The following communication was received from Dr. Antisell:

I take the liberty of submitting to the Academy of Natural Sciences of San Francisco, the accompanying fossils derived from San Luis Obispo County: they are found occupying a very extensive tract of country, not being confined to the above named county, but well marked there and having made a more close investigation of the extent of their distribution in the Valley of Santa Margarita, I am better enabled to localize them and I present a rough diagram, giving a section of that Valley. The trail through the Salinas Valley to the town of San Luis Obispo passes along this valley whose western limit is the range of the Coast Mountains, and its eastern, the Salinas river from which it is separated by a low granite range—when this section is made, the distance between these two points is about nine miles. The Valley lies to the Eastward and is about 1000 feet above sea level: the strata are very much contorted and bent by augitic and magnesian (Talcose) rocks which are protruded in a few places and since which the whole surface has been smoothed down and denuded by current-actions. The rocks on the west side of the Valley are sandstones, grits and conglomerates having a general dip to N. West, varying from 20° to 50°, intersected by Felspathic, Amygdaloid, and Augitic trap which are the elevating agents of the littoral range of hills.

On the East of this Valley as stated is a granitic axis upon which the sandstone conglomerate rests conformably, although the beds have, by no means the same thickness as upon the west side; upon these beds of sandstone just mentioned repose the fossiliferous layers, from which they are separated by a few feet of aluminous rocks, with lamellar, flinty layers, presenting in some parts a distinct onyx-lamina: this layer as it is a constant one, is that which indicates alike the position of the fossiliferous bed, and the intruding effects of the trap rocks; the fossil beds always rest upon this layer, and in some places are not more than four feet apart from it. It is the western limit which this bed forms, for I have not found it appear in the eastern side.

The fossiliferous beds dip generally eastward or south-east, and have no defined synclinal axis, but repose conformably on the subjoined flinty bed. These beds in a few cases occupy the lower portion of the Valley, but at its southern extremity, it is elevated and forms the low, rounded whitish hills which are so prominent a feature in the landscape. They occupy a width in the Valley from 3/4 to nearly 3 miles and having a direction of N. 10° W. (Magnetic.) The total thickness of these beds, I do not think exceeds 450 feet and may be conveniently divided into four beds, beginning at the bottom of the Series.

1. Bed. Reposing on the flinty layers—about 200 feet thick a fine whitish sandstone with layers of Ostrea interstratified; these shells are generally in layers from 2 to 4 feet thick and connected together by a calcareous paste including fine grains of rounded quartz pebble. The sample of oyster which I forward is a fair specimen of the size of these beds, I do not think exceeds 450 feet and may be conveniently divided into four beds, beginning at the bottom of the Series.

2. Bed. Reposing on the flinty layers—about 200 feet thick a fine whitish sandstone with layers of Ostrea interstratified; these shells are general

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1. Bed. Reposing on the flinty layers—about 200 feet thick a fine whitish sandstone with layers of Ostrea interstratified; these shells are general
farthest point I have observed it, is the south larger than I am acquainted with elsewhere; beds of sandstone below belong to the same period, and those occupy a thickness of 2,200 feet; the species differ; if they be Eocene fossils, the compare American specimens with European, as they are all of marine origin, and nowhere have I seen any trace of land plant or animal. This is a large thickness for a single Tertiary bed, larger than I am acquainted with elsewhere; the 4th bed is a soft brown sandstone which possesses some layers hardened and perforated by molluscs.

Such are the beds as they exist in San Luis Obispo Co., and Santa Margarita. The farthest point north (the 1st point) where I observed them was on the San Antonio, near its head and the farthest point I have observed it, is the south limit of the county, as I have not followed it into Santa Barbara. Its western limit is the littoral range of the Coast Mountains. I give this term to the most westerly of the many chains which receive the name of Coast Range; towards the east it is found passing into Tulare County, and extending to the foot of that chain which is known as the extension of the Sabilan or Mt. Diabolo range. In this course it is not continuous, but is broken and uplifted by the chains and separate hills which occur in passing east, and in some places fine sections are exposed, such occurs in the Panza hills along the Estrella River from which the best specimens were obtained. The hills from which the Santa Maria derives its supplies of water, expose these beds on their foot ranges.

Independent of the character of the fossils, there are two points of interest connected with these beds.

1st. They lie conformably upon the granite upheaved, which lies beside the Salinas river—they are older than the granite.

2nd. They lie east of the littoral range; all the beds on the west side of this latter chain are morc recent than those on the east. They were not uplifted at that period, and the depth probably greater than could sustain those animals.

I am inclined to look upon these as Early Eocene shells. They closely resemble cretaceous fossils and had I found *Lio cerinus* among them, I should not have hesitated. It is not easy to compare American specimens with European, as the species differ; if they be Eocene fossils, the beds of sandstone below belong to the same period, and those occupy a thickness of 2,200 feet; they are all of marine origin, and nowhere have I seen any trace of land plant or animal. This is a large thickness for a single Tertiary bed, larger than I am acquainted with elsewhere; but it is no insurmountable objection to its admission into that series.
D. 14; P. 13; A. 12; V. 11; C. '19, with accessories. Length 5 inches.

The three specimens from which this description was taken were obtained by Mr. Nevins from the San Leandro creek. They were evidently young fish.

Donations to the Library—American Philosophical Transactions, Vol. X; Notes on the Classification of the Carabidae of the U. States, and Revisions of the Elateridae, by John Le Conte, M. D., from the Author; A Memoir of Samuel George Morton, M. D., by Charles Meigs, M. D., from the Philadelphia Academy of Natural Sciences; also a Notice of the Origin, Progress and Present Condition of the Academy, with its Proceedings from Jan. 3d 1854 to August 29th 1854.

Catalogue of the described Coleoptera of the United States, by Friedrich Ernst Melsheimer, M. D., from the Author; also Journal of the Academy of Natural Sciences of Philadelphia, Vol. VII, part II., Vol. VIII, part I. and II., together with the first and second Volumes of the new Series.

Dr. Wm. O. Ayres presented a specimen, a canine foetus of full term, exhibiting a singular instance of abnormal formation resulting from the union of two ova, one developed of course at the expense of the other.

Externally, the head, neck, left fore-leg, trunk, and posterior extremities showed nothing worthy of attention, except the entire occlusion of the auditory opening on both sides. From the abdomen, however, anterior to the umbilicus, protruded on a broad pedicel the hind legs which belonged to the arrested ovum. They were placed with their anterior surface toward the same surface of the other pair, but were much smaller and weaker. In the place of the right fore-leg was a member consisting of three legs, joined in one, the outer one evidently belonging to the trunk to which it was attached, the other two being the pair which corresponded to the supernumerary posterior extremities. They were of uniform size, the feet in a measure distinct from each other.

On removing the integuments, an ovoid body half an inch in length was brought to view, lying on the outside of the abdominal muscles. This was a kidney, belonging to the protruding posterior extremities, and connected with them in a normal manner; but it was the only one with which they were provided.

The development of these extremities was found to be very imperfect. The pelvis consisted of two slender, nearly cylindrical cartilages, placed longitudinally side by side, united at their anterior part, and ending there abruptly without trace of vertebrae. The position of the muscles was merely indicated, the chief part of the bulk being made up of adipose tissue. The circulation for these members was drawn from the descending aorta, by a single branch of no considerable size, just above the great mesenteric. The only portion of alimentary canal which pertaining properly to them was a rectum, which branched from the main canal, and even for this no outlet existed.

The liver connected with this ovum was a mere lobe projecting from the upper surface of the normal one.

The organs belonging to the most developed of the two ova, (that which seemed to constitute the true animal, of which the other was only an appendage) were all of normal and healthy condition. The arterial distribution from the heart presented nothing peculiar. The subclavian going to supply the triple arm was not even changed; after passing the axillary region it divided into three branches and was thus enabled to reach the whole space. (The three humeri were perfectly joined, forming one flat bone, and articulated with a single scapula; in the fore-arm all the bones were soldered, except the external radius.) The nerves were merely those of a single arm divided like the artery.

The placenta of the one ovum was joined with that of the other; the vessels remaining separate, though included in one cord, and each ramifying on its own organ.

March, 26, 1855.

Col. L. Ransom in the chair.

Dr. T. L. Andrews presented a copy of Dana's Mineralogy.

Dr. Laub, U. S. A. presented a specimen of silicified wood, found at Benicia in sandstone.

Mr. S. V. Bowman presented two specimens of a large and remarkable Crab, taken in the vicinity of the Farallones.

The thanks of the Academy were voted for the donations.

Dr. Kellogg exhibited a drawing and specimens of a plant from Alameda known as the California Elecampane.

The general appearance of this low, grey-leaved Sun-flower, shooting up from the earth large clusters of broad lance leaves from the branching head roots and suckers around the flower stem, very aptly suggests the common name. The root is of a dark colored texture with radiating lines similar to the Elecampane. The odor is strongly balsamic, or terebinthine.
Its medical properties are tonic, gently stimulating and diuretic, useful in chronic diseases of the mucous membranes, and especially expectorant in chronic diseases of the lungs, &c.; an ounce of the root to a pint of boiling water in doses of a wine-glass. Cut and mixed with grain it is also good for horses. These thick fusiform roots are eaten by the Indians; they are first beaten and fermented a day or two in a hole made in the ground, then heated rocks are thrown in; they are thus said to furnish a sweet agreeable repast.

Botanically this plant belongs to the natural family Heliopsidae, and occupies an intermediate position between Wyethia and Balsamorhiza; with some slight alterations this, and the former, might constitute one genus.

The provisional name proposed is _Melarhiza_.—Kellogg.

Heads many-flowered, ray-flowers numerous, fertile pistillate, with sterile filaments, scales of the involucre loosely imbricated in 3 to 4 series unequally foliaceous, longer than the disk, inner, most smaller, glabrous within, resembling the soft herbaceous chaff. Receptacle nearly flat; the chaff linear-lanceolate, 2 lateral teeth obsolete, carinate acute, somewhat foliaceous, half embracing the achenia, and in the unexpanded flowers about the same length. Corolla of the disk cylindrical, elongated, with a short proper tube, 5-toothed, teeth bearded externally. Branches of the style in the ray-flowers sub-villous; in the disk elongated filiform, revolute, villous throughout. Achenia of the ray stout, sub-compressed, arcuate, all elongated, 4 to 5-angled, prismatic, terminated with a membranaceous coroniform laciniate pappus, 5 to 10-toothed, one or more of the teeth often prolonged into a rigid persistent awn, largest at the two principal angles, anthers, disk and rays, yellow. Low perennial plants with the habit of Inula Helenium, long black tap-roots at both ends, sparsely muricate, with weak prickles; leaves somewhat waved, gradual, all elongated, 4 to 5-angled, plagiotropic. Upper canline leaves broad rhombic-lanceolate, alternate, chiefly radical, from forked head roots, or lateral sucker buds; leaf-scales of the involucre in 3 or 5 series, loosely imbricated broad-lanceolate acute and acuminate, somewhat unequal, exterior longer than the disk, innermost smaller; florets, styles, papillose, achenia and chaff pubescent; rays 1½ to 2 inches long, 2 to 3-toothed 20 or more; anthers, disk flowers and rays yellow.

There are also two other very distinct species of this genus not yet in bloom.

Dr. Kellogg also presented the following description with the specimens.

_Maral Moricatus._—California Balsam Apple. This new plant was described about two years since before the California Academy of Natural Sciences accompanied by a drawing and illustrations afforded by abundant fresh specimens.

This herbaceous vine climbs over shrubs in a similar manner to the Echinocystis or Balsam Apple of the older States and is closely allied to that genus as well as to a similar plant found in this vicinity. Besides these there are several other plants in California of this natural family,— _Cucurbita_, or cucumber tribe,—which so far as we are informed, have not been described.

One of the most remarkable features of this climber is the gigantic fleshy root which shoots its numerous branching angular stems ten to thirty feet in length, which climb over and festoon the shrubs within their reach with a dense, green, broad, roundish foliage, somewhat heart-shaped. The claspers or tendrils by which it clings are many-parted or from one to five. From the intense bitterness of the root it must prove an excellent tonic. The seeds abound in oil, which burn with a clear, bright flame, with little or no smoke or odor. It is readily obtained by simply bruising and pressure. There is also a pungent acridity determined to the larynx and throat after chewing the pits, besides a bitter laxative property. We have still much to learn of its medical virtues.

_Generic Character._—Flowers monococious—Calyx flattish; in the fertile flowers constricted above the ovary, tubular-campanulate, segments five, subulate, shorter than the corolla. Petals, five, lanceolate, united at the base into a rotate-campanulate corolla. Stamens three to five; filaments short, united; anthers sigmoid, connate. Fertile flowers, solitary; abortive filaments, three to five, distinct.

Style short; stigmas two, very large, broadly obovate, conic. Fruit, oblong, tapering at both ends, sparsely muricate, with weak prickles, fleshy, bursting elastically near the summit, at length dry, membranaceous coriaceous; carpels not separable, two-celled; seeds six, enveloped in a dry, reticulated, membranaceous arillus, three in each cell, imbricately ascending, large, flattened, broadly oval, margin obtuse; dark brown.

Root perennial, very large, tubero-fusiform.—_Stem annual, a climbing, succulent vine. Leaves palmately five to seven-lobed; three to five-cleft tendrils.

_Flowers small, white; sterile in long simple or compound racemes; the fertile ones from the (March 26.)
same axils, solitary, on long, enlarging, ebracteolate peduncles.

Specific character.—Stem smooth, angled, slightly ribbed, and furrowed, sparsely pubescent; tendrils many-parted, (three to five) lateral or opposite the leaves; ten to thirty feet long, climbing over shrubs. Leaves slightly sessile above, pubescent beneath along the veins; four or six inches broad, roundish, sub-hastate, cordate-patinate, with an obtuse sinus at the base; five to eight sinuate-lobed; lobes angled entire or repand-toothed, mucronate, alternate. Corolla white, glabrously pubescent within; petals oblong-lanceolate sub-acute; sterile flowers in simple or compound paniculate racemes eight inches to one foot in length, from the same axils of the leaves as the fertile. Fertile flowers three-fourths to one inch broad on an elongated tapering point of the fruit and calyx tube. Calyx divisions subulate, often lanceolate peltate, one-fourth to one-half the length of the petals.

Fruit four to five inches in length, two to three inches in breadth, oblique tapering to both ends, green, marked from base to apex by six or seven dark green stripes, slightly depressed and somewhat irregular; fleshy, bursting elasticiy by irregular fissures on the swollen side near the summit, the lacerated edges of the orifice becoming revolute; two-celled (rarely three-celled at the base). Seeds three-fourths of an inch long by upwards of an inch broad, flattened, undulated, rounded obtuse margin, sub-reniform or hilum apparently on the side, imbricately ascending, placental attachment opposite the gibbosity, surface slightly pitted, dark brown verging to black.

This plant we have seen growing nowhere except on the declivities of the hills back of the Mission Dolores, on Mr. Hutchinson's Ranch, near San Francisco.

The fruit is somewhat in six divisions, by the green veins that mark the surface, and after discharging the seed fades to a whitish cream-colored brown, drying on the stem. The drawing in the archives of the Academy represents one instance of the leaves being opposite; this is sometimes observed, but more frequently this secondary little axillary leaf is only partially developed, and more generally still, entirely wanting.

The seed of this fruit is remarkable for its size and shape, position, &c. It bears a resemblance to some forms of Kidney or Butter Beans.

The flower, also, sometimes anomalously has a six-parted border, and corresponding divisions of the calyx, but such instances are rare.

The significance of the name we have chosen would be better understood by perusing Exodus XV: 22-26.
Coal, and impressions of leaves, &c., from the head waters of San Francisquito Creek, San Francisco County.

Dr. Behr exhibited a Willow of singular formation, each male ament being bifid or trifid; it is closely allied to *Salix caprea*, perhaps a new species.

Dr. Kellogg exhibited specimens with four drawings illustrating the different species of *Iris* now in blossom near this city: *I. sambucina*, and two other forms not yet named.

Dr. Trask presented a specimen of a new Ammonite from Arbuckle’s Diggings, Shasta County, with the following description of that fossil.

**Ammonites Batesi.—Trask.**

Shell thin: discoidal, and orbicular; three and one-half convolutions, each smaller one of which is unconcealed by the larger; convolutions nearly round; slightly undulating well defined costae on each whorl, which appear uninterrupted, and on the last convolution are about one-tenth of an inch asunder; the ribs become more approximate toward the ventral portion of the whorl; between the larger ribs are seen smaller divergent radial costae which appear to converge about midway from the dorsum to the sides of the last whorl; siphon ventral; dorsum round; septa arborescent; umbilicus perforate; greatest diameter four and three tenths inches. Aperture one and two tenths inches.

This specimen is presented by Dr. Bates, member of the Assembly from Shasta City, and is peculiarly interesting as exhibiting the broad extent over which the secondary rocks are spread in the northern part of the State. In the month of November I discovered the equivalents of this group about forty miles to the east of the locality from which this specimen was taken, and of which mention is made in my report for 1855 to the Legislature under the head of Carboniferous Limestone. The development of the coal beds in the latter locality since that time, and the occurrence of coals among the rocks, from which the specimen before you was taken leads to pleasant anticipations, that the time is not far distant when this State will produce an ample supply of this desirable material for domestic consumption.—

The specimens from east of the Sacramento with the fossil before you from the mountains west of that stream, place the question of the existence of the coal bearing rocks in this State beyond the shade of doubt. I would state in connection with this subject that there are evidences of the same rocks being met with in the county of El Dorado, but I cannot yet speak with absolute certainty on that point, as the specimens thus far found are small and fragmentary. These fossils are sometimes called “snake stones” from their resemblance to a coiled snake.

Dr. Wm. O. Ayres presented specimens of *Gasterosteus plebeius*, Gr., brought from San Jose by the Rev. Mr. Douglas. They were taken in a stream formed by the water flowing from Artesian Wells, and are believed by many persons of that vicinity to have issued from the wells. But inasmuch as this little Stickleback is very abundant in all the salt and brackish marshes of the Bay of San Francisco, their presence in the locality where they were taken may be much more readily accounted for, on the supposition that they had ascended the streams by which the waters of the wells are discharged into the Bay. They have none of the features which belong to the fishes inhabiting subterranean regions.

Dr. Ayres also presented a specimen of a Flounder, representing a new form, with the following description.

**Platessa bilineata.—Ayres.**

*Form oval, the dorsal and abdominal outlines being nearly symmetrical; depth a little less than the entire length. Length of the head contained in the total length not quite four times. Snout projecting somewhat, not being continuous in direction with the descending line of the nape.*

*Eyes large, elliptical, their longitudinal diameter contained three and a half times the length of the head; situated on the right side: a strong prominent ridge separating the two sockets and extending somewhat further posteriorly, as in Parophrys.*

*Month of moderate dimensions, the tip of the upper maxillary scarcely reaching the plane of the pupil of the lower eye. Lower jaw the longer; a single, even row of strong, blunt, conical teeth in each jaw, shorter and less developed on the colored side than on the colorless. Inferior or pharyngeal teeth like those of the jaws, but stouter, placed in a single row; superior of similar size, arranged in several obliquely transverse rows.*

*Scales larger and more conspicuous than in any other fish of this tribe yet found on our coast; those of the anterior portion of the body are nearly smooth; further back they become gradually more and more ciliate though none of them are so rough as in most Flatfishes. Those of the head cover the entire opercular region and cheeks, and in part also the inter-ocular ridge; those of the cheeks are strongly ciliate.*

*The lateral line arches freely above the pectorals, and runs thence straight to the caudal fin. Another, with a structure entirely similar to that of the ordinary lateral line, arises just above the eye, passes a short distance directly backward, then ascends and follows near the dorsal margin and ends abruptly just anterior to the plane of
the opercular angle; it communicates with the true lateral line by a branch.

The dorsal fin arising over about the anterior third of the orbit, terminates at a distance from the caudal equal to the breadth of the eye.

The anal arising a little posterior to the base of the pectorals, is coterminous with the dorsal.

A small abrupt depression exists at the termination of each; the peduncle of the tail posterior to this is somewhat wedge-shaped. A strong, concealed, pelvic spine, directed forward and downward precedes the anal.

The pectorals are pointed, their height equaling half the length of the head.

The ventrals, more than half their own height anterior to the pectorals, resemble these fins in form.

The caudal is large, somewhat rounded; its height forming one-sixth of the entire length.

The Flounder is quite distinct from any other species brought to our market. It is allied to P. dentata, Mitch., but is readily distinguished by its form, scales and teeth. It is taken in the Bay of San Francisco, but is apparently not common.

We find constantly three species of flatfish offered for sale here: Platichthys rugosus, Gir., called by the fishermen "Turbot," weighing often ten to twelve pounds; Parophrys venulus, Gir., and Psitichthys melanostictus, Gir., both of small size, and both sold under the name of "Sole." Girard's Pleuronichthys caninus, and Psitichthys sordidus, though said by him to have been taken at San Francisco, we have not yet been able to detect. The great Hippoglossus vulgaris, universally known as the "Halibut," the fishermen have assured me is sometimes caught near the Farallon Islands. Most of those sold in our market, however, if not all, are brought from the coast further north.

From Mr. Richardson, U. S. Deputy Surveyor were presented a suite of specimens of mineral waters, from near Clear Lake, Mendocino Co. They contained Sulphur in large percentage, with a decidedly acid reaction. With them were specimens of the sulphur, &c., deposited by them, together with volcanic products from their vicinity.

Heated air issues from the ravines near one of the springs.

From Mr. J. S. Reckel was presented a specimen of Maple wood, from Washington Territory, the tree growing there to the height of 75 to 100 feet; also a skin of an animal unknown to the Indians and Fur Traders of that region. The skin, though much mutilated and very imperfect was apparently that of the Mustela canadensis.

The Catalogue of the State Library was presented from the office of the Secretary of State; and Nos. 52, 53, 55, and 56 of the American Journal of Sciences and Arts, by Dr. J. B. Trask.

Dr. H. Behr was elected Curator of Botany.

April 9, 1855.

Col. L. Ransom in the chair.

Quincy A. Brooks, of Olympia, W. T., was elected a Corresponding Member.

Dr. H. Gibbons reported the existence of Dicra palaustris, in great abundance, in the ravines of Alameda county.

From Judge Eno was presented a Geode, containing a moveable nucleus, and bearing numerous particles of gold in fissures on its surface; it was taken from a gold mine in Calaveras county.

Also, a specimen of agatized wood, from the same region, found at the depth of 150 feet. This mineral appears to be extensively dispersed throughout the State.

Dr. Behr exhibited a species of Smilacina, which he deems quite equal in valuable properties to the officinal Sarsaparilla.

Dr. Trask presented the following descriptions, with the specimens, of fossil shells from the tertiary deposits of the lower coast.

CHEMNITZIA PAPILLOSA—Trask.

Shell small; acutely elongate; sublanceolate; substance of the shell rather thick; eleven slightly oblique rounded whorls separated by rather deep sutures, those separating the lower five whorls deeper than the upper; eleven distinct rounded folds on each whorl; four revolving lines on each whorl, which, upon the last whorl, external down the base of the shell, in rather shallow but distinct furrows, easily seen in good specimens.

Aperture roundly ovate; outer lip moderately thick; columella arched; and terminating somewhat acutely anteriorly.

Length, five-tenths of an inch; breadth, one-eighth of an inch. From Santa Barbara.

Dr. Gould has described two species of this genus, from the coast of Santa Barbara, Cal., viz: C. torquata and C. tenuicula, neither of which appears to be our fossil species. The fossil differs from C. torquata, in the size of the two shells, in the number of folds, and in the ab-
sence of revolving lines; from C. tenuicula, in
the number of whorls, in the greater number of
folds in his specimen, and in the shouldered char-
acter of the last whorl. My description is found-
ed on an examination of thirty shells, and I am
unable to identify this fossil with any described
species. The well marked characteristics of
the fossil, arising from the revolving lines
crossing the folds, giving them the appearance of
small papillae upon their convex surfaces, were
considered sufficiently suggestive of the specific
name applied.

TORNATELLA ELLIPSTICA—Trask.
Shell small; acutely elliptical; substance of
shell rather firm; six subspirai shouldered whorls;
twelve slightly oblique folds on the three last
whorls, which terminate about half way down
on the body whorl; the three middle whorls en-
circled by four cordate lines each; the last whorl
has fourteen lines; spire acute; last whorl about
three-fifths the length of the shell.

Aperture elliptical; half the length of the
shell; outer lip subcrenate from the termination
of the cordate lines on the last whorl: a minute
reflection of the inner lip passes around the pos-
terior edge of the aperture, and becomes obsolete
on the edge of the aperture.

Length, five-twentieths of an inch; breadth,
one-tenth of an inch. From Santa Barbara.

Two specimens only of this shell were found at
this locality, and though an inhabitant of lower
latitudes, yet we find it fossil among the marine deposits of our hills, associ-
eted in the same beds which contain the northern
types.

MUREX FRAGILIS.—Trask.
Shell thin; small; six deeply shouldered
sub-oblique flattened whorls; last whorl travers-
ed by eight rather small fringed varices; the
periphery of the body whorl is surmounted by a
small rounded spine on each varix, and stands
obliquely outward upon the edge of the should-
er; the last whorl is traversed by thirteen un-
raised transverse threads of the transverse threads. It is not plen-
itive at the locality where it was found; three
specimens only were met with, and the above
description is from the largest shell.

FUSEB ROBUSTUS.—Trask.
Shell fusiform, slightly thin, turrieted; about seven
convex whorls; eight variscosed, distant folds on the
last whorl, which are interrupted at the sutures; about five revolving lines on the upper
whorls, and twelve on the last; folds become ob-
solute a little anterior to the middle of the body
whorl; greatest breadth across the posterior por-
tion of the aperture.

Aperture obovate; outer lip thick; canal
straight; distance from the posterior edge of the
aperture to the end of the canal, equal to half
the length of the shell; apex of the spire bluntly
rounded.

Length, one inch and two-tenths; breadth,
five-tenths. From San Pedro.

Found at heights varying from eighty to one
hundred feet above the sea.

FUSEB ROBUSTUS.—Trask.
Shell fusiform, somewhat thin, turrieted;
spire acute; eight convex whorls; two first with-
out folds; nine distant folds on the last whorl,
becoming obsolete on a line parallel with the pos-
terior edge of the aperture; two last whorls
traversed by small longitudinal wrinkles; about
fourteen elevated, somewhat squared, lines on the
last whorl, with intermediate smaller lines be-
tween, which are continuous to the base of the
shell.

Aperture semicircular; canal oblique, and
somewhat elongated; from the posterior edge of
the aperture to the anterior end of the canal, is
little more than half the length of the shell; outer
lip thin; columella smooth.

Length, one inch and four-tenths; breadth, six-
tenths. From San Pedro.

Insulpture, this shell resembles somewhat F.
ambustus of Gould; the fossil differs from that
shell in the more abrupt and rounder termina-
tion of the upper part of the whorls at the su-
tures, and in its presenting no furrows within the
aperture. The upper whorls of the latter also
become somewhat flattened, while in the former
they appear to preserve much uniformity in their
form throughout. It has the appearance of be-
[April 2.]
ing closely allied to that shell, judging from the figure as given by Dr. Gould of his species.

It is distinct from *F. robustus*, by the more acute form of the spire; the thickness of the shell, the greater number and angular character of the elevated transverse threads and by the size of the shell.

Dr. Kellogg exhibited a drawing of the fruit and foliage of the gigantic tree of California, with analytical and microscopical figures of the male flowers, &c.

Also a drawing and specimens of a new Cucurbit, probably a *Marah* or *Echinocystis*, from Placerville. As soon as the mature fruit can be obtained, a full description will be published. The vine is commonly known as Giant Root, &c. Other specimens, similar to those here, were received. Dr. K. exhibited blooming specimens, and a drawing of a beautiful bulbous plant—a species of *Cyclolobothra*, or Golden Star Tulip.

The Academy are indebted to Mr. Garvitt for the two last named, together with flowering specimens of *Dendromicon rigidum*, *Cerasus mollis*, a species of cherry. These were received by Express, in wide-mouthed glass jars—a novel and successful mode of transportation.

Dr. K. exhibited specimens and a drawing of a new and singular personate leafless plant, for which further time is required for investigation. Also, a drawing and specimen of a new and beautiful *Calochortus* or Butterfly Tulip, from the vicinity of Canada de Las Uvas, furnished by Wm. A. Wallace, of Los Angeles; color bright vermilion, stem leafless, two inches high, the flowers as large as usual, pistil capitate, &c.

Dr. K. also exhibited a drawing and specimens of *Wyethia angustifolia* (*Alerce*, of De Candolle,) from the hills of Mission Dolores, known as the creeping sunflower—a name probably suggested by the habit of the stem. Rising and bowing archwise, it hugs the soil, creeping beneath the grass about a foot from the radiated cluster of root leaves, then ascending in a curve a few inches from the earth, crowned with a single flower; or perhaps also from the creeping character of the root.

It is worthy of remark, that the achenia is sometimes entirely destitute of pappus, but more commonly one long awn from the inner angle, and often a smaller or tooth-like one opposite; leaves long, narrow, strongly waved; and black, with lighter radiating lines within.

**April 16, 1855.**

Col. L. Ransom in the chair.

Mr. Heffly, Chairman of the Committee on Rooms and shelves, reported that Messrs. Palmer, Cook & Co., had donated to the Academy, for one year from April 1st 1855, the use of Room No. 4, Phoenix Block. On motion it was

Resolved, That the thanks of the Academy be presented to Messrs. Palmer, Cook & Co. for their liberal gift.

Mr. Joshua Child of Encinal was elected a Corresponding Member.

Donations to the Cabinet—

Dr. W. P. Gibbons; Magnesian Conglomerate from the Serpentine Rocks near Mountain Lake.

Dr. H. Gibbons; a worn mass of Serpentine, containing fossorial shells, from near Fort Point. Also a specimen of the Common Gopher, from Alameda.

Dr. Trask; *Cythera crassatelloides*, Lam. from Santa Barbara.

Dr. Ayres presented the following descriptions of fishes, with the specimens.

**Salmo rivularis.**—**Ayres.**

*Form* elongated, compressed; dorsal and abdominal outlines very evenly arched; greatest depth, anterior to the dorsal fin, not quite equaling one fourth of the total length; thickness at the same point, half as great as the depth.

*Head* of medium size, its length being a trifle less than the depth of the body; dorsal outline continuing the curve of the back; muzzle somewhat blunt and rounded. Mouth free, a vertical line from the end of the superior maxillary just touching the posterior border of the orbit.

*Teeth* on the tongue in two rows, each row containing five or six teeth; those in the lower jaw, in a single row, of about twelve on each side; those in the upper jaw, in a double row on both maxillaries and intermaxillaries, (the outer row alone being conspicuous) of which the outer row on each maxillary contains about twenty, and on each intermaxillary about five; those on each palatine bone, in a somewhat irregular row, fourteen to sixteen in number; those on the vomer, in two rows (of five or six each) placed so close together as to seem like a double row. *All the teeth are small, conical, acute, curved*. The largest are those on the tongue and lower jaw.—A few minute, very sharp teeth are crowded on the pharyngeals.
Scales small, elliptical, with the concentric lines numerous and crowded; about one hundred and forty along the lateral line. Head naked. Lateral line nearly straight, curving very slightly downward. The first dorsal fin arises midway between the snout and the commencement of the accessory rays of the caudal fin. The first four rays are simple, the first two being very short; the sixth and seventh the longest, their height equaling the length of the fin, being about one half of the length of the fish.

The adipose fin is separated from the termination of the first dorsal by a space equal to the distance from the ventrals to the anal, being directly above the termination of the latter fin. It is narrow; its height equal to the diameter of the eye.

The ventrals arise very nearly beneath the middle of the first dorsal, being almost midway between the snout and the tip of the central caudal rays. They are rounded, their height equal to half the length of the head. At the external base of each is a narrow membranous appendage half as high as the fin.

The pectorals are somewhat pointed, their height equal to the length of the first dorsal.

The anal is in form very similar to the first dorsal, but about two thirds as large. The first four rays are simple, the first two being very short; the fifth and sixth longest.

The caudal fin is of medium size, concave, the height of the central rays being about two thirds that of the external.

Branchial rays twelve.

D. 4-11; P. 1-14; V. 1-10; A. 3-10; C. 19, with six or seven accessories.

This species recalls at once by its characters, the Brook Trout of the Northeastern States, the well known Salmo fontinalis, M. and is indeed very closely allied to it. It is one of those known to sportsmen here as Trout and sometimes Mountain Trout. The specimens from which this description is drawn were taken a few miles back of Martinez, toward the foot of Monte Diablo. They therefore represent the form occurring in that portion of the State. But from the accounts which we have received it seems highly probable that under the name Mountain Trout several distinct species are confounded in different parts of California, and the attention of observers, who may have opportunity to examine our mountain streams and lakes, is therefore requested in regard to this point. The species found on the west of the Contra Costa Mountains, in San Leandro Creek, has in fact been already described, (Salmo tridentes, Gibbons, Proc. Cal. Acad. Nat. Sciences, Vol. 1, page 36) and is quite distinct from this. S. rivularis is separated from S. fontinalis by the teeth, the proportions of the head, the position of the dorsal fin, the form of the adipose, the scales, and the colors.

Petromyzon ciliatus.—Ayres.

About two months since a small Lamprey was exhibited and described, before the Academy, under the name P. plumbeus (Proc. Cal. Ac. Nat. Sciences, Vol. 1, p. 28,) being the only Californian species at that time known. Within a few days the specimen herewith presented has been obtained. It is of a type quite distinct from plumbeus, and is allied very closely indeed to P. Americanus, Le S. It is twenty-four inches in length, four inches and a half in circumference.

Form elongated, subcylindrical anteriorly, compressed posteriorly, enlarged over the branchial region, head smaller.

Eyes distant six times their own diameter from the anterior border of the head, nearly circular, only one fourth of an inch in diameter.

Branchial orifices elliptical, disposed in nearly a straight line on each side, occupying a space about equal to the distance from the anterior one to the front of the head. To the middle of the posterior border of each orifice a short, filiform appendage is attached.

Mouth circularly continuous. Lips provided in their whole extent with a beautiful ciliary fringe, nearly a tenth of an inch in height.

"Teeth" numerous. In the throat are two large plates, placed laterally, which close the entrance almost in the manner of a glottis; they are finely serrate on their inner border. Immediately below these is another, not quite so large, placed transversely, supported on a concealed pedicel, serrate, with its central serrature slightly elevated. Posterior to this and below it is another much stouter and larger, more than half an inch across, placed transversely, with five strong serrations. Facing this, so as to leave the entrance to the mouth between them, is another of similar solidity but not quite so broad with a large, conical prominence on each side and a smaller one in the middle. The bases of these two plates are so extended as to form a continuous ring. External to them is a circular row of "teeth" consisting of small, single points in its posterior and anterior portions, while laterally they are imbedded plates supporting two, and those opposite

The ground colors are quite similar to those of fontinalis, though without the mottinglings, but the yellowish circles and vermilion dots are absent. Instead of them we have on the head, and back, and upper portion of the sides numerous reddish brown, irregularly circular spots. The dorsal fin bears also several rows of spots forming imperfect bars; a few of these are found on the caudal.

The largest specimen was eight inches in length. They were reported smaller than the average, so that in size also this species comes near to fontinalis. We are indebted for them to the kindness of Dr. Winslow.
the middle of the month three points arranged in radiating lines. External to this row is another of still smaller “teeth,” forming a ring immediately within the lips.

The first dorsal fin arises a little anterior to the middle of the length; it increases gradually to its greatest height, which is only twice the diameter of the eye, its length being not quite one sixth of the length of the fish.

The second dorsal, which is separated from the first by an interval of about one third the length of this latter fin, rises more abruptly so as to be obtusely angular in its outline as it commences decreasing toward to tail, until at about two inches from the termination of the body, its height having become very small indeed, it begins to rise again, forming a sort of third dorsal or upper lobe of the caudal. This again, after attaining a height nearly equal to that of the first dorsal, decreases so that with the lobe which is continuous from it on the inferior border it makes nearly a right angle at the caudal extremity.— The inferior lobe is about equal to the superior in both length and height. Ventral surface anterior to this entirely smooth.

Anal orifice a little posterior to the origin of the second dorsal.

Color plain uniform greenish olive, quite similar to that of the Common Eel of our Eastern States, lighter on the throat, with some fuliginous blotches.

This Lamprey is clearly the Pacific representative of the one known as the Lamprey or “Lamp Eel” in the rivers of New England during the months of spring and summer (P. americanus, Le S.) It is distinguished by the arrangement of the “teeth,” the relative position of the dorsal fins, the form of the fins at the caudal extremity, and the colors. It has little need of comparison with either of the species previously known on this coast P. tridentatus, Gaird., or P. plumbeus, Ayres; the “teeth” are sufficient at once to separate it from them. The specimen from which the description is drawn, was taken in the Bay of San Francisco. But if examination could be made, at this season of the year, in the parts of the rivers accessible from the tidewaters of the Bay, the Lampreys would in all probability be found in them, perhaps in considerable numbers. Very possibly their presence might be indicated by conical heaps of stones in the river beds, such as the eastern species is in the habit of constructing.

Dr. Kellogg exhibited a drawing of a new species of Bahia; the specimens were received to-day by Express from Wm. A. Wallace of Los Angeles.

Bahia Wallacii,—Gray. This species is very small, growing only a few inches high; it is clothed with a dense cottony pubescence, and its radiant yellow flowers, tinged with orange are in pleasing harmony with its neat white dress. Dr. Gray named this plant after its discoverer, to whom we are indebted for the specimen, a very ardent lover of nature.

The leafless plant figured and noticed at the last meeting of the Academy is the Anoplanthus uniniflorus, a small parasite allied to Orobanche or the Beech Drop &c., the stem a mere bristle, with a single blue flower, lower lip with a doubly prominent palate, that yellow, the colored stripe extending down the tube, in some respects differing from the figure of Lindley, of which we have seen no specific description.

Two numbers of the Proceedings of the Boston Society of Natural History were received, from the Society.

April 23, 1855.

Col. Ransom in the chair.

Mr. G. M. Burnham, and Mr. M. G. Read were elected resident members.

Donations to the Cabin.—
From Dr. Behr, specimens of Lactophrys and Acanthurus, from Tahiti;
From Mr. Freobel, land and fresh water shells from Texas near Port Lavaca;
From Dr. Randall, Sienitic Granite from Mormon Island; Copper ore from the Gadsden Purchase, 80 miles northeast of Fort Yuma; and Aluminous Sandstone, from the Cosumnes River 22 miles from Sacramento;
From Dr. A. Kellogg, specimens and drawings of the following plant.

Leptarrhena inundata,—Behr.


In rivulorum marginibus inundatis prope Placerville.

A plant belonging to the saxifrages, growing in ravines, rivulets, and in the watery margins of our larger mountain streams. The root is tuberous, elongated, 1 to 2 inches in diameter, in folds or broad shoulders, formed by the scars of the old decayed leaves; scape 18 inches to 2 feet high, naked, or only a vestige of abortive foliage, woolly and glandularly pubescent, flowers numerous, large, corymbose, pale pink. The foliage not developed, probably roundish and lobed. It is hoped these will be sent to complete the drawing. The tender fleshy inner portion of the...
stem is eagerly sought after, and eaten by the Indians; it has somewhat the flavor of apples, and probably contains malic acid. The root is a strong astringent; and is said to be useful for medical purposes.

Dr. Kellogg also exhibited drawings and specimens of the following plants, the detailed description of which is not deemed necessary, to-wit:

_Asarum Canadense_ or Wild Ginger. In some slight points unlike eastern and more northern specimens. _Viola pedunculata_ or common large yellow-violet, with its two upper petals light madder brown on the back. _Nemophila aurita_ or long-eared lilac cups, specimens from Goat Island, a beautiful species.

A singular and beautiful species of _Fritillaria_ or Wave-wing Wake-robins; petals very long, purple, waved.

A drawing and specimens of the Black Mountain Currant, probably the _Ribes malvaceum_; flowers delicate pink, roundish, urceolate, fruit and foliage glandular pubescent, leaves 5-lobeangled &c.; our specimen was injured in transportation; we look for the mature fruit and foliage to perfect the figure.

Drawings and specimens of two species of native _Paonia_, or Peony of the gardens. The _P. Brownii_, with 3 carpels and striated stem &c., also _P. Californica_ with smooth stem, crowded and more numerous leaf-divisions, 5 carpels &c. The flowers in the wild uncultivated state are simple, and in both species, madder purple color.

Specimens of the _Taxus Canadensis_ or Canadian Yew Tree, in blossom, also _Mountain Spruce_—cone of _Pinus Douglasii_—_Corylus Nuttallii_ or California Dogwood or Box tree in blossom, together with specimens of wild plum, and a species of _Prangula_ or Alder-Buckthorn.

The Academy are greatly obliged to Mr. Garritt of Placerville for most of the above specimens.

Dr. K. reported on the Lilial plants referred to him and Dr. Andrews, viz.: one from this vicinity furnished by Mr. Bloomer, and the other from Monterey by Dr. A. Some doubt is still entertained as to their reference; drawings, analysis and specimens are preserved and the following description submitted.

The first is presumed to be _Fritillaria alba_.—Root composed of numerous small bulblets around the parent bulb; stem succulent, very glabrous, round, 6 to 10 inches high, divided into two branches at the tip, diverging so gradually as to appear double, each branch terminated by a single nodding flower about ½ to 1 inch long and ½ to ¾ broad, swelled campanulate, peduncles about two inches long; leaves spatulate below, sub-linear and remote above, intermediate ones narrow lanceolate, all sessile, sub-amplexicaul, entire, smooth, delicate fleshy, often obscurely 3-ribbed, alternate, collected near the base of the stem, often opposite and sub-verticillate, about 2 inches long; the 3 inner petals obovate, somewhat abruptly narrowed or rhomboid, slightly inflexed at the apex, 3 outer petals narrower, broad elliptic, slightly keeled below, all sessile, a nectariferous cavity at the base; white, often variegated within as in the _Calochortus_, or with feebly shaded greenish yellow, veins within slightly ridged and granulated; stamens six, inserted into the base of the petals, about half their length, anthers turned outwards, half the length of the filaments, yellow, mucronate, erect, attached to the centre, style deeply parted, stigmas villous on the inner surface, long revolute, capsule oblong, 3 divisions strongly marked by depressions, and 3 other lesser sub-divisions 3-celled; seeds many, flat, obovate, cuneate at base, double rows in each cell.

The general appearance of this plant is like the _Centarias_, but in the shape of the flower and especially the seeds, it must be at present a _Fritillaria_.

The specimen from Monterey has the lower leaves verticillate by 3s, and opposite, alternate above; one flowered, nodding, about twice the size of the above, leaves broad and somewhat oblique, probably only a variety. There appears to be some variation in the color of the flowers of these species; and also in the mature capsule, some being found winged, while others are smooth.

More recently another new and beautiful species has been received by Express from _Placerville_.

_Fritillaria multisepala_, Kelli, or Blushing Bells. Leaves two, radical, lanceolate tapering at base into a thick concave petiole, entire, 7-nerved; scapes three, leafless, each terminated by a single nodding flower; flowers campanulate, unexpanded, three outer petals sessile, broad lanceolate, acute, point inflexed, three inner petals somewhat longer, lanceolate, acute, waved, a double ridge within extends down the centre terminating in two teeth at the base of the very short claw, stamens six about ½ an inch in length or ½ less than the petals, filaments flattened, enlarging below, anthers ¾ of an inch long, quadrangular; style one, longer than the stamens, stigmas three, villous on the inner surface, revolute; capsule 3-celled.

The root we have not seen; the leaves are 4 to 5 inches long, about an inch or so in width; subterranean stem swelled at the common origin of
Mr. Geo. Black presented a volume of Mantell's Pictorial Atlas of Fossil Remains. The thanks of the Academy were voted for the donation.

April 30, 1855.

Col. Ransom in the chair.

R. A. S. Wood, Esq., presented a specimen of Wild Cotton from the Island of Maui.

Dr. Ayres presented a specimen of *Raina binoculata*, Gir. from the Bay of San Francisco.

Dr. Kellogg exhibited a drawing and specimen of *Fritillaria* from Placerville. A species remarkable for its very small purple flowers; some specimens are seen with thirty or more of these nodding flowers in a leafy top—lower leaves long and narrow. verticillate by 5s, from 2 to 4 feet high. Root a collection of numerous bulbs, around the parent bulb. Also a drawing and specimen of *Trillium* found recently at Saucilito, a white flowered species. Further investigations are required.

Dr. K. exhibited a drawing and magnificent specimen of Tulip grown in the garden of A. H. Myers of Alameda, illustrating the prolific power of our soil and climate in a horticultural point of view—the petals were 4½ inches long, and about 3 inches in breadth. The largest ever seen.

Dr. Behr presented a drawing of a native Silk Worm of California, with a specimen of the cocoon, and the following description.

*Saturnia rubra*, collare album, abdominis segmenta albo marginata. Alarum fascia radicalis angulum versus discam porrigenes; secunda fascia stricta hulique alba, marco exterior luridus linea undulata nigra, et in ala superiori inter costam secundam et tertiam ocello signatus.

Alae subter violaceae, signaturis eisdem in- ter ferrata. Suboperculum long, narrow, falcate. The second suborbital is much smaller, sub-quad- rangular. The third is about as large as the first, irregularly quadrangular, extending so far down as to rest upon the narrow horizontal limb of the preoperculum, while between its border and the vertical limb of the preoperculum a naked space is left. Operculum sub-triangular, with the border rounded, marked with strong radiating from the upper anterior and intero- perculum very small, at the angle of the preoperculum. Suboperculum long, narrow, falcate. Naked space before the pectoral fin sub-quad- rangular, equal in diameter to half the depth of the fish. Cubital bones narrow, pointed anteriorly, and meeting in a point beneath the throat, diverging posteriorly so as to leave a naked space between them. Ossa innominata united by strong suture, prolonged into a lanceolate point posteriorly a little shorter than the ventral spines, sending off a flat vertical branch similar in structure to the lateral plates upon which it is articulated.

First dorsal spine situated a little anterior to the base of the pectorals, its height equal to one eighth of the length of the fish, acute, broad at base, sharply serrate on each side, its point just touching the base of the second spine, which is entirely similar to the first in form, height and serrations. A third, much smaller, is attached to the soft dorsal; the point of the second scarcely reaches to its base. The soft dorsal is highest in front, its height about equaling that of the

GASTEROSTEUS SERRATUS,—Ayres.

Length of the specimen described, two inches

[PROCEEDINGS C. A. N. S.,]
first dorsal spine; it is separated from the caudal fin by a space equal to its own height.

The anal fin, coterminous with the dorsal, resembles it in form, but is shorter, arising about opposite the fourth ray; it is preceded by a short spine.

Each central fin consists of a strong, flat spine and a soft ray. The spine is a little more than one sixth of the length of the fish, serrated like the dorsal spines, though the serratures are less conspicuous on the inferior border than on the superior. The soft ray lies concealed in the hollow of the spine which it about half equals in height.

The pectorals, narrow and rounded, have a height about equal to the depth of the body.

Caudal fin concave.


Color grayish brown above, lighter on the sides and beneath: a blackish band at the base of the tail.

The existence of two free, detached spines anterior to the soft dorsal, instead of affording a specific character among the *Gasterosteus* is now known to prevail in quite a large division of the genus. We have at least eight American species of this type, three on the Atlantic, and five on the Pacific side.


2. *G. biaculeatus*, Ayres. This is the one described by Dr. Dekay as *G. biculeatus*, supposing it to be identical with Mitchill's species, and yet distinct from both the preceding. As however Cuvier's specimens were obtained in Newfondland, and Girard's were those brought by H. R. Storer from Brazil, it is quite possible that the two are distinct species, and that the Newfondland form is yet unnamed.

3. *Gasterosteus Cuvieri*, Girard; supposed by Girard to be the one described by Cuvier as *G. biculeatus*, and yet distinct from both the preceding. As however Cuvier's specimens were obtained in Newfondland, and Girard's were those brought by H. R. Storer from Brazil, it is quite possible that the two are distinct species, and that the Newfondland form is yet unnamed.


Of these No. 2 and No. 8 have the side plated in its whole length. No. 3, No. 5, No. 6, and No. 7, have the side plated as far as the second dorsal spine. No. 4, has the side entirely smooth. As to No. 1, the character of the surface is uncertain.

*G. serratus* is very closely allied to *G. Cuvierii*, although the one has the side entirely plated, the other has it partially naked; it is in fact chiefly by this character that the two are separated.—The affinity to *G. Dekayi* is less striking, though both are plated; the surface of the lateral plates, the form of the caudal carina, the structure of the ventral spines &c. are quite sufficient to distinguish them.

*G. serratus* is found in the marshes of the Bay of San Francisco, but is apparently not common.

Dr. W. P. Gibbons presented the following description of a new species of crab, which had been read at the meeting of March 26.

*Genorhinus*—*Gibbons*.

Shell globular, granulate tuberculous, antero-lateral margins toothed, retrousse, posterior margin arched. Accessory plate of external antennae conical triangular, with its upper surface echinate. Ocular peduncles approximate, shorter than the rostrum, with the superior surface spines.

*G. setimanus*—*Gibbons*.

Shell convex, granulate, tuberculate, antero-lateral margins toothed, retrousse, posterior margin arched. About eight principal teeth on the antero-lateral margins, without including the orbitals, which are shorter and more pointed than the adjoining exterior ones. Rostrum four lobed: the two lateral ones equal, superior one shorter: the inferior large, stout, curving upwards and projecting beyond the others. Latero-posterior margin of the shell with from 8 to 12 principal tubercles. Surface of the shell along the median line with one principal anterior tubercle, having a pointed apex, another at the posterior extremity of the middle third; two more large ones on the transverse diameter drawn in front of this, and 4 or 5 of smaller size around the base of the large ones. The surface of the carapace is thus rendered exceedingly uneven.

Basilar plate of the external antenna with a tooth on the outside. Second segment scutelliform, inferior border terminating in a stout spine, having a tooth at the base, on the inner side. Superior border with 3 or 4 crenulate spines, inner one longest, projecting beyond the external orbital teeth of the shell. Next segment trigonal, upper surface echinate, spines along the two upper angles pectinate. From the internal fossa of the second segment the antenna arises, having 4 segments, the last point with about 30 articulations, and extending beyond the spines of the pectinated plate. Internal antennæ with three articulations, terminated with a mandibular appendage. A bicipital groove is midway on the superior surface of the basal joint.

Ocular peduncles approximate, shorter than the corner of the rostrum, echinate on the upper surface. First joint of external foot jaws trian-
gular, inner edge black, dentate, outer one hairy. A large tooth on the outer edge near the apex. The other segments rounded, pilose.

First segment of the tail broad, and articulated at right angles to the carapace. About eight principal tubercles on the superior edge, twelve on the inferior, and one large one near the middle of the plate, on each side of the median line. Those on the superior edge in pairs. A cavity near each end of the segment, and two deep, well-defined, depressions about half an inch in diameter, midway toward the middle of the plate. The remaining segments of the tail are divided longitudinally by articulations, thus forming eleven quadrilateral plates. The internal angles of the 3d, 4th, and 5th are truncated, and the spaces filled with semicircular plates. Between the 3d, 4th, 5th, and 6th central segments, are interarticular plates. All these plates are largely tuberculated and covered with minute spines. The tail margins are represented by 12 or 15 serratures, each of which is on a separate plate. As the shell grows older, these cohere with each other and with the internal adjoining plate, so that but three interarticular sections remain. These segments composing the tail are articulated by means of a fold of the epidermic membrane, and the entire arrangement is calculated to give pliability to its broad surface, so that it shall the more completely protect the large mass of ova which the abominable appendages support.

Hand robust, covered with a tuft of hair; four large rounded teeth on the outer edge of the pinnules, three dentations on the inner side, and a basal tubercle across the finger. Left hand much smaller than the right. Arm sub-quadrate, with a triangular crest projecting at right angles to the inner side, having conical tubercles on the edges. Internal condyle with a broad, bidentate, excorved spine. All the legs are covered with conical tubercules studded with short aculei, irregular tubercules on the lower side of the trochanter and on the hamuli. All the legs are quadrate. The second, third, and fourth legs terminate by short claws, the tarsal joint of each being comatulose, so that the feet can be directed forwards or backwards. Fifth pair of legs rudimentary, inclosed in the shell, rounded at the extremity and thickly set with bristles.

Ground color of the shell vermilion, granules and spaces generally deep blue and purple. The entire shell is covered with minute bristles.

Length of largest specimen 10 inches; greatest transverse diameter 10 1/2 inches. Length of first pair of legs 9 inches. Weight of the animal 63 lbs.

The specimen from which this description was taken, was caught near the Farallones, in about thirty fathoms water. It was presented to the Academy by S. M. Bowman, Esq.

Dr. Winslow read the following paper on the causes of Tides, Earthquakes, Rising of Continents, and Variations of Magnetic force.

CAUSES OF TIDES, EARTHQUAKES, RISING OF CONTINENTS, AND VARIATIONS OF MAGNETIC FORCE.

By C. F. Winslow, M. D.

The recent discussion in the Boston Society of Natural History on the paper of M. Alexis Perry, Prof. in the Faculty of Sciences of Dijon, entitled "On the relations which may exist between the frequency of earthquakes and the age of the earth, and on the doctrines of concentric forces being the cause of earthquakes, advanced in a paper by Mr. Stodder, on the "Geography of the earth," has led me to make a communication to the Academy of Sciences of San Francisco, on the same subject; but as the theory advanced in my Cosmography, published two years since, covers a much larger ground, and embraces a multitude of phenomena to which the theories of Mr. Perry and Mr. Stodder will not apply, I must the more urgently receive a new impulse of inquiry by physicists whose opportunities for research and observation are ample and whose cases may direct their minds to this department of science. The physics of the earth is in its infancy and is involved in extreme obscurity in many particulars. The arrows can be observed in noting all facts in relation to the earth, ocean, the motions of the pendulum, the periodical fluctuation of springs in mountains, and volcanic phenomena in connexion with earthquakes, and volcanic eruptions, whether from known crater or at the bottom of the sea, and indeed in every department of physical research and statistics. No fact imperfectly observed should be left without explanatory comment, and at least a sufficient basis will be established on which to build up a truth of the history of the globe, and I have faith to believe, even of the Universe itself. But the connexion between this planet and all the others, and between our own solar system and all the rest of the cosmos, is so intimate that the most extensive and accurate observations must also be made in every direction through space, to complete the materials for building up a truthful theory of the connexion between force and matter, and to establish a clear and intelligible history of the Universe from the primal dawn of force to its present connexion with, and action on, material forms. But without consuming time in pedantic remarks, I will at once boldly open a field of inquiry which I trust may lead to results useful to science and mankind.
In reference to the views of Mr. Stodder, it is very questionable to my mind, whether any absolute centrifugal results do transpire upon the fluid-interior and solid and aqueous and atmospheric matters composing the earth and other planets, during their rotary motion and as a consequence of this rotary action. Physicists generally, indeed altogether and without exception, declare the flattening of the poles to depend on the centrifugal force imparted to the solid material of the globes by their rotation on their axes.

The flattening rather seems to me to be the result of the polarizing force which acted more energetically from N. to S., (if I may allow myself to use these words,) than in other directions during the condensation of matter into spheres.

Agglomerating atoms, in the globe-forming epoch, flew from all directions toward a common centre of gravity in space, or rather toward countless centres, but the act of polarization long previously imparted to molecules and exerted now on a cosmical scale, condensed matter more rapidly, continually and powerfully in the direction of the polar diameter of planets than in their equatorial diameter. This is more than probably the cause of the difference between the polar and equatorial diameters of the planets for the gravitation of matter to the centre of the globe is much more predominant than apparent centrifugal phenomena; and indeed no centrifugal force can be imagined to be exerted from the axis of the globe, when we view planets as independent spheres moving by their own internal vital forces—1 mean, their aggregate molecular forces—through space and independent of any rotary motion forced upon them at the date of their origin by external and projective impulses. This whole subject needs to be completely and candidly reviewed by physicists—and ultimately, I doubt not, and I feel triumphant in the belief that, a cosmical power of repulsion will be discovered to act from the centre to the circumference of the globe antagonistic to the polarizing and condensing of attractive force, and affecting not only the motion and action of the fluid interior of the globe so as to produce earthquakes by pressure on, and rupture of, the crust; but also of the aqueous envelope, so as to produce the tides and govern their action entirely, so that in fine, the tides of the ocean are not the result of lunar attraction of the water away from the solid surface of the planet, which is the present theory, but rather the result of a repulsion of the particles of water by a power exerted from the centre of the globe by which the moon is kept, and forever to be kept, from falling to the earth. The tide on the globe opposite the lunar tide, and said to arise from the solid mass of the earth being attracted away from the aqueous mass, so that a heap of water is left behind, is only the result of a more feeble repulsion than that exerted on the side of the earth beneath the moon, because there the force is required in its greatest degree, and being exerted from the centre of the globe, the mobile envelope rises to its fullest extent as a mere phenomenon or resultant of the play of molecular forces in a repulsive aggregate to maintain the present relation of the satellite to the earth, and inasmuch as the polarizing, or rather the attractive and repulsive forces must be exerted in straight lines, it follows that the chain of molecules from the centre of the globe, to that point under the moon, called the prime vertical must be connected with a corresponding chain from the same central point to the antipode of the prime vertical point, and I think the phenomena of the tides are all the result of repulsive influences exerted in this manner from the interior to the exterior of the globe, the primary object of which is to prevent the moon from approaching nearer to the earth than the bounds fixed by the laws of density governing the two bodies—and also to prevent the earth from approaching the sun nearer than the bounds fixed by the laws of density governing their relations. And it is the varying density of all these bodies in proportion to their distances from each other as they move through the different points of their orbits, which governs the various periodic phenomena manifested so unmistakably on the earth and so observable when the earth is in perihelion and aphelion—and the moon in apogee and perigee, and when the two bodies are passing through points at varying distances from their central and controlling body. If the sun governs the earth in the development or exhibition of terrestrial forces in such a manner that marked material changes are correspondingly observed in the solar centre, (as the agitations of its envelopes, creating openings called solar spots with periodical regularity of 5 years between maximum and minimum, in direct conjunction with periodical magnetic phenomena in the earth,) should we not have strong reason to believe that the agitations of the aqueous envelope of the globe, following so constantly the movements and position of the moon in relation to the earth, arose rather from a repulsive force exerted from within the central and controlling sphere, than from attractions exerted by a body without and beyond it?

The idea of centrifugal force being the cause of earthquakes, advanced by Mr. Stodder in his paper on "The changes of the earth's surface" read before the Boston Society of Natural History some years since and introduced again at the 1st January meeting of this year, I think unsound, inasmuch as a multitude of other phenomena cannot be embraced within its application, which harmonize with the "theory of repulsion," set forth in my Cosmography. The facts published by M. Perry relative to the influence of the moon on the fluid interior of the earth, are very remarkable, and I have no doubt from my
own study of the subject that correspondences of earthquake phenomena may take place in direct relation to the moon's position in her orbit. But the method of accounting for the phenomena on the tidal theory, I do not agree with. I think all volcanic phenomena are produced by molecular repulsive force exerted from the centre of the globe to its periphery to resist the nearer approach of the moon to the earth—and nearer approximation of the earth to the sun. In my "Cosmography" I showed the greater frequency of earthquake phenomena during the passage of the earth through the perihelion portion of its orbit—and on the well established astronomical and physical fact that planets increase in density in an inverse ratio to their distance from the solar centre.

I advanced the opinion that the density of the individual planets and of the numerous revolving spheres varied during their respective orbital periods in an inverse proportion to their distance from their central body. This variation of density could not take place without molecular expansion and contraction, or variation of distance between the molecules, and as a necessary consequence the whole mass of the planetary sphere would contract and expand more or less (though on the whole very little, in solid globes, on account of the fixed law determining their density,) or rather the forces necessary to produce expansion and contraction would be exerted, which end in the phenomena transpiring on the surface of our globe, such as the gyratory movements which result naturally as the consequences of all sorts of terrestrial variations and universal occurrence of all sorts of terrestrial magnetism, as a dependent on its radial forces of attraction and repulsion. In other words, cosmical magnetism is a planetary force produced by the constantly varying intensity of the forces of the molecules which in the aggregate constitute the planetary masses; and terrestrial magnetism, as a consequence, is a power radiating from every point of the globe through the terrestrial centre to its antipode, and the motion in these is constantly taking place by virtue of the inherent forces of attraction and repulsion in each molecule, which forces are exerted not only to preserve the law of density fixed for this planet by its position in space, but to maintain the form and position of the planet in its permanent relation to the sun on the one hand as its source of power and excitement, and to the moon on the other, as a dependent on its radial forces of attraction and repulsion. In other words, cosmical magnetism is a planetary force produced by the constantly varying intensity of the forces of the molecules which in the aggregate constitute the planetary masses; and terrestrial magnetism, as a consequence, is a power radiating from every point of the globe, and generated within it in consequence of its orbital relations to the solar centre, its orbit being an ellipse, and the sun fixed in one of the foci of that ellipse, whereby it being at different distances from the sun at different periods of the year, the number and intensity of terrestrial phenomena of all sorts transpiring in the air, ocean, solid crystalline crust, and molten interior, and in the forces pervading its molecules, differ accordingly; and, as a consequence of my theory, if all these phenomena are studied by physi-
generations of a meteorological, geological and astronomical character, the value and extent of which it is not now possible for us to conceive. Once on the track of truth, all conflicting opinions and laborious processes of research will cease. Extreme simplicity will ensue in all departments of physical observation, and the darkness which has beclouded the awakening ignorance of past ages will be dispelled before a pure and serene light, every ray of which will reveal the most beautiful, sublime and useful truth for the future improvement of the human mind.

January 27, Of 232 earthquakes and volcanic phenomena, recorded by myself, as they have occurred from time to time within three years in different parts of the globe, and which have been collected from different sources, of anterior dates taken at random.

February 18, the number for each month show remarkably strong evidence in favor of this theory — and they are so extraordinary as to stimulate the most active enquiry into this department of the physics of the solar system.

March 15, The statistics copied from my memorandum are as appended:

April 16, As the notes of the phenomena were made without any reference to favoring or discouraging the hypothesis of molecular repulsion as an earthquake force.

May 13, the facts afford almost conclusive proof of the Theory.

June 12,

July 11,

August 17,
SAN FRANCISCO, May 7th, 1855.

Col. L. Ransom in the Chair.

Dr. H. Gibbons presented a vertebra of a whale, and near the Presidio, in ploughing.

Dr. Downer presented a specimen of Tridacna gigas, from the Navigator Islands.

Dr. H. Gibbons presented a Journal of Meteorological Observations, at San Francisco, from Dec. 1850 to March, 1855, showing the Thermometrical and arometrical depressions and elevations; also observations on the winds, clouds, &c.

Dr. Kellogg exhibited writings of the Taxodium semipervirens of Don, or the common Redwood, with herosopical and analytical figures of the flowers.

The thanks of the Academy are due to Dr. Willard, who furnished the blooming specimens.

Dr. Kellogg and Behr reported on the species of Taxodium, improperly described by English authors.

Wellingtonia, commonly known as the "Great Tree" of California.

AXODIUM GIGANTEUM.—Kellogg and Behr.

This world-renowned monarch of the American rest is now in bloom, and from the data thus furnished, it is evidently a species of Taxodium of Don. Its early growth has the foliage of the common Redwood or Taxodium semipervirens, 1. e. forming a flat lamina as in the Taxus and Torrera; but as it advances in age, the foliage is metamorphosed into singular scale-like leaves, attached by a broad base with an imbricated arrangement similar to many species of the Cypress and Juniper. Hence the name proposed for it in 1853—Washington Cypress.

AXODIUM GIGANTEUM.—Kellogg and Behr.

Stem and involucro clothed with a long soft pubescence, glabrous and glauciferous hairs intermixed—leaves linear-lanceolate, sessile, remotely denticulate, inconspicuously three-nerved, villous, glabrous, chaffy scales in a single series, all united—rays about thirteen, cuneate below, expanding, deeply three cleft apex, yellow. Achenia oblong-obovate cuneate, compressed, sub-angled, incurved, bright lilac colored; anthers brown.

This plant exhales the fragrant odor of ripe straw.

Dr. K. exhibited drawings and specimens of Viola longipes, or Long Spurred Blue Violet, in some points varying from the received description; e. g. the points of the leaves sub-acute, somewhat cuneulate, margin crenulate, teeth obtuse as if cut off, stipules large, semi-cordate-lanceolate; peduncles quadrangular; sepals lanceolate-acuminate; upper petals much reflexed; lateral petals strongly bearded near the upper margin; stigma papillose, glabrous beneath; spur long, produced, often recurved upwards; appendages of the lower anthers long filiform; stem slightly flattened or sulcate by two divergent lines opposite the leaves extending down to the axils and alternating.

Dr. K. also exhibited a drawing and specimens from Placerville and this vicinity, of the common plant Sidotaea diploscypha, Gray, called in the Flora of North America by T. & G. Matto diploscypha, by others described as a Sida. It is worthy of remark that the leaves are not digitately five-parted, but seven-parted; flowers in a long naked raceme at the summit of the branches; bracts not three, but one, two or three-parted, or toothed, &c.

The Academy is greatly obliged to Mr. E. W. Garvitt, for the fine specimens sent them from Placerville.
Incisors — false molars — true molars — 

2  12  8

Color of the fur, in the specimens seen, dark glossy brown, almost black, above and beneath; this, however, as in other species, is probably subject to variation. Feet sparsely covered with hairs, light flesh color.

Cartilaginous snout tapering, flattened beneath.—Nostrils intermediate in position between those of Sc. Breveri and Sc. aquaticus, not as directly terminal as those of the former, and not as plainly on the upper surface as those of the latter. Palm broad, not elongated. Tail not flattened, nearly circular in section, somewhat constricted near the body, then enlarging, and thence tapering; clothed, but not thickly, with hairs about two lines in length.

Length of the head and body five inches and one-tenth; of the caudal vertebrae one inch and twentieth. Breadth of palm six and a-half tenths;—length of palm, to end of middle claw, eight-tenths. Length of skull, one inch and three-tenths.

Sc. Californicus is, as mentioned, nearly allied to S. Breveri with which it agrees in the number of teeth, the form of the skull, and in general appearance. It is, however, a smaller animal; the hand is very differently proportioned, the tail is round and more naked, and longer; and the skull is relatively larger. From S. aquaticus, the animal universally known in New England as the "Mole," it is distinguished by its smaller size, and more widely by the number of teeth. From S. Townsendi, the only species hitherto known on this side of the mountains, it is at once separated by its size and color, though it is similar to it in dentition.

This Mole is quite common in this part of California, and appears to be entirely identical in its habits with the eastern species. From information recently obtained, it seems probable that another type takes the place of this in the vicinity of Monterey, of which, however, no specimen has yet been received.

Dr. Kellogg exhibited a drawing of the Taxodium canadensis or Yew-tree, illustrating the appropriate origin of the generic name Taxodium, which includes the Washington Cypress, Cypress of the South and the common Redwood.

Also a drawing of Chrysias castosus, Lindl. or Dwarf California Poppy.

A drawing and specimen of Ribes subvestitum, or Mountain Gooseberry, a splendid species, flowers about an inch in length, the divisions of the calyx bright purple on the inside. The stem is not "very bristly," as usually described, but smooth and bright cinnamon color. The segments of the reflexed calyx are not "oblong," but long, acute, with a subulate apex.
Dr. K. exhibited drawings and specimens of four species of Ceanothus, or Tea-tree, to wit:

*C. cuneatus*. This species we think deserves the attention of ornamental gardeners and culturists. It is one of four most promising native shrubs; forming evergreen interwoven mats of the densest verdure, even in the driest soils and seasons. As a beautiful border for walks we think it much preferable to the *Botrychium albidum* and other shrubs. Its flowers are fragrant and of a delicate lilac color; i.e. calyx, corolla and pedicels. The whole shrub exhales a balsamic odor.

The specific description seems to be at fault so far as our own observation extends; the leaves are not “entire,” but always with two or more conspicuous teeth with mucronate points at the obtuse extremity; reticulately pitted and glaucous beneath, but never “tomentose-canescens;” glabrous.

The specimens from the interior are dwarfish, growing only a few inches from the earth; branches dark cherry-red, not pubescent, but sometimes hoary. This species is quite distinct from the following with which it has been confounded.

*C. macrocarpus*. The fruit of this species as its name imports, is unusually large. The flowers are white and calyx expanded, the points not indexed or coved as usual. The leaves of this species are very small, sometimes 2 or 3-toothed at the apex, and the branches also opposite and sub-alternate. The short lateral condensed racemes, opposite, usually four together, decussated, leafy at the base, about six flowers in each, with a distinctly alternate insertion, but so closely approximated as to appear like umbels.

*C. azareus*, Kellogg. This species is supposed to be new. The provisional name indicates the exquisite beauty of its flowers, which are the most vivid azure or cobalt-lilac color. Stem dull red, minutely warty, with occasional pubescence: branches terete. The young branches and racemes short canescent pubescent.

The leaves ovate, sub-acute; lesser leaves obtuse, somewhat fasciculate, glabrously serrate, strongly 4-nerved from the base; densely white velvety beneath and along the veins, glabrous and prominently 4-nerved, veins very prominent, lamina thin, entire, glabrous above, glaucous beneath, sparingly pubescent, with suppressed hairs along the veins. Stipules conspicuous, texture leafy lanceolate-acuminate, numerous short shoots of tender axillary branchlets.

Flowers white, on long, stout, lateral branch-like compound paniculate peduncles, 6 inches in length, one or more leaves at the base. Appears to be a deciduous species.

Dr. K. exhibited a drawing and specimens of *Asclepias acornutum*—Kellogg. Herbaceous stem glabrous, purple, decumbent, leaves large, much spreading, cordate, amplexicual, broad-acute, veins purplish; umbel terminal, peduncles dark lilac purple, sparingly pubescent, calyx strongly pubescent, sepals lanceolate, acute, brown madder purple; petals oblong-ovate, acute, slightly pubescent on the margins and back, at the apex obscurely 5-veined, dark purple expanded or loosely reflexed, the involuted leaves of the staminal crown without any horn from the hollow centre as is usual in this genus, both the upper inner margins ascending into points scarcely longer than the crown.

The Academy are indebted to E. W. Garvill, of Placerville, who furnished the above specimens.


Dr. Ayres presented two specimens of a new species of fish, with the accompanying description:

**Apodichthys Virgencs**—Ayres.

*Form* elongated, much compressed, tapering both anteriorly and posteriorly, dorsal and abdominal outlines gently arched. Greatest depth not quite one seventh of the total length; head sloping, with the muzzle somewhat rounded; length of the head a little less than one-tenth of the total length.

Mouth oblique; a line vertical to the tip of the superior maxillary intersecting the pupil. Teeth conical, blunt, not numerous, arranged in a single row along the side of each jaw, and somewhat irregularly placed anteriorly; one or two on the vomer, none on the palatines.

Eyes nearly circular—their diameter contained scarcely six times in the length of the head; distant nearly their own diameter from the border of the upper jaw.

Branchial apertures tolerably free, continuous, the membranes forming a complete union beneath. Scales small, imbedded. Lateral line not perceptible.

Dorsal, anal, and caudal fins united.

The *dorsal* fin arising above the base of the pectorals, is of almost uniform height in its whole length, the height being about equal to the diameter of the eye. Rays all spinous, enveloped in a thick membrane. The point at which it joins the caudal is manifest from the difference in the character of the rays, though the union is complete.

The *anal* fin, arising at a point nearer to the root of the caudal than to the tip of the snout by twice the length of the head, is of nearly uniform height, (about equal to that of the dorsal) rays all soft, articulated; the point of its junction with the caudal is a little posterior to that of the dorsal with the same fin. It is preceded by a lanceolate bone, concave on its anterior surface, joined to the fin like a spinous ray; the membrane covering this is incom-
plicate at the tip, so that the anterior concavity is a chamber communicating with the surrounding water, but no duct can be traced opening into this chamber from the internal organs.

The pectorals are short, broad, and rounded, their height being less than half the length of the head.

**Ventral fins.** none.

_Caulif_ fin rounded, its height just half the length of the head. It has twenty-six rays; the rays of the dorsal and anal can scarcely be counted, from the thickness of the membrane.

**Color** almost uniform greenish olive, in some instances a bright pea-green. A narrow, vertical, black vitta runs from the lower border of the eye downward; another of similar breadth, from the upper border inward and backward to the occiput.

_A. murex_ is taken in the bay of San Francisco, but is apparently not common. The largest specimens yet seen are about nine inches and a-half in length.

From _A. flavidus_, G., a species said to be found here, but which we have not yet seen; the present is distinguished by the length of the head, the gape of the mouth, the size of the eye, and the coloring;—from _A. violaceus_, G., it is separated by the length of the head, the absence of a lateral line, the form of the dorsal, the extent of the anal, the union of the caudal with the two adjoining fins, and the coloring.

**SAN FRANCISCO,** May 28, 1855.

Col. L. Ransom in the Chair.

Mr. James Tallant and Mr. Henry C. Macy were elected resident members.

**Donations to the Cabinet.**

From W. B. Brooks, a specimen of Sandstone from the vicinity of Lake Merced.

From O. H. Thomas, a fossil tooth and part of a tusk from Mateot Gulch, near Columbia, Tuolomne Co.

From F. Johnson, a species of _Eutainia_, taken near the Presidio.

The thanks of the Academy were voted for the above donations.

From H. G. Bloomer, specimens of the _Rafinesquina Californica._

From J. B. Trask, specimens of a _Murex_ and of _Ranella Trigonalis._

**Donations to the Library.**

Characteristics of some Cartilaginous Fishes of the Pacific Coast of North America, by C. Girard, from the author.


Dr. Kellogg exhibited drawings and specimens of two species of violet from the interior, neither of which are described, so far as we are able to learn.

_Viola montana_, Kellogg. Aculeasent, branches procumbent, glabrous, angled; leaves thick, somewhat succulent, pale green, and slightly glaucous, all pedately 7-lobed, lateral lobes largest, oblique, deeply 4 to 5 toothed or sub-lobed; middle lobe simple, or cuneate tridentate; stipules l. red, obliquely ovate, lanceolate incisedly dentate, acuminate; peduncles rather longer than the leaves, sepals broadly lanceolate, acute, the lower broader, somewhat oblique; two upper petals, glabrous, lilac-blue on the back, delicate straw color in front, with blue lines; lateral petals yellow, with blue veins and a tuft of short velvety pubescence; lower petal beautifully striated with dark brown radiating lines on a shaded ground of orange, deeply emarginate, glabrous; spur short, appendages of anthers carinate, not spurred, as long as anthers; style attenuated towards the base, stig- ma capitate, bifurcate especially on each side, glabrous on the lower side, foramen large. About three inches in length.

_Viola purpurea_, Kellogg. Stem strongly angled, purple, bifurcate, as also all parts of the plant, except the upper surface of the leaves, lower leaves round, decurrent into the thick gloved petioles, upper leaves ovate, sub-acute, obtusely crenate, lamina thick fleshy, granular and glabrous above, veins purple; pubescent and purple beneath; stipules very broadly fin-shaped, thin, about 6-nerved, setaciously dentate, long mucronate-acuminate; peduncles nearly twice the length of the leaves; two setaceous bracts near the middle; pistil clavate, attenuated below, a tuft of long hairs on each side only, foramen large, stigma purple; spur very short, obtuse; sepals sub-emarginate behind, lanceolate, acute, mucronate.

The flowers medium size, all the petals light brown madder purple outside, yellow within; upper petals not striated; the lateral, with three or four brownish purple lines, a minute tuft of hairs near the upper margin, lower petal slightly emarginate, striated, caudal emarginate and pubescent (in the specimen before us) marked with three broad stripes of purple, alternating with three green.

Dr. Kellogg also exhibited specimens and a drawing of a species of _Seneio_, to which the provisional name of _S. spatifolia_ has been given.

Stem fastigate, spicate, sparsely arachnoid tomen- tose, upper leaves linear-lanceolate entire, margins revolute, sessile, sub-bastate at base, arachnoid tomentum beneath deciduous; lower and radical leaves narrow-lanceolate, spatulate on very long and slender petioles, expanded insertion, thick fleshy, very glau- cous entire, mid-rib prominent, obscurely trichnerv'd; coryb simple, flowers few (about six to eight), large, on long fastigate peduncles, with three to five involucral scales; involucre large, cylindrical, somewhat swollen at the base, calyculate by a few subulate bracteoles, scales glabrous, (light green tipped with orange) rays four or five, long reflexed or lax-recurved.

This species is found near Placerville, the involu- cural scales about 18, achenia 5-angled 40 to 50; rays 2 inch long 3-toothed; leaves 4 to 5 inches in length, 1 to 2 inch in width, stem 1 to 2 feet high.

Also a drawing and specimen of _Tritenialis Americana_, or Chickweed Wintergreen.

The specimens we have examined have six instead of seven divisions to the calyx, and the same of the co- rolls, divisions ovate-acute, not 'acuminate, also six stamens; the whorl of delicate leaves at the top of the naked stem, are very broad and large, oblong-lanceolate or obovate-lanceolate, acuminate, entire, not "serrulate;" upwards of 3 inches in length, about 14 inches in width.

Dr. K. also exhibited specimens and a drawing of a beautiful _Pentstemon_ or Beard-tongue, supposed to be new.

_P. TENELLUS_—Kellogg.

Stem perennial, somewhat ascending glabrous, lower leaves numerous, very narrow lance-spatulate on long attenuated petioles, in opposite and decus- sate-fasciculate clusters, acute, mucronate, entire; the upper leaves opposite, sessile, narrowly lance-pointed, coriaceous clapping at base, the lower portion of the
laminas reflexed, entire, apex ending in a subulate mucro. Flowers opposite, peduncles 1 to 2-flowered, bracts lance-lanceolate, subulate, sessile closely underneath the calyx; sepals ovate with long narrowed subulate recurved-spreading points, corolla inflated, glabrous, sterile filament naked, point compressed, slightly expanded, curved, anthers hisrate, pistil capitate.

The flowers of this interesting plant are among the most showy and beautiful we have ever seen; the color is an ultramarine lilac shading into the pink colored tube; the palate is loose and airy with long internodes above, shortening below to 4 or 4 the length of the leaves, about 1 to 2 feet in height. Leaves seldom two inches in length, about 4 or a little more in width.

Dr. K. exhibited a drawing, accompanied with blooming specimens from Placerville, of a new and interesting species of *Eguetes*.

E. CALIFORNICUS—Kellogg.

Stem annual, striated, arachnoid-tomentose, branch-blooming specimens from Placerville, of a new and rolla of the disk villous and viscid with glandular interesting species of *Eguetes*.

Dr. Kellogg exhibited complete specimens and a drawing of an herbaceous vine from the vicinity of San Francisco, June 4, 1854.

A letter was read, addressed to Dr. Randall, from Dr. S. G. George, of Visalia, Tulare Co., accompanying specimens of vegetable fibre, of great strength and beauty, taken from a plant common in the swampy lands of Tulare Co. It is hoped that attention may be drawn to this plant, as its cultivation may at some future time become of much importance. Specimens of it were promised for investigation.

Mr. H. P. Carlton presented specimens of Cornel-lands of Tulare Co. It is hoped that attention may be drawn to this plant, as its cultivation may at some future time become of much importance. Specimens of it were promised for investigation.

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Dr. Kellogg exhibited complete specimens and a drawing of an herbaceous vine from the vicinity of Placerville.

This plant legitimately belongs to *Echinocystis*;—but many alterations in the received description of this genus appear to be required. The provisional name offered is—

E. MURICATTS—Kellogg.

Some of the generic differences are as follows:—Tertiary flowers; calyx not "flattish," but tubular-compamulate, segments 5, not "6," petals 5, united at the base into a tubular-compamulate corolla, no abortive filaments; stigma barely marked by a very obscure transverse line across the top. Sterile flowers in simple racemes 8 inches to 1 foot in length, calyx deeply tubular-compamulate (tube of an inch or more in length) border rotate, sepals obsolete, flowers small, white, or greenish white; stamens 3 to 5, anthers sigmoid.

Stem about 5-angled, glabrous, very glaucous, swelled at the axils. Leaves palmate broadly stature-cordate at base, 5 to 7 lobed, separated by deep and spacious sinuses, lobes long, cuneately somewhat attenuated below; lobes 3 to 5 sub-lobed, with angular margins, points mucronate, slightly seaboars, pubescence above, sparsely soft pubescent and slightly glaucous beneath, lamina thin and delicate, on long slender petioles; tendrils simple or 2 or 3 parted.— Fruit on long slender pedicels pendant from the same axis as the sterile racemes, &c., small, round, about 1 inch in diameter, glabrous and shining, light green, muricate with a few obscure short weak points mostly aggregated at the base, striped somewhat in sections with conspicuous dark green veins, 2-celled, 2-seeded, bursting irregularly at the summit, seeds roundish brown inclining to black, pitted.

This plant, like several other species, is known as Giant Root; the root is of great size, creamy russet color, rough, yellowish fleshy within and intensely bitter. A vine climbing over small shrubs, about 6 to 8 feet in length. The seeds aged 1 inch in oil, and the root is said to be a valuable tonic.

Dr. K. exhibited specimens and a drawing of a species of *Fritillaria*. In some of the specimens the leaves were long and narrow, or linear-lanceolate whorled below in 5s, 5 inches in length, alternate, lanceolate and at the racemose top, arcuate, linear.—There appears to be some variation in this respect; by further observation it should prove to be new, we suggest the specific name *F. multiflora*. Stem about 3 feet high, 30 to 40 flowered, flowers small, nodding, purple, spotted, about 3 of an inch in length.

Stamens shorter than the petals, anthers longer than the filaments, inner petals rounded at the apex, outer petals acute, point incurved, 3 stigmas revolute, glabrous. Root crowned by a great number of smaller bulbs.

Dr. K. also exhibited a drawing and specimens of *vicia*, or vetch, from Placerville.

*V. truncata*, var. villosa, K.—The specimens found in this vicinity answer the description usually given.

Further observations are required to determine how far the locality will account for the changes we find in this specimen from the interior. Leaves 6 to 7 pairs, broadly obovate-truncate, teeth numerous, 6 to 8 along the upper third and truncate end, mucronate, short villous pubescent above, very villous with long hairs beneath, vertical or reversed; stipules semilunate, semisagittate, incisely mucronate-dentate, spur or barb long acuminate-mucronate, versatile, on a central pedicel, stigma very villous; ten-seeded.

The stem pubescent, quadrangular, slightly winged at the angles. A very handsome species, 1 to 2 feet high. Leaves from 4 to 6 of an inch in length, and nearly the same in breadth.

Dr. K. presented a drawing and specimens of the flowers of the *Torreya Californica*, or California Nutmeg. Anthers peltate, 9-celled.

Also a drawing and specimen of the leaf of *Leptar- rhena inundata*—Behr; thus completing the drawing and essential descriptions furnished a short time ago.

The leaf is highly interesting; the specimen received by the politenes of the Pacific Express Company, is about one foot broad, funnel-shaped, round, peltate, border angulary-lobed, sinuses obtuse, doubly-serrate, petiole about 2 feet in length, clothed
like the stem with glandular hairs, also glandular and pubescent along the veins beneath, which gradually diverge around the hollowed tubular centre of the lamina, glabrous above, somewhat membranous.

Dr. K. exhibited specimens and a drawing of a new species of Ceanothus, from Placeville.

C. diversifolius—Kellogg. Branches, both old and young, peduncles, petioles and leaves, densely villous; lateral branches divaricate, slightly nodding. Leaves oblong-ovate or elliptical-ovate, obtuse, or sub-acute, densely villous, bluish green and slightly glabrous beneath, shorter villous pubescent above, not shining, retina-mucronate-dentate, teeth somewhat cuspidate, glandular, petioles about 1/2 the length of the leaf. Flowers in long axillary, simple racemes, somewhat pendant, densely villous, bluish green and slightly glabrous beneath, flowers mostly crowded into a corymbose cluster at the extremity on pedicels of 1 to 3 inches long, scarcely leafy at the base, although a few scales are observed, and occasionally a very minute leaf; flower buds covered with small pubescent bracts, at length deciduous, calyx more infolded, and less cowlled than usual in this genus, giving the flower an angular or ribbed appearance, style exserted, united to the top, stigma barely divided, branches green, colored on the back. The flowers of this genus, giving the flower an angular or ribbed appearance, style exserted, united to the top, stigma barely divided, branches green, colored on the back, — one from the occiput and one from the angle of the eye—the two constitute the lateral line, which at first ascending till near the dorsal fin, follows then the curve of the back, and terminates abruptly a short distance before reaching the caudal fin. This lateral line consists, in almost its whole length, of two irregular parallel rows of pores all communicating with one main tube. Scales small, oval, soft, imbedded, covering the body (but not the head), and ascending partially the fins. The whole fish is coated with a thick mucous secretion.

Dorsal, anal, and caudal fins united. The dorsal fin, arising a short distance from the occiput, extends to the caudal fin. The rays of the anterior portion are simple, feebly spinous; those of the posterior, articulated, branched. The fin is at first low, becoming then higher, and again diminishing, till it rises somewhat abruptly at the commencement of the articulated portion, maintaining thence a nearly even height throughout; this greatest height is a little more than one third of the length of the head. The last ray is connected fully by membrane with the caudal, though leaving an emargination between the two fins. The pectorals are rounded, equalling the caudal.

Form much elongated, rounded anteriorly, then compressed, becoming much flattened near the tail. Depth contained a little more than six times in the total length.

Head rounded, with the cheeks arched, and muzzle very blunt. Top of the head provided with a thick fleshy crest, which rises abruptly immediately behind the upper jaw, and terminates as abruptly at the occiput; it is highest posteriorly, its height there being nearly double the diameter of the eye. This crest consists mainly of adipose tissue, though it is partially supported by an osseous occipital ridge. — The breadth of its base is about equal to its height anteriorly, narrowing to a thin edge at its dorsal outline, is nearly straight. From the occiput the back rises at once to about the height of the crest, curving thence gently to the tail.

Eyes nearly circular, prominent, on the upper surface of the head, so that as the profile slopes downward they look upward and forward, giving a most singular monkey-like expression to the face. They are separated from each other by a space equal to their own diameter, and from the anterior border of the upper jaw, by twice that space; their diameter is a little less than one twelfth the length of the head. The length of the head is not quite one seventh of the total length.

Opercular bones entirely destitute of spinous processes, concealed in the thick, loose integuments. Lips very thick and fleshy. Teeth fine, somewhat crowded, nearly even in both jaws; those of the lower jaw a little the largest. A small patch on the vomer, and a band of very fine ones along each palatine. — Nostri ssmall, near the base of the crest, less than half the distance from the eye to the snout.

A row of pores, commencing back of the angle of the mouth, follows the preopercular border, turns backward above the top of the operculum, and meeting there another row which has been formed by two — one from the occiput and one from the angle of the eye—the two constitute the lateral line, which at first ascending till near the dorsal fin, follows then the curve of the back, and terminates abruptly a short distance before reaching the caudal fin. This lateral line consists, in almost its whole length, of two irregular parallel rows of pores all communicating with one main tube.

For the above specimens, furnished by Mr. E. W. Garrett, the Academy return their thanks.

Dr. Wm. O. Ayres presented the following description with the specimen:

CEREBRUS APRICATUS CRISTATA—Ayres.

Cerebrus apricus cristata—Ayres.

Form much elongated, rounded anteriorly, then compressed, becoming much flattened near the tail.

Length of the specimen described, twenty-five and a half inches.

This singular and grotesque-looking fish occupies a position nearly intermediate between Zoarces and Amphiura. It agrees with the former in the aspect of the body, the union of the vertical fins, the fleshy lips, the form and size of the teeth; with the latter in the absence of ventral fins; and with both in the scales, the abundant mucous secretion, the branchial rays, and the rounded muzzle. It differs from Zoarces in the character of the dorsal rays, the presence of ventrals, and the position of the mouth; from Amphiura in the form and size of the teeth; and from both in the crest.

A new generic division becomes therefore necessary, for which the peculiar monkey-like face of the fish, viewed in front, suggests an appropriate name. The strange resemblance to several of the American monkeys is, in fact, quite striking, and we may call the genus Cercophis.—Ayes.

Head smooth, rounded, muzzle obtuse; body elongated, with minute, imbedded scales; dorsal, anal, and caudal fins united; no ventral fins; lips fleshy; mouth opening obliquely upward; teeth small, in both jaws, and on the vomer and palatine bones; branchial rays six; a fleshy crest on the head.

C. cristula-gillii is apparently rare. But a single specimen has yet been seen, and none of the fishermen had met with anything like it previously. It was taken in the Bay of San Francisco. Its food had consisted of small fish in part, but chiefly of seaweeds.

SAN FRANCISCO, June 11, 1855.

H. G. Bloomer in the Chair.

Charles H. Cook, Esq., presented for the Library a copy of the Annals of San Francisco.

The thanks of the Academy were voted for the donation.

Dr. Kellogg presented specimens of a small and beautiful Mimulus, accompanied by a drawing. It is believed to be known, but having seen no description, we give the following:

M. atropurpurea?

Stem short, branched mostly from the base, branches opposite, decumbent, 2 to 3 inches long, square, glabrously pubescent with white transparent frosty hairs; leaves opposite, spatulate-ovate, acute, entire, or sparingly serrate, with coarse teeth, petioles half-clasping, 5 to 6-nerved, ciliate along the lower margin of the petiole, sparsely hissitate above, purple beneath, some pubescent along the prominent veins; flowers opposite, axillary on short peduncles, to the length of the calyx, calyx obliquely saccate at the base on the upper side, upper tooth and calyx crest or arched; tube of the corolla very long, club-shaped, throat ventricose; somewhat compressed and infolding, 5 to 6-nerved, ciliate along the lower margin of the petiole, lower lip very short recurved, two upper divisions much larger reflexed spreading, reddish purple, variegated throat and palate; capsule carinate-compressed oblique. From Placerville.

Also specimens and drawing of a Cerasus, from Placerville.

C. glandulosa, or Mountain Cherry.—Kellogg.

Shrubby, stem reddish, slender, young branches pubescent; leaves obovate acute, somewhat cuneate at base, biglandular, mucronate, serrulate, sub-glabrous above, pubescent beneath, particularly along the veins; flowers in erect racemes terminating the leafy branches, appearing after the leaves; flowers fuscate-corymbose at the extremity of the long raceme, pedicles § an inch or more in length, villous, as is also the rachis, calyx segments short, acute, reflexed, petals rounded, style, one, exserte infolded and tortuously bent, stigma capitate; fruit ovoid.

This species or variety has the glands much more conspicuous and uniformly constant than the C. emarginatus of the coast.

Dr. K. presented specimens with a drawing of Amelanchier Canadensis var. alnifolia Nutt. or Alder-leaf June-berry.

Branches smooth, robust, dark purplish; leaves obtuse, cordate at the base, upper third and end toothed, entire below; lamina flat or plane, thin, pinnately veined, stipules lanceolate dry membranous, fuscous-pubescent, caducous; very delicately pubescent above the glands; below; the glands much larger reflexed spreading, reddish purple, 12 to 12, sessile and sub-sessile, calyx and rachis pubescent, styles 4, stamens short, calyx divisions short, triangular-lanceolate, strongly reflexed, racemes with one or two large leaves at the base.

The specimens furnished us by the generosity of the Pacific Express Co., were past the flowering period. The shrub abounds in prussic acid, and must be useful for medical purposes. Fruit black and sweet.

Also a drawing and specimens of Maderia elegans? from Alameda and vicinity of San Francisco.

Stem simple, about 2 to 3 feet high, hispid with long glandless and shorter glandular hairs intermixed on the upper part of the stem, peduncles, and involucre; radical leaves linear-spatulate and linear-oblong, elongated to 3 to 6 inches, § to 1 inch wide, remotely denticulate, waved, 3 to 2-nerved, upper cauline leaves gradually reduced in size, very villous, with short glandless hairs, interspersed hirsute, sessile, sub-cordate clasping, alternate; flowers in a loose compound-paniculate corymbose top; involucres naked, scales 18 to 20, or the same number as the rays, somewhat alternately long and shorter; rays long, cuneate deeply 3-crested at the apex, middle lobe sub-spatulate, points obtuse emarginate, twice as long as the involucre (or about 1 inch), § inch wide, slightly attenuated to about § of an inch broad, 3 greenish veins along the back; tube pubescent, ligules light yellow throughout; receptacle conic, villous with soft hairs; chaffy scales in a single series (between ray and disk florets) united, greenish points, villous, acute, incurved; disk corolla brownish white, all destitute of pappus.

Dr. K. presented specimens with a drawing of A. elegans. The shrub abounds in prussic acid, and must be useful for medical purposes. Fruit black and sweet.

Also a drawing and specimens of Maderia elegans? from Alameda and vicinity of San Francisco.

Stem simple, about 2 to 3 feet high, hispid with long glandless and shorter glandular hairs intermixed on the upper part of the stem, peduncles, and involucre; radical leaves linear-spatulate and linear-oblong, elongated to 3 to 6 inches, § to 1 inch wide, remotely denticulate, waved, 3 to 2-nerved, upper cauline leaves gradually reduced in size, very villous, with short glandless hairs, interspersed hirsute, sessile, sub-cordate clasping, alternate; flowers in a loose compound-paniculate corymbose top; involucres naked, scales 18 to 20, or the same number as the rays, somewhat alternately long and shorter; rays long, cuneate deeply 3-crested at the apex, middle lobe sub-spatulate, points obtuse emarginate, twice as long as the involucre (or about 1 inch), § inch wide, slightly attenuated to about § of an inch broad, 3 greenish veins along the back; tube pubescent, ligules light yellow throughout; receptacle conic, villous with soft hairs; chaffy scales in a single series (between ray and disk florets) united, greenish points, villous, acute, incurved; disk corolla brownish white, all destitute of pappus.

Achenia of the ray enclosed by the carinate-composite involucre, oblong-ovolate, somewhat compressed, slightly recurved, sessile circular disk above, lineal-claw-like process below, and petals neither angled nor striated, dark purplish, nearly black.

Annual hairy and glandular gummy herbs; flowers large, delicate straw-colored, or bright pale yellow, about 1½ to 2 inches in diameter.

These herbs singularly vary in size in the same proximity; whilst one has long leaves § of an inch wide, stem tall and slender, another side by side may be of similar height, but very sturdy stemmed with broad leaves, &c., without any important specific difference.
A letter was read from the Société Impériale des Sciences Naturelles, Cherbourg, France, proposing interchange of communications with the Academy.

Dr. Kellogg presented specimens of an Azalea from the interior, accompanied by a drawing.

A. nudiflora var. ciliata.—Kellogg.

California White Honeysuckle.

These little shrubs are among the most beautiful and fragrant ornaments of our moist and shady forests; and are deeply enshrined with the earliest recollections of every American heart.

The plants of this genus vary so much, that it is confessedly difficult to establish uniform characters. For this reason we furnish such evidences as we find in the forms and figures before the Academy. It is with the hope of ascertaining the irregularities occasioned by different soils and situations that we desire to contribute our mite to the general stock of knowledge by offering the following description:

Flowers large, irregular, white, (a shade of pink on the back) lower largest segment ochroleucous, villous viscid without,—also the calyx and peduncles; one or two upper sepals 3 or 4 times longer than the others, obtuse, ciliate, sub-spatulate; lower segments short, rounded, stamens declined, longer than the corollis; filaments hisurate below, style exert, capitile hisurate at the base.

Leaves lanceolate, sub-lanceolate, sub-acute cuneate at base, lucid, colored alike on both sides, minutely pubescent above and below, mid rib sub-hisurate beneath, entire, ciliate, a colored gland at the mucronate point.

A shrub 3 to 6 feet high, young branches glabrous, many membranous rudiments of linear or linear-lanceolate, membranous, satiny, silverly hue below, flesh-colored and reddish above, somewhat pubescent, species, from the hills in this vicinity; petals red spotted at the base.

Also a drawing of a purple flowered Oenothera, from Alameda, the specimens furnished by T. J. Nevins, Esq.

CE. viminea, Dog. var. intermediæ—Kellogg, or the Willow-leaf Primrose.

4th sub-division of T. and G., xx lobes of the stigma oval, short, dark purple, capsule sessile, oblong, tapering near the summit, seeds ascending in a single series.

Stem 2 to 3 feet high, erect, branching above, twigs very long and slender, bark fibrous and shreddy, membranous, satiny, silverly hue below, flesh-colored and reddish above, somewhat pubescent. Leaves narrow lanceolate, nearly entire, or rarely minutely and remotely dentate, very minutely satiny puberulent on both sides. Flowers in long racemes, dark lilac-purple, petals 4 of an inch long, or twice as long as the stamens, sepals about 4 the length of the petals, calyx tube from 4 to 4 the length of the segments, anthers white, filaments flat, widening be-
CHLOROPYRON PALUSTRE, mihi.

Habitat locis humidiis salagino-sis, prope locum Russ Garden dictum.

Mr. Horace Davis presented a valuable series of geological specimens, with the following statement:

The accompanying specimens of wood and clay came from some mining shafts in Caldwell's garden, which is a portion of Shaw's Flat, about two miles north of Sonora. That immediate locality (the garden) has not been mined until quite recently, but was cultivated as a ranch, until last fall, when a very rich lead was accidentally discovered; in a portion of which these specimens were found. Shaw's Flat is a broad stretch of rich mining country, quite high in itself, and yet surrounded by hills much more elevated than itself.

The gold is quite evenly diffused over all this flat ground, save in the south-west corner, where it is confined to a narrow strip—a single line of claims. Here, too, it is quite deep under-ground. There seems to be a small river bed buried here, and this forms the lead. At its upper end, when first found, it is, say 30 feet underground. Thence it slopes gradually to the south-west, while the surface of the ground rises; so that the shafts grow constantly deeper, till in some cases, under Table Mountain—

The last shaft which has struck it is about 120 feet deep. As near as I could judge, the bed of this stream was not broken, as it seemed to preserve its regular grade, but was rather buried.

The surface soil in the garden is the common red clay about Sonora. At a depth of about 10 to 15 feet, you strike a thick stratum of white clay, of which I enclose specimens. Below this (which varies in its thickness) is gravel mixed with boulders (mostly of white limestone, I think) and below this, buried in with it, is the gold. I was told that the banks of the river were distinctly traceable, and that the dirt paid handsomely clear to the bank.

These trees were found in this gravel. Some were standing upright; some presented the appearance of the stumps of burnt trees; some were fallen logs,—there were layers of leaves on the ground, very perfect, when first brought up the shaft, but which I could not preserve. I enclose one or two fragments where they have been preserved on the clay.

There were much finer pieces of wood than I have, but I obtained the best I could. In a portion of which these claims are paying as high as $600 to $800 per day.

—-JULY 2, 1855.

Dr. Randall in the Chair.

Mr. Tennent exhibited a very beautiful series of specimens of Alceg, Sertularia, &c., prepared by himself, from specimens collected in this vicinity.

A letter was read from the Boston Society of Natural History, acknowledging the receipt of the Proceedings of this Academy.


Two numbers of the Monterey Sentinel, from the publishers.

The thanks of the Academy were voted for these donations.

Dr. Kellogg presented specimens of a shrubby Polygala from Placerville, accompanied by a drawing. This is the only species we have seen on the Pacific, and is one of scientific interest. There were reasons, of a negative character, for suspecting the
Spanish botanist, Mocino, had given a wrong locality to _P. Nutkana_, "as no species of the genus had been found by other observers on the Pacific coast of N. America." More recently, however, Nuttall found a specimen of the P. N. in California, which he described under the name of _P. Californica_.

_P. Cornuta._—Kellogg, or Horned Milkwort.

Stem perennial, branching, bright green, glabrous, somewhat glaucous, warted, etc.

Upper leaves oblong-lanceolate, mostly obtuse, approximate, mucronate, margins pellucid very entire, alike green and glabrous on both sides; lower leaves oblate emarginate; on short petioles, alternate veins scarcely visible.

Flowers in a loose spike, 6 to 8 or more, fertile on the topmost attenuated branchlets, pale yellow with greenish tinge, often shaded with pale lilac; rachis, pedicels, calyx and petals, puberulent; bracts subulate, ½ of an inch long, or as long as the pedicels, the small posterior upper division of the calyx ovate, acute, sub-glabrous by the somewhat produced common claw ½ to 2½ inches long; the 2-lower 1-10 of an inch long, the proper petal wings linear obtuse, of an inch long, the proper petal wings linear obtuse about the same length.

Keel ½ longer, abruptly bent downwards, large, rounded obtuse, crested with a little horn-like process, hooked, or curved upwards, filaments and claws united into a broad cleft tube; upper edge of the filamentous ridge very pubescent (pale lilac?) free portion hisrate, 1-10 of an inch long, anthers, white, finally opening at the side along an obscure septal line, pistil 4 or 5 times the length of the capsule, incurved stigma enlarged, unequally 2-lobed.

Capsule, glabrous, entire, flat, orbicular-2-celled, one seed in each cell.

Seed oblong, glabrous, caruncle about ½ the length of the seed, glabrous?

Dr. Kellogg presented specimens of a new and singular Pentstemon, with a drawing.


Stem glabrous, erect, terete, one to one and a-half feet high.

Leaves opposite linear-lanceolate 3-nerved at the base, and somewhat extra tripinnate above, remotely dentate, teeth minute acute, glabrous, petioles very short, a clasping base; upper, narrow, sessile, entire, recurved.

Flowers in a terminal panicle of opposite and decussate branchlets, each forming rather close paniculate corymbs of 6 to 9 flowers.

Calyx, 5 distinct imbricated sepals, lanceolate, long subulate acuminate points, glabrous, obscurely 3-nerved, slightly ciliate.

Tube of the corolla very short, not inflated, 2-lipped ringent, upper lip narrow, arched, 2-toothed, bispid on the back, slightly keeled, a strong reddish ridge along the back, arising from a horn-shaped process at the notch of the apex; lower lip 3-parted segments equal, long linear, striated with 2 or 3 pink lines, three or four times as long as the tube, dilated; numerous fertile filaments declined at base, ascending occupying the vaulted upper lip, anthers pubescent below; abortive 5th stamen, naked, sub-equal, recurved closely to the lower lip; style about as long as the stamens, stigma simple, capsule 2-celled, seeds numerous, wingless.

Flowers creamy yellowish, streaked with red.

Dr. K. also presented specimens of a Lonicera, from the interior, accompanied by a drawing.

_L. Pilosa._—Kellogg.

Stem twining, perennial, very hisrate.

Leaves pubescent above (dull green, not shining), soft villous and glaucous beneath, lower large stem leaves coriaceous-obovate ovate-oblong, about two inches long by one and a-half wide, upper leaves of the slender branches, oblong, sub-acute, all on pedioles ½ to ½ the length of the lamina, only the uppermost pair connate-perfoliate, lamina coriaceous margin ciliate, somewhat revolute, petioles, in short, all plant very piolate; stipules reflex clapping, connecting the bases of the opposite leaves.

Flowers hisrate externally, tube slender not gibusous, lower linear division about one-third larger than the tube, upper phalange with the four very short teeth in whors of 6, intermediate of spike short, color of the flowers pale pink blush; calyx minute; exert filaments, and capitulate pistil, hisrate at the base, tube very hisrate within throughout; whors with very minute, ovate, acute scales but no foliaceous bractlets.

Fruit sub-glabrous.

The specimens from which the description is taken is fifteen feet in length.

Dr. K. also presented a specimen and drawing of _Erythrea_ or Canchelagua, a beautiful plant belonging to the Gentianworts. It has a pure and rather pleasant bitter, is tonic and stomachic, and in the fresh state an excellent remedy for agues; its medical properties are said to be entirely lost by drying.

The general appearance of this plant is very much like our Atlantic _Sabbatia angularis_.

Dr. W. O. Ayres presented a specimen of a new Scomerobid fish, with the following description:

_Caranx Symmetricus._—Ayres.

*Form* elongated, compressed, (the thickness being rather more than half the depth,) dorsal and abdominal outlines evenly arched; depth one-fifth the total length; length of head a little greater than the depth of the body.

Mouth oblique; lower jaw the longer; a vertical line from the tip of the superior maxillary, passing just in advance of the eye. *Teeth* extremely minute in both jaws, on the palatine bones, in both jaws, on the palate bones, with the proper portion of the vomer, and along the middle line of the same bone and on the tongue; those on the tongue and anterior part of the vomer are crowded; the remainder are in each instance arranged in nearly a single row.

*Scales* thin, elliptical, with very numerous concentric strites; covering the entire body and head, except the throat, lower jaw, and space anterior to the eyes. Those on the lower parts of the body are the largest; those on the head very small. The *lateral line* passes directly backward until about even with the origin of the second dorsal fin, curves there quite suddenly downward, and follows thence the middle line of the body to the caudal fin. The scales marking the line are elongated vertically, with a median process directed backward; near the head this process is very slight; it becomes more developed, until posterior to the curved portion of the line it is a horny ridge, with an acute tip, the whole constituting the sharp, angular carina along the caudal region of the body found in the fishes of this genus; the number of these carinated scales is forty-four to forty-six.
Opercular apparatus destitute of points or process;
es. Space immediately anterior to the eye, hyaline, with
the nostrils situated above it, of which the anterior
aperture is the larger. Eye large, its diameter
contained about four and a half times in the length of
the head.

The first dorsal fin arising at a point slightly in
advance of the commencement of the second third of
the entire length, is triangular in form, its length
and height equal, being half the length of the head.
The height of the last ray is but about one-sixth of
that of the third, which is the highest.

The second dorsal arising a little behind the termi-
nation of the first, extends nearly to the caudal,
leaving there a free space equal to the diameter of
the eye. Its height at about the third or fourth ray
equals two-thirds of that of the first dorsal; it de-
creases thence posteriorly; the last rays being not
quite a third as high. Immediately at its termina-
tion is a finlet, entirely distinct, and yet almost con-
ected with the fin. Both the dorsal fins are receiv-
ed into a deep groove, which completely conceals
them when closed.

The anal fin arises a little posterior to the origin
of the second dorsal, with which fin it is coteleral,
being also similar to it in form and height, and in the
presence of a finlet posteriorly. It is preceded by
two strong spines, about half equaling the greatest
height of the fin. It is received into a groove, scarcely
so deep as that on the back.

Pectorals high and pointed; their height a little
less than the length of the head, reaching to the plane
of the origin of the second dorsal.

Pectorals a little posterior to the pectorals, which
they nearly half equal in length.

Caudal deeply concave, very strong, rays much
branched, accessory rays much developed.

P. 8—about 4.07 (multilated); a. 2—1.28; p. 1.22;
v. 1.5; c. 6.19, 8.16.

Color greenish brown above, lighter on the sides,
silvery beneath. Irises silvery. A brownish-black
blotch at the superior angle of the operculum. Dor-
sals somewhat clouded; other fins nearly colorless.

We have in the present species the first representa-
tive of the Mackerel tribe of fishes yet described
as occurring on our coast. It is somewhat singular
that of the extensive family of Scombridiae, whose
species and genera abound in almost every sea, we
had hitherto found none along the shores of Califor-
nia. We have often heard, it is true, of the capture
of Albacores and Bonitos down the coast, and were
assured last summer that the harbor of San Diego
was "full of Mackerel." But names of fishes are
used in California with so little precision, that no
person can be placed on such evidence. He
who should infer that anything resembling Pike or
Porch was taken in the Sacramento River or the San
Joaquin, would (so far as we now know) be much
deceived; yet fishes bearing those names are constant-
ly brought from these rivers to our markets and
sold in abundance. The species here with presented
possesses, therefore, more than its own share of
interest.

C. symmetricus is quite distinct from all the pre-
viously known species of the genus. It is more
closely allied to C. punctatus, Cuv., than to any
other, but is quite readily separated from it by the
curve of its lateral line, the number of the ciliated
seats, and the position of the dorsal and anal finlets,
without reference to other characters. With other
forms it need scarcely be compared.

C. symmetricus is apparently by no means com-
mon on our coast, but will probably be found more
abundant further south. The specimen described,
the only one yet seen, was taken in the Bay of San
Francisco; it was seventeen inches in length. None
of the fishermen were acquainted with the species.

SAN FRANCISCO, JULY 9th, 1855.

Dr. L. Lanszweert in the Chair.

Mr. James O'Meara, of Calaveras county, was
elected a corresponding member.

Dr. Lanszweert presented a focus of the Spermo-
philus Douglassii, R., commonly called here Ground
Squirrel, from Santa Clara; also two young mice.

JULY 16, 1855.

Dr. L. Lanszweert in the Chair.

Donations to the Cabinet.

From Augustin Aines, Spanish State Translator,
specimens of Lead and Silver Ore, from Sonora,
containing thirty per cent. of lead, and silver in the
proportion of $25 to a hundred pounds of ore; the
thanks of the Academy were voted for the donation.

From Dr. Lanszweert, a Humming Bird, from San-
ta Clara, O. Resolli, new to the Californian Fauna;
also several nests of common species of birds.

A letter was read containing an offer from Colonel
Henley, Indian Agent for California, to procure col-
cections for the Cabinet of the Academy in various
parts of the State. On motion, the thanks of the
Academy were tendered to Col. Henley, for his libe-
ral offer, and the Corresponding Secretary was
requested to attend to the measures requisite.

Dr. Kellogg exhibited a drawing of a new and in-
teresting variety of the Peach. This fruit is remark-
able for its fine size, and when we consider that it
has been now about two weeks ripe, (the specimen is
the second week in our possession, and we therefore
speak from our own actual knowledge,) it bids
fair, we think, to prove a very valuable acquisition.

This new variety has been produced by the combined
careful culture and genial climate of the Rev. A. H.
Myers' nursery, Alameda. A gentleman from Los
Angeles informs us they can boast of none so early.
If this be so, it may prove immensely valuable. We
are not authorized to designate it by any name, but
think that Myers' Rareripe would be sufficiently dis-
tinctive and appropriate.

Dr. Kellogg also exhibited a complete drawing of a
species of wild Black Mountain Currant, together
with specimens of the bush and ripe fruit. The fruit
is very sweet and pulpy, and by a little culture
would undoubtedly improve in every respect. The
fruit is large, black, covered with a dense bloom, and
the bush appears to yield bountifully.

RUBES NAVADENSIS.—Kellogg.

Stem and branches glabrous, the membranous
purple bark of the older branches flakes and warps
off like the Nine-Bark bush, or Spirea opulifolia—
Leaves about as long as the raceme, oblong lanceolate
and sparsely glandular, leaflet expanding expanded,
ciliate; racemes from the same buds as the leaves,
minute puberulent and glandular, bracts red, like
the flowers, lanceolate acute, numerous, calyx globose campanulate, border expanding, petals roundish short, no appendages, of the calyx or sub-equal, pedicels very short.

Fruit globose, glands few, black, with a dense bloom, pulpy and very sweet.

The Academy and the public are indebted to the generosity of the Pacific Express Company for these valuable acquisitions. Will our friends please remember and act as above.

Dr. W. O. Ayres presented a specimen of a new species of Whiting, with the following description:

**Merlangus productus—Ayres.**

Form elongated, subcompressed; greatest depth just posterior to the head, tapering thence very gradually to the caudal fin. Depth contained about seven and a-half times in the total length. Head somewhat pointed anteriorly, its length about one fourth of the length of the fish, nearly flat on the dorsal surface.

Lateral line very conspicuous, darker in color than the parts adjacent, curving a little downward until opposite about the middle of the second dorsal fin, and running thence straight to the caudal.

Scales relatively rather large, irregularly oval, concentric striæ numerous; about a hundred and forty scales along the lateral line. Scales covering the whole body, top of the head, operculum and top of preoperculum, and upper part of the cheeks, not the interoperculum, lower part of preoperculum, sub-orbital and ante-orbital space, nor the lower jaw.

Scales ascending on the caudal fin, and on the base of the pectorals, but very slightly on the dorsals or anal s.

Eyes large, nearly circular, their diameter contained not quite five times in the length of the head; distant a little less than two diameters from the tip of the lower jaw; interval between the eyes a little greater than one diameter.

The opercular angle, formed by both operculum and suboperculum, is somewhat acute, not spinous.

Nostrils immediately anterior to the eyes; posterior aperture the larger.

The first dorsal fin arising a little posterior to the opercular angle is triangular in form, its length being about twice the diameter of the eye; the first ray is about half the height of the second, third, and fourth, which are longest, their height being greater than the length of the fin.

The second dorsal, separated from the first by an interval equal to one third of the length of that fin, has a length equal to the length of the head. Its greatest height, at the sixth or seventh ray, is half the height of the first dorsal.

The third dorsal, continuous from the termination of the second, has a height anteriorly nearly equal to the height of the first, tapering thence quite rapidly to the last rays. It is separated from the caudal fin by an interval a little greater than half the diameter of the eye.

The caudal fin, dilated at base by the numerous accessory rays, slightly concave posteriorly, has a height equal to that of the first dorsal.

The second anal, continuous from the termination of the first, is similar to the third dorsal in form and height, terminating a little nearer to the caudal.

The pectorals are high, somewhat rounded, their height being about three times that of the second dorsal. When closed, they reach as far as the fourth or fifth ray of the second dorsal.

The ventrals, anterior to the pectorals, have half their height; rays not filiform at tip. D., 11. 22. 18. V., 1. 7.; C. 9. 10. 9. 1. 7.

Color grayish brown above, lighter on the sides, abdomen whitish; margins of scales darker, giving the appearance of waving dark lines. Fins somewhat clouded.

**M. productus** is not very closely allied to any of the previously known species of the genus. It is very readily separated by the form and size and position of the fins, the size of the scales, the form of the head, &c. It has, indeed, in form and general aspect more resemblance to *Merluccius abidius* than to any other American species, but from that it is generically distinct. It may be very appropriately called Californian Whiting.

The species appear to be by no means common along this coast. Only a few specimens, all taken at the same time, have been brought to the markets.—It is said to be found more abundantly further north, along the coast of Oregon and Washington.

The specimens observed were from eighteen to twenty-four inches in length.

It is somewhat remarkable that before the discovery of this species, the little Californian Tomcod (*Gadus proximus*, Gir.) was the only representative in our waters of the extensive family of the Gadidae, so abundant in other seas. All the larger types were wanting, and *Merlangus productus* is not without additional interest on that account.

**SAN FRANCISCO, July 23, 1855.**

Dr. Behr in the Chair.

Donations to the Cabinet.

From J. G. Swan, of Shoalwater Bay, W. T., specimens of Gunnellus ornatus, Gir; of Leptogunnelus gracilis, Ayres; of *a species of the Embiotocidae*, one of Squilla, and one of Anatifa, apparently undescribed.

From Capt. Hanson, of Shoalwater Bay, a fine specimen of fossilized pine wood, and a fragment of a fossil bone, probably from the humerus of an elk.

From Dr. A. B. Stout, a specimen of Jasper, from Angel Island.

From Dr. J. N. Hume, a specimen of conglomerate containing marine shells, from the vicinity of Beal’s Bar, North Fork of the American River, 300 feet above the stream.

Dr. Behr presented a drawing of *Chloropyron palustre*, Behr. In many specimens the leaves were found to be entire; bracts trinod; the minor stamens often with a rudiment of a second loculus, forming semi-sagittate antherae.

Dr. Kellogg presented specimens of the *Calycanthus*, or Sweet Shrub, also commonly known as Carolina Allspice, accompanied by a drawing.

*C. occidentalis?* In all the specimens we have
examined the leaves are acute, not "acuminate," neither are the peduncles "elongated." Petals lanceolate-patulate.

Flowers terminal. These shrubs, natives of N. America and Japan, exude a spicy camphorated odor, and this species, like most of the genus, has pale purple flowers, with a exquisite fragrance of ripe fruit. We think it equally worthy of culture in our flower gardens, as the *C. Flordius* so common in the South Atlantic States.

A very interesting species with white flowers is found in the interior. Will our friends please forward us specimens for examination, by the Pacific Express Co.

The Academy tender their thanks to Mr. A. Peabody, who furnished the above from Russian River, in the vicinity of the Geysers.

Dr. Kellogg presented a flowering specimen of a remarkable species of *Malvastrum*, accompanied by a drawing.

**M. SPLENDIDUM.** Kellogg.

This malvaceous tree is 15 to 20 feet high, body one foot in circumference, the top widely spreading, covered with splendid spikes of bright red or flame colored flowers, 2 or 3 feet in length. The picturesque beauty of this tree is unsurpassed by any native shrub of N. America known to us. For rural retreats and ornamental planting, this shrub is entitled to the attention of our enterprising nurserymen. Although the depressed state of business is felt in every field, yet when our gilded prospects from abroad fail, let us cherish our homes and add every new beauty to those already around us, corresponding to a happy heart within, truly contented with its lot. The public are under obligations to Mr. Wm. A. Wallace, of Los Angeles, for this valuable contribution. It is to be regretted, however, that from some inadvertence Mr. W. forgot to leave us, as promised, a larger specimen, from which a more complete drawing, including the fruit, could have been made.

Branches hoary, with a stellate pubescence, leaves somewhat cordate, 5-lobed, lobes acute, middle lobe longest, equally serrate, teeth obtuse or rounded, mucronate; petioles short, all parts stellate pubescent, more hoary beneath; peduncles axillary, racemes several flowered, short, pedicels very short, a minute acute bract at the base, and often on the common peduncle; involucels 3, subulate; divisions of the calyx ovate, acute, mucronate, 3 to 5-nerved, more conspicuously stellate along the nerves on a light creamy ground of short pubescence, petals obovate, border slightly open emarginate, villous at the junction of the claws with the column, stamens separately branching from the top of the column; stigma capitate. Flowers an inch or more in diameter, brilliant pink, arranged in long compound spikes at the extremity of the branches.

Dr. K. also presented flowering specimens of the *Quercus chrysophyllus*? or Golden Leaved Oak, which was figured in fruit about a year since.

This timber tree is very highly esteemed for its strength. It is also a tree of much symmetry and beauty; but above all it deserves the highest encomiums for its remarkable fragrance. It remains in bloom much longer than other oaks. The catkins are very numerous, white woolly and long like the chestnut. Those familiar with the fragrance of the River Grape (or *V. riparia*) of the Mississippi and other streams, or the wild Crab Apple, can properly appre-
Hume, for this and several other plants from the interior.

Col. Ransom in the Chair.

Dr. J. A. Veatch, of Red Bluffs, Dr. Henry Bates, of Shasta City, Dr. J. N. Hume, of Humboldt Bay, were elected Corresponding members.

Donations to the Cabinet.

From Dr. Lanszweert, two specimens of Pituophis catenifer, from the Mission Dolores.

From Dr. Behr, a species of Phelipaea.

From Dr. Kellogg, specimens of Clematis, sent from Placerville by Mr. Garvitt.

From Mr. Wm. A. Wallace, specimens of bark, &c. obtained from Los Angeles, at 38 feet below the surface, by artesian boring.

From Col. Ransom, a collection of plants from Mariposa county.

Dr. J. B. Pigne Dupuytren presented for the Library, 25 Nos. of "La Science," for which the thanks of the Academy were voted.

Very beautiful drawings of plants, from the interior of the State, embracing apparently several new species, were exhibited; the drawings were made by Miss M. M. Kroh.

Dr. Behr stated that his observations demonstrated that Eutainia ordinoides, B. & G., is truly a viviparous species. The remark was confirmed by Dr. Lanszweert.

Dr. L. Lanszweert in the Chair.

Dr. J. Eckel was elected a resident member of the Academy: Mr. D. E. Hough, of Alameda Co., and Mr. Broome Smith, of Clear Lake, were elected Corresponding Members.

Donations to the Cabinet.

From Dr. Lanszweert, specimens of Bascanion flaviventris, B. & G. and of Pituophis catenifer, B. & G., with descriptions, showing in what points these individuals differ from those first described.

From Mr. T. J. Nevins, a specimen of the Barn Owl, from Alameda.

From Dr. J. A. Veatch, of Red Bluffs, a box of specimens of mineral waters and deposits, which were referred for examination to Dr. Lanszweert.

From Dr. Kellogg, a specimen of Pogogenia with a drawing, Dr. K. called the attention of the Academy to Torrey's Chamaebatia foliosa, as being identical with his drawing made last year.

From Mr. Alusa, specimens of silver and lead from Sonora, Mexico.

The thanks of the Academy were voted for the donation.

From Mr. C. H. Raymond, a specimen of gold from Australia.

The thanks of the Academy were voted for the donation.

From Dr. John Torrey were received for the Library, Planta Fremontiana, Observations on the Batis maritima, and a Report on the Darlingtown, California.

The thanks of the Academy were voted for the donation.

Dr. Ayres presented the following description of a fish representing a type, entirely new to our waters.

SAURUS LUCIOCELS — Ayres.

Form elongated, nearly circular in outline anteriorly, becoming somewhat compressed posteriorly. Greatest depth, which is at the commencement of the first dorsal fin, contained about nine times in the total length. Head flattened above, pointed anteriorly; its length equal to twice the depth of the body.

Mouth very large, a line vertical to the extremity of the superior intermaxillary passing behind the orbit of the eye. Lower jaw the longer. Entire border of the upper jaw formed by the intermaxillaries, to which the very small maxillaries seem but as appendages on their superior posterior border.

Teeth numerous, sharp, very uneven (large and small intermixed), in both jaws, on the tongue, palatines, and inferior pharyngeals; those on the tongue and pharyngeals are less uneven than the other teeth.

Eyes large, elliptical, their longitudinal diameter equal to one fourth the length of the head. Distance between the eyes, equal to their own length.

Border of the operculum very evenly arched. Opercular apparatus entirely smooth.

Nasotribs on the upper surface of the head, nearer to the eye than to the snout; posterior aperture the larger.

Scales rather large, quite conspicuous, with their sides nearly parallel to each other, and the free border of each obtusely angular. The border of insertion is deeply scoloped; the concentric lines very fine and numerous. The scales cover the entire body, gill-covers, and cheeks; the top of the head, lower jaw, and throat are naked; as are also the fins. About seventy-five scales occupy the length of the lateral line, with eleven above it in an oblique line at the origin of the first dorsal. The lateral line, curving at first very slightly downward, runs thence nearly straight to the caudal fin.

The first dorsal fin arises at a point distant from the tip of the snout, by twice the length of the head. Its length equals half the length of the head. It is trapezoidal in form, highest anteriorly, the length of the third ray being a little more than one eighth of the length of the fish.

The adipose dorsal, whose height only equals half the length of the eye, is separated from the caudal fin by a little more than the length of the first dorsal.

The anal fin is longer and lower than the first dorsal; its length being equal to the distance from the snout to the posterior border of the eye, and its greatest height only one third the length of the head. It is a little higher anteriorly than posteriorly. It terminates a little posterior to the plane of the adipose fin.

The pectorals, rounded, have a height a little greater than the length of the anal; their length is contained in their height about three times and a half.

The ventrals are situated rather nearer to the plane of origin of the first dorsal than to that of the pectorals. They are larger than the pectorals, their height being about one and a half greater. They have the form quite characteristic of this group of fishes, the rays increasing in length, from without inward, so that the greatest height of the fin is at its inner bor-
der. Their tips extend nearly to the termination of
the first dorsal.
The _caudal_ is concave, its height externally being
about equal to that of the pectorals.

D. 11; A. 15; P. 15; V. 3; C. 9. 1. 8. 7. 1. 8.

Color apparently a light greenish olive above and
on the sides, with the borders of the scales darker;
lighter beneath; fins unicolor; branchial membrane
greenish yellow. As the specimen, however, had
been some time dried the colors may vary somewhat
from these.

S. _lucioceps_ must be rare on this coast. Only a
single specimen, six inches in length, has yet been
observed. It was brought to the market in company
with the Tomcod (_Gadus proximus_, G) and other
small fishes, not having been distinguished from them
by the fishermen. It was therefore probably taken
in the Bay of San Francisco.

The objectionable character of Cuvier's name,
_Saurus_, as applied to a genus of fishes, is apparent,
and the name _Laurida_, suggested by Swainson,
would have much the preference, were it not exclu-
ded by the rules of priority; according to his system
our species would be _Laurida lucioceps_. The specif-
ic name is given to indicate the very close resem-
blance which the head bears in form to that of a
small Pike. _S. lucioceps_ is more closely allied to _Le
Saurus_ than to any other known type.

It may be here remarked, that a species of _Saurus_
exists on our Atlantic coast, which is yet undes-
scribed. A specimen which I obtained about ten
years since in the Hudson River, near the residence
of Mr. Audubon, was mislaid before a description
could be prepared, and since that time no observer
has yet been dried the colors may vary somewhat
from these.

The _Pacific Express_ Co. generously forwarded the
above specimen from Placerville, from our corres-
dent, Mr. E. W. Garvitt. By sending as above,
our friends will oblige us.

Dr. K. also presented a drawing of a species of oak
brought by Col. L. Ransom, of U. S. Survey, from
Mariposa.

**QUERCUS FULVESCENS._Kellogg.**

Leaves evergreen, coriaceous, oblong-ovate, acute
and sub-acuminate mucronate, entire, (or very rarely
acute mucronate dentate) margin sub-rotundate,
obtuse at the base (seldom sub-cordate) fulvous
behave.

Fruit sessile, clustered; cup flat, saucer form, tur-
bineate, in general outline wheel-shaped, nearly over-
cupping the broad wheel-shaped gland, very densely
and thickly fulvous without, and silky villous within.

Branchlets fuscous, the foliage dense; a medium
sized tree of symmetrical form; quality of timber not
known.

**August 13, 1855.**

Col. L. Ransom in the Chair.

_**Donations to the Cabinet.**_

From Dr. T. J. Nevius, specimens of the following
reptiles, from Alameda, _Pituophis catenifer_, B. &
G; _Ophibolus Boylii_ B. & G; _Wenona isabella_, B. &
G; and _Sceloporus gracilis_, B. & G.

From Dr. Lanszewert, the skull and feet of a Gi-
ant Fulmar (_Procellaria gigantea_, L.); a specimen
of a singular variety of _Eutamia ordinoides_, B. &
G., and specimens of _Gilia_.

From Col. Ransom, a very valuable series of geo-
logical specimens from the Upper Mariposa and Bear
Creek Valleys.

Mr. Geo. Thurber presented for the Library a copy
of _Plantaee Thurberanae_.

The thanks of the Academy were voted for the do-
nation.

Dr. Kellogg presented the mixture fruit of the _Ri-
bus subvestitum_, (Gooseberry). Thus completing
the former figure, and adding the following to the
received description:

Fruit roundish, about ½ of an inch in length, ⅜ in
breadth, light greenish ground, with an orange red-
dish blush; glandular, interspersed with a few slen-
der spines; fragrant and well flavored, but the skin
thick and tough.

Dr. K. presented specimens in fruit, with a draw-
ing, of a _Rubus_, or Raspberry, probably new.

**SAN FRANCISCO, Aug. 20, 1855.**

Col. Ransom in the Chair.

_**Donations to the Cabinet.**_

From Dr. Lanszewert, a species of _Scelopendrea_,
from the vicinity of the Presidio; and a singular
tuberculated mass of recent sand conglomerate from
the southwestern part of the city.

From Dr. Henry Bates, a valuable series of geo-
ological specimens, mostly _Ammonites_, from the vicin-
ity of Shasta City.

From Col. Ransom, an interesting suite of speci-
mens of fossils, &c., including some fine examples of
the teeth and vertebrae of the _Squalida_, from the
Colorado Desert, and from the vicinity of the Kern
Lake.

From Dr. Trask, specimens of _Arbor Vite_, from
Scott Mountains, Siskiyou county, accompanying
which were drawings of the same by Dr. Kellogg.

Dr. Buhl exhibited species of _Chrysoeca_, brought
from the vicinity of New Almaden, by Mr. Froebel.
It is very destructive to Indian corn and many gar-
den vegetables.

From Dr. H. Sartwell was received a series of me-
teorological observations for 1854, made at Penn
in asking the attention of the Academy this evening,
notice to a field almost entirely untrodden.
latitudes of the Atlantic. It is but just to observe
appear scarcely to equal those of the corresponding
that my own researches have already been sufficient
to furnish data that warrant this conclusion, though
undoubtedly many species yet remain to be detected.
We know that in the South Pacific, as well as on the
Asiatic coasts of our own latitude, they are exceed-
we will be found identical with those of the Atlan-
tic can perhaps scarcely be expected, but in some cases
seem those of certain Atlantic types. That any
and it became at once evident that Botryodactyla
have fallen into my previous error, than that such
me, it seemed much less remarkable that I should
Abyssinia types which were labelled Pentacta. Still, M.
the name Botryodactyla must be abandoned, unless
merely an additional synonym of Pentacta ; and B.
Of the Pacific form, representing this, we have as
yet seen only small specimens, none of them extend-
much over an inch in length. These, however,
are manifestly immature, and as externally they sim-
ulate in every respect specimens of the Atlantic P.
fromosa, of the same size, it is reasonable to sup-
that when full grown, they attain corresponding di-
dimensions with the Eastern type. They differ from
the latter, in having the respiratory trees not so
largely developed, though entirely the same in form
structure, the alimentary canal much shorter
(otherwise identical), and the perforated calcareous
plates of the skin and of the suckers very much more
numerous, but retaining the characteristic appear-
ance. It is thus manifest that the specimens found
on this coast, vary from those of the Atlantic, not in
any definite characters, but merely in the extent of
those which are common to both. The form and ar-
angement of the suckers, the tentacula, the oral
circle, and the entire organs of respiration, digestion,
and reproduction are absolutely the same in the two.
It is deemed, therefore, from the present, more prac-
tical to adopt the one nomenclature which cannot be
questioned, and as between M. Sars' judgment in regard to the verification is an
metrical value. Some of these which have been
proposed by myself, I am now fully satisfied cannot
be maintained. SCLEBODACTYLA (Proc. Bost. Soc.
ried revision, especially in regard to generic divi-
sions. Many of the names now in use are but syno-
nyms, and some which are perhaps good and true
genera, are so imperfectly defined as to be of little
practical value. Some of those which have been
proposed by myself, I am now fully satisfied cannot
be maintained. SCLEROVACRYIA (Proc. Bost. Soc.
the other parts of the surface, the genital tubes divi-
ded in the one and undivided in the other, certainly
suggest characters of generic value. At all events,
if any dependence can be placed on the description
by Duben & Koren. Duasmodactyla producta is ne-
less closely allied to "P. pellucidum." The genus come-
much nearer to Troschel's division Orcula, but can-
not be included in the latter without a modificati-
on this coast, we may have occasion to recur to this remark.
The whole series of the Holothuriae needs a thor-
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Herba, si exceperis inflorescentiam, Abronia faucie vix constrictus, ex involucro exsertus. Stami-
ciebus Oxybaphi ad hue cognitis satis differt, ita ut
divisionem generis constituere possit.

The lower coast.

Point Bonita, some of them with the perforating

drawings, of a plant brought by Mr. Froebel from

Dr. Kellogg exhibited a drawing of a species of

Juniiperus, brought by Col. L. Ransom, of U. S. Sur-

vey, from Mariposa. Thespecimens we have seen

shells inclosed. and sponges from the same locality.

bus basi in anguilum haud concretis, ab omnibus spe-

tulta e seminibus a J. Froebel prope Warner's

Dr. Behr exhibited specimens of insects from Hon-

a drawing, of a plant brought by Mr. Froebel from

Dr. Behr presented the following description, with

drawings, of a plant brought by Mr. Froebel from the

OXYBAPHES FROEBELI, Behr.

Herba tota scabra. Foliaceordata, quinquenervia,

tache vix constictis, ex involucro exsertus. Stami-
ciaebus Oxybaphi ad hue cognitis satis differt, ita ut
divisionem generis constituere possit.

The leaves are merely minute scales in 4-rows; all

parts of the tree and wood exhale a strong aromatic

color. The wood is one the most durable and valua-
tide of any known in the U. S. It would be both

useful and interesting if our friends in the mines

would each furnish us with their observations of its

localities, extent, &c.

Dr. Behr presented the following description,

with drawings, of a plant brought by Mr. Froebel from the

lower coast.

SICRUM SULPHURICUM.

A red caramel (burnt sugar) color.

Dr. Veatch states that from this spring the largest

quantity of gas issues.

No. 3.—Water clear, yellow tinted, with the same

smell and taste as No. 2., with which it is identical

in chemical composition. Deposite of Sulphur on

the bottom of the bottle, proceeding from the decom-

position of the Hydrosulphuric gas.

De. Veatch states that from this spring the largest

quantity of gas issues.

No. 5.—The top of the water of this bottle was

covered with a pullicie of sulphur. Smell and taste

not so strong of hydrosulphuric gas as in Nos. 2 and

3. Water clear and transparent. In its natural

state, and when concentrated, it did not appear to

my taste more bitter than Nos. 2 and 3. Chemical

composition the same as that of No. 2, excepting that

it contains a remarkably large proportion of Sul-

phuric acid. Iodine was present, as well as sulphur.

Dr. Veatch states that from this spring the largest

quantity of gas issues.

No. 6.—From a spring of salt water. Clear, trans-

parent; odor slightly nauseous; hydrosulphuretted

reaction; taste saltish; chemical composition iden-
tical with that of No. 2; appearance of a larger

proportion of Iodine.

No. 7.—Water from a well Clear, transparent,

inodorous, taste pleasant, rather sweet, no deposite.

It contains—

Muriate, Carbonate, and Sulphate of Soda;

Carbonate, and Sulphate of Lime;

Carbonate of Magnesia;

Silica;

No Iodine.

No. 8.—From a very gaseous spring. Water tran-

parent; free from bitterness; smell and taste less

nauseous than in Nos. 2 and 3. Chemical composi-

solution; the sulphuretted hydrogen is free, the wa-

ter losing this gas by exposure to the atmosphere, or

by simple boiling.

Bottles labelled No. 1. and No. 4., contained gas

from two springs; it was in both a mixture of hy-

drosulphuric acid and carburetted hydrogen.

No. 2.—This water as received was clear and tran-

sparent; smell and taste on opening the bottle ex-

ceedingly unpleasant, the nauseous odor being simi-
lar to that of putrefying eggs; chemical reactions

denoting hydrosulphuric acid; after-taste very salt.

The saline matturs, according to my analysis, were—

Muriate, Carbonate, and Sulphate of Soda,

Carbonate and Sulphate of Lime,

Carbonate and Sulphate of Lime, the

Muriate of Soda surpassing the others in quanti-

ty. Iodine also was present.

It may not be out of place here to state the superi-

or sensibility of pure Chloroform over that of a solu-

tion of starch, in the search for Iodine. To two and

a-half drachmes of any liquid, containing one hun-
dred thousandth part of iodine of Pot-
tassium, add two drops of Nitric Acid, and fifteen to
twenty drops of Sulphuric Acid, shake, and add
twenty drops of Chloroform; on agitation the Chlor-
roform will have a very apparent violet color. We

have thus a ready method of determining the quan-
tity of iodine in the different kinds of Cod Liver oil.

By the following mode we may detect the adulter-

ation of Chloroform by Ether. Pure Chloroform

in dissolving a small quantity of iodine, takes a

beautiful violet tint, entirely similar to that of the

vapor of Iodine; but if the Chloroform contains sul-

phuric ether we find a red claret wine color, and

sometimes a red caramel (burnt sugar) color.

Dr. Veatch states that from this spring the largest

quantity of gas issues.

No. 5.—The top of the water of this bottle was

covered with a pullicie of sulphur. Smell and taste

not so strong of hydrosulphuric gas as in Nos. 2 and

3. Water clear and transparent. In its natural

state, and when concentrated, it did not appear to

my taste more bitter than Nos. 2 and 3. Chemical

composition the same as that of No. 2, excepting that

it contains a remarkably large proportion of Sul-

phuric acid. Iodine was present, as well as sulphur.

Dr. Veatch states that from this spring the largest

quantity of gas issues.
tion identical with that of No. 2, including the presence of Iodine.

No. 9.—From a salt spring. Clear, transparent, odorless; predominant taste saltish, slightly bitter. Chemical composition as in No. 2, but with a greater proportion of Lime and Magnesia. Iodine also present.

No. 13.—"A deposit in the bottom of the little fountain, from which bottles Nos. 3 and 4 were taken—remarkable for its gelatinous consistence." Odor acid, nauseous, from the presence of hydrosulphuric acid. The deposit has the appearance of a gelatinous, grey mud. Mixed with distilled water, boiled, and filtered, the solution contains in very small quantities—

Muriate, Carbonate, and Sulphate of Soda; Carbonate of Magnesia; Carbonate of Lime.

The residuum is composed of—

1.—The gelatinous substance. This is nothing else than an organic, azotized matter, found according to Longchamps, in nearly all thermal waters, and known under the names of Baregine, Glairine, Plombierine, Zoogene. It is insoluble in water; not sensibly soluble in nitric, muriatic or acetic acids; and very little in caustic potash. 2.—Some vegetable detritus. 3.—Silica.

No. 14.—Pebbles taken from the same place. Their only peculiarity was a deposit of sulphur on some, the others appearing worn through the constant motion of the bubbling of the water.

No. 15.—"Efflorescent salts found in considerable abundance, on the damp mass of disintegrated rock in one of the ravines." An amorphous mass presenting the appearance of a white efflorescent salt, with small yellow stripes. No perceptible odor. Almost entirely soluble in cold water, giving by reaction—Muriate, Carbonate, and Sulphate of Soda; Carbonate of Lime; Carbonate, and Sulphate of Magnesia, and Carbonate of Iron. No traces of Iodine, or of Potash.

This is the only sample in which the presence of Iron has been detected, as we have received none of the water from this ravine, in which Iron would certainly be contained, and which would thus make a valuable addition to these springs.

If a thorough analysis could be made of the waters of the springs above described, it would perhaps not be impossible to find Iodine there in sufficient quantity to be of commercial value.

Still again—could conveniences for the accommodation of invalids be provided at the springs, many such persons would probably resort to them from this and other States, as the locality is easily reached in two days from San Francisco, by steamer and stage, or by the former alone.

And lastly, if these waters could be carefully bottled at the springs, and thus forwarded, they would be of better and surer sale than that which is sent here in barrels as the Blue Lick water of Kentucky, which in a short time loses its gas, and the most valuable of its properties.

Mr. L. W. Sloot in the Chair.

Mr. W. P. Blake was elected a Corresponding Member, and Mr. S. W. Parker a Resident Member of the Academy.

From W. B. Farwell, was received a fine specimen of the California Vulture.

The thanks of the Academy were voted for the donation.

Dr. Lanszweert exhibited the perfect insect and cocoons of the Cal. Silk Worm, together with a drawing of the Bombyle querci, now introduced into France, having been brought from China. It appears that this silk, now at the Exhibition of Industry, in Paris, is reported by M. Guerin Méneville, of the Société d'Acclimatization, to surpass that of the common Silk Worm. The differences between the Chinese and the Californian species appear to be slight, and ours, if properly cultivated, may be of great value.

Col. L. Ransom in the Chair.

Donations to the Cabinet.

From Dr. Lanszweert, the skull and foot of Dioedeas fuscus, from near Cape Horn.

From Mr. C. D. Gibbes, of Stockton, a very interesting series of botanical specimens, from the Merced River.

From Mr. J. E. Lawrence, samples of the water from the Agua Calientes, on Warner's Ranch, San Diego Co.

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Dr. Kellogg exhibited a drawing of an Asclepias, believed to be A. parejlova, from Alameda. The bark is fibrous and very tough, and it is one of the plants used by the Indians of California as a material for bowstrings, &c. It affords food for a butterfly common in this vicinity, D. glaucopus.

Dr. Ayres presented a drawing, with the following description, of a new species of Cramp Fish, illustrating the structure of the electrical organs by dissection of the specimen shown.

Torpidairea Californica.—Ayres.

Disk broad and rounded, forming more than half the entire length; tail thick, conically tapering. Length of the specimen described, forty-one inches; breadth, twenty-eight inches; length of the disk, twenty-three inches; breadth, at the commencement of the ventrals, ten and a half inches—at the termination of the same fins, three and a half inches. None of the fins or parts of the body present anything angular in their outline; all are very much rounded, especially the dorsals and pectorals.

Eyes elliptical, small, their longitudinal diameter being about six-tenths of an inch. They are two and a half inches from the anterior border of the head, and not quite twice that distance from each other. Posterior to the eyes, and a little external to them, are the spiracles, placed obliquely, elliptical, more than an inch in length.

Mouth tolerably large, being three inches in width from one angle to the other. Teeth small, very sharp, arranged in decussating rows, each tooth placed on a dilated base. The patch of teeth in the upper jaw extends about an inch on each side of the median line, and is only about three-tenths of an inch in breadth; that in the lower jaw is of even less extent than this.

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ventrals being half the breadth across the pectoral disk. The first dorsal, which is two and three-fourth inches in length, is very nearly coterminal with the ventrals. Its height is one-half greater than its length. The second dorsal is separated from the first by a space equal to the length of the latter fin. It is one and three-fourth inches in length, its height being one-half greater than its length. The caudal is triangular, with its angles much rounded. Its height along the upper border is seven inches, which is twice that of the lower border. The skin is everywhere entirely smooth, provided with an abundant mucous secretion.

In color, the fish is of a dark grayish brown above, with a row of white blotches; beneath white.

The electrical organs occupy a space on each side, extending from near the head about twelve inches backward, with an average breadth of nearly four inches. They are narrow anteriorly, widening toward the middle of their length. They present nothing in their structure requiring special remark, as they agree so closely with the formation of these organs in the vertebrated creatures. The number of vertical cells or "plies" in the battery of each side is about six hundred; the length of these vertical columns is, in the thickest part, rather more than an inch and a half, though they become shorter toward the outer border; the number of transverse plates, where the columns are longest, is not less than one hundred and sixty in each, and they will probably average a hundred to a column throughout the organ; and as eight of these plates afford at least an inch of surface, it is readily seen that the number of square feet of surface exposed for action in the double organ of the fish, is sufficient to constitute a galvanic battery of no inconsiderable power. The origin and distribution of the nerves supplying these organs correspond with those points in _T. narke_; but the size of the nerves is even greater than in that species.

_T. californica_ is more nearly allied to _T. occidentalis_, Storer, than to any other species of the genus. But a single specimen of it has as yet been seen; this was taken in the Bay of San Francisco. It affords a very interesting addition to the fauna of California. The fish possesses the remarkable property of giving electric shocks, to persons and animals coming in contact with them, have in all countries where they are found, very naturally attracted much attention, and by the ignorant have often been regarded with superstitious terror. The present is the only species, on our Pacific coast, with which we are yet acquainted, thus ennobled. A single species, belonging to this same genus, is also found on the Atlantic coast of the United States, of which this is a close representative.

Letters were read from C. C. Parry, of Davenport, Iowa, and Prof. E. B. Andrews, of Marietta, Ohio, acknowledging their election as Corresponding Members; also from M. René Lenormand, of Vire, France, soliciting exchanges in Botany.


The thanks of the Academy were voted for the donation.

From Dr. Trask, salts from an Artesian Well in Santa Clara Valley.

From Mr. E. J. Loomis, of Contra Costa, a specimen of crystallized Carbonate of Lime, found in the hills northeast of Alameda.

The thanks of the Academy were voted for these donations.

Dr. Kellogg presented a drawing of a species of _Costanea_, or California Evergreen Chestnut.

_C. sempervirens_.

This species of chestnut is found pretty generally distributed throughout the State, mostly in elevated localities. It has been found 6000 feet above the level of the sea. It is only a small shrub, similar to the Chinquapin Chestnut, or _C. pumila_, L., of the South Atlantic States. The fruit is small, with a tough testa, somewhat triangular shaped, usually, if not always, one in each burr. The flavor of the fruit is pleasant. It is chiefly interesting, however, as an evergreen, and as correcting a current error which has dotted California any species of the Chestnut. The specimen was presented by Col. L. Ransom, of the U. S. Survey, from the vicinity of Mariposa.

Dr. K. also exhibited a drawing of a species of Oak, so far as we can learn, undescribed.

_QUERCUS FULVESCENS_—Kellogg.

Leaves oblong-ovate, acute, mucronate, coarsely mucronate-serrate teeth spread, crenuloid at the points, obtuse or entire at the base or lower half. Glansous and somewhat fusco-fuscous along the veins beneath; petioles fulvus.

Gland large, oblong, somewhat swollen, cupulate-shaped, velvety fusco-fuscous, enclosing about one-fifth of the gland, about 14 inch long, about an inch in breadth, sessile.

The general appearance of the tree suggests its close affinity with several species of the Chestnut Oaks.

Dr. K. also presented a drawing of a species of Ribes in fruit, from Mariposa, furnished by Col. L. Ransom.

This species appears to be the common _R. menziesii_.

The fruit was unusually large; it would be interesting to obtain specimens also in the flowering state.

Dr. Randall in the chair.

Donations to the Cabinet.

From Mr. E. E. Gibbes, an animal from the vicinity of the "Great Trees," Calaveras county. It is a species of Marmot, perhaps undescribed, but the specimen is too imperfect for a close comparison. Better specimens will probably soon reach us, as the species is quite common in that portion of the State. The miners call it Mammoth Mole.

From Col. Ransom, a remarkable specimen of slate from Mariposa county, the strata from which this was taken are nearly vertical, about four miles in thickness. Also, a specimen of Selenite, from the Monte Diablo range, about thirty miles south-east of Pacheco's Pass.

From Dr. Lanzweert, a Flying Fish, _Exocetus fasciatus_, Le Sueur, from the Pacific Ocean, lat. 30° 13. July 1855.
Oct. 1, 1855.

Col. Ransom in the chair.

Donations to the Cabinet!

From Mr. D. E. Hough, of Oakland, a specimen of the Barn Owl (S. pratineola), and one of the Gopher Snake (Pituophis catenifer).

From Col. L. Ransom, a series of specimens of Japanese manufacture.

From Dr. Lansweert, a specimen belonging to the genus Leucosticte.

From Dr. H. Behr, insects of the genus Myrmeleon.

SAN FRANCISCO, Oct. 8th, 1855.

Dr. Randall in the Chair.

Donations to the Cabinet.

From Mr. Hough, of Oakland, a specimen of Rat-tlesnake (Crotalus,) and one of Eutainia ordinoides; also, one of Nuttall's Whippoorwill (C. Wuttallit Aud.)

From Mr. D. E. Hough, of Oakland, a specimen of Western Gull (C. occidentalis, Aud.) from the Farallon Islands.

From Dr. Gibelin Du Py, two skulls of Albatrosses, D. exulans, L. and D. chlororynchus, Gm., from the vicinity of Cape Horn; for which the thanks of the Academy were voted.

From Dr. Ayres, two skulls of the Violet Green Cormorant (P. resplendens, Aud.) and one of the Western Gull (L. occidentalis, Aud.) from the Farallon Islands.

From Dr. Lansweert, specimens of Diadophis amabilis, Ophalopus boylii, and Pituophis catenifer, from this vicinity.

Mr. J. B. Russell presented for the Library, Swainson's Natural History and Classification of Birds, two volumes. Mr. Russell also deposited a New Zealand Axe, made of an extremely hard serpentine rock.

Dr. Wm. O. Ayres exhibited a specimen of a Shark, of a new generic type, with the following description:

Notorynchus Maculatus—Ayres.

Form much elongated, depressed anteriorly, then rounded, compressed posteriorly. Head broad, flattened above; snout widely rounded, yet having a somewhat salient projection in the median line with a shallow emargination on each side, corresponding to the situation of the nostrils. Greatest depth about one eighth the total length; depth of the head, at the eyes, a little more than half the greatest depth, which latter is equal to the breadth of the head at the line of the spiracles.

Branchial apertures seven on each side, quite large, the posterior one situated just anterior to the base of the pectoral fin. They are of such size as to be very manifest when the fish is viewed from either the dorsal or the ventral surface; the anterior ones equal about one-third the depth of the head at the eyes.

Spiracles small, nearly equidistant from the eyes and the branchial apertures, being a little nearer the median line than the eyes are. Their diameter is not more than one-sixth of that of the eye.

Nostrils almost terminal. They are situated in the emargination of the anterior border of the snout, but placed so much beneath as not to be visible, viewing from above. Each nostril is double, as in ordinary osseous fishes, the two apertures being separated by a strong transverse septum. Each aperture is oval, somewhat larger than the spiracles; the anterior aperture has a slight lobule on its axieterior border.

Mouth very large, occupying the entire breadth of the inferior surface of the head; its anterior border a little in advance of the anterior line of the eye, the distance when the jaws are closed being equal from this point to the tip of the snout and to the posterior angle of the eye. Teeth of the lower jaw few, (about seven or eight on each side of the median line,) flat, arcuated and very coarsely serrated on the cutting edge, the serrations pointing outward. This row of teeth, behind which as usual lie other rows concealed, forms a line almost like the continuous edge of a knife. The teeth of the upper jaw are about equal in number to those of the lower, but of different form. Those of the centre are narrow, acute, without denticles at the base but with minute teeth anterior to them; those next exterior are a little broader at the base, with denticles, exterior to these they become broadly triangular, the inner border entirely smooth but with its line continued so as to form a very sharp point directed outward, below which are one or two other serrations on the outer border; the external teeth of all approach in form those of the lower jaw.

A lateral line can be traced with entire distinctness, extending from the head nearly to the tip of the tail, at first along the upper portion of the side, then becoming lower, until along the tail it is below the middle.

The eyes are on the side of the head, elliptical, distant from the tip of the snout to the tip of the tail. It is rhomboidal, its height anteriorly (which is somewhat greater than its length) being about three fourths of the greatest depth of the fish. The posterior border is not closely adhered to the back, as in many sharks, but rises obliquely as in most osseous fishes. The upper border is concave.

The pectoral fins are rhomboidal, broad, their height anteriorly equal to the depth of the fish, and not quite equal to the distance of their origin from the tip of the snout.

The central fins terminate on the plane of the commencement of the dorsal, which fin they equal in length.

The anal fin, which is small, arises just anterior to the termination of the dorsal.

The tail is very long, more than one-third the length of the fish, slender, its separation from the back marked by a decided though not deep depression. The fin is almost wholly beneath, a very small continuation of it around the last vertebrae being discernible. It is highest in front, not quite equaling the height of the dorsal, becomes gradually lower, and a short distance anterior to its termination rises again, forming a distinct triangular lobe.

Color dark bluish gray above, with numerous, small, irregular black blotches; lighter beneath.

The Shark here described presents certainly a very singular grouping of characters. The only genus with which it can be compared is Cuvier's Volitana, previously separated by Rafinesque under the name Heptranchias, both founded on Lacepede's Squalus cinereus. With this our type agrees in the remark-
able features of a single dorsal fin, and seven branchial apertures. But in Votidanus the teeth of both jaws are represented as similar in form, and the muzzle pointed, the existence of spiracles being asserted by the one author and denied by the other. We have also in our fish the tail almost as much elongated as in Alopia. It seems therefore to represent a new generic division, for which we propose the name

**NOTORYNCHUS.—Ayres.**

*Dorsal fin single. Branchial apertures seven on each side. Spiracles two. Nostrils double, subterminal. Snout broad, depressed. Tail much elongated, with the fin beneath. Teeth in several rows; those of the lower jaw flattened, arched, serrated; those of the upper jaw of diverse forms, the middle ones slender, the outer ones approximating those of the lower jaw in form.*

*N. maculatus* is apparently not uncommon in the Bay of San Francisco, at certain seasons of the year; we have not yet the means of ascertaining its migrations. It is taken, during the summer, by the Chinese fishermen, at their station below Rincon Point, in no small quantities. But as sharks rank high with them in the scale of edible fishes, we have never been able to obtain from them a complete specimen. We have repeatedly watched their nets as they brought them on shore, but unfortunately at those times none of these fishes were taken, though the remains on the beach showed that numbers had recently been caught. The specimen described is the only complete one yet seen. It was obtained through the kindness of Dr. Lanszweert. It is twenty-three inches in length; but the remains of those taken by the Chinamen indicate that the species attains a length of at least six or seven feet. The development of the tail, as well as of the mouth and teeth, render it probable that this shark is one of great rapidity and quickness of motion.

N. B.—Since the above description was printed, the jaws of a specimen caught in Santa Barbara Channel, were received from Mr. J. M. Alden, of the U. S. schooner *Ewing.* The fish was 5 ft. in length.

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**SAN FRANCISCO, Oct. 15, 1855.**

**Col. L. Ransom in the chair.**

**Donations to the Cabinet.**

From Dr. J. G. Cooper, specimens of recent lignite, and petrified wood, from the tertiary sandstone of the coast of Washington Territory; a cone of *Abies Menziesii,* "Black Spruce of Oregon; and specimens of the genera, *Patella, Helix, Melania, Littorina, Purpura, Venus, Cytherea, Cardium, Tegula, Mytilus,* and *Anatifa,* from Shooal Water Bay.

Dr. Cooper also exhibited a very interesting series of plants from W. T.

From Mr. J. Palsche, the nest of a Tarantula, and two fossil teeth, from Murphy's, Calaveras Co.

From Lieut. W. P. Trowbridge, specimens of the genera *Scirpus, Neotoma, Mus,* & *Soror,* and a species of Hawk, from Astoria, O. T.; he also exhibited a specimen of *Apolonetta leporina* from Astoria, one of *Phalaroceras resplendens* from Cape Disappointment, and one of *Putorius ermineus* from Cape Flattery.

From Dr. J. N. Ilume, a valuable suite of Mineralogical and Geological specimens from Wisconsin Hill, Placer Co., and Eureka, Sierra Co.

Dr. D. H. Storer, of Boston, presented a copy of his History of the Fishes of Massachusetts, so far as yet published.

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**SAN FRANCISCO, Oct. 22, 1855.**

**Dr. A. Randall, President, in the chair.**

Mr James Palache, of Murphy's, Calaveras Co., Cal. and Dr. James G. Cooper of New York, were elected Corresponding Members.

**Donations to the Cabinet.**

From Col. L. Ransom, a large number of Geological and Mineralogical specimens, found chiefly in the vicinity of Monte Diabolo.

From Dr. J. G. Cooper, a species of Helix from Washington Territory.

From Dr. Randall, a fine specimen of crystallized Sulphuret of Iron imbedded in Talcose Slate, from a ledge near Placerville, through which a quartz lead passes.

From Mr. J. F. Pinkham, specimens of crystallized hornblende, found near the highest summit of the Santa Cruz Mts; also Sulphuret of Lead from near Santa Cruz.

From Mr. McDonald, of the head of Napa Valley, specimens of Travertine and crystallized deposits from the "Geyser's."

From Judge Bailey, a nest of *Hirundo americana* with eggs and young, found on a ledge upon the coast of San Francisco Bay.

From Dr. Lanszweert, a specimen of *Pyrocephalus rubinus,* Boddaart; also, of *Planorbis opercularis,* Gould, from San Mateo Creek; also, of *Pollicipes rubra,* Leach, from San Francisco Bay.

Dr. Lanszweert presented the following analysis of a deposit from an artesian well in Santa Clara valley, "resembling a white efflorescent salt":

- No perceptible odor;
- Taste saltish.

Mixed with distilled water, boiled and filtered, chemical reactions show the presence of

<table>
<thead>
<tr>
<th>Substance</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbonate of Magnesia</td>
<td>3.742 grains</td>
</tr>
<tr>
<td>Muriate of Soda</td>
<td>37.240&quot;</td>
</tr>
<tr>
<td>Carbonate of Soda</td>
<td>12.364&quot;</td>
</tr>
<tr>
<td>Sulphate of Lime</td>
<td>7.129&quot;</td>
</tr>
<tr>
<td>Carbonate of Lime</td>
<td>4.123&quot;</td>
</tr>
<tr>
<td>Silicie</td>
<td>128.476&quot;</td>
</tr>
<tr>
<td>Organic detritus</td>
<td>58.020&quot;</td>
</tr>
</tbody>
</table>

Quantity used.....................250,000 grains.

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**SAN FRANCISCO, Oct. 29, 1855.**

**Col. L. Ransom in the chair.**

**Donations to the Cabinet.**

From Capt. Worth, geological specimens from Matsmai, (Japan,) also specimens of Wild Cotton, and the prepared fibres of a species of grass, admirably adapted to the manufacture of cordage, from the Ladrone Islands. The thanks of the Academy were voted for the donation.
From Mr. Swan, specimens of shells, and the skull of a Phocaena, from Japan.

From Lieut. E. S. Stone, of the U.S. Coast Survey, specimens of shells from the Santa Barbara Channel.

From Col. Ransom, a large specimen of Crystalized Salt, found forty miles N. E. of the Tejon Pass; specimens of the rock formation of Point St. Quentin; rattles from species of Crotalus, killed near Kern River.

From Mr. D. E. Hough, of Oakland, a specimen of Cooper's Hawk.

From Mr. Isaac Lea, of Philadelphia, were received the following volumes of his works, for the Library: Contributions to tectology; Description of a new Mollusk from the Red Sandstone; Rectification of Colimacea; Notice of an Oolitic Formation in America, with descriptions of its organic remains; On a Fossil Saurian of the New Red Sandstone of Pottsville; Description of new species of Tertiary of Petersburg, Va.; Observations on the geography, the entire series of species occurring at that locality. They are thus valuable illustrations of the geographical distributions of types on this coast.

The collection comprises the forms here mentioned: Leptocottus armatus, Gir. Sebastos rosaceus, Gir. var. parvus, Ayres. Sebastos variabilis, Cuv. Ophiodon elongatus, Gir. Gasterosteus plebeius, Gir. Salmo rivularis, Ayres. Clupea mirabilis, Gir. Gadus proximus, Gir. and Chimera colliei, Gray. Every one of these species is identical with those occurring in our own immediate vicinity. The only additional type in the collection is an Ammodytes. Of this we have not as yet found any representative in California. The species is so closely allied to the European A. tobianus, that it is difficult to detect any features which may separate it. The points, in consideration of which A. americanus was removed from A. tobianus, are here, in the Pacific type, completely restored to their European form; and though their wide removal from each other in habitat is of course a strong argument against their specific identity, it is not of itself conclusive.

It may be stated in this connection, that a species of Pelamys has recently been brought to our museum, which is without question the P. sarda. The closest examination fails to distinguish it from the Atlantic form. Previous to this time we had no positive knowledge of any fish in the low latitudes which inhabits our waters and those of the Atlantic.

From Maj. H. P. Heitzelmann, specimens of Chestnuts from Cape Mendocino, the fruit of a tree sixty to eighty feet high, and one to two feet in diameter.

Dr. Lantzweert presented the following communication:

An article which appeared in the Evening Bulletin of Nov. 10, on the means of preventing smut in wheat, seems to render appropriate the publication of the following recipes, which have been used for that purpose with entire success for nearly a century. Having been first employed by one of my ancestors, they have since been introduced in various parts of France and Germany, and are now constantly used there.

No. 1.

Take of arsenic and lime in powder, each two pounds; boil with sufficient water to make a thin paste; when cold, macerate in this the seed wheat about twelve hours, and then dry it as usual. The quantity given is sufficient for five bushels of wheat.

No. 2

Take one pound of the arsenic and lime, as mixed in No. 1, add one pound of green vitriol or blue stone; mix and boil: use as above.

No. 3.

Dissolve of nitrate of silver 72 grains, of common salt and cream of tartar each 154 grains; use as above for one bushel of wheat.

No. 4.

Take of lime in powder, and sulphate of iron, each one pound; mix and use as in No. 1.

Donations to the Cabinet.

From Mr. H. G. Bloomer, a cone of the Taxodium giganteum.

Mr. Bloomer was appointed a Committee to furnish to H. P. Partwell, of Penn Yan, N. Y., a suite of the seeds of grasses and other plants from our Cabinet.
SAN FRANCISCO, Nov. 26, 1855.

Col. L. Ransom in the Chair.

Mr. Joshua E. Clayton was elected a corresponding Member of the Academy.

Donations to the Cabinet.

From Mr. Clayton, two specimens of Volcanic Glass from Clear Lake; and leaves of the Long Leaf Pine.

From Mr. Bloomer, several hundred specimens of California plants.


Letters were read from M. F. Maury, of Washington, D. C., and James Palache, of Calaveras Co., California.

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Donations to the Cabinet.

From Mr. N. W. Palmer, of Alameda, a specimen of Buteo borealis, and one of Strix pratincola.

From Mr. W. D. Sleeper, of Columbia, Cal., a specimen of the substance mined at Table Mountain, Tuolumne Co., known by the miners there as "soap." It was referred to Dr. Lanszweert for examination.

From Mr. A. G. Branda, a specimen of Orthogriseus, from the Santa Barbara channel. It is undoubtedly of a new species.

Donations to the Library.

From Dr. J. C. Warren, of Boston, Mass., a copy of his work on the Mastodon.

From the Pottsville Scientific Association, a copy of their Bulletin for Jan. and Feb., 1855.

The thanks of the Academy were voted for the donations recorded above.

A letter was read from Mr. Charles Girard, of the Smithsonian Institution, acknowledging the notice of his election as an Honorary Member of the Academy.

Mr. Bloomer and Dr. Lanszweert were appointed a Committee to furnish specimens to Dr. Sartwell, of Penn Yan, N. Y., and M. René Lenormand, of Vire, France.

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SAN FRANCISCO, Dec. 10, 1855.

Col. Ransom in the Chair.

Donations to the Cabinet.

From Dr. B. Daracoués, a beautiful specimen of Cotton, from Lower California; also, a specimen of Hippocampus, from Rio Janeiro.

From Mr. Rudolfson, of Sonora, specimens of petrified wood, shells, clay, &c., from Table Mountain.

From Dr. J. T. Hyde, a specimen of Tetraodon hispidus.

The thanks of the Academy were voted for the above donations.

From Col. Ransom, a group of fossil shells from the hills east of San Jose Mission; also, a fossil Ostra, from the mountain range east of San Luis Obispo, 2000 feet above the sea. This shell is 12 inches long, 6 inches wide, and 4½ inches in thickness, and said to be much smaller that many which have been found in the same range.

From Dr. Newberry, two very important groups of fossil shells. They were obtained by him near Point Pinole, San Pablo Bay. They were taken from two separate strata in the sandstone, which is identical with that of this city, and are of especial value, since they determine beyond question the Tertiary character of the extensive group known as San Francisco Sandstone. The shells are species of Pecten and Ostraea.

The December number of the Pioneer was received for the Library.

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Dec. 17, 1855.

Col. Ransom in the Chair.

Donations to the Cabinet.

From Col. Ransom, two nests of the Tarantula; also, alkaline inclusions from the plains near Kern Lake; also, volcanic deposits from near Yreka.

From Dr. Eckel, a very curious capsule, with the seeds, from Nicaragua.

From Mr. W. H. Brooks, a specimen of Lactophrys, from the Sandwich Islands.

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Dec. 24, 1855.

Col. Ransom in the Chair.

Donations to the Cabinet.

From Mr. Wm. Burling, specimens from the vicinity of Sitka, comprising fossil shells, the skin of a sea-lion, skeletons of Cygnus buccinator, Lutra canadensis, Phalaropus, Seirus, Putorius ermess, with the skull of a Polar Bear, and a specimen of Diomedea exulans. The skeletons were prepared by the Indians, and are in most admirable condition.

From Mr. C. Leonard, an abnormal specimen of the Lizard so common in this vicinity, Sceloporus gracioso.

From Dr. J. G. Cooper was received a copy of Gray's Botany of the Northern United States.

Letters were received from R. D. Cutts, Esq., Washington, D. C., and Dr. Charles Pickering, of Boston.

A communication was read from W. P. Blake, of Washington, D. C., giving an abstract of his paper read before the Am. Association for the Advancement of Science, at its last meeting, on the age of the San Francisco Sandstone, also observations on the pine sugar or mannite of California.

Dr. Ayres presented the following communication:

In the early part of August, 1854, descriptions were read before the Academy, of two species of fish, which were arranged with hesitation under the genus Hemilepidotus, but those descriptions were never published, as the Academy had not then commenced issuing its proceedings. Shortly afterward, Mr. Girard presented to the Philadelphia Academy of Natural Sciences, a paper in which was contained a description of one of these species; he called it Scor-
penichthys lateralis. But inasmuch as it appears to include both, the generic characters as given by Cuvier must be much modified. With Scorpennichthys their affinity seems less intimate, and a generic identity not admissible. In Mr. Girard's description of that genus, as published in the proceedings of the Phil. Acad. Nat. Sci., (vol. 7, p 181,) the characteris of that genus, as published in the proceedings of the Phil. Acad. Nat. Sci., (vol. 7, p 181,) the character is given, "Skin smooth, without either scales or plates" though in a copy of his paper sent to the Cal. Acad. of sciences, scarcely to be called spines, on the top of the head a little less than one-third of the entire length, becoming compressed posteriorly. Length of the side of the head is in length about equal to twice the depth of the head; the distance between them less than half their own diameter; orbits elevated, leaving a deep depression in the interocular space.

Nasal spines strong and prominent. Various cleavage planes, especially on the gill-covers. Teeth fine and crowded, in the jaws and on the vomer, palatines, and pharyngals. Spinous and soft dorsal more or less completely separated. Breath of the head greater than its height. Sides of the body, and sometimes the head, with patches of doubly concave, ciliate scales, alternating with spaces of smooth skin. Loose membranous flaps on various parts of the head.

Of this genus we know at present two species.

1. CALYCILEPIDOTUS SPINOSUS.—Ayres.

Head large; body tapering, rounded anteriorly, becoming compressed posteriorly. Length of the head a little less than one-third of the entire length, being equal to twice the depth of the head.

Eyes large, nearly circular, their diameter contained about four times in the length of the side of the head; the distance between them less than half their own diameter; orbits elevated, leaving a deep depression in the interocular space.

Nasal spines strong and prominent. Various cleavage planes, especially on the gill-covers. Teeth fine and crowded, in the jaws and on the vomer, palatines, and pharyngals. Spinous and soft dorsal more or less completely separated. Breath of the head greater than its height. Sides of the body, and sometimes the head, with patches of doubly concave, ciliate scales, alternating with spaces of smooth skin. Loose membranous flaps on various parts of the head.

Of this genus we know at present two species.
2. CALYCILEPIDOTUS LATERALIS.
(Syn. Scorpenichthys lateralis, Gir.)

As this species has been already described by Mr. Girard (loc. cit.) a detailed account of it here is not needed. It has the scales in a single band on each side, corresponding in some degree with the first band of the spinosus, but less regular, and not connected in the same manner in front of the dorsal fin; small, scattered scales are found also on the head. The head is less spinous, though the upper spine of the preoperculum is stronger and branched. The division of the spinous and soft dorsal is so complete, that they may be called two fins, though contiguous.—The membranous flaps of the head are extremely small; one at the superior posterior border of the orbit, and one at the extremity of the maxillary, both very difficult to detect in alcoholic specimens; none at the symphysis of the lower jaw. The eye is decidedly smaller than in spinosus. The gill-openings are continuous.

C. lateralis is perhaps a little more common in the Bay of San Francisco than C. spinosus, which it about equals in size. Mr. Girard's specimens were collected at Monterey and San Luis Obispo.

SAN FRANCISCO, Dec. 31, 1855.

Col. Ransom in the Chair.

Donations to the Cabinet.

From Mr. Burton Fales, of Springfield, Tuolumne Co., a fossil jaw of a young Mastodon, with fragments of other bones apparently from an adult specimen of the same species.

From M. Chevalier, two specimens of the Marsh Hawk, (Circus cyaneus) from the Mission Dolores.

From Dr. Holden, of Stockton, a fine specimen of the Paysano (Geococcyx viaticus). The thanks of the Academy were voted for the above donations.

From Mr. C. D. Gibbs, two specimens of Dipodomys or Kangaroo Rat, and one of Spermophilus lineatus or Ground Squirrel, from Tulare Co.

Two fossil Mastodon teeth were received on loan from Mr. Nathaniel Fales, of Springfield, Tuolumne Co., that casts of them might be made for the Cabinet of the Academy.

Donations to the Library.

From Prof. A. D. Bache, the Coast Survey Report for 1853.

From Mr. C. Girard, a copy of his descriptions of many new Fishes from the Pacific Coast.

From Mr. William Schmolz, Optician, of this city, was received a set of Meteorological Instruments, consisting of Bunte's Syphon Barometer, Thermograph, Wet Bulb Hygrometer, and Rain Gauge. The thanks of the Academy were voted to Mr. S. for his very valuable donation.

END OF PART FIRST.
Col. L. Ransom in the Chair.

The reports of the Curators, Librarian, and Treasurer were accepted, and placed on file.

Donations to the Cabinet.

From Capt. J. W. Russell, specimens of Mollusca and Echinodermata, from Nootka Sound. Articles of Indian manufacture, from the Makaar tribe, at Cape Flattery, were deposited.

From Dr. Behr, two specimens of 

*Wenona isabella*,

from Contra Costa.

From Col. Ransom, a species of Cytheraena.

The following officers were elected for the year 1856:

- **President:** Dr. A. Kellogg
- **Vice President:** Edward Bosqui
- **Treasurer:** Dr. J. N. Eckel
- **Cor. Secretary:** M. George Read
- **Rec.:** T. J. Nevins
- **Librarian:** Dr. J. B. Trask
- **Curator of Geology and Mineralogy:** H. G. Bloomer
- **Curator of Botany:** L. W. Sloat
- **Curator of Zoology:** Dr. L. Lansweert

The following amendments to the Constitution were adopted:

Section 4th of article 2d so as to read as follows:

Proven, that no person thus elected shall be regarded or recognized as such member until he shall have signifyed his acceptance, and complied with the prescribed conditions.

SAN FRANCISCO, Jan. 14, 1856.

President in the Chair.

Donations to the Cabinet.

From J. T. Hall, Esq., a group of Eocene fossils in sandstone, from near Negro Bar, American River.

The thanks of the Academy were voted for the donation.

From Dr. J. B. Trask, two specimens of Goosander, from the plains of the Sacramento.

From Dr. H. K. Reid, of Stockton, a very valuable collection of Californian birds, comprising fourteen species.

Donations to the Library.

From the Smithsonian Institution, seven volumes of the Smithsonian Contributions to Knowledge.

From the Société Royale of Stockholm, Sweden, two volumes, 1853 and 1854, Kongl. Vetenskaps-Academiens Handlingar.

From Dr. J. N. Eckel, six French and German works on Botany, Entomology, &c.

From the Lyceum of Nat. History, Williams College, Mass., an address delivered before them, 1856, by Prof. W. H. Rogers.

Mentions were made, viz.:

- W. O. Ayres, M. D.
- T. J. Nevins, Publication Committee.
- L. Ransom.
- T. J. Nevins.
- J. N. Eckel, M. D., Library Committee.
- J. B. Trask, M. D.
- T. J. Nevins.
- W. Heilley.
The following paper on earthquakes in California, from 1812 to 1855, was presented by J. B. Trask:

In preparing this paper I have endeavored to obtain, as far as possible, the most correct information of the history of these phenomena in former years, and to correct some of the misapprehensions and statements which have appeared from time to time relating to the severity of earthquake shocks in this country during the earlier periods of its history. From careful inquiry of the older residents, I can learn of but one shock that has proved in the slightest degree serious, causing the destruction of either life or property to any extent. This was the earthquake of September, 1812, which destroyed the Missions San Juan Capistrano, in Los Angeles county, and that of Viejo, in the valley of San Inez, in the county of Santa Barbara.

The following is the history of that event as I have obtained it from the native inhabitants, and older foreign residents on this coast:

The day was clear and uncommonly warm; it being Sunday the people had assembled at San Juan Capistrano for evening service. About half an hour after the opening of service, an unusual loud, but distant rushing sound was heard in the atmosphere. The sound receded a half a mile, and reached the lower part of the town. So distant and loud was this atmospheric sound that several left the building attracted by its noise.

Immediately following the sound, the first and heaviest shock of the earthquake occurred, which was sufficiently severe to prostrate the Mission church almost in a body, burying in its ruins the largest number of persons agree on the smallest number of deaths given, but in the absence of records such statements should be received with many grains of allowance, where memory alone is the only means left, and the term of forty-three years has elapsed since the opening of service, an unusual loud, but distant rushing sound was heard in the atmosphere to the east and over the water, which resembled the sound of strong wind, but as the sound approached no perceptible breeze accompanied it. The sea was smooth and the air calm. So distant and loud was this atmospheric sound that several left the building attracted by its noise.

During this earthquake windows were broken and merchandise was thrown down in a store on California street. The shipping in the harbor rolled heavily. During the shocks all the buildings in town were common in the country. During 1850 the following shocks were recorded, but it is probable that several were not noted, as we find their frequency bears no relation to those which have occurred during subsequent years.

From the date of the above to the year 1850, we have no record of the occurrence of these phenomena, other than the fact that light and repeated shocks were common in the country.

During 1850 the following shocks were recorded, and the number reported to have been killed outright is variously estimated from thirty to forty-five, (the largest number of persons agree on the smallest number of deaths given), but in the absence of records such statements should be received with many grains of allowance, where memory alone is the only means left, and the term of forty-three years has elapsed.

There is a universal agreement on this point, viz: that the first shock threw down the entire building, and that a large number of persons were in it at that moment, and under the circumstances it would be most singular if no deaths were caused by such an event.

Very little damage was done to the houses in town from the effects of the shocks, while the Mission at the San Inez was prostrated almost instantly. There is no evidence that I can find, that this earthquake was felt in San Luis Obispo, though such has been the report.


June 28.—A light shock in San Francisco

August 4.—A smart shock was felt in Stockton and Sacramento. Sept. 14.—Smart shock at San Francisco and San Jose. Total number recorded in 1850, five.

1851.

May 15—Three severe shocks in San Francisco. During this earthquake windows were broken and buildings severely shaken. A large amount of merchandise was thrown down in a store on California street. The shipping in the harbor rolled heavily. An eruption of Manua Loa and shock in the S. I. same day.

May 17.—A light shock in San Francisco.

May 29.—A light shock on the Salinas.
June 13.—A smart shock in San Francisco, which was felt at San Luis Obispo and San Fernando.

Dec. 2.—A shock at Downieville.

Dec. 31.—A smart shock at Downieville. Total number recorded in 1851 is six.

1852.

From the beginning of this year, until past its third quarter, no disturbances were noted, until the month of November.

Nov. 26.—The number of shocks noticed on this day at San Simeon was eleven, and at Los Angeles and San Gabriel the same number. The same number, or nearly so, was observed by parties having in charge a government train in transit from Camp Yuma to San Diego. This earthquake was felt over the entire country east and south of San Luis Obispo, to San Diego and the Colorado river, covering a line of about 300 miles square. Subsequent accounts prove that it affected the country south of the Colorado as far Gyuamas in the province of Sonora.

For the term of six days subsequent to the 26th, the entire south part of the State was convulsed, with slight intermissions. During their continuance a mutt volcano broke out upon the Colorado Desert, and another south of the Colorado, one of which was visited by a portion of the U. S. command under Maj. Heintzleman.

Dec. 17.—Two smart shocks occurred in San Luis Obispo, which fractured the walls of two adobe buildings, and threw down part of the wall of the house belonging to, and occupied by Don Jesus Pico and family.

During the month of December the southern and middle portions of California were much disturbed, and the effects were felt as far north as the 37th parallel.

The shocks continued into the month of January, and were noticed until the 5th of this month on the San Joaquin.

The period of time inclusive between the 16th November (the date of the sad earthquake of Banda Neira, in the Moluccas) and the 26th January, 1853, cannot be regarded as one of the most remarkable periods of modern date. During this period a great proportion of the earth's surface was convulsed by subteranean forces, than has been known for many years, in the same length of time.

The area most severely affected by these phenomena is included in the parallels of 40° south and 37° north latitude inclusive, making 76 degrees of latitude, and extending from 120° east to 45° west longitude, making 310 degrees of longitude, or nearly equal to three fifths of the equatorial circumference of the earth.

At this time the coast of eastern Asia, the Islands of the South Indian Ocean, Singapore, the Moluccas, the east coast of China, the north, east, and south of Australia, the coast of California, Mexico, and South America, with portions of the Atlantic coast, south of the 34th parallel, shared in the general disturbance that prevailed upon our own shores during the period above named.

With the 26th of January ceased the vibrations on this coast at that time, (that were perceptible without the use of instruments), but it appears that they continued much later on the east coast of China and Australia, extending into the month of February.

1853.

Jan. 2.—A smart shock felt in Mariposa, and at the same time in San Francisco, Shasta City, and Bodega.

Jan. 5.—A shock at Corte Madera.

Feb. 14.—A light shock at San Luis Obispo.

March 1.—A smart shock at San Francisco, felt at San Luis Obispo and Santa Barbara.

April 24.—A light shock at Humboldt Bay.

April 26.—Three shocks at Weaverville.

June 2.—Two small shocks on the plains of the San Joaquin.

July 12.—A light shock in Yreka, Siskiyou Co.

Sept. 3.—Four shocks on the San Joaquin and San Luis Obispo, to San Diego and the Colorado river, covering a line of about 300 miles square. Subsequent accounts prove that it affected the country south of the Colorado as far as Guyamas in the province of Sonora.

For the term of six days subsequent to the 26th, the entire south part of the State was convulsed, with slight intermissions. During their continuance a mutt volcano broke out upon the Colorado Desert, and another south of the Colorado, one of which was visited by a portion of the U. S. command under Maj. Heintzleman.

Dec. 17.—Two smart shocks occurred in San Luis Obispo, which fractured the walls of two adobe buildings, and threw down part of the wall of the house belonging to, and occupied by Don Jesus Pico and family.

During the month of December the southern and middle portions of California were much disturbed, and the effects were felt as far north as the 37th parallel.

The shocks continued into the month of January, and were noticed until the 5th of this month on the San Joaquin.

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1853.

Jan. 2.—A smart shock felt in Mariposa, and at the same time in San Francisco, Shasta City, and Bodega.
April 7, 6 P. M.—A light shock was felt at Gibb's Ferry, Trinity county, and was experienced as far north as Callahan's Ranch, at the head of Scott's Valley, Siskiyou county.

June 25, 2 P. M.—A smart shock was felt at Santa Barbara, and extended northward as far as the valley of Santa Maria. This shock was cotemporaneous with one that occurred in Switzerland.

July 10, 9 A. M.—A light shock was felt in Georgetown, El Dorado county, which lasted about four seconds. On the same day a very severe shock was felt in the city of Los Angeles, which done considerable damage. There were four distinct shocks during the earthquake, with a period of about two or three seconds, elapsing between each vibration.—During their continuance, the ground opened in several places, in fissures of one or two inches, the marks of which remained for several days afterwards. There were some twenty-six buildings in the city more or less injured, which I personally examined, and among them the church, the west wall of which remained for several days afterwards.—During the earthquake, many articles were thrown down, those that were standing on shelves against the east end of the buildings were thrown westward on to the floor, and those on the opposite end of the buildings were thrown back in an inclined position against the walls. These features were noticed in the drug stores of Doctors Winston and Hope, situated on the main street, and a short distance west of the church.

The meteorological condition of the atmosphere was rather unusual, and is described as follows:—The day was unusually warm and sultry, attended with a little thunder and some rain, (the latter very unusual) and a very sudden change of temperature to unpleasant coldness. At Point San Juan there was observed considerable commotion in the water, attended with a strong rushing sound, and two unusually heavy surf swells immediately following the last shock.

This shock was felt distinctly at the saw-mill some eight miles east of San Bernardino, about seventy miles east of Los Angeles, and about one hundred miles in a westerly direction. At Los Angeles the shock occurred at fifteen minutes after eight in the evening.

Aug. 12, 9 A. M.—A light shock of an earthquake was felt at Georgetown, which lasted about three seconds. The vibration apparently came from the north. Between this date and the 10th July there were four other light shocks, the dates of which are not recorded.

Oct. 21, 7 ½ P. M.—A smart shock of an earthquake was felt in San Francisco. The buildings situated over the water were violently shaken. There was much commotion in the water of the harbor a few minutes preceding the shock, which caused several vessels to heave heavily at their haunchers and cables.

Oct. 27, 3 P. M.—A light shock was felt in the valley of Clear Lake. On the same day a shock was felt in Downieville, which lasted about five seconds.

Dec. 5, 11.20 A. M.—The shock of an earthquake was felt at Humboldt Bay, which lasted about three seconds. There were two vibrations, the last being the most severe.

Dec. 11, 4 A. M.—A shock was felt in San Francisco and at the Mission Dolores; at the latter place it is represented as having been quite severe.

Jan. 2d, 1856, 10 A. M.—A light shock in San Francisco, which lasted about three seconds. The shock came from the north and was undulatory.

The whole number of which I have a record for 1855, amounts to twelve only; but there may be others which have escaped my notice on account of absence from the city.

The following table will show the number of shocks for each year, and each month of the year, for six years from 1850 to 1855 inclusive:—

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From the above it will be seen that of the total number of shocks in six years in this state, forty-eight have occurred during the spring, summer and autumn months, and eleven during the winter months. Of the total number noted, twenty-seven have occurred from San Luis Obispo south, and of the thirty-two remaining, nine have been felt in San Francisco at the same time they were observed at San Luis Obispo, while the remaining twenty-three were felt at San Francisco and north of that point.

Notwithstanding we have had, what may, perhaps, be considered a frequency in the recurrence of these phenomena, still there are but a very few of the total number that would merit a moment's consideration. It appears that the greatest phenomena, still there are but a very few of the total number that would merit a moment's consideration south of the twenty fifth parallel of north latitude, for there they would be regarded a minor affairs entirely.

From all the facts in our possession relating to the phenomena on our coast, it appears that the greatest preponderance in action, and severity of effects, is exerted for the most part, south of Point Conception, for, from this place, east, south and north, to near the Colorado, the most conclusive evidences exist of very recent volcanic action having been exerted on rather an extensive scale, and is also still persistent in several localities within the area named, though in a minor degree.

It would be interesting to examine the changes of level that have evidently taken place in this State within the last five years; but, as more extended observations would greatly assist us in forming conclusions on this subject, I will defer that portion until a future day.
SAN FRANCISCO, Jan. 21, 1856.

President in the Chair.

Donations to the Cabinet.

From C. D. Gibbs, specimens of Clay containing impressions of leaves, from Table Mountain; also a specimen of Lignite, with Sulphuret of Iron.

From Col. Ransom, silicified wood, from Kern River.

From S. W. Higgins, a fossil multilocular shell, apparently of new generic form, from Coose Bay.

From W. B. Little, a calcareous concretion, from Thompson’s ranch, Santa Clara Co.

From Dr. J. B. Trask, specimens of Arbor Vitae, in blossom; they were referred for investigation to Dr. Behr and Dr. Kellogg.

From M. G. Read, Sulphuret of Iron, from Mexico; also a Roman coin, from Herculaneum.

From Capt. J. W. Russell, specimens of shells, &c., from the island of San Miguel, Cal.

Deposited for the Cabinet.

By Dr. A. B. Stout, an Indian Mummy, from Shoalwater Bay, showing the result of their method of preserving their dead.

By Capt. J. W. Russell, a blanket made by the Indians at Cape Flattery, from the hair of a peculiar race of dogs.

Donations to the Library.


Report of the Coast Survey for 1854, from R. D. Cutts, Esq., from Washington, D. C.

Plants of Cincinnati and Vicinity, by Thomas G. Lea, from Jacob Resor, Esq.

SAN FRANCISCO, Jan. 26, 1856.

President in the Chair.

S. W. Higgins and F. Rohrer were elected Corresponding Members.

Donations to the Cabinet.

From Mr. W. T. Rumble, of Columbia, a series of specimens collected chiefly in Utah Territory. Among them was a pebble of Jasper cut so as to constitute a seal; this was found amid fragments of ancient pottery.

From Mr. C. K. Lambert, of Columbia, specimens from Table Mountain and vicinity.

From Henry Hancock, U. S. Deputy Surveyor, specimens of shrubs, and the wood and leaves of Palmetto, found N. E. of Los Angeles.

From B. M. Henry, U. S. Deputy Surveyor, a specimen of Tertiary Coal, from the Coast Range, fifteen miles southwest of Stockton.

From Dr. C. H. Raymond, a specimen of paper manufactured from wood shavings.

The thanks of the Academy were voted for the above donations.

From Dr. Lanzsweert, a Capsule from Central America. Referred to Dr. Kellogg and Mr. Bloomer.

From Dr. A. Kellogg in the Chair.

Donations to the Cabinet.

From Mrs. Herrick, a specimen of Acrostichum alcicorne, or Elk Horn Fern.

From Mrs. Miller, a specimen of Fucus from the Gulf Stream.

The thanks of the Academy were voted for the above donations.

From Dr. Eckel, a part of the jaw of a Mastodon, from Columbia, Tuolumne Co.; the same species as the teeth previously received from Murphy’s, Calaveras Co.

From Dr. Lanzsweert, Iron from Santa Clara, made from ore found in that county, containing forty per cent.

From Capt. Russell, shells and Indian relics from San Miguel, with others from Cape Flattery.

From Dr. Randall, specimens of Tertiary Fossils from Chico Creek, Butte Co., containing a small Ammonite, and a Baculnite. Dr. Randall also presented a specimen of Planorbis from the same county, with Indian relics from Marin county.

From Dr. R. Reid, of Stockton, plants collected near the Cosumnes and Mokelumne rivers.

Donations to the Library.

From Jacob Resor, of Cincinnati, a Catalogue of the Flowering Plants and Ferns observed in the vicinity of Cincinnati, by Joseph Clark.

From Dr. Eckel, Liebig’s complete works on Chemistry.

From subscription of the members, the Botany of Capt. Beechey’s Voyage, and Part 1 of the Botany of the Voyage of H. M. Ship Herald.

Dr. Kellogg exhibited drawings of ten species of Conifers, four species of the Silver Fir, and four species of Spruce Fir; two of the latter are rare, and may prove to be new. Also two species of Pines, one of which is evidently new. The Society are under obligations to Dr. J. C. Newberry, of Col. Richardson’s Survey, for the use of the specimens from which the sketches were made. A full description will appear in his report. As the Society have no specimens of many of these species, our friends would greatly oblige us by sending any specimens from their respective vicinities.

President in the Chair.

Mr. J. C. Palmer was elected a Life Member of the Academy.

Donations to the Cabinet.

From Capt. Kcntzel, a living specimen of the Whistler, Aryctomys pruinosis, Penn., from Cook’s Inlet, Russian Possessions. This donation is of more than ordinary interest, as the species is represented

SAN FRANCISCO, Feb. 4, 1856.
in but very few collections. Its Indian name is stated to be Gighan.
From Mr. W. E. Cormack, a specimen of Planorbus from Australia; one of Kauri (a resinous product, from which a varnish often substituted for Copal is made in England) from New Zealand; and one of Protode iron from Staffordshire, England.
From Mr. Boch, Lava from Mauna Loa.
From Mr. E. A. Rowe, of Weaverville; specimens of Iridium.
From Mr. Camman, geological specimens from near Randolph City, Coose Bay.
The thanks of the Academy were voted for the above donations.
From Col. L. Ransom, a fragment of a fossil tree twelve inches in diameter, found about fifty miles north-east of Los Angeles.
From Dr. J. B. Trask, specimens of fishes and reptiles from Sacramento.
From Dr. A. Randall, specimens of Astacus, from Alviso.

Donations to the Library.
From Mr. W. E. Cormack, the Botanical and the Ichthyological Appendix to Franklin's Voyage, by John Richardson, for which the thanks of the Academy were tendered.

San Francisco, Feb. 18, 1856.

President in the Chair.
P. M. Randall, and S. Pinkham were elected Resident Members of the Academy. Capt. Kentrel was elected a Corresponding Member. Charles H. Cook was elected a Life Member.

Donations to the Cabinet.
From Col. L. Ransom, Lignite from Table Mountain, Butte Co.; Copper Ore, Hornblende Granite, and Iron Ore, from near Lake Elizabeth, and a specimen of Mygale.
From Mr. McCormick, limestone and Spar from Bone Cave, Bristol England; Astacus Bartoni, from Miramichi River, Nova Scotia; a parasitic plant from the Stanislaus River; and a "vegetable caterpillar" from New Zealand.
From Mr. G. W. Lefli, a specimen of Dendritic Gold, from Wall's Diggings, Sacramento Co.
From Mr. W. H. Hill, Fossilized Wood from Monte Christo.
From Mr. J. Brittan, a specimen of Solecurtus, from Monte Diablo.

Donations to the Library.
From the Essex Institute, Salem, Mass., a Descriptive Catalogue, with a list of its officers and members.
The thanks of the Academy were voted for the above donations.
From Dr. J. B. Trask, American Journal of Science, Nos. 58 to 61.

San Francisco, Feb. 25th, 1856.

President in the Chair.

Donations to the Cabinet.
From Mr. E. J. Loomis, of Alameda, a Sparrow Hawk (Tinnunculus Sparverins). The thanks of the Academy were voted for the donation.
From Dr. R. K. Reid, of Stockton, a specimen of Planorbus from Tulare Lake.
From Col. L. Ranson, Granite, and Translucent Quartz and Sand, from Folsom, Sacramento Co.
From Dr. A. Randall, Red Coral, and a Chiton covered with Corallines, from Monterey; two specimens of Helix, from Cypress Point; specimens, also, of Cupressus Macrocarpa from Cypress Point.
From Dr. Veatch, of Red Bluffs, minerals and fossils from Lick Springs, Shasta Co.; also, a specimen of Tritillaria from the same locality.

Donations to the Library.
From the Boston Society of Natural History, one number of their proceedings, pp. 257 to 272, December, 1855.
From Mr. W. Heffley, Kane's Chemistry, by Draper.
Mr. T. J. Nevins presented an account of a very beautiful Lunar Rainbow, seen by him, at Alameda, Feb. 29, at 7 P. M. It was accompanied by a secondary bow, the arch being distinct and complete in both.

March 3, 1856.

President in the Chair.
Dr. B. F. Shumard, State Geologist of Missouri, was elected a Corresponding member.

Donations to the Cabinet.
From Mr. Lewis, a specimen of Octopus. The thanks of the Academy were voted for the donation.
From Col. Ranson, specimens of Cannel Coal, from England; also, an Indian pipe from San Bernardino.

Donations to the Library.
From W. P. Blake, Descriptions of Fossils and Shells, collected in California.
From Dr. Eckel, Foot-Prints of the Creator, by Hugh Miller.

March 10, 1856.

President in the Chair.
J. M. Alden, of the U. S. Coast Survey, was elected a Corresponding Member.
A. H. Jones and C. D. Shuepel, were elected Resident Members.

Donations to the Cabinet.
From N. A. Covarrubias, specimens of California Pearls.
From Mr. Peabody, seeds of Calacanthus, from the Geysers.
The thanks of the Academy were voted for the above donations.
From Mr. Tallant, specimens of *Ambystoma*, insects, and the ovum of a Shark.

From Col. Ransom, specimens of Sand-stone, Serpentine, and Chromic Iron.

A unanimous vote of thanks was tendered to Mr. Frank Baker, for a donation of carpets for the rooms of the Academy.

SAN FRANCISCO, March 17, 1856.

President in the chair.

Donations to the Cabinet.

From Mrs. T. J. Nevius, specimens of flowers from Alameda.

From Mr. G. S. Morgan, Fossil Shells from Shoalwater Bay. The thanks of the Academy were ordered for the above donations.

From Mr. Tallant, specimens of *Nassa, Asterocanthon*, *Grapsus,* &c., from North Beach.

From Dr. Lanszweert, specimens of *Notophithalmus tarodus*, Esch., from Mission Dolores.

Donations to the Library.

From Prof. J. D. Dana, "Science and the Bible—a Review of Prof. Lewis' "Six Days of the Creation.""

From the Boston Society Natural History, their Proceedings, pp. 263 to 278.

A communication was received from Mr. T. J. Nevius, giving an account of a thunder shower observed at Alameda.

Description of a new species of Ammonite and Baculite, from the Tertiary rocks of Chico Creek. By Dr. John B. Trask.

It is not without some hesitancy that the announcement of these genera is made at this time, as occurring in a more recent group than that assigned them by paleontologists of the present day. This is done, knowing well that the period at which they became extinct, is placed far below that of the lowest of the Tertiary groups. Still, it appears to me impossible to place the rocks containing these fossils, in any other than the period here given them, and as late at least as the superior portions of the upper Eocene. The associated fossils are for the most part of the present existing genera and species upon the coast, and if the per centage of existing genera is admitted as a rule to fix the relative age of rocks of this character, then it will be necessary to carry these beds into the Miocene periods.

The rocks are composed of about twenty genera, not more than two of which, do not exist upon the coast at the present time, and it may be doubted that those will yet be found. Eleven of those most easily made out, and which belong to the cabinet specimens, are figured in outline on the plate, (see plate 11,) together with accurate drawings of the types of this paper, numbered 1 and 1. A, 2 and 2. A, plate 11; and will serve to convey a correct idea of the fossils of the group.

The figures in outline consist of cardium, tellina, macra, natica, buccinum, fusus, purpura, cerithium, turritella, &c. The bivalves not figured, consist of venereus, cytherea, lutararia, and several other genera. Had there been but a single specimen of the baculite and ammonite, their appearance in these rocks might have been considered purely an accidental circumstance, and occurring as a transported fragment from the districts to the north, and one hundred miles distant, where those genera abound. But as they are not found in the rocks of the same character or age, they cannot be attributed to that cause.

When we consider their number, and the relation they hold numerically to the associated fossils of the group, and promiscuous distribution, we cannot do otherwise than assign to them an age contemporaneous throughout, and that they lived and died in those beds in which their remains are now found.

My attention was called to these fossils by Dr. A. Randall, by whom they were found on Chico Creek during the past winter, and by him placed in the cabinet of the Academy. I have seen but one ammonite from this locality, but he has knowledge of three or more from the same place.

After examining the Baculite presented by him, I became convinced that the small cylindrical fossils, so frequent in those rocks belonged to this genus, and on inspecting the specimens in the cabinet, not less than nine different specimens were counted. Prior to this time, I had regarded those shells as dentalia, for which they would easily be mistaken from their small size and the character of the fossils with which they are associated.

If an erroneous diagnosis has not been made in relation to the age of these rocks, (and of this fact I entertain no fear) they become a matter of much scientific interest, as they prove that the period at which these animals existed, descends to a later day than that now by general consent assigned them. And these rocks will demonstrate that fact most incontestibly.

The only question that can arise in this case is, whether we shall conform to the strict scholastic rule laid down, for the classification of geological periods, and carry so extensive a group of decidedly tertiary deposits down to the cretaceous, with their present existing genera with them; or carry two genera higher up in those periods, and give them what they most unmistakably tell us, viz., a later animate existence than before known.

If the former case be applied, then it will become necessary to modify our opinions relating to tertiary rocks, particularly in this State, for most certain it is that the fossiliferous beds of Chico Creek are more recent than those of Ocoya (Pose Creek) Creek of Tulare county, the fossils of which have recently been examined by Mr. Conrad of Philadelphia, and by him pronounced to be of miocene date.

**AMMONITE (Lam) CHICORENSES. Trask.**

*Plate II. Fig. 1 and 1. A.*

Shell small; with two and one-half whorls; twenty-three tertiuous angulate costae, each second or third rib terminating at the ventral edge of the outer whorl, the outer row and largest, situated on the dorsal edge, the inner row situated about one-fourth of the depth of the whorl from the dorsal edge, and becoming obsolete at the eighteenth rib; tubercles on the outer edge correspond to the number of costae on the whorl, siphuncle visible the entire length of the dorsum. Length, sixteen-thousandths of an inch, width, nine-twentieths; length, four-twentieths of an inch. Locality, Chico Creek, Cal.

**BACULITE (Lam) CHICORENSES. Trask.**

*Plate II. Fig. 2 and 2. A.*

Shells small; thin; compressed; smooth; intero-
dorsally sub compressed, latero-ventrally somewhat obtusely rounded. Section of the shell obovate. The above figures of natural size. Locality, Chico Creek, Cal.

Description of three new species of the Genus Plagiostoma, from the Cretaceous rocks of Los Angeles. By Dr. John B. Trask.

Up to the present time, no mention has been made of the occurrence of the Cretaceous rocks in this State. The researches of F. Roemer, in Western Texas and New Mexico, demonstrated their existence to the middle and southern portions of this territory, at which point he left them.

A late traveller, Julius Froebel, extended his observations over the ground of Roemer in part, and continued the same into California. In a conversation with the former gentleman, in 1854, upon the fossils of New Mexico and westward of that country, he intimated the probable existence of the Cretaceous rocks west of the Colorado. The fossils collected by him west of that point, were not sufficiently well defined, however, to base a positive conclusion upon, and place the matter beyond a doubt. I feel satisfied at the present time that most of those fossils are referable to that period, and that the opinion he then advanced was well grounded.

Since that time I have been fortunate enough to discover fossils, of as much antiquity at least as those ferable to that period, and that the opinion he then advanced was well grounded.

Up to the present time, not a single positive conclusion can be based upon the fossils collected by Roemer in Western California, and probably still lower in the series, the rocks containing them forming the coast of the Pacific Ocean in this State. There can be no doubt therefore at present, that the Cretaceous rocks extend from the Atlantic to the Pacific.

The rocks in which these fossils are found, occur at San Pedro, in the county of Los Angeles, immediately upon the coast, and underlying the superficial tertiary beds (lately denominated recent formations by Mr. T. Conrad) of this locality. I have some hesitancy in placing these rocks so high up in the geological series, as the position here assigned them, but as the associated fossils are as yet somewhat obscure and ill defined, it is thought best to place them here for the present, or until farther examination of their fossils shall classify them otherwise.

The tertiaries at this point are about thirty feet in depth, and have a low northerly dip; about one and three-twentieths of an inch. Locality, San Pedro, Cal. Found with the preceding species.

Beneath the tertiary beds, a dark, soft, marly deposit crops out but a few feet above tide water, having a northerly dip of about fifty degrees, and extending along the beach for three-fourths of a mile. They contain the fossils described and figured below, associated with small crustaceans and corallines, the latter too fragile to admit of demonstration. Conformable to these beds, along the shore to the west and north, are beds of a yellowish and buff-colored limestone, resembling a coarse variety of lithographic stone, containing fossil crustaceans of small size, none of which have yet been found sufficiently perfect to admit of a description.

The fossils here described and figured, are all from very perfect cases; the fine striae and small fold upon the auricles, are as perfect as they possibly could have been upon the shell original.

The fossils I have referred to the genus Plagiostoma of Sowerby, but having the figures of but two species of that genus, and no description whatever, I am compelled to omit reference to those heretofore described, that may simulate these in form or otherwise.

Plagiostoma (Sow) Pedrona. Trask.

Plate III. Fig. 1.

Shell compressed; sub-triangular, with eight or nine flatly rounded concentric annulations, which are nearly as distinctly marked on the interior of the valve for about half the height from the ventral margin; (see fig. 1. A.) beaks acute at the apex, and as high as the line of the auricles; anterior auricle rounded in front, and has a small, thin fold extending from the umbone to the centre of its anterior margin, and is covered with about thirteen small, rounded, radiating striae, which converge at the beak; beaks at the anterior third; sub-acute; anterior margin rounded, and somewhat produced; ventral margin smoothly arched; posterior margin rounded, becoming slightly arcuate toward the dorsum of the shell; posterior auricle angulate, and obtusely truncate posteriorly. Length one and eighty-twentieths of an inch; height one and four-twentieths of an inch. Locality, San Pedro, Cal.

P. annulatus. Trask.

Plate III. Fig. 2.

Shell compressed; obliquely rounded; five to seven broad concentric annulations; anterior margin obtusely rounded; ventral margin rounded; posterior margin somewhat produced; ventrally, and becoming slightly arched toward the dorsum; beak at the anterior half, and slightly raised above the line of the auricles; anterior auricle angular, with about twelve fine striae divergent from the umbones; posterior auricle subangulate, and truncate posteriorly. Length, one and five-twentieths of an inch; height, one and three-twentieths of an inch. Locality, San Pedro, Cal. Found with the preceding. There were three specimens of this species found—the left valve was used for the figure from its being the most perfect.

P. truncata. Trask.

Plate III. Fig. 3.

Shell compressed; round-quadrate; about eight flattened, slightly rounded, concentric annulations; anterior margin rounded, and somewhat obtuse below the middle; ventral margin orbicular; posterior margin bluntly rounded; posterior dorso-lateral margin subangulate; beaks acute above the line of the auricles; anterior auricle rounded in front, striate, and has a small fold extending from the umbones to its anterior margin above its middle, posterior auricle angulate and obtuse posteriorly; beaks anterior to the middle. Length, one and one-tenth inches—height, one inch. Locality, San Pedro, Cal. Found with the preceding species.

San Francisco, March 24, 1856.

President in the chair.

Donations to the Cabinet.

From Dr. J. A. Veatch, plants from the vicinity of Lick Springs, Shasta county.

From Mr. J. P. Haven, a large collection of marine shells, from the Islands of the South Pacific; the skull of a Barbaroussa; specimens of Corals; a Flying Fish, and articles manufactured by the natives of the Pacific Islands; also, a large Mahogany Book-case.
From Capt. Maltby, specimens of gold-bearing quartz from Kern River.

From Mr. D. S. Marvin, specimens of Scolopendra, from Forest City.

From Mr. J. P. Buckley, a collection of Insects. The thanks of the Academy were voted for the above donations; also, to the Pacific Express Co. for the gratuitous carriage of specimens.

Donations to the Library.

From the Linnean Society, of London, the second volume of their Proceedings.

San Francisco, March 31, 1856.

President in the Chair.

Donations to the Cabinet.

From the Arizona Mining Company, Red Oxide of Copper, containing eighty per cent, of the metal; Grey Sulphuret of Copper; Malachite, and Black Oxide of Copper from Arizona.

From Mr. J. P. Buckley, a collection of Insects. The thanks of the Academy were voted for the above donations.

From Dr. L. mentioned that the Saturnia Californica, our native Silk Worm, had made its appearance at the same time as the blossoming of the Ceanothus.

The following paper, "On some Californian Crustacea," was received from Mr. Wm. Stimpson, Zoologist to the U. S. Expedition to the North Pacific.

The Californian coast is apparently not as rich in marine invertebrata, especially of the lower orders, as the generality of coasts in the same latitude; which may be owing to the want of variety in station, as the generality of coasts in the same latitude; although, from actual experience, we feel confident our species must prove one of the very best substitutes—it is scarcely to be compared with many herbs which we hear so often extolled in this respect. The tea is a tonic astringent, with the odor of cinchona, and evidently a restorative stomachic. It leaves a rich, mellow, persistent, somewhat aromatic flavor upon the palate, similar to the best black tea; and we think must prove salutary in relaxations, chronic diarrheas, etc.; in fact, one species of this family, found in Asia, was formerly kept in the shops and used by physicians.

Capt. Maltby, of Kern River, has the thanks of the Academy for these specimens. We are greatly in want of the fruit and flowers, and hope soon to receive them. This is probably the E. Americana. It differs from the species found at Salt Lake. The green branches are clustered and opposite, without leaves, in place of which are two opposite, very minute membranous-like scales, of a brown redder color, without points, the twigs striated, somewhat seven sided, jointed like an Equisetum or Scouring Rush—they readily separate and fall apart at these joints, hence the origin of the common name Joint Firs.

San Francisco, April 7, 1856.

Dr. Trask in the chair.

Donations to the Cabinet.

From Dr. Lanszewert, a species of Planorbis, believed to be new.

From Dr. Trask, a specimen of Graphite from Mt. Washington Mine, Shasta county, by Dr. J. A. Veatch; a specimen from Placerville, has no serratures at the base of the leaf (?) like the present one.

San Francisco, April 28, 1856.

President in the Chair.

M. A. Le Plongeon was elected a Resident Member. From Mr. Tallant were received numerous specimens of Algæ, Sertulariæ, &c. The following paper, "On some Californian Crustacea," was received from Mr. Wm. Stimpson, Zoologist to the U. S. Expedition to the North Pacific.

The Californian coast is apparently not as rich in marine invertebrata, especially of the lower orders, as the generality of coasts in the same latitude; which may be owing to the want of variety in station, and the paucity of inlets, bays, and islands, which afford shelter to such animals. The Crustacea, however, although they cannot be said to be numerous, can scarcely be included in this remark, as a respec-
obsoletely 4-costate on the outer surface. Posterior feet rather compressed, second articles hairy along the superior crest; penultimate article of second pair with a tuft near its extremity inferiory; tarsi with three longitudinal brushes of short-thick hair along the angles, the superior and anterior one of which is obsolete in the fifth pair of feet, and the superior and posterior one almost wanting in the others. This species is of a dark red or madder-color above, feet mottled; below dirty white. Length of carapax three and three-fifths inches; width six inches. Found in company with *C. magister*, and commonly seen with it in the markets.

*Cancer graciosus*, O. S. Expl. Exp. (l. c., 1851, p. 248), is found in the coves of San Francisco Bay, living generally among pebbles and boulders on muddy shores, from half-tide to low water mark. It is a bluish-gray above, darkened anteriorly with clouds of dark-red dots; the feet, with the exception of the light-colored anterior pair, are sparsely dotted with red.

*Eusceliscopus nudus*, Dana. (l. c., 1851, p. 249.) is found among the rocks, in the clearer water, near the open sea. It is of a dark olive, sometimes of a dark mahogany color; and is easily distinguished from the preceding species by the glossy smoothness of its posterior feet.

**Echidnocerus setimanus.** *Ctenorhinus setimanus*, Gibbons. (*Proc. Am. Acad. Nat. Sci., I. 48.) This fine species is perhaps identical with that of Oregon, (*E. cibarius*, White). It differs from the *Silica* species only in the shorter and blunter spines of the antero-lateral margins and of the feet. The genus *Echidnocerus* will probably be found synonymous with some one of the subdivisions of the *Lithodina* recently established by Brandt (vid. Bulletin, Scient. de l'Acad. imp. de St. Petersb., cl. phys. mathem., T. vii., p. 174, 175.)

The "lobster" of the San Francisco market is probably the *Palinurus interruptus* of Randall. It belongs to the genus *Panulirus* of Gray. It is brought from the coast to the southward, and Dr. Trask informs me that it is very common on a rocky ledge in ten or twelve fathoms off Santa Barbara.

**Callianassa occidentalis**, St. Eyes subtriangular, closely approximated, triangular, and marked with three longitudinal furrows, the middle one being the longest, and marked with the outer three. Length of the external antennae two-thirds that of the body. The larger of the anterior feet smooth and glossy on the sides; the second article denticulated along the inferior edge. Hand scarcely longer, and perceptibly of less height than the carpus; slightly ciliate on the edges, and especially toward the extremities. A considerable hiatus intervenes between the fingers when closed, and between their bases arises a small but prominent tooth, which curves upward. Moveable finger nearly half as long as the hand, rather slender, with hooked extremity; its tooth little projecting, formed by a swelling out of the inferior edge, which is minutely denticulated. Thumb regularly but very slightly curved. Color a delicate orange; anterior feet rose-colored. Length four inches. This species is frequently seen with *Callianassa productus* of Randall, near the entrance of San Francisco Bay, &c. It appears at no time to be abundant.

**Gelia Californica**, St Stomachal region of carapax hirsute only on the anterior two-thirds, and marked with three longitudinal furrows, the median of which is much shorter than the two lateral...
PHILOSCIA TUBERCULATA, St. Body somewhat loosely articulated anteriorly, covered above with granulations, or more properly minute tubercles, which are somewhat variable in size, but generally as large anteriorly as posteriorly, and show a tendency to arrangement in transverse rows; two or three to each segment. Antennae inserted in the cavities between the middle and the side lobes of the head, which are very prominent; they are composed of seven articles, the last two forming the flagellum.—Caudal segment small, narrow, with a rounded obtuse point. Terminal article of external ramus of caudal appendage stylistiform, tapering to an obtuse point, and reaching beyond the extremity of the abdomen to a distance equaling half its length. Color dark gray, almost black; below greenish white.—Length 0.33 inch. Found under dead leaves, sticks, etc., in damp places, and along the margins of brooks.

CAPRELLA CALIFORNICA, St. Antennae exceeding-ly variable in their proportions; flagella of superior ones 10—15-articulate; inferior ones sub-pedicellate. A more or less developed spine, which curves forward, and its segments of considerable length, is placed upon the back at the anterior extremity of the first thoracic segment. Hand of second pair of feet generally three-toothed, teeth (in full-grown specimens) about equal in size, and placed mostly toward the outer extremity of the hand. Two or three sharp tubercles along the sides of the branchioporous segment; and a short dorsal spine on each of the posterior segments. Hands of posterior feet slender. Color variable. Length one inch. Found on sea-weeds, etc., below low water mark in San Francisco Bay.

COROPHII SPINICORNE, St. Inferior antennae half as long as the body, without flagella, and with a large, curved, sharp-pointed spine at the inferior extremity of the very thick third article. Superior antennae nearly as long as the body, with plumose hairs; those of the first pair with minute subcheliform hands, palm transverse, third and fourth articles with long setae along the inferior edge. Feet of the second pair simple, but with the third and fourth articles conjoined laterally, as if forming a hand; the fourth article being placed inferiorly and fringed with long hairs. Caudal styles as in C. longicorne, except that the external ramus in the second pair is not cultriform. Color brownish, darkest at the head, with transverse bands of light yellow corresponding to the articulations.—Antenne brownish. Length 0.4 inch. Found among conveyer, etc., in the salt marshes on the shores of San Francisco Bay.

ERICHTHONIUS RAPAX, St. Small epimeras on the first thoracic segment, larger ones on the second, both narrow, not touching each other. Antennae subequal, one-third as long as the body; superior ones with 6-articulate flagella; inferior ones strongly toothed at the inferior angle of their basal segment, and with 10-articulate flagella. Mandibular palpi reaching beyond the middle of basal article of the superior antenna. Eyes on lobes which protrude forward between the bases of the antenna. Hands of the first pair small, subcheliform; those of the second pair of great size, with a bi-articulate finger, and a thumb one-third as long as the finger, with a strong tooth at the middle of its inner side. Color brown-
ish. Length one-fourth of an inch. Dredged in two fathoms sand, in San Francisco Bay.

Orchesthes Traskiana, St. Male, with the flagella of the inferior antennae forming more than half their length, and consisting of fourteen articles; superior antennae reaching to the extremity of the second article of the inferior ones; feet of the first pair with a comparatively large, oval subcheliform and robust finger, as in O. littorea, politicera, etc.; feet of the second pair with an ovate hand, with no teeth on the oblique, convex, spineous palm (which terminates posteriorly in a slight notch) nor on the finger, which is less than half as long as the hand. In the female the first pair of hands resembles those of the male, except in being smaller, having less produced lobes and a comparatively longer finger; those of the second pair with a small elongated hand, with a rounded extremity and a rudimentary finger applied at about the middle of one edge, somewhat as in O. insculpta, Dana. In both the feet of the sixth and seventh pairs are of about equal length. Eyes rounded, black. Color light-grey, sometimes greenish or brownish, always very pale. Length three-fifths inch. Very common among the rejectiments along the shores of San Francisco Bay.

Allorchistes Seminuda, St. Body compressed; eye broad, suboval, the posterior side straight, the anterior slightly concave; superior antennae with 13-articulate flagella, and three-fifths as long as the inferior ones, which are one-third as long as the body, and have 14-articulate flagella. Setae on both pairs of antennae few, very short and almost obsolete. Hand of 1st pair of feet short, palm oblique, finger of moderate size; carpus with a rather long projection of its antero-inferior angle; hand of the 2nd pair short, ovate, deeply excavated below for the reception of the point of the finger, which article is more than half as long as the hand. Color pale green; antennae red. Length half an inch. Found on sea- weed, and among barnacles, on piles, stones, etc., at half tide in San Francisco harbor.

Miss Convervicola, St. Fourth, fifth, and sixth articles of abdomen angular and setose on the dorsal surface. Eye broad, subreniform. Superior antennae less than half as long as the body, with a thickened basal article, a very slender 24-articulate flagellum twice as long as its peduncle, and a 3-articulate appendiculum. Inferior antennae as long as the superior ones, with a 12-articulate flagellum of about equal length with its peduncle. Hands four, rather small, of similar size and shape, truncate, palm slightly concave, with blunt spinules; finger short, stout, curved, with an almost obsolete tooth at the middle of its inner side. Feet of the fifth pair scarcely more than half as long as those of the sixth and seventh, which are about equal in length. Rami of the posterior pair of caudal stylets unequal; external ones long, considerably flattened, setose along their jagged edges; inner rami very small. Color dark brownish, rarely blackish. Length 0.4 inch. Found among conferve, etc., in salt marshes on the shores of San Francisco Bay.

Phoxus Grandis, St. Large; body thick, robust, broad; rostrum lamelliform, expanded over the bases of the superior antennae, with broadly rounded extremity. Superior antennae bi-flagellate, the inner flagella very little smaller than the outer ones; both 12-articulate; penultimate article of peduncle entirely concealed beneath the rostrum. Inferior antennae a little longer than the superior ones; terminal article of peduncle broad at its extremity, where its outer angle is rounded and a little produced; its inner angle bearing the 15-articulate flagellum. Eye transversely oblong. Feet covered with simple hairs. Those of the first and second pairs with small subcheliform hands; those of the third and fourth pairs with the third and fourth articles dilated, the fifth slender and the sixth minute. Feet of the posterior three pairs very much expanded, those of the sixth pair longest. Caudal stylets of the first and second pairs with short, styliform rami, the inner ones being a little shorter than the outer ones; those of the third pair with long, flattened, equal rami, the outer ones spinulose along the outer edges, both fringed with long hair on the inner edges. Terminal spines of considerable length. Color yellowish-white. Length, 0.5 inch. Dredged in ten fathoms, on a sandy bottom, in the channel near the entrance of San Francisco Bay.

San Francisco, May 5, 1856.

President in the chair.

Donations to the Cabinet.

From Mr. Thomas Marston, two specimens of Lignite, from Douglass Flat.

From Rev. Mr. Blakeslee, specimens of Tufa, Tremolite, Sulphuret of Iron and Iron Ochre, from Iowa Hill.

From Mr. James L. Hawks, a root used by the inhabitants of Western Mexico as a cure for the bite of venomous reptiles; its native name is Huaco. The thanks of the Academy were voted for the above donations.

From Dr. Trask, a valuable series of specimens from the gold mines of California, together with specimens of volcanic rocks from Sonoma and Placer counties.

From Capt. C. J. W. Russell, a specimen of Octopus, from San Francisco Bay; also, a Scorpion from Sinaloa, Mexico.

From Mr. Sloat, a Tarantula from the Warm Springs, near San Jose.

San Francisco, May 12, 1856.

President in the chair.

Sir Wm. J. Hooker, Director of the Royal Gardens at Kew, was elected an Honorary Member of the Academy.

Mr. Andrew Garrett, of Hilo, Hawaii, was elected a Corresponding Member.

Donations to the Cabinet.

From Mr. G. B. Williams, a Mastodon Tooth from Kincaid's Flat.

From Mr. Smith, a specimen of Selene from La Paz, Mexico.

From Dr. Trask, two specimens of Callianassa occidentalis, Simpson, from the Bay of San Francisco; also, numerous specimens of minerals, shells, etc.

From Col. Ransom, a specimen of Ostraea, from the mountains sixty miles east of San Louis Obispo; it is 13½ inches in length, and 7½ inches in depth, and weighs 18 pounds.
From Capt. Russell, four packages of seeds from Mexico.
From Dr. Eckel, specimens of Copper; also, of petrified wood, from Arizona.

SAN FRANCISCO, May 19, 1856.
President in the chair.
Donations to the Cabinet.
From Dr. Stillman, specimens of Bulimus, from Los Moras, Texas.
From Dr. Sherman Day, specimens of Trachyte and Volcanic Tufa, from near Carson's Pass.
Several specimens of Geodes, from near Volcano, Amador county, were deposited by Mr. H. Camp.
A very large Patella, from La Paz, was deposited by Capt. Russell.

SAN FRANCISCO, May 26, 1856.
President in the chair.
Donations to the Cabinet.
From Mr. S. W. Levy, specimens of Phrynosoma, from Knight's Ferry.
From Mr. E. Mangan, a specimen of Chronic Iron from the foot hills west of Tulare Lake.
From Mr Joseph Briton, specimens of fossils from Monte Diabolo. The thanks of the Academy were voted for the above donations.

SAN FRANCISCO, June 2, 1856.
President in the chair.
Donations to the Cabinet.
From Mr. A. Frieeck, specimens of fruits, lava, etc., from the Sandwich Islands.
From Mr. Joshua E. Clayton, specimens of ores, etc., from Mariposa county.
From Mrs. T. J. Nevins, a collection of flowers from Alameda. The thanks of the Academy were voted for the above donations.
From the Boston Society of Natural History, was received a copy of their proceedings, Vol. 5, pp. 305, 320.

SAN FRANCISCO, June 16, 1856.
President in the chair.
Mr. Moss was elected a Resident Member of the Academy.
Donations to the Cabinet.
From Capt. T. D. Johns, fossil cetacean vertebral, from Coose Bay.
From Mr. Jerome Brown, Shaw's Flat, Tuolumne county, Mastodon teeth, from Stone Gulch.
The thanks of the Academy were voted for the above donations.
From Dr. Trask, 126 species of Achatiaella, from the Hawaiian Islands.
Donations to the Library.
anterior part of the eye. Maxillary entirely and in-
formed by the anterior suborbital.

termaxillary in large part received under a sheath
line vertical to the tip of the maxillary crossing the
pointed, jaws equal; gape of the mouth moderate, a
space equal to their own diameter, which is con-
tained four times in the length of the head. Muzzle
equalling three-fourths the length of the head.
four times in the entire length; depth of the body
doubtless less rounded than Scomber scomber or
fuil condition, still the Scomber Diego is at all times
contained nearly twice in the length. (The speci-
mens described were taken while the fish were not in
Travertine, and Copper ore; also a package of bul-
_ Eyes large, rounded, separated from each other by
tration of a new species of mackerel:
Scomber vernalis.) Length of the head contained
ma.

Body elongated, compressed, the thickness being
contained nearly twice in the length. (The speci-
mens described were taken while the fish were not in
full condition, still the Scomber Diego is at all times
doubtless less rounded than Scomber scomber or
Scobem vernalis.) Length of the head contained
four times in the entire length; depth of the body
equalling three-fourths the length of the head.
Eyes large, rounded, separated from each other by a
space equal to their own diameter, which is con-
tained four times in the length of the head. Muzzle
pointed, jaws equal; gaps of the mouth moderate, a
line vertical to the tip of the maxillary crossing the
anterior part of the eye. Maxillary entirely and in-
terminal in large part received under a sheath
formed by the anterior suborbital.
Teeth numerous, very fine and even, in both jaws,
Dr. Trask read the following paper:

At the close of 1855, I presented to the Association a statement of the occurrence of earthquakes in this State for that year and a term of years preceding. During the year just passed, I have kept a careful record of these phenomena, that have been noticed in this city, and other parts of the State, and which will be found below, with their date, and the hour of the day on which they took place, and they comprise all that have occurred, with perhaps two exceptions; the date for which were so obscure as to render it impossible to determine with accuracy the precise period of their occurrence. So far as I am informed, these shocks which have taken place in this State during the past year have not been marked with more severity than has been usual in years preceding, frequently amounting to a slight tremor, and at other times to more distinct movements; three only have possessed sufficient intensity as to command general attention during the busy hours of day.

Very few have been noticed by persons who were standing upon the earth at the period of their occurrence. By far the greater proportion were observed in high situations from the ground, and in the more retired parts of the city, or on the alluvial covering of the sea. In the county of Sonoma and Santa Rosa.

The total number for the past year is sixteen, and of this number thirteen were observed between sunset and sunrise, a fact sufficient in itself to show the lightness of their character; for, did they possess that severity so often attributed to them, the attention of the populace would much more often be directed to their observance. Yet we find such is not the fact, their first knowledge of such an occurrence being usually its announcement by the daily press.

By reference to the statistics below, it will be seen that even in the mountain districts, where during the day there is much less of turmoil and noise arising from business than in the populous city, that of all those noticed, none have been of sufficient intensity to attract the attention of the inhabitants during the hours of daylight. These facts, though few in themselves, are of importance, to disabuse the public mind in relation to the danger to be apprehended from the occurrence of these phenomena. The character which we sustain both at home and abroad, as being in constant danger of being swallowed up by these occurrences, and that our country is but a bed of rocks, is due to the superficial statement, spreading devastation over the land, is one of the greatest fallacies that ever obtained possession of the human brain. Our State is as primitive as Massachusetts or New Hampshire, and the danger that attend us from the sources above spoken of, are equally great as in the States just named.

We should remember that when speaking of California as a State, that we include a line of territory equaling that of the seaboard lying between Cape Flattery on the south and the British Possessions on the north, and including eleven of the seaboard States of the Union; and when we place our comparative estimates on this basis in matters of this character, it will become at once evident that the danger of annihilation from the causes under consideration, are not of that magnitude that at first sight would appear.

Along the coast of Mexico and Central America, to the south of California from all the records that are obtainable here, there appears to have been a much greater extinction from those phenomena than has been usual in former years; this seems to have been the fact, also, throughout the Pacific, Oceanic and most of the Continental islands along the coast of China, while to the north and north west, beyond the fifty-fifth parallel, both volcanic and earthquake phenomena appear to have been greater than usual. This has been observable, for the most part, in the neighborhood of the Aleutian Archipelago, along the north east coast of Japan, and in the British and Russian Possessions of North America on the Pacific, and Island of the Ochotsk Sea.

It would be interesting to know more of the predominance of these phenomena in those regions, and such information could be easily obtained from the commanders of the whaling fleet, if the proper measures were adopted to secure it.

Below will be found some interesting matter upon this subject, which took place during the past year near the Straits of Oroninach. The earthquakes which have occurred in this State during 1856, and the period of their occurrence, is as follows:

Jan. 2d.—At a quarter before ten this morning, a smart shock of an earthquake was felt in San Francisco. The motion of the earth was undulatory, and came apparently from the northward. A pendulum indicated a motion of about five and a half inches.

Jan. 28th.—At the town of Petaluma, Sonoma county, a shock of an earthquake occurred at a few minutes past three o'clock in the morning — It was sufficiently heavy to awake persons from their sleep.

Jan. 29th.—At a quarter before one o'clock this morning, a slight shock was felt in San Francisco — It was observed also at the Mission Dolores. There were three distinct tremors, with short intervals elapsing between. The motion was apparently from the westward.

Jan. 21st.—Quite a smart shock occurred at four o'clock this morning; it was quite sharp in the southwest part of the city.

Feb. 15th.—At five o'clock twenty-five minutes a severe shock of an earthquake was felt in San Francisco, the duration of which was about eight seconds. Persons sleeping were aroused, and many persons left their beds and sought the street. There were two distinct shocks, the second very light and scarcely perceptible. The motion was undulatory and vortical, and at the end of the latter a very strong, profound jolt, with which it ceased.

The upper part of a building on Battery street, for seventy feet in length, was thrown down, the whole of which was above the cornice, very thin, and the mortar with which it was constructed had not become hardened, being easily removed by the fingers — it more resembled wet sand than a firm mortar.

There appears but little difference in the sensations of persons situated either in upper or basement stories.

It was preceded by a deep, heavy rumbling, and the motion apparently came from the northwest.

A distinct shock was felt at eight minutes past two o'clock the same morning, by persons who were awake and up at the time.

The vortical movement was shown in the fact that small square bottles and boxes that stood upon a line were moved from their position horizontally, describing an arc of thirty degrees and upwards, as shown by the dust upon the shelves on which they stood.

The first wave came with a force sufficient to project small articles three or four feet on the floor, from shelves on which they were placed; they were apparently all thrown in the same direction. Seve-
ral clocks were stopped at precisely 5 hours 25 minutes.

All the cracks in walls and ceilings had a direction nearly northwest and southeast, and most of them had the appearance of having been produced at the moment of elevation.

The earthquake was felt heavily at Monterey, at 5 hours 20 minutes; it was also felt at Bodega, but no time is given.

The vessels on the coast, and ranging from San Pedro on the south to Southern Oregon, and at distances varying from eight to one hundred miles from land, did not experience any shock. They were 22 in number.

Up to the present date the most northern point of which we have any record of its having been felt, is at Santa Rosa, which is 53 miles north of San Francisco, and at Monterey, 90 miles south of the latter place; to the east of this city we have no record beyond Stockton. This would give for its length 143 miles, and its breadth 66 miles.

Inquiry was made through the State line Telegraph at El Dorado, Nevada, Downieville, Placerville, Meryville, Sacramento, Stockton, and San Jose; it was not felt in any of the localities named, excepting the two last, and at Stockton it was quite light.

If the time as given at Monterey was the same as at this city, (San Francisco) the velocity of the earth-wave must have been much slower than that of the great earthquake at Simoda.

March 24.—A slight shock was felt at Canal Gulch, Siskiyou county, also at Yreka at twenty minutes before 10 o'clock, P. M. The motion is described as being horizontal.

March 31.—A light shock was felt in San Francisco at twenty five minutes past 1 o'clock, A. M. It consisted of three light but distinct tremors.

April 6.—114 P. M. A smart shock was felt at Los Angeles and the Monte. People were aroused from their beds.

May 10.—A light shock was felt in San Francisco at 10 minutes after 9 o'clock, P. M. The shock was accompanied by a loud report, like the discharge of a cannon; people mistook it for the signal gun of alarm among the people. many leaving their beds.

April 6.—111/4 P. M. A smart shock was felt at Los Angeles and the Monte. People were aroused from their beds.

May 2.—A severe shock was felt at Los Angeles at 4 minutes past 12 o'clock, P. M. It caused much trembling among the buildings, and considerable alarm among the people, many leaving their beds. The shock was preceded by two loud reports like the blasting of rock; it apparently came from the northwest; no damage was done.

August 2.—A light shock was felt in San Francisco at 20 minutes after 5 o'clock, A. M. It was sufficiently strong to awaken persons in bed; it was evidently more severe in Stockton.

August 27.—An earthquake was felt at Mission San Juan, Monterey county, at 15 minutes before 9 o'clock, P. M. There were two distinct shocks with short intervals clasping the second being the heaviest. The motion is described as undulatory and coming from the west. It was felt at Monterey and at Santa Cruz.

Sept. 6.—A smart shock felt at Santa Cruz, at 3 o'clock, A. M. It created considerable consternation and many persons left their beds.

Sept. 20.—A very severe shock was felt in different parts of San Diego county, and at that town at 11½ o'clock, P. M. At Santa Isabel the ceilings of the dwellings was shaken down; the cattle stampe-
On motion, it was voted that the election of Standing Committees be deferred to a future meeting.

From Dr. Stillman, of the steamer "John L. Stephens," were received specimens of marine shells, Radiata, &c., from the Bay of Panama.

From the Curator of Geology, by exchange, tooth of a species of Elephas, from Oregon.

From the Boston Society of Natural History was received a sheet of their Proceedings, Vol. 6. pp. 1—32.

(omitted proceedings)

SEPTEMBER 29, 1856.

President in the Chair.

Dr. Joseph Birnстиl was elected a Corresponding member.

Donations to the Cabinet.

From Mr. J. Gallaway—specimens of Solar Salt and Sulphate of Lime, from San Quentin, Lower California.

From Mr. Pollock—a specimen of Asteracanthion, from San Francisco Bay. The thanks of the Academy were voted for the above donation.

From Capt. Russell—a specimen of Pitufopis and the skin of a fox, from San Clemente Island.

From Mr. Beardsole—specimens of cones and pines from Shasta and vicinity.

Letters were read from Mr. Binney, of Germantown, Pa., Dr. B. F. Shumard, of Saint Louis, Boston Society of Natural History, and Western Academy of Natural Sciences.

Donations to the Library.

From Dr. B. F. Shumard—a paper on a new fossil genus, belonging to the family Blastoidea.

From the Boston Society of Natural History—Proceedings of the Society, pp. 353—368.

SAN FRANCISCO, Nov. 17, 1856.

President in the chair.

Donations to the Cabinet.

From Mr. Horace Davis—specimens of Limestone and Lignite, from Shaw's Flat.

From Mr. J. T. Cunningham—bones of Mastodon, from Shaw's Flat.

From Dr. Skinner, of Stockton—pharyngeal bones of Mylopharodon robustus.

From Mr. J. E. Clayton—cones of Sequoia gigantea, and bulbs of the Mountain Lily, from the Upper San Joaquin. The thanks of the Academy were voted for the donations above recorded.

From Col. Ransom—specula of a Whale.

From Mr. Beardsley—specimens of Peroxide of Manganese, from near Oakland, and cones of Silver Fir. (Abies nobilis) from Scott Mountains.

From Dr. J. A. Veatch—skulls of Ursus ferox and Canis ochropus (?)

SAN FRANCISCO, Dec. 16, 1856.

Dr. Kellogg, Vice President, in the chair.

Dr. Haggin, of San Francisco, was elected a Resident member.

Donations to the Cabinet.

From Mr. F. Rais—fossils of the marine Tertiary, from Monterey County, with minerals and recent shells.

From Dr. Badorous—specimens of silicified wood, from Mokelumne Hill.

From Captains J. D. Brown—specimens of Coleoptera, Coral and Sponges, from the Gulf of California.

From Mr. Bridges—specimens of Sequoia gigantea, Sequoia sempervirens, Pinus Lambertiana and Pinus insignis.

From Dr. J. A. Veatch—specimens of Travertine, Sulphur, Obsidian and silicified roots of the Tule, from near Clear Lake.

Donations to the Library.


From Messrs. Vincent & Payot—Memories de la Societe des Sciences Naturales, 1835, 1842, 1849.—The thanks of the Academy were voted for these donations.

SAN FRANCISCO, Jan. 25, 1857.

President in the chair.

Mr. Thomas G. Cary was elected a resident member.

Donations to the Cabinet.

From Dr. Stillman, specimens of Shells, &c., from the Bay of Panama.

From Dr. Trask, a fossil Elephas tooth, from Oregon.

From Mr. Theodore Moss, a specimen of Diomedea eucalas, from near Cape Horn; also a specimen of Mineral Resin in Coal, from the Island of Borneo.

From Dr. Lanzweert, specimens of Malachite from Australia, and of Sulphuret of Copper from Nevada.

By purchase from the estate of Dr. A. Randall, an extensive collection of plants of California, wood of forest trees, Mosses of New Mexico and the Gila, Shells and Minerals.

Donations to the Library.


From Mr. Geo. Fraunfeld, Verhandlungen der Zoologisch-Botanischen, 1852, 1853, 1854 and 1855; also, Bericht uber die ostrer—Literatur der Zoologie, Botanick. Paleontologie, aus den jahren 1850—51—52—53—55. Also, Auzschlung der Algen der Dalmatineschen Kasten; von Geo. Fraunfeld; also, Jahrbuch der Kaiser's Königlichen Geologischen Reichskanzle, 1850—1855.

From the Smithonian Institution, the eighth vol. of the Smithsonian Contributions to Knowledge.
The thanks of the Academy were voted for the above donations.

From Mr. Wm. Scimpey, a copy of his work on the Testaceous Mollusks of New England.

From Dr. Lansweert, a Catalogue of the Shells of Connecticut; also Conchology from the Encyclopedia Britannica, with plates of American Conchology.

The Committee on Publication were appointed a committee to draft a memorial to Congress in favor of the publication of the Scientific Reports of the U. S. Exploring Expedition under Commanders Ringold and Rogers.

Mr. Moss presented a prospectus of the Literary and Scientific Association of Valparaiso.

Mr. T. J. Nevins was elected a Life Member of the Academy.

Dr. Kellogg exhibited a drawing of a new species of oak, to which was given the provisional name of *Quercus Vaccinifolia*.—Kellogg—or Huckleberry-leaf Oak.—Leaves annual, coriaceous, small, oblong-ovate, acute, sub mucronate, somewhat obtuse at base; glabrous above, reticulate; fuscosus and stellate pubescent beneath; margin entire, petiole short. Fruit ovate, sub acute, mucronate, sub-sessile; cup shallow, margin thin, scales minute apressed, hoary-fuscous tipped with brown, stellate pubescent. Biennial.

This species of oak is abundant on the lofty mountains of California. The Trinity, Scott and Siskiyou mountains are clothed with extensive thickets of this shrub. It is rarely found over one inch in diameter, and 4 to 6 feet in height. The branches are smooth, round and slender, and together with the buds and foliage resemble the Whortleberry. The leaves are about one inch in length, dilated at the base; glabrous above, reticulate; fuscous and pressed, hoary-fuscous tipped with brown, stellate pubescent. Biennial.

The Academy are indebted to M. I. Beardsley for the publication of the Scientific Reports of the U. S. Exploring Expedition under Commanders Ringold and Rogers.

The thanks of the Academy were voted for the above donations.

From Mr. T. G. Cary, specimens of Pumice, from the surface of the ocean, June 25, 1856, in lat. 50° 53' N., long. 158° 32' W.

From Capt. L. J. W. Russel, specimens of Annelida, Crustacea and Mollusca, from the Gulf of California; also, of Specular Iron, Seeds and Shells, from Manzanillo.

From Col. Ransom, various Fossil Bones, found 100 N. E. of Los Angeles.

From Dr. Eckel, specimens of Neritina, from Japan.

From Mr. T. F. Moss, a valve of *Ostraea*, from the Amoor river.

From Dr. Lansweert, Birds from New Caledonia.

Donations to the Library.


From Dr. Eckel, Owens' Geological Survey.

From the Essex Institute, a copy of their Proceedings.

American Journal of Science, No. 67, from the Editors.

Report of the Commissioners of Common Schools, Canada.

From Mr. Heffley, Ancient History of Astronomy, by Waltz.

From Mr. T. F. Moss, six Nos. of La Science.

Mr. T. J. Nevins deposited seventeen volumes of the Natural History of New York.

Mr. T. J. Cary deposited Embryology of the Salamandra, and Systema Glaciale, by Agassiz.

The following paper, by W. P. Blake, was read:

NOTE ON THE OCCURRENCE OF TELLURET OF SILVER IN CALIFORNIA: BY WILLIAM T. BLAKE.

A specimen obtained from Georgetown, California, resembling a fragment of tarnished lead or silver-glance, is found, on examination, to be chiefly composed of Silver and Tellurium. The mass is about one inch in length and breadth, and is entirely free from gangue, but incloses native gold, which appears at several points on its surface. An aggregation of cubical crystals, resembling galena, is implanted on one side, and the other is deeply indented with angular cavities—probably the prints of quartz crystals. The massive part of the specimen is sectile and malleable, and does not show any traces of crystallization; it may be cut with a knife, like lead, and
gives a brilliant metallic surface. Hardness about 2 of Mohs' scale.

In the open tube, before the blowpipe flame, the mineral fuses quietly, coloring the glass a bright yellow under the assay; a white or gray sublimate is deposited at a short distance from, or directly over it, which, on being heated, fuses into transparent drops, resembling oil. On charcoal it fuses readily to a leaden-colored globule, which on cooling, becomes covered with little points or dentrites. This globule flattens under the hammer, but breaks on the edges. With the addition of a little carbonate of soda, a globule of silver is readily obtained.

A fragment heated to redness in a closed tube or crucible, with dry carbonate of soda and charcoal dust gives, on the addition of a few drops of boiling water, the beautiful violet-red or purple solution described by Berzelius as characteristic of tellurium. This solution loses its color after standing for some time, and a dark colored powder is deposited. The mineral dissolves in hot nitric acid, with the separation of telluric acid in crystals.

It is probably the species Hesstie, but the decision is reserved until further examinations are made. Its color is darker than the Hesstie of Savodinsky, Siberia, and is not quite so hard.

This very rare mineral has not hitherto been observed in America, and its occurrence is therefore of peculiar interest. I am indebted to P. C. Currier, Esq., of Georgetown, for the specimen which was obtained in that vicinity, and probably taken from the auriferous drift, but it cannot have been transported far from its original source.

The crystals give reactions for lead and sulphur and a trace of selenium. They are probably galena, but may contain tellurium.

A specimen seen in California in 1854, weighing about two ounces, greatly resembled the massive part of the specimen above described. The small fragment of it which was then obtained, also gives the reactions for tellurium and silver. Its precise locality is not known.

The telluric silver of Siberia, according to Gustof Rene, is composed, in 100 parts, of:

- Tellurium: 36.96
- Silver: 62.42
- Iron: 0.24

It is probable that tellurium combined with silver, lead or bismuth will be found in the auriferous quartz of Grass Valley and other localities. A few specimens in my possession contain small brilliant grains resembling tetradymite, but their exact character is not yet determined.

January 1, 1857.

A letter was read from M. Boisduval, stating that Saturnia California had been previously described by him as S. euryalus.

The curators were authorized to send such duplicates of specimens as are available, to the Society of Natural History, at Stockton, Cal.

SAN FRANCISCO, March 30, 1857.

President in the Chair.

Prof. Asa Gray, of Cambridge, Mass., and Dr. John Torry, of New York, were elected Honorary Members.

Dr. John Browne, of the U. S. steamer Active, Mr. Geo. Gibbs, of Port Townsend, M. Moreenbaut, of Monterey, Capt. Fauntleroy, Capt. Wilson and Dr. George Suckley, were elected Corresponding Members.

Donations to the Cabinet.

From Capt. J. D. Brown, of the schooner Ada, specimens of Reptiles, Fishes, Annelida and Crustacea, from the Gulf of California.

From Dr. Pigné Dupuytren, a fine collection of Marine Shells and a skull of Belone, from New Calcutta; also, a fabric made from the hair of the bat, by the natives of those islands.

From Dr. Welch, a skull of Diomedea chlororumpus, and a skull of a native of the Sandwich Islands.

From Dr. Czapky, a large species of Patella.

From Mr. Parent, two specimens of Chiton and a Colaris, from the Galapagos Islands.

From Mr. H. P. Wakelee, a suite of specimens from Nicaragua, consisting of the capsule of Cocca Bean, Scorpion, skin of a large serpent, (called by the natives Bo-bo,) and Coal; also, Copper smelted at the La Mina del Padre, (Colima,) and Copper Ore from La Mina Truxcanisco, (Colima;) also, Solar Salt from near Los Angeles, Cal.; also Auriferous Quartz from Kern river, and a shell of Echinus.

From Mr. H. R. Bloomer, a specimen of Eunatina dorsalis, from San Francisco.

From Barry & Patten, a specimen of Ornithorhyncus, from Australia.

The thanks of the Academy were voted for the donations above recorded.

From Dr. Lanzweert, Liguite, from Sonoma.

From Dr. Bennett, a specimen of Gypseum, and one of native Alum, from Guaymas.

From Capt. Russell, a fine specimen of Yuca, in full bloom, from the Southern Coast; also, two young specimens of the same for cultivation; also, several specimens of Mesembryanthemum.

From Dr. Kellogg, a specimen of Scolopendra, from Monte Diabolo; also, a box of seeds.

From Dr. Ayres, a specimen of Anarrhichthys ocellatus, and one of Cebidichthys crista-galli, from San Francisco Bay.

From Mr. W. H. Pease, of Honolulu, a fine suite of specimens from the Sandwich Islands, consisting of Crustacea, Land and Marine Shells, Echinoderms and Corals.

From Mr. Hepburn, Calcareous Travertine, from the Guyzers.

From Mr. Beardelee, a specimen of Trillium.

From Dr. George Suckley, specimens of Mytillus, from the Straits of Fuca.

From Dr. Trask, a specimen of Nereis, thirty-three inches in length, from San Francisco Bay; also, a fish allied to Gunnellus, of apparently a new generic type; also, a quantity of the ripe fruit of the Coffee Tree, from the Sandwich Islands. The curators were requested to distribute these seeds throughout the State, for the purpose of inducing their cultivation.
Capt. Russell deposited a Water Bottle and Beads, with a Mortar, which were made by the Indian woman Maria, on the island of San Nicolas, during her solitary residence there of fourteen years.

On the Direction and Velocity of the Earthquake in California, January 9, 1857—By Dr. John B.trak.

The earthquake which occurred in various parts of this State, on the morning of the 9th January last, excited at the time considerable attention. This arose from two causes. First, from the varied reports that appeared on the following day through the press of this city, detailing its occurrence in remote mountain towns, and for which there was no foundation. Secondly, from the great extent over which the commotion was felt, as was subsequently proved.

Immediately following the occurrence of the phenomenon, letters were addressed to all the principal towns between Mariposa and Downieville, east of the valleys, for the purpose of learning how far the shocks may have extended eastward of this city. These letters were forwarded by the Pacific Express Company to their agents, and through them answers were returned in every case but two, in response to the request that the time of the shock be noted. This was found that in no locality east of the foot hills, was any shock felt whatever on that day or night.

Another report, equally unfounded, reached us, on the 11th, of the steamer from the Southern coast, to the effect that several houses had been damaged in San Diego from its violence, while the facts in the case are, that the steamer left that port twenty-four hours before the shock at the latter place, and which will be found in a paper read by that gentleman at the meeting of the American Association for the Advancement of Science, during the early part of last year.

From the facts before us, there can be but little doubt of the direction of the commotion, and that it proceeded from the west, or a little south of that point. The motion of the earth, as described at the different localities at which it was felt, with the motion of the pendulum—which was slightly south of the latter line—leads to the latter conclusion. Time is an important element in aiding us to form correct conclusions regarding their phenomena, and it is to be hoped that our friends in different parts of the State, in reporting the same, will be precise in this particular. Of the medians attending the shocks, many and varied reports have reached us; and it seems to have been with greater violence in the vicinity of the Tejon Reserve and upper Tulare county than at any other places. It is most remarkable that so small an amount of intensity was manifested when the area over which it extended is taken into consideration.

The effects were felt in San Francisco several hours before they are reported to have been observed at any other place north or south. They began here at twenty minutes past eleven, on the night of the 8th, and continued until eleven minutes past eight the following morning—six shocks occurring in the interim; while in the south, the first shock that was noticed at the Tejon was at 6 hours 30 minutes, on the 9th in Los Angeles they continued at long intervals through the day until 23 hours 30 minutes of the same date. I have learned from persons who were present in Los Angeles at this time, and also at the shock of the 14th July, 1855, that the severity of the latter exceeded that of the 9th January last past.

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The velocity is given in miles per minute, and by dividing the sum of the same by their number, it will be found that the movement of the wave at that time averaged a fraction over 6.2 miles per minute.

The results obtained from the above data approximate closely the deductions of Prof. Baker on the wave which reached our shores resulting from the earthquake at Sumeda on the 23d December, 1854, which will be found in a paper read by that gentleman at the meeting of the American Association for the Advancement of Science, during the early part of last year.
Donations to the Library.

From Lieut. Maury, a full series of his Wind and Weather Charts.

From the Boston Society of Natural History, their Proceedings, vol. 6, pp. 49-64.

From the Natural History Society of Montreal, their Twenty-eighth Annual Report.

A Circular, from the California Society of Natural History, Stockton.

American Journal of Science, No. 68, from the Editors.

From Mr. T. F. Moss, eleven Nos. of La Science.

Mr. Moss deposited Palaeontologie et Geologie, three volumes; also, Precis d'Analyse Chimique.

Capt. Russell deposited a volume of Records of the Mission of San Diego, in Spanish, dating back to A. D. 1770.

Letters were read from M. Rene Le Normand, Mr. W. H. Pease and Mr. W. P. Blake.

The thanks of the Academy were voted to the Editors of the Pacific Sentinel, Santa Cruz, for a file of their paper furnished regularly for several months past.

The Recording Secretary was requested to communicate to Mr. Joseph C. Palmer the thanks of the Academy, for his very liberal donation of the rent of the Academy rooms for the ensuing year.

Dr. Trask read the following paper

ON SOME NEW MICROSCOPIC ORGANISMS.

During the summer of 1855, while in the vicinity of Santa Barbara, engaged in the examination of several species of marine algae to which many zoophytes were attached, I accidentally met with the forms which constitute the subject of this paper. Since that time, further observations have been made, and examinations for their presence with more success than was at first anticipated.

The striated appearance of these minute organisms led to the belief at first that the lorica belonging to them was silicious, but the application of chemical agents has shown this not to be the case, for it is entirely destroyed by digestion in strong nitric acid, continued for a considerable length of time.

In the normal state the forms are brittle, and easily broken under a compressor, but after digestion in nitric acid the lorica becomes soft and flexible, losing none of its configuration except on the application of mechanical means. In this particular they comport themselves with the calcareous portions of animal structures. The striated appearance which they present is (by the above means) found to consist of septa, placed transversely across a longitudinal canal extending the entire length of the organism, and so far as present observations have extended, they present the peculiar features of being solid, for by compression they have been extruded from the canal, and retain their forms when thus free, the canal collapsing where the extrusion of the septa has taken place.

In view of the above facts it will be necessary to place these minute organisms among the family of crustacea, their form and inorganic structure, with their configuration seeming to warrant this, more properly perhaps than among the zoophytes, or diatoms.

The mandibular process on the anterior end simulates in some particulars the vibracular organs of the zoophytes, but what particular office it performs in their economy is yet undetermined, having never had an opportunity of examining their movements when freshly collected, with instruments of sufficient power. The materials from which they have been obtained have laid for months, in most cases, before opportunity offered for their investigation.

The mandibular process is placed on a movable joint, and has the appearance of being attached and capable of motion through the agency of muscular filaments passing within the outer covering of the animal; by digestion in acid it is often very soon detached from the head of the styliform body to which it belongs, but when in place it has considerable latitude of motion. The figures are drawn with the camera-lucida and a microscope by Oberhauser.

These forms are certainly most singular, partaking as they do, the appearance both of animal and vegetable. Certain it is, they belong to no genus at present known, or with which we are at present acquainted, and under this view we shall place them in a new genus, with the following definition:

LEPTOSIAGON—Trask—Nov. Gen.

Lorica membrano-calcareous, styliform; straight or curved, having a central canal, which is divided by transverse septa its entire length; anterior extremity furcate, more or less enlarged, and traversed by one or more bands or ribs raised above the surface, and armed with a movable mandibular process more or less denticulated; posterior extremity either acute, rounded or capitate; body rounded, smooth, more or less compressed.

Leptosiagon gracilis ng. ns.—Trask—Plate 6, fig. 1.—Lorica straight, smooth, compressed, anterior extremity furcate, forming two somewhat unequal beaks, and armed with a long smoothly curved mandible, having about sixteen fine acute denticulations on one side, its anterior end acutely terminated, broadest part of mandible about one-fifth greater than the body below; posterior extremity subcapitate and rounded, shows a terminal orifice to the central canal.—Transverse section ovate. Length of mandible contained about five and one-half times in the length of the body. Breadth of body about 1-90th its length. Mag. 590 diameters.

On algae attached to fish cars—Santa Barbara.

This species is adopted as typical of the genus, for the reason that it appears most plentiful when compared to the others, was the first met with and is beautifully marked, and symmetrical.

L. occidentalis, ng. ns.—Trask—Plate 6, fig. 2.—Lorica straight, smooth, anterior extremity equally furcate, and terminated on the ventral side by a somewhat bluntly rounded process, with a smaller one on the dorsal side, arm-

ed with a short and broad mandible, having a curved, blunted point, with four or five close
set somewhat acute and curved denticles, situa-
ted within the middle half; posterior extremity
erect, orifice of the canal distinctly seen on
its end. Length of mandible contained about
seventeen-times in length of the body. Breadth
of body about 1-77th its length. Mag. 460 di-
ameters. Found with the preceding.
L. magnas. ng. ns. — Trask. — Plate 6, fig. 3.—Lorica smooth, arcuate, gradually taper-
ing from the anterior to the posterior extremity.
Anterior end terminated by a wide, pointed beak
on the ventral side, and a small rounded process
on the dorsal, armed with a broad curved man-
dible, having a hooklike end, and a large point-
ed denticle near the middle; posterior extremi-
ty narrow and rounded; body tapering for near-
ly its entire length, compressed, transverse sec-
tion oval.
Length of mandible contained about nineteen
times in the length of the body. Breadth of
body 1-22nd its length. Mag. 400 diameters.
Santa Barbara. Matsmai, Japan. On lim-
pets and among the roots of zoophytes.
L. falcata. ng. ns. — Trask. — Plate 6, fig. 4.—Lorica curved, anterior extremity very
unequally furcate, the ventral side being pro-
jected into an acute long rostrate process, and a
very small angular beak on the dorsal; armed
with a somewhat narrow sickle-shaped mandi-
bile, which is finely dentilculated for little more
than half its length; posterior extremity termin-
ating in a narrow sharp point; body tapering uni-
formly throughout its length, much com-
pressed. Length of mandible contained about
eight-times in the length of the body. Mag.
540 diameters. On limpets. Japan, Island
Matsmai.
L. var. (?)—Plate 6, fig. 5.—This ast most
is probably but a variety of the preceding. I
think it will prove a younger individual of the
last species; it bears a strong resemblance to L.
falcata. Mag. 540 diameters. Found with the
preceding.
L. glabrescens. ng. ns. — Trask. — Plate 6, fig. 6.—Lorica arcuate, anterior extremitywiden-
ed, subacute beak, and two smaller processes op-
posite, the one more prominent and acute than
the other; body tapers from anterior extremity
to posterior, the latter terminating in a narrow
rounded end, much compressed; mandible very
long, subulate thin, smooth upon both edges;
length of mandible contained about four-
times in the length of the body; breadth of
body nearly 1-28th of its length. 640 dia-
meters.
On Ostrea, Gulf California and Manzanillo.
L. semirectas. ng. ns. — Trask. — Plate 6, fig. 7.—Lorica slightly curved for little more
than one-third its length from the anterior end,
becoming nearly rectilinear for the rest of its
length; anterior extremity formed of rather a
bluntly rounded wide rostra on one side, and a
sublanceolate process opposite; a broad rib-like
lobe extends from the apex of the beak obliquely
across the anterior end, and raised above the sur-
face on which it rests; body contracts from the
anterior portions to the posterior, which termi-
nates in a rounded end, canal central, mandible
curved, and obliquely connate, very finely den-
tilicate, no aperture observed on the posterior
end. Mandible contained about eight-times in
the length of the body. Manzanillo and Gulf of
California. On Ostrea. 750 diameters.
L. incurvata. ng. ns. — Trask. — Plate 6, fig.
8.—Lorica curved, smooth, anterior end project-
ed into a short acute rostra, and a small, sharp
process on the opposite side; posterior extremity
rather obtusely rounded; mandible slightly
curved on one side, nearly straight on the oppo-
site, without denticles. Canal central. Man-
dible contained about five-times in the length of
the body. Manzanillo. On Ostrea. 1000 di-
ameters.
L. attenuata. ng. ns. — Trask. — Plate 6, fig.
9.—Lorica straight, narrow, gracefully con-
tacting from the anterior extremity to the pos-
terior, which latter is capitate. Anterior end
unequally bifid, forming two bluntly rounded
beaks, in which is inserted a narrow, subulate
mandible. Canal central. No denticulations on
the body. Manzanillo and the Gulf of California.
On Ostrea. 1000 diameters. These new forms, now for the first time figured and
described, constitute some of the most beautiful
organisms to be met with. The fineness of the
denticulations on the mandibular process well fit
them for test objects for the microscope.
From the localities above named it will be
seen that they occupy an extended geographical
range, being found from Mexico to the coast of
Japan. They are not plentiful, so far as obser-
vation at present extends, yet sufficiently so that
I have been enabled to obtain a dozen specimens
from one or two ounces of material. I have met
with the best success in specimens of algae and
shells, from depths from four to six fathoms.
A good locality for obtaining them frequently is
from the large mytilus, found only at very low
tides on this coast, more particularly on shells,
to which sertularia and other zoophytes are found
attached. I have met with them frequently from
Monterey, Bolinos and Tomales—from the two latter places
attached to laminaria, and about the roots of
plumularia on stones. A locality in the Bay of
San Francisco, that furnished specimens last
year, has not produced any yet this season.
Dr. Trask read the following paper on nine
new species of Zoophytes from the Bay of San
Francisco and adjacent localities:
Genus Sertulalaria. Linn.
Sertularia anguina. Trask. Plate 5, fig. 1.
Polypidom erect, one to three inches high, alter-
nately branched and pinnated, color cornous;
rachis tortuous, jointed, with two cells on each
internode, and four between each branchlet;
pinnae jointed, two cells on each, placed some-
what sub-lateral and forward, nearly opposite,
aperture free, with oval smooth margins; cells
attached by a broad strong base, at the insertion
of which a slightly raised rounded ring is appa-
rent. Its affinity is with that of S. fallax, (John-
ston,) more nearly than with any other species
of which a slightly raised rounded ring is appa-
rent. Its affinity is with that of S. fallax, (John-
ston,) more nearly than with any other species
with which I am acquainted, and at first sight
would easily be mistaken for that species. Its
ovarian vesicles have not yet been seen.
* Plentiful on a large mytilus brought to our
markets from Monterey, Tomales Point, Punta Reys, and old shells, Bay of San Francisco.

*S. furcata.* Trask. Plate 6, fig. 2, a, b, c, d, e.—Polypidom long, four to nine inches, adnate to the various marine algae on which it grows, and often quite embedded in the fronds of marine plants, pinnated, color cornaceous; rachi cylindrical, jointed; the pinnae are simple and for the most part free, arising from the lower portion of the joints of the rachis. Their attachment to the main stem is somewhat peculiar; for, like the rest of the members of this genus, they are not given off from the main stem by a fixed joint, but have their origin from the end of a sessile pedicel; this is attached to the rachis by a strong base, is sub-pyramidal and cylindrical, is free for about three-fourths its length, terminating in a rather bluntly-rounded rostrate process on the outer and superior aspect.

From this pedicel the pinnae arise by a flexible joint, allowing a latitude of motion indicated between their attachment and the rostral end of this process. Figure (a) represents the rachis and its pedicels, with the pinna arising therefrom as seen under a power of thirty linear diameters. The cells are immersed in the pinnae for about two-thirds their length, opposite, two upon each joint, compressed, the superior ends considerably divergent, acutely sinuated on the upper and outer edge, as seen in fig. 2, c, d, they are a little in front of the lateral line. A back view is shown at fig. 5.

The ovarian vessicles are produced from the lateral and back part of the pinnae at the base of the cell, are sessile, of a light cornaceous color, polished, and have an elongated oval form, somewhat swelling on the outer side, with a large oval mouth, the edges of which are somewhat depressed below the summit.

It is not without some doubts that I have placed this zoophyte in this genus, believing that there are sufficient distinctions in the species to form an exclusive type; but as no opportunity has offered to observe its habits, and nothing is at present known regarding the animal, it is thought best to place it provisionally in this genus for the present, until farther opportunities shall offer for its investigation.

Bay of San Francisco and Farrallone Islands.

*S. turgida.* Trask. Plate 4, fig. 1.—Polypidom erect, from two to three inches high, pinnated, color cornaceous, at times it is found adnate to substances on which it grows; pinnae arise alternately from opposite sides, jointed, compressed; cells latero-frontal, alternate, one on each joint, and situated above the middle, are free for nearly three-fourths their length, divergent, subcylindrical, round, full, with a broad aperture which is somewhat constricted below the edges; the upper and outer edge is deeply sinuated, thus forming two rather large denticulations more or less rounded, but occasionally one or both are found sub-acute. This peculiarity is often met with adjoining cells on the same pinnae. The inner edge of the aperture is slightly everted, and rather more deeply constricted than the outer or lateral portions, and forms a broadly rounded margin with a slightly raised lip.

The ovarian vessicles arise from the back part of the pinna, sessile, large, sub-pyramidal, the upper half armed with stout, rounded, blunt spines, twenty to twenty-eight in number; mouth sub-cylindrical, the edges surrounded with ten to fifteen smaller spines. The whole polypidom presents a full, turgid appearance, and is more or less marked with fine wrinkles.

Bay of San Francisco, Monterey, Tomales Point. On mollusca and algae. Rather rare.

**Genus Plumiularia (Lam.)**

*Plumiularia Franciscana.* Trask. Plate 4, fig. 3.—Polypidom six to eight inches high, color cornaceous, alternately branched, the branches pinnated, one branch to each internode of the stem. The pinnae rise one above the other, are pointed, and support three cells at each joint.—On two specimens four cells have been met with, but may be regarded an exception rather than otherwise. The pinnae are dietotomously branched in adult specimens. Cells sagittate, smooth, free, slightly decumbent; the attachment of the base is marked by a slightly elevated round rim, apertures round and smooth.

Bay of San Francisco, among rejectamenta of the beach.

**Genus Crisia (M. Edw.)**

*Crisia gracilis.* Trask. Plate 5, fig. 3.—Polypidom confervoid, very slender, branched, calcareous, growing in little tufts from one-fourth to a half inch in height; each cell is jointed, flexible, and dark brown or black. Cells cylindrical, free, the upper fourth divergent, in some specimens slightly curved, the upper cell given off from above the middle of the one below it, and which becomes somewhat incrassate at that point. Apertures round, smooth, facing more or less alternate, surface smooth and shining. Sparingly found, attached to other zoo-phytes and marine plants.

Bay of San Francisco, Monterey, Punta Reys.

**Genus Crisia (Lam.)**

*Crisia occidentalis.* Trask. Plate 5, fig. 4. Polypidum erect, not exceeding one inch in height, calcareous, irregularly branched, joints dark and flexible. Cells tubular, slightly compressed and diminishing in size from above downward, lateral, from seven to nine on each internode of the joints, alternate, surface finely granulated, a high and sharply-rounded process extending laterally and upward from the edge of the aperture, and covered with a thin calcareous operculum, which is apparently sessile, and somewhat excavated on its upper surface. Apertures a little ovate, with smooth edges and slightly oblique.

This species is closely allied to *C. eburnea,* (Johnston,) and would easily be mistaken for that species on a mere casual examination.—May not Mr. Thomson's specimen from California, which he thinks identical with *C. eburnea,* have been an imperfect form of *C. occidentalis*? (vide Johnston's Zooeph., 2d ed., page 284.)—There are sufficient differences in *C. occidentalis* to separate it from *C. eburnea,* as may be seen by an inspection of the figure, notwithstanding there is a close alliance in many particulars. My figure is drawn with camera lucida under a power of thirty linear diameters.

Attached to marine algae from Santa Barbara.
to Cape Mendocino; often met with in Bay of San Francisco.

**Genus Menipea.** (Lam.)

*Menipea occidentalis.* Trask. Plate 4, fig. 4.

—Polypidom tufted, alternately branched, calcareous, from one to two inches high, color white and yellowish; branchlets rise from the superior and lateral portions of the internodes. Cells much compressed, diminishing rapidly from above downward; three on each internode.—Apertures roundly oval, with a slightly raised, rounded rim, which is armed with two stout, rounded, curved and acute spines, pointing upward and inward, one always being more or less sub-central. Internodes sub-triangular, with a somewhat tortuous, rounded rib passing through the centre, the lateral and superior angles surmounted by two or three long, rounded, irregular spines; points dark colored. The upper nodes are armed with four long and irregular spines, the two central being much the longest. All the spines more or less acute.

From Cape Flattery (Oregon) to Santa Barbara. Frequent among rejectamenta, Bay San Francisco.

**Genus Scrupocellaria.** (van Beneden.)

*Scrupocellaria Californica.* Trask. Plate 4, fig. 2.—Polypidom consovoid, jointed, growing in bushy tufts, calcareous; cells biserial, alternate, from seven to nine on each point, facing somewhat obliquely outward; apertures roundly oval, margins incrassate, and sustaining a single spine, which rises from the rim of the aperture on its upper and outer edge from the base of the inner edge; a pedunculate, pear-shaped operculum covers a portion of the aperture. The virbracular and avicularian organs are wanting.—The lateral cup-like cells sustain two round, obliquely set spines rising from the posterior edge. The affinities of this species are with that of *S. macandrei.*

Bay San Francisco.

**Genus Hippothoa.** (Lam.)

*Hippothoa amabilis.* Trask. Plate 4, fig. 5.

—Polypidom creeping, branched irregularly, calcareous, from one to two inches high; cells biserial, alternate, from seven to nine on each point, facing somewhat obliquely outward; apertures roundly oval, margins incrassate, and sustaining a single spine, which rises from the rim of the aperture on its upper and outer edge from the base of the inner edge; a pedunculate, pear-shaped operculum covers a portion of the aperture. The virbracular and avicularian organs are wanting.—The lateral cup-like cells sustain two round, obliquely set spines rising from the posterior edge. The affinities of this species are with that of *S. macandrei.*

Bay San Francisco.

**Genus Pleurotomaria.** (Van Beneden.)

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From Cape Flattery (Oregon) to Santa Barbara. Frequent among rejectamenta, Bay San Francisco.

**Genus Murex-exigua.** Garrett.

*Shell,* oblong-oval, solid, scabrous, and whitish; whorls about six, somewhat emarginate above, coarsely furrowed spirally, and crossed by numerous varices, which are crenulated by the spiral furrows; base furnished with a short, subclosed, slightly oblique canal; aperture round-oval; outer lip crenulated.

Length five lines.

**Habitat:** Pure, shallow pools on the rocky coast of Hawaii.

**Purpura-striatella.** Garrett.

*Shell,* ovate, solid, smoothish, ventricose above, blackish, with sub-equinodistant, spiral, pale lines; spire short, conic, convex; aperture large, elongated, notched above, and faintly lineated within; outer lip dilated, slightly, toothed within, and minutely crenulated on the edge, where it is margined with purple; columellar lip depressed, spreading, smooth and toothed above; throat bluish.

Length seven lines.

**Habitat:** Hawaii.

**Observations.—**This species is not common at the above locality; they are generally found attached to the spines of the Echinus-straatus (Lin) in the circumlittoral zone.

**Turbo-multilineata.** Garrett.

*Shell,* solid, sub-globose, sub-perforated; spire consisting of about three volutions and slightly depressed; the whole surface marked with numerous, spiral, coarse, equidistant, elevated, reddish lines; in a pale ground.

Length less than a line.

**Habitat:** Hilo Bay, Hawaii.

In the circumlittoral zone.

**Trocus-striatula.** Garrett.

Sub-genus: *Margarita.*

*Shell,* thin, depressed, somewhat pellucid, glossy; surface marked with crowded, fine, regular, revolving striae; body whorl large; spire small, with four volutions, separated by an obsolete sutural line; base somewhat flattened, and umbilicated; columella slightly reflected over the umbilicus; color, variously mottled and striped with pale fulvous, greenish and pink on a pearly ground.

Length one line; diameter the same.

**Habitat:** Laminarian zone, Hawaii.

**Pleurotoma-reticulata.** Garrett.

Sub-genus: *Mangelia.*

*Shell,* solid, sub-fusiform, turreted, whitish, with a pale purplish spiral zone; whorls six or seven, convex, and marked with numerous, regular, series of equidistant spiral rows of squarish punctures which give the surface a beautiful reticulated appearance; suture crenulated; base somewhat wrinkled and provided with a short, slightly oblique canal; aperture elongate, narrow and slightly contracted by the outer lip; labrum thickened outside and in, crenulated or toothed, and deeply notched above; columella callosed.

Length three lines.

**Habitat:** Hilo Bay, Hawaii.

**Rissoa-crasillabrum.** Garrett.

*Shell,* solid, acute, turrito-conical, smooth, glabrous, white or a very pale fawn color; whorls eight, plano-convex; suture line faintly impressed; aperture ovate; labrum somewhat dilated, very much thickened and dentated in the inner margin; columellar lip broadly callosed.

Length four lines.

**Habitat:** Rocky coast of Hilo, under stones, in the circumlittoral zone.
**Rissosa-multiplicata.** Garrett.

*Shell*, solid, somewhat cylindrically elongated; whitish or pale-fulvous and marked with regular, crowded, equidistant, longitudinal ribs; whorls about nine, convex; sutures well impressed; aperture sub-ovate, slightly effuse below; labrum thick; columellar lip calloused.

**Length**, three lines.

**Habitat**: Circumlittoral zone under stones, or attached to species of Holothuria; Hilo, Hawaii.

**Adeorhis-costata.** Garrett.

*Shell*, ovate-globose, thick and whitish-brown color; spine consisting of three moderately elevated volutions; body whorl with three or four large spiral carina; the whole surface marked with coarse, crowded, slightly waved, spiral, impressed stria; base perforated; aperture round-ovate; outer lip slightly fringed by the terminal ends of the external keels.

**Length**, two lines.

**Habitat**: Rocky coast of Hawaii.

**Hypnonix-minor.** Garrett.

*Sub-genus*. Amathesa.

*Shell*, depressed, thick, convex above, spine lateral, mamillated; surface with minute, concentric striae; margin simple, sharp, rarely crenulated; above grayish, with a suffusion of red towards the summit; inside rich-brown, which becomes greenish towards the margin.

**Height**, half a line.

**Length**, one line.

**Habitat**: on turbinate shells, Hawaii.

**Bulla-scripta.** Garrett.

*Shell*, oblong-oval, thin, fragile, semipellucid, shining, whitish, and marked with three distant, transverse black lines; these crossed by several longitudinal waved similar lineations; surface furnished with minute, crowded, regular, transverse, impressed, punctured striae; spine retuse, and mamillated.

**Length**, nearly three lines.

**Habitat**: shallow pools on the rocky coasts of Hilo. Rare.

**Succinea-newcomii-anum.** Garrett.

*Shell*, wide-oval, very thin, fragile, somewhat inflated, pellucid, whitish-horn color; body-whorl very large and distinctly striated; spine very small, depressed, with one volution; aperture sub-orbicular and nearly the whole length of the shell; outer lip much expanded.

**Length**, three lines.

**Animal**, pale flesh-color, mantle obsoletely crenated and slightly reflected over the shell.—Foot narrow, elongated and minutely speckled with brown.

**Habitat**: District of Waimana, Hawaii.

**Observation**.—This singular species is somewhat rare, and occurs on bushes at an elevation of about four thousand feet above the level of the sea. This species is dedicated to Dr. W. Newcomb, late of Honolulu, S. I.

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**President**, Col. Ransom, in the chair. Dr. Kellogg read the following paper, with appended remarks by Dr. Beardsley.

Dr. Kellogg exhibited a drawing and specimens of a new species of Cypress.

**Cupressus fragrans**, (Kellogg,) or the Fragrant Cypress.

Branchlets four-sided, somewhat compressed, densely crowded, sub-divisions numerous, with a frond-like arrangement; larger branches roundish, slightly compressed laterally, flexuose, bark madder brown; leaves diamond-acute and aculate, shining, bright, vivid green, carinate, an oblong resinous gland along the back, appressed, imbricated in four rows; older leaves on the intermediate branches long, decurrent; point awl-shaped, incurved.

Cones pediculate on long, scaly footstalks, similar to the branchlets, somewhat elongated; globose cinnamon color, size of a hazel-nut, composed of about nine peltate scales; centre depressed; margin thickened and rounded; disk corrugated and rough; a sharp, transverse ridge divides it somewhat above the centre; the micro broad, thin or flat, pointed, fragile, curved outwards and pointed towards the apex; scales irregularly five-sided.

Seeds broadly winged all round, waved, oblique, scooped; base of the smooth cylindrical kernel portion prominent; apex emarginate, mucronate, bright cinnamon color.

This species bears the nearest resemblance to *C. Lawsoniana*, but differs from it most strikingly in the brighter green of its foliage and its far denser branchlets; also in the leaves being narrower, much more angular, sharper pointed; the cones are from one-third to twice the size, more rough, also in color, form, and more space distribution, &c.; it is also a tree of larger proportions in all respects. The specific name chosen is intended to express its quality, par excellence. We know of no species so agreeably fragrant; the wood abounds in an oil which exhales a peculiar spicy aroma, in which the ginger odor predominates. This notable odor has sometimes given it the common name of "Ginger Pine" among lumber-men. Some speak of it as "White Cedar;" in the market it is also known by the more indefinite name of "Oregon Cedar." The grain of the wood is commonly a fine, close texture, strong and elastic; the annual concentric circles are often as large and distinct as the Eastern white pine, (*P. Strobus*) showing it to be a tree capable of rapid growth. It has gained a good reputation among carpenters, since it has been brought into market properly seasoned; it works easy, and burnishes smoother than the white pine.

We understand suitable machinery is now on the way to this city (*S. F.*) for the purpose of working this lumber into tubs, pails, and other domestic wares, similar to our Eastern "Cedar Coopers," as that class of mechanics is styled, who work only this species of wood.

The well-known collector, and enterprising discoverer of this, and several other new species of the Conifers—Mr. A. F. Beardsley—has furnished the following observations:

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Among the timber trees of the Pacific coast the White Cedar, as it is commonly called, of Southern Oregon, is among the most interesting for the beauty of its foliage and utility of its wood. It is found in almost every situation contiguous to the coast and for several miles inland, but most abundant in moist ground and low hills kept moist by the density of the forest. It nearly fills sections of the extensive forests in the maritime districts of Southern Oregon, latitude 52° to 44°. It is mingled with Adzes pine, (Pinus Strobus,) which it much resembles; of a chocolate color.

This tree grows straight, six feet in diameter, 150 feet in height, and nearly destitute of branches for 50 to 70 feet; but when found singly, its long, slender, pendulous branches are retained down nearly to the ground, making the general outlines columnar, surmounted by an elongated pyramid. The bark on the young stocks is thin, but as they grow old becomes thick, furrowed, and of a soft, fibrous texture, not unlike that of Taxodium Sempervirens, of a chocolate color. The color of the wood is white, rather heavier and firmer than white pine, (Pinus Strobus,) which it much resembles; is strong and durable, fine grain and easily wrought. It has a strong, fragrant, spicy odor, which it retains for a long time. This characteristic has suggested the name of Fragrant Cypress. The lumber made from it is of the best quality, being very clear from knots. It is extensively used in San Francisco for joiners' work, and commands the highest price in the market. It is preferred for clothes-presses, ship-building, where extra durability is required.

The striking peculiarities of this wild region are, however, too striking to remain long unsubjected to thorough exploration. The entire desert is supposed to have been the bed of a great brackish or fresh-water lake, and is said to lay many feet below the level of the ocean. The part I lately visited showed deep lacustrine deposits, inclosing, in myriads, the conchological records of the former sea.

It was the month of July of the present year that I had occasion, in the progress of a botanical excursion, to visit one of the above named salses. It is situated about one hundred and fifty miles from San Diego, and sixty miles in a north-easterly direction from the Indian village of San Felipe—the nearest inhabited habitable place. The exact locality, as reported by the U. S. Surveyors, is Township 11 South; range 13 East, San Bernardino meridian. The distance from San Felipe as above given is in an air line, but by any practicable route is, at least, thirty miles further, owing to the necessity of making a detour to the South, to find the only water on the route.

At the above named village, at the trading post of Messrs. Smith & Brill, we—myself and son—made preparation for our desert excursion, by procuring fresh horses and a guide, and providing provisions, and packs and leathern bottles for carrying water. Our guide, Jose Serano, who was one of the Captains of his village, spoke Spanish, and was the only one of his people who had ever been actually at the spot we wished to visit. The weather was intensely hot, and the guide advised starting late in the afternoon, so as to have the advantage of a night's journey, and thereby reach the watering-place early the next day,—before the heat became oppressive. The following I extract from my notes:

Left San Felipe at 4 o'clock, p. m., July 17. Crossed the sharp Porphyritic Mountain Ridge separating San Felipe Valley from the desert. San Felipe Creek cuts through the ridge here and runs off in a narrow canyon towards the desert. It is a bold, running stream, but never emerges from the canon in summer, being literally drank up by the first breath of the thirsty desert wind. The bed of the stream is not practicable for horses, so we climbed the moun-
tain, along an Indian pathway, and from the crest—about 1000 feet above the valley—had an extensive view of the desert, shading away into the more arid portions marking the beds of winter torrents, which could reach, the mountain chain presented a vertical straight line. To the right and left, as far as the eye could reach, the mountain chain presented a most singular and picturesque appearance. Night overtook us in the valley, and our progress was much impeded by the opuntias which rose up in the bed of a ravine, boiling and bubbling with the constant evolution of gas—which rises up in the bed of a ravine, boiling and bubbling with the constant evolution of gas—probably carbonic acid. It runs off north-east in a stream yielding about 500 gallons per minute; but within half a mile it is lost in the porous soil, and there is no further trace of it. The ravine in which it rises comes from the south-west, and is probably a continuation of Cariso Creek. It here forms a little valley some hundred yards broad, covered with bushes and coarse grass—among which the stream meanders from side to side of the valley. The depression below the common level of the desert is about forty feet. I will take occasion to mention here that appearances presented by the bottoms of ravines, wherever I observed them, indicated that water might any where be found at a depth not exceeding forty feet. A small grove of mesquit trees, (Prosopus Glandulosa) with a heavy crop of dry legumes, stood on the brink of the ravine. The fruit formed a welcome repast for the horses, and the slight shade of the scattering boughs afforded some protection against the hot sun-rays; with blankets spread over them a tolerable shade was produced, but afforded no barrier to the parching blasts of wind that came the breath of an oven. I was driven to the water, where, with the tail rushes bent into a kind of bower and sitting up to the neck in the stream, I voted myself the presiding genius of the place, and half dosing, rested comfortably for an hour.

"At 6 o'clock P.M., started again, hoping to reach the volcanoes by midnight. To lighten the burden of the animals, all our provisions, blankets and extra wearing apparel, were left behind, taking no weight save our canteens and supply of water. With black buttons, betwixt which our course lay, in a north-easterly direction, served us as guides. Within two miles, came to
a small stream of water, rising in a ravine but not sunk more than fifteen feet below the plain. It ran toward the North a very little wry, and widened by its evaporation and absorption. Beyond this, crossed a superficial clay ridge, strewn with pebbles and fragments of obsidian; near sundown, entered a sandy district, the horses sinking fetlock deep each step; after dark the buttes being no longer visible, kept our course by the stars. By-and-by the atmosphere became hazy, and only occasional glimpses could be had of the stars. Wandering from our course, we got into loamy sands, thrown by the winds into ridges and hillocks, through which the animals plunged and struggled, and finally we had to dismount and lead them. Jose declared himself lost, and refused to go any farther till morning. There being no means of securing the horses, in case of a halt, we continued to toil on, and fortunately got off the sand banks in a little while. Soon, a few sage bushes were encountered, and selecting the stoutest, the animals were fastened to await the coming of to-morrow. In attempting to make our beds, the burning temperature of the earth required the interposition of saddle-blankets and leathern covers of the saddles, and still it seemed like submitting our limbs to the process of baking. The restlessness of the horses kept us in constant fear lest they might break the insecure fastenings and leave us in a rather unenviable predicament. It is useless to say the night was not passed in refreshing slumbers, and the dawn was never more welcome.

"July 10.—At daylight it was found that we had wandered last night too far to the North, and had to turn to the South and East. The white clouds of steam, shooting upward from the Salse, soon became apparent at the distance of ten miles. At sunrise the steam-jets presented an imposing and singular appearance; the cones from which they issued were distinctly visible, and the dull roar of the subterranean tumult could occasionally be heard. The black buttes that served as landmarks yesterday lay on either hand—that to the left—nearer. It had the appearance of a mass of lava heaped into a rough and fantastically irregular hill, crowned with sharp pinnacles and rude arches, as if the whole had been hardened suddenly while in a state of most violent agitation from boiling. The more distant one to the right seemed a black, compact mass, with a glittering, smooth surface common to the granite and gneissic rocks bordering the desert. If volcanic, the character was not so apparent as in that to the left.

"A little after 6 A. M., reached a point as near the Salse as was deemed prudent, on horseback. The ground had become soft and muddy, and the sulphurous scents and strange sounds frightened the horses. Giving them in charge of Jose Serano, we proceeded on foot about a quarter of a mile to the scene of action. The scene presenting itself is difficult of description. The accompanying engraving from a drawing made by my son, on the spot, gives some idea of the appearance, but the effect can only be known by one who has heard the wild rush of steam, the rude jets above the surrounding plain, and the dull murmur of the boiling cauldrons of slime. The space occupied by the Salse is a parallelo-

gram, five hundred yards long and three hundred and fifty broad—a table of hardened bluish clay, a little elevated above the surrounding plain. The adjacent ground is low and muddy, and during the rains entirely covered with water.—There is a gentle slope toward the North and East, the mud and water of the Salse running off slowly in that direction, where a lake of salt water exists in the rainy season, but presenting now a vast sheet of crystalline chloride of sodium. Into this lake the arm of the Colorado, known as New River, discharges itself. The lake, having no outlet, would probably soon regain its ancient area if the channel of New River afforded a regular and more generous supply of water.

"The steam-jets of the Salse issue from conical mounds of mud varying from three to fifteen feet in height, the sides presenting various angles, some being sharp and slender cones, others dome-shaped mounds that seemed to have spread and flattened out with their own weight, upon the discontinuance of the action that formed them. Out of some of the cones the steam rushes in a continuous stream, with a roaring or whizzing sound, as the orifices vary in diameter or jets differ in velocity. In others the action is intermittent, and each recurring rush of steam is accompanied by a discharge of a shower of hot mud, masses of which are thrown sometimes to the height of a hundred feet. These discharges take place every few few minutes from some of the mounds, while others seem to have been quiet for weeks or months. During our short stay we had specimens of the rapidity with which a sharp, conical mound could be built up and again tumbled down. In one place a stream of hot water was thrown up from fifteen to thirty feet, falling in a copious shower on every side, forming a circle within which one might stand without danger from the scalding drops, unless the wind chanced to drive them from their regular course. It issued from a superficial mound out of an opening about six inches in diameter; but the column of steam and water immediately upon issuing expanded to a much greater size. The orifice was lined with an incrustation of carbonate of lime, and around it, and particularly on the south-east side, stood a miniature groove of slender stalagmitic arborescent concretions of the same substance. They were from half an inch to one and a-half inches in diameter, and from four to eight inches in height. Many of them were branched and the tips colored red, contrasting beautifully with the marl-white whiteness of the trunk, and resembling much a corall grove. Some were hollow, and delicate jets of steam issued from their summits, and this seemed to explain the mode of their formation. Some were not hollow throughout, being closed at the summit, but when detached from their base, a small orifice in the centre suffered hot steam to pass, and some degree of caution was required to remove them without scalded fingers. To approach the spot was a feat of some difficulty, surrounded as it was by a magic circle of hot rain. I retreated, scalded, from the only attempt I dared to make; but my son, more adventurous or more attracted by the beauty of the specimens, succeeded in bringing
away several. The falling water ran off into a pool a foot deep, but what became of it was not apparent, as it had no seeming outlet. I brought away a bottle of it for examination. It was transparent, but had an intensely bitter and saline taste. This spot is represented a little to the right of the centre in the engraving. A little beyond and on either hand, are two huge cauldron-like basins, sunk five or six feet below the general level, and near a hundred feet in diameter. Within these cauldrons a bluish argillaceous paste is continually boiling with a dull murmur, emitting copious sulphurous vapors, and huge bubbles, bursting, throw masses of mud to the height of several feet. These kettles sometimes boil over, and the matter runs off in a slimy stream toward the salt lake. This seems to have been the case recently, as we encountered the track of one of these streams, not yet dry, a mile from the Salse.

"The volcanic action was far more violent at some former period than at present, as is proved by the erupted butte, above named, as well as by fragments of pumice scattered over the plain.

"Our visit only lasted an hour and a quarter. The sun was already scorching hot, and our supply of water could not last, with the most rigid economy, more than three hours longer. The watering place, left yesterday, was not less than 20 miles distant. A spring was marked by the U. S. Surveyors, only 4 or 5 miles to the north, but as no land-marks were known by which it might be found, it would have been rash to waste time in seeking it. The tempting objects in the vicinity, which would require many days for examination, could only be greeted with a farewell glance, and our horses' heads were turned towards the water. Leaving the sand hills, that might be found, it would have been rash to waste time in seeking it. The tempting objects in the vicinity, which would require many days for examination, could only be greeted with a farewell glance, and our horses' heads were turned towards the water. Leaving the sand hills, that gave us so much trouble last night, to the right, our course lay south-west.

"We soon had reason to congratulate ourselves upon being clear of the drifting sands. The winds increasing as the day advanced, whirled the dust into a black cloud through which Jose declared it would be impossible to travel. It would certainly have been exceedingly unpleasant to travel. The season of the rains was due—the Sonora rains prevailing here—and our guide stated that if we left the place away from the so called desert. A successful attempt was made at getting up a breakfast—we had eaten nothing during the day—but all appetite was gone, and nothing craved but continued drafts of water. Jose, however, was a bright exception, and had certainly lost nothing of his gastronomic powers, but merrily devoured the meal prepared for the three.

"As night closed in, two or three black bats came forth from their hiding places, and a solitary goat-sucker flitted around in silence. No other animals appeared, save a lizard, whose movements were too quick for us to capture him, and three coleopterous insects, less agile than their neighbor, fell a sacrifice to the interests of science.

"On the morrow—Monday, the 20th—it was still thought imprudent to leave until evening, so as to make the most of the journey to San Felipe during the night and early the following day. The forenoon was therefore spent in collecting a few shells from the soil, one of which, the Physa humerosa, was still found inhabiting the water of the spring. Two species of fishes were observed, about an inch in length, one slender and of a whitish color, the other, broad and in proportion to length, and dark colored, looking like a small perch. Our guide states that this secluded spot was his early home. He was born here, and the tribe he now rules over here had their lodges, and lived in abundance on the maize, melons and frijoles that he describes as growing with a luxuriance unknown to any place away from the so called desert. A succession of rainless summers drove them away, and they have not since returned. They planted with the early rains, say in July or August.

"At 4 P.M., bid adieu to our camp and set out for San Felipe. About midnight we arrived on the margin of the cactus thicket—the scene of my former mishap.

"July 21.—At daylight again on the move, and startled a vagrant coyote, the only one ever seen in our route. A trail of a flock of mountain sheep was observed, and the head of one, probably killed by Indian hunters, lay by the wayside. At 10½ A.M., the welcome sight of San Felipe cheered us from the heights above it, and
a half hour more found us safe under the hospital-able roof of Messrs. Smith & Brill."

Thus ended a hurried trip to a most interesting spot in the midst of a less interesting district. The shells obtained were submitted to Dr. Trask and were found to consist of two species of Amnicola (A. protea and A. longinqua —Gould) and the Physa (P. humerosa—Gould) before named. A large bivalve was observed, but so thin and fragile that the specimens broke to small pieces for the want of safe means of transporting them.

The watery from the volcano has the specific gravity of 1.075, and holds in solution free boracic acid, with borates and a large quantity of chloride of sodium, and other salts. These matters would indicate the true volcanic origin of the Salse, and but little doubt rests on my mind of its being so. The evidences of former volcanic action in the neighborhood and the testimony of the boracic acid, establish its true character. The acid and its compounds exist only in small quantities, but sufficient to be unequivocally determined. Similar Salses exist some thirty or forty miles further south. One made its appearance during the earthquake of November 29, 1852, a few miles below the line of the State. Two others exist in the same district, as I was informed by a person who professed to have visited them. One is represented as a single jet of steam and water from an opening a yard in diameter, situated in a plain of hardened clay. The other consists of several pools of warm water, through which hot gas is continually escaping. Another is again spoken of in the adjacent mountain, partaking of the true volcanic character, emitting fire and smoke. I hope some one may soon have occasion to examine these and other interesting localities, at a season when it will be practicable to pass a few days on the desert without danger of perishing with thirst.

The real character of this desert has not been generally understood. In its present condition it is truly a desert. But only a portion, however, of its immense area is condemned to irretrievable barrenness—viz: the part covered with drifting sands. The greater part, from the constituents of its soil, must be fertile in the extreme, and only wanting moisture to produce a wilderness of vegetation. This is proven in the case of New River, while it continued to run. The arm of the Colorado might be made permanent, but a far more convenient supply could be furnished by artesian wells, or better still, by wind mills raising water from common wells, as is now so successfully practiced throughout the fertile valley of San Jose. As stated before, there is every reason to believe water can be had anywhere at a depth not exceeding thirty or forty feet."

Since writing the above I have had the pleasure of seeing a letter from Dr. Newbury, Geologist of the Colorado Exploring Expedition being now fitted out by the U. S. Government, to Dr. W. O. Ayers, of San Francisco, from which I am kindly permitted to make an extract. Speaking of the desert. he says: "I find it not a bad country—having, most of it, a better soil than the mountain districts west of it. If water could be supplied regularly to the New River country it would be a perfect garden."

SAN FRANCISCO, Jan. 11, 1858.

Dr. Trask read the following paper on the occurrence of earthquakes during 1857:

**EARTHQUAKES IN CALIFORNIA DURING THE YEAR 1857.**

During the past year there has been rather a frequency in the occurrence of the phenomena of earthquakes, and, with the exception of two, there have been none that were particularly remarkable either for extent of surface affected or severity of action. In one, that of the 9th of January, the greatest extent of surface, and greatest intensity of action was manifest. Its principal force seems to have been expended in the more southerly portions of our State, and in the immediate vicinity of those volcanic vents found at different localities upon the Colorado Desert. It is manifest, however, that this shock and those which preceded it on the night of the 8th, had their origin to the west of our coast, as the times of occurrence of the shock at different localities most fully prove. This matter was fully discussed in my previous paper, "On the direction and velocity of the Earthquake of January 9th, 1857," read before this Society March 30th, which will be found on page 98 of their proceedings.

The other shock of greatest extent, on the 2d of September, extended over an area of about 200 miles, but was marked by no particular severity or injury except that of fright to those who experienced it.

The whole number that can be authenticated as occurring during 1857, amounts to seventeen, being greater than the number recorded in 1853 and 1856, and it would seem probable from our records that this number is the maximum to which we shall probably be subjected in this State.

From the Sandwich Islands we have no news of earthquakes save one, which is here inserted: "A very severe shock of earthquake was felt at Kawaihae, Hawaii, on the 24th of February, the most severe that the residents there have had for many years."

The arrival of the whaling fleet from the Northern seas brings no intelligence of the occurrence of these phenomena, as was the case of the preceding year, hence, the presumption is, that subterranean action has not been violent in those distant regions during the year just passed.

On the coast of Mexico, and inclusive between the 26th and 32d parallels, we have received intelligence of the occurrence of one earthquake, which appears to have been felt on both shores of the gulf of California for a dis-
tance of nearly 200 miles, both North and South. We have no records South of that point.

The shocks which we can authenticate within the limits of our own State, are as follows:

Jan. 9.—This shock was felt from Sacramento to the Southern boundary of the State. It was preceded by three smart shocks the night and morning previous. The time of its occurrence at this city was 8h. 13m. 30s.

Jan. 18, 9 A.M.—A light shock at Martinez and Benicia.

Jan. 20, 8:30 A.M.—A smart shock was felt at Santa Cruz and Mission San Juan.

Jan. 21, 11 p.m.—On the evening of this day a smart shock was felt in Mariposa. The wave and sound seemed to travel from N. W. to S. E. It was accompanied with a report like that of a distant gun.

Feb. 5, 7 p.m.—A smart shock was felt in San Francisco, which shook the buildings that are situated on made ground very severely, while those situated on firmer bottoms were affected. This shock was felt at Oakland and Stockton, but was not felt at San Jose or Sacramento, as reported at the time.

March 14, 3 p.m.—A severe shock was felt at Santa Barbara and Monticelo. It was momentary in duration, attended with a loud report.


May 3, 10 p.m.—A smart shock at Los Angeles and the Monte.

May 23.—A light shock at Angeles; a report also that a severe shock had been felt at Fort Tejon.

June 14.—A shock was felt at Humboldt Bay. On the same day several severe shocks were experienced at the penal island, Carmen, Gulf of California, and which extended almost ninety miles north and south of the island.

Aug. 8, 11 A.M.—A smart shock was felt at Rabbit Creek, Sierra county.

Aug. 29.—A severe shock at the Tejon Reserve. No time is given.

Sept. 2, 7:45 a.m.—A light shock at San Francisco. This shock was felt at Sacramento, Marysville, Nevada, San Juan, Downieville and Campionville.

Sept. 14, 2 p.m.—A light shock in San Francisco.

Oct. 19, 6:30 p.m.—A severe shock of an earthquake in San Francisco. On the following morning, at 12:38 A.M., at 12:35 A.M., and 1:15 A.M., three other shocks occurred; the last was equally severe with that of Jan. 9th, at 8 A.M. People were much frightened, and left their beds. The shock was felt at San Jose, but not at Oakland.

Nov. 8, 3:45 A.M.—A shock at San Francisco, which was felt at Oakland and Bodega.

Dec. 23, 7 A.M.—A light shock at San Francisco.

Of the whole number which have occurred during the year, two only have been felt at San Francisco that were not experienced at other localities, and four others have occurred which have been felt in common at other portions of the State; thus making about one-third of the whole number that were in common here and elsewhere.

Eight of the aggregate have occurred between the summer and winter solstices.

Seven have occurred during the spring and summer months, and ten during the winter and autumn.

Eight have occurred between the vernal and autumnal equinoxes.

San Francisco, June 29, 1857.

President, Col. L. Ransom, in the chair.

Donations to the Cabinet to Jan. 1, 1858.

Tibia of mastodon, from Shaw's Flat, by Mr. Charles H. Stokes.

Carolina limestone, from Alpha, Nevada Co., by Mr. Isaac Wisner.

One hundred and fifty species of marine and land shells from the Sandwich Islands, by Mr. Garrett.

Coleopterous insects, by Mr. T. F. Moss.

Serpentine, perforated with Pholas, from Oregon, by Mr. Beardsley, with tertiary fossils from the same coast.

Red and black oxide copper and sulphur from Lower California, by Dr. Norrline.

Copper ore from Hope Valley, by Hon. John Bigler.

A jar containing preparations of the nutmeg in every stage of growth, from Singapore, by Mr. Thomas Dalton.

Ores of copper from the Arizona mines; also fossil Ostrea from the Desert, by Mr. J. Wilson.

Dipterous insects of this State, by Mr. T. F. Moss.

Fossil vertebra of mammalia from Mission San Antonio, by Dr. Eckel.

Auriferous quartz and limestone from the crystal mine at Angels' Camp, by Mr. Benjamin.

Specimen of the new genus Loxorynchus, (Stimpson), by Nahl & Bro.

Kaolin clay from foothills San Joaquin county, by Mr. Patrick, of Stockton.

Marine fossils from Russian America, (tertiary), Mr. T. F. Moss.

Mastoid process temporal bone of whale from San Diego; recent and fossil shells of Physa humberosa, planorbis Ammon, and two species of Amnicola, Colorado Desert; also, three specimens of carabus, fruit of two species of mezquite and composite flowers, from same locality, by Dr. J. A. Veatch. Also specimens of botany from the vicinity of Santa Barbara.

A collection of plants from the vicinity of Port Orford, by Mr. Beardsley.

Specimens of Pinus tuberculata and other plants from Contra Costa, by Mr. Bloomer.
Specimens of Sienite from Yosemite Falls, by Mr. Hepburn. Also carbonate copper from the North Carolina Mine, Rough and Ready, Nevada county.

Argentiferous grey copper, with analysis of the same, from Tubac, G. P. Plomosa, Tubac. G. P. Silver ore from La Mina Bolanos, Durango, by K. G. Killaly.

Silver ore from La Paz, L. C., by J. K. Moller & Co.

Picrolite (?) from Three Buttes, Mariposa county; also two specimens granite, with large crystals, black tourmaline, from Texas Flat, by Mr. James Hepburn.

Red oxide copper and Atacmite from La Mina Mozamique, Sinaloa, by Mr. G. F. Walker.

Silver ore from La Fan! L. C., by J. K. Moller & Co.

Picrolite (?) from Three Buttes, Mariposa county; also two specimens granite, with large crystals, black tourmaline, from Texas Flat, by Mr. James Hepburn.

Red oxide copper and Atacmite from La Mina Mozamique, Sinaloa, by Mr. G. F. Walker.

A bark tunic of South Sea Islands, by Mr. E. Stanley.

A collection of the honey ants found in the Gadsden Purchase, by Mr. Poston.

Sugar from the honey dew from Napa county, by Mr. R. T. Montgomery.

Deposited by Mr. Hutchings: two specimens indurated tufa from Mokelumne Hill; also a large specimen bark of Sequoia gigantea, in glass case.

Specimens of silicified wood from Mokelumne Hill, by Mr. S. A. Briggs.

Colepterus insects from Sierra Nevada, by Mr. Hepburn.

Malleable sulphuret silver with ruby ore, La Mina Guadalupe y Calvo, ruby blende in calcareous gangue, from Batopilas Chihuahua; Plomosa Argent Galena, with grey copper, from Siberijou, Sinaloa, by K. G. Killaly.

Specimens of a new species of Sabella, and specimens of teredo from Bay of San Francisco, by Dr. Trask.

Wood of the Cupressus fragrans, (Kellogg) by Mr. Beardsley.

Auriferous limestone and quartz from Calaveras Mine, Angels Camp, by Mr. L. P. Bouton.

Ores from the Grain Gold Lode, Butte Co.; ores from Keystone Mine, Amador county, by Mr. Waitt.

Limestone from Santa Cruz, by Mr. Dunham.

Peroxide Manganese from Mount Diablo Range, by Mr. Lyman.

Gum Acacia from Mazatlan.

Marine shells from Acapulco, by Dr. Stillman.

Specimens of heart of redwood, enclosing acorns, by Mr. Charles Simeon.

Arraganite from Suisan, by Dr. Veatch.

Specimens of pinus contorta, (?) and cones of Abies menziesii, by Mr. Beardsley.

Specimens of a new species of Sabella, and specimens of teredo from Bay of San Francisco, by Dr. Trask.

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Arraganite from Suisan, by Dr. Veatch.

Specimens of pinus contorta, (?) and cones of Abies menziesii, by Mr. Beardsley.

Skull of cannibal from New Caledonia, by Dr. Pique Dupuytren.

Marine shells from Panama, by Dr. Stillman.

Specimens of Clay from San Antonio, by Mr. Beardsley.

Specimens of serpentine from Amador county, by Mr. T. F. Moss.

Donations to the Library to the Close of the Year.

List of members of the Linnean Society.

Address of Thomas Bell to the Linnean Society.

Journal of the Proceedings of the Linnean Society, parts 1-3 Botany and parts 1-3 Zoology; vol. 1, 1856.

Kongl Vetenskaps Akad Handlinger; vol. 2, 1853-4.

Oversigt Kongl Vetenskaps Akad Forband, Stockholm; vol. 1, 1865.

Schriften, Russich, Kaiserl, fur die Gesam Mineralogie; parts 1 and 2, 1842. St. Petersburg.

Jahrbuch der Kaiser Konigl Geologischen Richenstalt; No. 1, Jan., Feb., March, 1853; No. 3, July, Aug., Sept., 1855; quarto.

Descriptions of land and fresh-water shells, by Isaac Lea, from the author.


La Science for 1857, by T. F. Moss.

American Journal Science and Art, from the publishers.


Researches on the Cyprinoid Fishes west of the Mississippi Valley, by Mr. Charles Girard, from the author.

Also contributions to Icthyology of the United States, and a notice of the genus Salmo of Oregon and California.

Report of the Sanitary Commission of New Orleans on the yellow fever of 1853; Report of Special Committee of New Orleans Academy on Survey of Louisiana; Annual Address before the New Orleans Academy; Proceedings of the New Orleans Academy—from the society.

Prodromus Descript Animaliam ovariarum, Part 2, from author.

An account of the Smithsonian Institute, from the Institute.


Maury's Wind and Current Charts, quarto, from Lt. Maury.

Zietschrift fur Wissen Zoologie, by Liebold &
1. PLAGIOSTOMA (Sow) Pedroana. TRASK.
2. " annulatus "
3. " truncata "
1. SERTULARIA TURGIDA TRASK
2. SCRUPOCELLARIA CALIFORNICA
3. PLUMARALIA FRANCISCOANA TRASK
4. MENIPEA OCCIDENTALIS
5. HIPPOTHOA AMAHILA TRASK
FURNACES OF THE COLORADO RESERT

Drawing by A. Ead.

FUMORALES OF THE COLORADO RESERT