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No. 1.

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for the Pacific Coast.

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ter at San Diego Post-office

"The tinted sea-shell borne away,
Far from the ocean's pebbly shore,
Still loves to hum the choral lay,
The whispering mermaids taught of yore."

Our A B C's—Accuracy, Brevity, Com-
pleteness.

In filling "another long-felt want," we have endeavored to commence as we can hold out, and hope to make this minute paper of increasing interest and practical value. Among prominent contributors are C. C. PARRY, M. D., PROF. GEO. R. KLEEBERGER, MRS. Z. R. CRONYN, A. M., and many others well known to San Diegans. Correspondence and such support as we may seem to deserve is respectfully invited from all who may find it of profit or value, or who may be interested in the permanent establishment of a scientific journal on the Pacific Coast.

Agricultural Grasses.

(We make the following selections from a report by Dr. Geo. Vasey, botanist of the Department of Agriculture, on the Agricultural Grasses of the United States.)

Wild oats (*Avena fatua*), alfalaria (*Erodium cicutarium*), bur-clover *Medicago (Denticulata)*, several species of wild clover and "bunch-grass", in the order named, form the native forage plants of California.

Accounts from the central and southern counties state that the native bunch-grass, which formerly furnished a nutritious food for a large part of the Pacific Slope, has of late years become about extinct, and in some sections the alfalaria, bur-clover, and other forage plants, which were found on the uncultivated lands during spring and early summer, are slowly but surely dying out, and their places are being taken by worthless grasses that nothing will eat green or dry.

Mr. C. O. Tucker, of Ballena, attributes this gradual disappearance of the native grasses to the constant and too close pasturage at and prior to the time for maturing their seeds, and to a too persistent pasturage with sheep at other times, causing the ground to become thoroughly trodden and compacted. This has been followed during the last few years by unusually hot and dry summers. He knows of no section where the need of useful forage plants is more severely felt than here.

Except wild oats and bur-clover, but little native grass is cut for hay. The various grains, as wheat, rye, and barley, cut when in the milk, are principally relied upon for hay in many parts of California. Alfalfa or lucerne (*Medicago sativa*), is cultivated largely for hay, especially in the southern portion of the State, where by irrigation large crops are raised.

Thus far, but little attention has been given to this subject. The general system of farming in vogue here is so different from that of other parts of the country, and so few experiments have been made, that no particular grasses or forage plants can be recommended at this time. Further experiments and developments will have to determine the important question.

Three of the above mentioned forage plants are natives of Europe which have become widely naturalized in America. The alfalaria was so early introduced as to be thought native by some. In the mountains of Lower California where it was unknown to the inhabitants and unnoticed by visiting botanists ten years ago, it now forms the principal forage plant. Experiments made in eastern states can be of little practical value to California, and the need of agricultural experiment stations in this section is strongly felt by many, and would soon be appreciated by all, in solving not only this, but many other problems.

THE WEST-AMERICAN SCIENTIST.

The Agassiz Association.

(Selections from "Science," read before the Society of Natural History, Dec. 5.)

An excellent example, perhaps second to none in this country for its beneficial results, is the founding and conduct of the Agassiz Association, which held its first general assembly last summer in Philadelphia. Its origin and plan are the work of Mr. Harlan H. Ballard, first as a local institution for youth at the Lenox (Mass.) Academy, of which he is principal.

It proved so successful in promoting a love for the study of natural phenomena, that he conceived the idea of making the experiment more generally useful. An invitation given in St. Nicholas to form a general association was answered with such unexpected enthusiasm that over seven hundred local branches have been established, and more than eight thousand children and grown people enrolled within four years.

As the idea was in part suggested by a similar society of boys and girls in Switzerland, this association has been very appropriately named after Louis Agassiz, whose sympathy and earnest work in behalf of popular education has made his name historical in both Switzerland and America.

By the regulations of the society, chapters may be established by a few persons, four being the minimum limit; and age being wisely left out of account, many families have formed separate chapters.

Classes for the systematic study of elementary botany, entomology, anatomy, etc., have been formed under the leadership of competent teachers, and conducted by correspondence. Self-help and independent exertion are thus made necessary for every isolated chapter. Much good must have already been done in this way in direct opposition to the whole tendency of the ordinary training of the schools, and we are much mistaken if both pupils

and teachers have not in many cases been greatly benefitted by their experience in this really higher class of educational work.

The conductors of this enterprise have done something permanent and effectual towards spreading a taste for self-culture in an almost new sense, and have taught thousands how to work with whatever means were at hand, not only for their own intellectual improvement, but for that of their children and neighbors.

San Diego Society of Natural History.

At a meeting of the above Society held December 5, Miss Rosa Smith read an article on the life-history of the marine "goldfish"; Mr. C. J. Fox made statements regarding the wild-fowl of the county, and mentioned the existence of a land-tortoise on the desert; C. R. Orcutt presented a specimen of the "fiddler-crab" (*Gelasimus brevifrons*, St.), from Todos Santos bay, Lower California, where they inhabit holes in the salt-marshes, like toads in a garden. Specimens were exhibited of the wood-perforating crustaceans destructive to the wharf-piles. Attention was also called to the Agassiz Association.

The hand-book of the Agassiz Association presents a great variety of useful information which should be accessible to every boy and girl since it directs attention to beneficial amusements as well as invaluable instruction in the study of nature. Teachers can do no greater service to their pupils than to interest and assist them in such intellectual self-culture.—[H. H. Ballard, Pres. A. A., Lenox, Mass.]

Small pieces of a fair quality of sponge have been seen from All Saints' (Todos Santos) bay, Lower California. The common sponges of this coast are worthless for commercial purposes, but what wealth may be revealed by deep-water dredging cannot be foretold.

THE WEST-AMERICAN SCIENTIST.

Specialization.

There once was a science called "Natural Philosophy", which held in itself all the learning that applied to physical facts. By the beginning of this century this science was divided into physics and natural history. These have in turn been since divided into a dozen named branches each, and there are now at least thirty well defined sciences. This progressive division of sciences causes a division of labor among the able men who labor to solve the problems of nature, causing specialists to spring up who devote themselves to a particularly limited field. The advantage of this division of labor is an open question, but it is certainly prolific in results which could not well be obtained otherwise. The world is now of a mind to pay more of its rewards for the least bit of special or peculiar knowledge than for the widest command of varied learning and directs students in a thousand ways, not only to "study what you most affect," but "effect that study altogether, know the least thing that can be known as no one else knows it, and leave the universe to look after itself."

This plan, however, limits the world to its present knowledge regarding the broader and more important problems of science and strengthens the naturally weak boundary lines placed by nature throughout the organic creation. It is a question worthy of consideration whether we may not profitably turn away a part of the talent and genius which go to the work of discovery to the wider task of comprehension; whether the life of Humboldt and the life of Pasteur are not equally fit goals for the student of nature. The specialist in botany is scarce able to recognize the beautiful scenery or the varied tints exhibited in the insect world, and an enthusiast is blind to the broad view of nature spread out before him, and till naturalists recognize this evil we cannot hope for a second Linnæus, Cuvier or DeCandolle.—[In part selected from "Science."

Books and Papers.

Science; An illustrated weekly journal devoted to the diffusion of scientific news, with discussions, book notices, correspondence, etc. Terms, \$5.00 per year. Address the publisher at 4 Bond Street, New York.

Botanical Gazette; Devoted strictly to botanical science. Terms, \$1.00 per year. John M. Coulter, editor, Crawfordsville, Ind. A sixteen page monthly.

Bulletin of the Torrey Botanical Club; A monthly journal, \$1.00 per year. W. R. Gerard, editor, 61 Clinton Place, New York.

Papilio; A monthly journal devoted exclusively to lepidoptera. \$2.00 per year. E. M. Aaron, editor, Philadelphia.

The Young Mineralogist and Antiquarian; A neat, amateur monthly, published by T. H. Wise, Wheaton, Ill., at 75 cents per annum.

Botany of California; A standard work by Prof. Sereno Watson, uniform with the publications of the Geological Survey of California, in 2 vols.

Synoptical Flora of North America; by Asa Gray, L. L. D. Part I, 1876; Part II, 1884. These two volumes comprise the Gamopetalous orders, and form the standard work on American botany north of Mexico. Ivison, Blakeman, Taylor & Co., New York.

Structural and Systematic Conchology; This is the most complete work on mollusca generally accessible to amateurs. In 3 vols., published in 4 editions by the author, Geo. W. Tryon, Jr., Academy of Natural Sciences, Philadelphia.

Southern and Lower California Flora; A list of the flowering plants and ferns, by C. R. Orcutt; in press, price 25 cents.

Common Sea-shells of California; Describing 100 common species, illustrated. By Josiah Keep, price \$1.00.

THE WEST-AMERICAN SCIENTIST.

General Notes.

Twenty-six varieties of ferns are found in San Diego county.

We hope soon to receive a *microscope* for *magnifying* this little journal.

Pinones, a nut from a small species of pine, were very scarce this fall.

The SCIENTIST and 25 varieties shells to any member of the A. A. for \$1.00.

The California fan palm is named *Washingtonia* in honor of our first president.

Seed of the blue palm is said to sometimes sprout in three years after planting.

Fourteen kinds of land-snails are known in Southern California; one still unpublished.

A specimen of *Columbella fuscata*, a common and pretty Panama shell, has been found at San Diego.

Deschampsia gracilis, *Vasey*, is the name of a new and beautiful grass peculiar to the San Diego mesas.

One of the new species of grasses recently collected in the mountains of San Diego has been since found in Oregon.

The ostriches in Florida are reported as not doing well, but on the California farms they seem to be still flourishing.

Our early flowers, butterflies and snails send a Merry Christmas greeting to their snow-bound friends throughout the world.

Nickel ore is found in great abundance in the northern part of Lower California, —but the Mexicans have had enough of nickels!

About seventy-five new species of plants and animals have been found within a radius of fifty miles of San Diego, during the past few years.

The west coast of America, north of Mexico, has been credited with about 800 varieties of mollusks. Correspondence is requested regarding their distribution and synonymy.

Another apparently new and curious mollusk has been found on the shores of San Diego bay which closely resembles the garden slug in general appearance.

A large deposit of *tufa* has been found in Lower California; where the water from the spring ran over a growth of mosses it formed beautiful masses of "fossil moss," similar to that of Michigan.

Fouquiera splendens, the desert candlewood or "hocotillo," is now budding and blossoming in this city. Stalks have been known to blossom six months after being cut and placed in a museum.

The rains for this season (1884-5) commenced in earnest on the 7th. Early showers during the first part of October were sufficient to bring out blossoms of *Saxifraga Parryi Torr.*

The list of Southern and Lower California plants, now in press, will include the marine *algæ* of San Diego, about 150 species, which have been collected by D. Cleveland. Price of the list will be 25 cents.

A large bed of fossils, several feet thick and extending for more than a mile along the bluffs of All Saints' bay, Lower California, and composed almost wholly of one, new and curious species, has recently been reported to the National Museum at Washington. Four smaller species were detected also.

C. R. ORCUTT,

DEALER IN

Native Seeds, Bulbs and Plants

FERNS, ETC.

SAN DIEGO,

CALIFORNIA.

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Publisher of THE WEST-AMERICAN SCIENTIST, containing practical information upon various subjects, issued monthly, at 50 cents per annum.

Books and shells wanted in exchange; terms, one-half cash, except where rare books are offered.

The West-American Scientist.

Vol. I.

San Diego, California, January, 1885.

No. 2.

A popular review and record for the Pacific Coast. } PUBLISHED MONTHLY BY C. R. ORCUTT. } Entered as second-class matter at San Diego Post-office

[Written for the SCIENTIST.]

The oak that spreads its branches wide,
Three hundred years or more;
The lily by the mountain side,
Whose bloom with morn is o'er,
Alike are perfect in their way,
And full of lessons choice
To him who listens day by day,
To Nature's kindly voice.

PALMS.

This large tropical family of plants is represented near the southern borders of California by three species, only one of which, *Washingtonia filifera*, Wendland, is known to occur in the United States. This deservedly popular tree, well known as the California fan, or thread-bearing, palm has been largely cultivated in Europe under its various synonyms, *Brahea filamentosa*, *Pritchardia f.* etc. This palm is easily grown and now forms one of the characteristics of ornamental horticulture in this state. In its native haunts it blooms about the last of September, the fruit maturing the following September.

Livingstone writes that the language of the palm to him was always "far from home," and as one gazes upon the blue palm, *Erythea armata*, Watson, in its wild home, the desert canons of Baja California, one cannot wonder at the sentiment, so strange, and fearfully grand are its surroundings. The dark, blue-green leaves give to it its common name and causes it to

be highly prized by horticulturists to whom it is generally known as *Brahea glauca*. It blossoms in June, the fruit maturing the following June, when, in case of a fruitful year the Indians hasten to a plentiful feast.

A similar species, known as the Guadalupe Island palm, *Erythea edulis*, Watson, is considered by some as more graceful than the last, and is even more difficult of access in its volcanic island home. It is said to be in blossom and fruit throughout the year, the edible fruit hanging in clusters weighing forty pounds or more apiece. By botanists it is supposed to have been introduced into Europe under the name of *Brahea Roezli*, but that name is given as synonymous with *E. armata*, by some European nurserymen in their catalogues.

Another palm, *Washingtonia robusta*, Wendland, credited to California, is perhaps a form of the common species but it is not certainly known. These three (or four?) varieties are the only indigenous species, but several others are in cultivation in the state.

The water newts of the falls of the San Diego river, this county, are the "sad-colored anades." *Anaides lugubris*, Hallowell. This is the furthest southern limit of the species known.

FRESH-WATER SHELLS.

Over seventy-five species of fresh-water molluscs have been described from the Pacific slope; but of this number many have been, and probably many others must be consigned to synonymy, thus reducing the real number to not more than fifty valid species.

Of the common species belonging to the family of *Limnæidæ*, inhabiting the small streams and lagoons of Southern California, but one can be said to be characteristic, the others having a distribution throughout the northern United States. Our species of *Limnæidæ* are as follows:

Limnæa humilis, Say.

Limnæa Adelinæ, Tryon, (Californian.)

Physa heterostropha, Say.

Physa distinguenda, Tryon, (= *P. gyrina*, Say. var.)

Planorbis parvus, Say.

Planorbis trivolvus, Say.

It will be seen that in fresh-water, air-breathing molluscs we have no typical fauna. This shows that they are not materially affected by the climate or other physical conditions surrounding them; but while these conditions which so widely separate the north-eastern from the south-western portion of the United States are immaterial to these little creatures, they are all sufficient to create an almost wholly different fauna and flora, otherwise.

Bithynella intermedia, Tryon, and *Bithynella binneyi*, Tryon, with *Pisidium abditum*, Hald. (our only bivalve) complete the list of the fresh-water shells of San Diego county, excepting the

living and extinct species of the Colorado river and the desert basin.

BLACK WATTLES.

This tree (*Mimosa decurrens*) a native of Australia, has been introduced into the south of France, Algiers, etc., and is highly recommended by European nurserymen as a tree "careless of drouth, doing its best on dry, barren soil, of rapid growth, and very rich in tannin."

This is perhaps, one of the most promising of trees for forest planting in Southern California and deserves a thorough trial. Plants grown from seed have kept equal pace with seed started at the same time of the blue gum *Eucalyptus*, which is now the leading forest tree of the state in cultivation.

AIR NAVIGATION.

[Science.]

Renard and Krebs, of France, by the use of a powerful and light motor and a long balloon, have reached a speed of 6.5 metres a second in their recent experiments of November, 1884, in aerial navigation. During these experiments the balloon was easily guided in all directions and a return to the place of departure easily effected. These experiments are decisive in demonstrating navigation of the air by means of long balloons, provided with screws, and it now becomes only a question of capital for aerial ships to take their place among the modern means of transportation.

Exchange notices inserted at five cents per line. Stamps taken.

AMERICAN PEARLS.

At the Philadelphia meeting of the American Association for the Advancement of Science, Mr. Geo. F. Kunz, with Tiffany & Co., New York, read a preliminary paper on the "American Pearl," treating of its history, production, value, and uses; quoting in part facts and figures furnished by Messrs. Tiffany & Co., (purchasers of many thousands of these pearls) covering a period from 1857 to date. As he is still engaged on this subject which will in the near future be illustrated and published by the U. S. Fisheries Commission in their bulletin, he would greatly appreciate and give full credit for, any reliable facts that may be furnished.

It is desirable to know of the occurrence of pearls in any molluscs on the California coast, and especially of their occurrence in the "abelone" (species of *Haliotis*) and of what kind—loose or attached. Small black pearls are found in the common cockle (*Venus*) quite frequently and occasionally a pearl is found in *Pachydesma*.

BOOKS RECEIVED FOR S. S. N. H.

Revision of the Stenini of America, North of Mexico, by Thos. L. Casey, Lieut. of Engineers. This is a valuable work on the insects of the order Coleoptera containing over 200 pages and describing a great number of new species, many of them from California. The author (residing at 1125 Girard Street, Phil.) would be greatly obliged by receiving specimens of beetles from this vicinity.

GENERAL NOTES.

The common scorpion of California is *Scorpio allenii*, Wood, the only species of the genus found in North America.

Balanus estrellanus, Conrad, is the large fossil barnacles found in a well at this city, about 40 feet from the surface.

Specimen of *Chlamydoconcha*, about the size of a large pea, has lately been sliced into 200 slices at the National Museum, for microscope examination.

"We cannot be *very far* wrong in estimating the light of full moon as about a seventy-thousandth of the sunlight anywhere on the earth" is the conclusion reached by Sir William Thomson in recent computations.—[Science

About fifty species of crustaceans are found in and near San Diego bay. The Craw-fish, a species of *Panulirus*, is the only one of economic value, though there are several small edible crabs. The experiment of introducing the eastern lobster into California waters some years ago was not very successful.

Among our floral entertainers on New Year's day we would mention the *bell* of the season Miss *Arctostaphylos Bicolor*: the December favorite, Miss *Saxifraga Parryi*, and the Misses *Bigelovia*, *Eriogonum*, *Euphorbia*, *Stephanomeria*, *Encelia*—the last of our autumn visitors, and Miss *Ceanothus*, one of the first among our spring guests—who join us in wishing our readers a glad New Year.

The West-American Scientist

A MONTHLY JOURNAL OF NATURAL HISTORY
Especially devoted to the Pacific Coast.

Subscription 50c. per annum in advance.
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C. R. ORCUTT, - - SAN DIEGO, CAL.

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SAN DIEGO, CAL., JANUARY, 1885.

Our first issue having met with due appreciation, both at home and abroad, we venture to hope that at no far distant day we may permanently enlarge its size, that it may be established upon a good financial basis, and may become the recognized journal of record and review of the West. As the official organ of the San Diego Society of Natural History, and the medium for recording the work performed in the publisher's private laboratory of organic natural history, and with the assurance of contributions from various working scientists, we trust that it may be found of value to many. We would ask all to not only subscribe, but to contribute to its columns as they may have opportunity, and we will endeavor to answer or will call attention to the inquiries received and try to make the journal of the greatest value to the greatest number. We would call the attention of new subscribers to the fact that the size of this paper is *at least four-page*—but we reserve the privilege of en-

larging any number at pleasure (according to our "copy" and patronage).

BOOKS AND PAPERS.

The list of plants, etc., still "in press."

Editors are respectfully invited to exchange.

We would ask publishers and authors to send us their publications, especially those referring in a general or special way to the interests of the Pacific coast, and we will make it an object for them to do so.

We are requested to state that sample copies of *The Young Mineralogist and Antiquarian* will be furnished by the publisher, T. H. Wise, Wheaton, Ill., at 8 cents each.

Journal of Mycology: A new, monthly journal devoted exclusively to fungi, edited by J. B. Ellis and W. A. Kellerman, Manhattan, Kansas.

Ornithologist and Oologist: A monthly magazine devoted to birds nests and eggs; published in first-class style by Frank B. Webster, Pawtucket, R. I., at \$1.00 per annum.

The Young Oologist: An amateur paper devoted to nests and eggs and published monthly in good shape, by Frank H. Lattin, Gaines, N. Y., at 60 cents per annum.

Random Notes on Natural History: A neat fifty-cent monthly, published by Southwick & Jencks, Providence, R. I.

Science: An illustrated weekly journal devoted to the diffusion of scientific news, with discussions, book notices, correspondence, etc. Terms, \$5.00 per year. Address the publisher at 4 Bond Street, New York.

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Common Sea-shells of California: Describing 100 common species, illustrated. By Josiah Keep; price \$1.00.

THE FEVER TREE.

The blue gum, *Eucalyptus globulus*, which has been so widely introduced as a forest tree into Africa, Southern Europe and California, has gained its popularity mainly because of its rapid growth and the facility with which it adapts itself to the country. But it possesses other claims for exis-

tence because of its alleged anti-febrile properties; and has received the name of fever tree in consequence. Its introduction into Texas in 1875 demonstrated its adaptability to the coast cities of the Gulf of Mexico, which are periodically subject to severe yellow fever epidemics, where this tree by its great property of absorption is thought to absorb the malaria of marshy districts and render them innocuous in that way.

Its tall, graceful aspect and the pleasant spicy odor which permeates the air in its vicinity makes the *Eucalyptus* agreeable both as an ornamental and as a forest tree; and with the additional guarantee of protection from fever epidemics, firmly established by further experiments, must cause its popularity to be undiminished for many years to come and render it particularly desirable for the coast regions of Mexico.

The fever tree was introduced into Paris, France, in 1860, by direction of the government, and subsequently large forests planted in Africa, Spain and Italy, and it deserves even greater attention from health commissioners and those studying the important problems of health, the result of whose investigations must largely affect the interests of the Mexican people and those connected with her commerce.

Apparently very large trichinæ, about a half an inch long, have been found in great numbers in the tissues of a large wood duck recently killed in Kansas, according to a local paper.

SECTION A, S. S. N. H.

At a preliminary meeting held January 6, at the rooms of the Society of Natural History, D. Cleveland in the chair, a section of this Society was organized, consisting mainly of those between the ages of 14 and 21 years. It was moved, seconded, and adopted that the society should form Section A of the San Diego Society of Natural History; that the chairman of the Section should be nominated, or nomination confirmed, by the S. S. N. H.; that other officers, consisting of a secretary and treasurer, should be elected by the Section; that the Section should meet the third Monday evening of each month.

The S. S. N. H. have very liberally tendered their assistance to the young people of San Diego, offering them the use of their rooms, museum and library and proposing to reduce the annual dues for the benefit of those who wish to join the Section; and the money received from the members of the Section is not proposed to be used for the general objects of the Association; but for the purchase of books, and to otherwise benefit the Section itself. They also leave the Section at liberty to connect with the Agassiz Scientific Association, which, if done, will be a great benefit by placing it in correspondence with that international organization and securing for its members the assistance of many eminent scientists throughout the United States. Those desiring further information regarding the objects of the Agassiz Association are referred

to its hand-book (sent post-paid for 54 cents in stamps by H. H. Ballard, Lenox, Mass.)

SOCIETY OF NATURAL HISTORY.

The regular meeting of the above society was held Friday evening, January 2. Business matters monopolized the attention of the Society. Mr. Capron, of the Building Fund Committee, reported progress. Mr. Cleveland, of the Committee on the establishment of minor societies, under the auspices of this society, reported a meeting of the Committee and its action. Mr. E. W. Morse presented his resignation as Treasurer, which was accepted. Mr. Joseph Surr was elected Treasurer. A vote of thanks was extended to Mr. C. J. Fox, for his services as Treasurer during eight years. Mr. Cleveland gave notice in writing of a motion to change the constitution of the Society so as to reduce the annual dues of adjunct members. Mr. C. R. Orcutt presented a copy of his new monthly periodical, *THE WEST-AMERICAN SCIENTIST*, and explained his purposes and plans in connection with it. On motion, it was adopted as the official organ of the Society. On motion, the President, Vice-President and Secretary were constituted a committee on the publication of the papers and proceedings of the Society.

Over 300 kinds of native fish are known to the Pacific coast of the United States. About 90 of the 280 Californian species are known from San Diego.

BOTANICAL NOTES.

Mr. L. Belding calls attention to the error in the general notes read at the annual meeting of the Society of Natural History, where San Pedro mountain (Lower California) is referred to as the southern limit of pines in the peninsula, he having found a pine, resembling in general appearance *Pinus muricata*, on the Victoria mountains, at an altitude of about 3,500 feet.

An apparently new species of *Polysiphonia*, a delicate seaweed has been found at San Diego.

Prof. W. G. Farlow, the celebrated algologist, will visit California, and probably San Diego, this spring.

Arctostaphylos bicolor, Gray, the characteristic southern manzanita forms a shrub from 3 to 15 feet in height, with strongly revolute leaves that vary greatly in size and shape. The leaves of young shoots are often narrow, acuminate and more pubescent than those of older branches, on which the leaves are often very broad and obtuse. The leaves are long or short petioled, sometimes nearly (? or quite) sessile and varying according to location or differing physical conditions. It is already blossoming near the coast in favorable locations, sending out its clusters of small, pinkish-tinged flowers, which at a higher altitude and further south, assume much larger proportions and a pure white corolla. This specie blossoms several times in a season usually and among the hills I have found it budding and blossoming in July. Its undoubted synonymy, accord-

ing to Dr. Parry, consists of *A. Clevelandii*, Gray, and *A. Veatchii*, Kellogg.

INQUIRIES.

Mr. Geo. F. Kunz desires to learn of any mention made of pearls in any paper—either as a newspaper item, or in a popular or scientific work. See article entitled "American Pearls."

Our printer is inquiring about "ads"; those likewise interested in that subject will please address the editor. Advertising rates made known on application.

Information is wanted about the wild fowl and game of Southern California, also about the migration of birds, etc.

C. R. ORCUTT,

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Those desiring information relative to the city and county of San Diego will please address the San Diego Chamber of Commerce for pamphlets, etc.

CALIFORNIA BULBOUS PLANTS.

Those who have cultivated any of the following species need not be told of their beauty, but for the benefit of those who have never seen them we make a faint attempt to indicate the color of their blossoms—which, however, it is impossible to do *correctly* in a single word.

We are prepared to furnish the trade by the dozen or by the thousand, in lots to suit, and at lowest market rates. They can be safely transported in May to *any part of the world*, and a fine collection of a dozen varieties will be furnished amateurs at any time for the low price of \$2.00, or 25 cents per single species. We can also furnish a fine collection of our beautiful native ferns (roots), or seeds of native plants, trees and shrubs at the same rate.

Allium unifolium, rose.

haematochiton, rose purple, Lower California.

serratum, purple.

fimbriatum, rosy, Lower California mountains.

Brodiaea capitata, violet or purple.

minor, deep violet.

Orcuttii, a new violet variety.

Bloomeria aurea. golden-yellow unbils, fine.

Clevelandi, new, similar to *Bloomeria aurea*.

Calochortus venustus, lilac.

Palmeri, rich lilac.

Weedii, a rich yellow, with brown spots.

Fritillaria biflora, relative to the Crown Imperial is a handsome plant, commonly called the "black lily."

Zygadenus Fremontii, cream-color; a form of this fine plant resembles the "Star of Bethlehem," and may be known to some as the California water lily.

Muilla maritima, catalogued as white.

The *Calochorti* are the finest of California bulbs, next to lilies, are popular and are successfully grown wherever they have been introduced; and this may be said of all the plants in this list.

The continued discovery of new species is a constant source of pleasure to lovers of the beautiful in nature; and our patrons universally confess that we gratify their sense of the beautiful.

Address C. R. Orcutt, San Diego, California.

The West-American Scientist.

Vol. I.

San Diego, California, February, 1885.

No. 3.

A popular review and record for the Pacific Coast. } PUBLISHED MONTHLY BY C. R. ORCUTT. } Entered as second-class matter at San Diego Post-office

[Written for the SCIENTIST.]

Seekers from age to age, have found,
In nature's ways, delight,
And doubtless now, in depths profound,
Awaits some wondrous light.
Or better still, just close at hand,
Unseen, because unsought,
Rewards, in patient waiting stand,
For careful, loving thought.
And nature has so many gifts,
Her students to repay,
With something that the mind uplifts
None empty go away.

NEW GENUS OF EUPHORBIACEÆ

From Lower California.

BY C. C. PARRY.

Among the manuscript notes left by Dr. Engelmann at his decease, is an incomplete description of a new genus of Euphorbiaceæ for which he proposed the name of *Tetracoccus*. The material then being imperfect, the notes remained unfinished. Since then complete specimens having been collected by C. R. Orcutt of San Diego the following detailed description is herewith submitted.

TETRACOCCUS, Engelm., ined.,

Tetracoccus dioicus, n. sp.

Shrubby, dioecious; staminate flowers involucre on slender pedicels in the axils of the upper leaves of recent shoots; inflorescence with a prolonged central axis a little shorter than the leaves, and usually two or more

unequally developed opposite branches, bracteate at base; involucre in a double series, persistent, with 7—9 short, rounded segments; stamens 7—9, long exsert, inserted at the base of the involucre scales, encircling an irregular lobed, central disk; filaments densely ciliate-pubescent at base, anthers extrorse, broadly two-celled. Pistillate flowers in the axils of lower leaves on recent shoots, single pedicellate, pedicels thickening upwards, and bibracteate near the middle; involucre of 7—9 oblong, unequal segments in two series with 4 glandular scales on the inner surface, segments fragile at maturity.

Ovary 4 lobed, densely tawny-hispid, with 4 long, recurved stigmas. Capsule orbicular, broadly 4 lobed and 4 celled, the thin epicarp separating in valves from rigid cocci which part at maturity, the separate cells dehiscing at both sutures.

Ovules 2 to each cell, pendant from the upper placental column which persists as a rigid central axis after the rupture of the cells. Seeds by abortion one to each cell, smooth, oblong, conspicuously carunculate. Embryo with broad cotyledons and short, straight radicle immersed in copious albumen.

Leaves narrowly lanceolate, nearly sessile with a somewhat decurrent midrib, smooth, rather

rigid and inclined to curve on the upper face, mostly opposite or in ternate whorles, often fasciculate in the lower axils, and with short reduced branches on the lower shoots.

Habitat;—Dry, sandy or rocky plains and hills of Lower California, flowering irregularly after sufficient rain; foliage dull green with reddish branches; 2 to 5 feet in height, irregularly branched. Staminate plants more slender.

C. C. Parry, February, 1883 near Table mountain, imperfect fruiting specimens from which Dr. Engelmann determined the generic character. C. R. Orcutt, Sept. 1884, near Santo Thomas. with complete flowering specimens.

Kew, England, Jan'y, 1885.

A REMARKABLE PHENOMENON.

A party returning from a picnic at La Jolla a little before sunset, the evening of the 4th instant, report having seen a very beautiful and unusual phenomenon. When near the northeast city limits a large meteor shot athwart their course in a direction a little north of east, and continued at a leisurely pace until it faded from sight in the glowing horizon. The meteor looked much like an electric light, with perhaps a slight bluish tinge. Sparks were emitted from it at intervals, giving it the appearance of a rocket. The phenomenon was one of rare beauty and its occurrence in daylight was certainly unusual.—[San Diego Union.

MIGRATION OF BIRDS.

We take the following notes from a preliminary report of the committee on bird migration, by C. Hart Merriam, M. D., of the American Ornithological Union:

Over 1000 sets of blank schedules and circulars have been distributed to lighthouses, lightships and beacons of the United States and British America. In consequence a large number of the heads and wings of birds which dash themselves against the lights were received, together with an exceptionally valuable amount of data. In South America and the West Indies great numbers of birds destroy themselves against the lights and five to six hundred birds have been reported as picked up in a single morning.

The committee has now established observation stations in every State except Nevada, and returns have already been received from nearly 1000 persons, comparatively few of whom are ornithologists or even bird collectors, the great bulk being intelligent farmers, tradesmen and light keepers. Those who know only the commonest birds can contribute data of great value, and their services are eagerly sought.

Though there were only forty observers on this coast, the most valuable report yet received is that of Mr. L. Belding, Superintendent of the Pacific District. It contained notes on no less than 280 species, and is such an important contribution to the ornithology of our western coast that the committee hopes to publish it in full at an early date.

OPHIOGLOSSUM NUDICAULE.

BY D. CLEVELAND.

This little fern, "dwarf adder's tongue," closely resembles the common adder's tongue, *O. vulgatum* of the Atlantic states and Europe. Indeed, when first sent to Prof. Eaton of Yale College and Mr. Geo. E. Davenport from this coast, they were inclined to consider it a form of the latter.

O. nudicaule, L. f. was first discovered at San Diego, near Old Town, by Dr. Parry when botanist of the Mexican Boundary Commission, in Jan'y, 1850, but the specimens then collected and shipped with other collections by sea to New York were lost on the passage.

It was rediscovered by Dr. C. C. Parry at San Diego in March, 1882 after several days of diligent search.

During all the intermediate time—thirty-two years,—though botanists had carefully searched the country about San Diego, *O. nudicaule* had not been seen, nor its presence suspected. Dr. Parry might also have overlooked it, if he had not previously found it here. It is not strange that this fern should have escaped so many sharp-eyed collectors when we consider its diminutive size, the few weeks that the fronds are visible, and the failure of the plant to send up its leaves in dry years, when it is kept alive by its perennial root. This fern is most conspicuous about March, after a wet winter and is then abundant on the mesa in proximity to Decatheon Meadia—shooting star,

Selaginella and grass. Before its discovery at San Diego, this fern was confined in this country to Florida, Georgia and the Carolinas, where it is rare.

BOTANICAL NOTES.

The check-list of the known plants of this region, giving the local distribution, common names and other notes is now out. Price 25 cts., free to botanical patrons. The following species were inadvertently omitted.

Polygala Fishiæ, Parry,
Oenothera micrantha, Horner,
Collomia heterophylla, Hooker,
glutinosa, Gray,
Phacelia ciliata, Bentham,
Fritillaria biflora, Lindl.

Mimulus Parishii, Greene, is a new species recently collected at Los Angeles and also found near San Rafael, L. Cal.

The delicate *Woodsia* of Lower Cal. is *W. Mexicana*.

About two years ago, a wild potato was found in the mountain region of Arizona, and specimens brought to San Francisco for distribution. From the little tubers sent to San Diego, two crops have been harvested—each showing an increase in size upon its predecessor. Owing, perhaps, to the abundant rain of last season, this increase in size is more marked this season than last, some of the potatoes being at least three times as large as any in the original stock. Mrs. Z. R. Cronyn.

Herbarium specimens offered for books or cash.

The West-American Scientist

AMONTHLY JOURNAL OF NATURAL HISTORY
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SAN DIEGO, CAL., FEBRUARY, 1885.

That man is certainly the happiest, who is able to find out the great number of reasonable and useful amusements, easily attainable and within his power; and, if so, he that is delighted with the works of Nature, and makes them his study, must undoubtedly be happy; since every animal, flower, fruit or insect, nay, almost every particle of matter affords him an entertainment. Such a man never can feel his time hang heavy in his hands, or be weary of himself, for want of knowing how to employ his thoughts. Each garden or field is to him a cabinet of curiosities, every one of which he longs to examine fully; and he considers the whole universe as a magazine of wonders, which infinite ages are scarce sufficient to contemplate and admire enough. —[Henry Baker, in the *Microscope Made Easy*, published at London in 1742, and re-published in the *Journal of the New York Microscopical Society*, January, 1885, just received.

CRUSTACEA OF SAN DIEGO

(The following list of the marine crustacea of this place has been prepared from determinations received of W. N. Lockington. They have all been collected by myself during the past few years.)

Pinnixa fuba, Dana, parasitic in *Modiola capax*.

Hippa analoga, St.

Xanthodes Taylori, St., holes in rocks.

Daira Americana, St.

Pleuroncodes planipes, St.

Cancer antennarius, St., under rocks common.

Callianassa longimana, under rocks abundant.

Pelia Pacifica, A. M. Ed., spider crab.

Epialtus productus, Dana, common.

Xantho bella, St., under rocks, small red crab.

Xantho leucomanus, Lck., white headed crab.

Xantho vittata, St.

Randalia ornata, St., a large crab.

Inachus tuberculatus, Lck., a spider crab.

Idotea rectilinea, Lck.

Panulirus interruptus, Randall, craw fish.

Pilumnus spin-hirsutus, Lck., under rocks.

Alpheus Harfordi, Kingsley, under mantle of *Haliotis*.

Lygia occidentalis, Dana, common "14-footer."

Petrolisthes rupicola, St.

Pugettia richii, Dana, a spider crab.

Eupagurus hersutiensculus, (?)

This list will be continued as often as new determinations of crustacea collected allows.

BOOKS AND PAPERS

Those desiring a more intimate knowledge of the development theory, more popularly known as Darwinism or the theory of evolution, are referred to a brief simple statement for general readers by Prof. J. Y. Bergen, Jr., and Fanny Bergen, published by Lee & Shepard, Boston. 16 mo. cloth, ill. 1884, \$1.25.

The first number of the Journal of Mycology has appeared, containing descriptions of many new fungi, edited by Prof. A. Kellerman, Manhattan, Kansas, monthly, \$1 per year.

Mining and Scientific Press; a paper devoted mainly to mining affairs. Published by Dewey & Co., S. F., at \$3 per year.

The Naturalists' Leisure Hour: published monthly by A. E. Foote 1223 Belmont avenue, Phila., at 75 cents per year is invaluable to the book buyer and contains much of interest to anyone.

Tidings from Nature is a monthly published at Rutland Vt., at 25 cents per year, devoted to young naturalists.

Drugs and Medicines of North America: a quarterly devoted to the complete discussion of the medicinal plants of North America, by J. U. and C. G. Loyd, and is a most thorough work, highly creditable to the publishers and authors and should be in the hands of every physician. Medicinal plants will be illustrated with full-page engravings. Price \$1 per year, 30 cents per number. Sample pages with prospectus on application.

The Microscopical Bulletin, a bi-monthly, published by Jas. W. Queen & Co., opticians, 924 Chestnut street, Philadelphia, contains much matter of interest to microscopists and well worth the 25 cents a year charged.

Editors are respectfully invited to exchange. We would ask publishers, authors, and societies to send us their publications, especially those referring to the Pacific coast or of general interest to biologists.

GENERAL NOTES.

A course of popular lectures under the auspices of the Society of Natural History has been commenced at San Diego. The first of the series was delivered on the 3rd instant by Mrs. Elizabeth Surr, recently from London, England. Her subject, "The Beautiful," was treated in a combined practical and poetic manner which gave general satisfaction to her hearers.

The crisis in the grain trade and the American and Indian competition in this commodity, are the topics of the day in Russia, and are being discussed in no less than three societies in St. Petersburg, each devoting more than one session to these topics.—[Science.

Quarter sections of our native woods, five inches in length, 25 cents each, by mail. Smaller specimens ($\frac{1}{4} \times 1 \times 5$ inches) 60c. per dozen varieties by mail.

Sample packets of native seeds 25 cents.

20051

SOCIETY OF NATURAL HISTORY.

The regular meeting was held Friday evening, Feb. 9th, the president, Dr. G. W. Barnes, in the chair. The formation of a section adjunct to the Society, composed of the San Diego Historical Society, was consummated. The following publications were received: Proceedings and Transactions of the Nova Scotia Institute of Natural Sciences of Halifax, by Mr. Simon D. McDonald; also by the same, a pamphlet by himself on Sable Island and its attendant phenomena; Meteorology of Oakland, by J. D. Trembly M. D.; Transactions of Vassar Brothers Institute and its Scientific section, Poughkeepsie, N. Y., 1883-1884; Bulletin of the Minnesota Academy of Sciences, January 1882; official document—engrossed on parchment—of the Hawaiian Council in 1864, by E. W. Hendrick; a check-list of the flowering plants and ferns of Southern and Lower California, by C. R. Orcutt; Revision of the Stenini of America north of Mexico, from the author, Thos. L. Casey. Miss Rosa Smith exhibited the egg and young of a Swell Shark—*Scylliorhinus ventriosus*. Dr. Barnes exhibited a specimen of turquoise—the sacred stone of the Aztecs—from the mine near Cerillos, New Mexico, stating historical and scientific facts connected with it. Four new members were elected.

Specimens of the fruit of all our manzanitas (*Arctostaphylos*) can now be had with many other seeds of botanical interest.

INQUIRIES.

Mr. Geo. F. Kunz desires to learn of any mention made of pearls in any paper—either as a newspaper item, or in a popular or scientific work.

Lovers of flowers are requested to note the first appearance of blossoms in their immediate neighborhood of all the varieties they can; also duration of the time of blossoming, peculiar conditions, etc.

California *Erythrææ* wanted by the publisher—30 or more fine specimens of every species except *E. venusta* and *E. Douglasii*; will give liberal exchange.

MONTHLY BULLETIN.

Some fine specimens of *Laevicardium elatum*, Sby. are now on hand at prices from 50 cents to \$3 each.

Two or three specimens of *Chlamydoconcha orcutti*, Dall. can be had at \$1 each.

Dr. Frank Cowan a member of the Philadelphia Academy of Science, gave an entertaining and instructive lecture on India, the evening of the 9th instant, under the auspices of the San Diego Society of Natural History. He was a guest on the U. S. surveying steamer, Carlisle P. Patterson on her voyage from the east on her way to Alaska where she is ordered. Dr. Thos. H. Streets and Messrs. Niblock and Marsh are stationed on this vessel and attend to the Natural History department, Lieut. Clover commanding.

A few fine examples of *Cypraea spadicea*, Sby., at 25 cents to \$1.

Fine herbarium representations of Southern and Lower California plants at \$10 per century for selections, postpaid in the U. S. \$8 per century by the set.

The American Naturalist: A large \$4.00 monthly magazine devoted to the natural sciences in their widest sense, and published by McCally & Stavely, 237-9 Dock street, Philadelphia, contains extensive and interesting notes on geography, travels, geology, palæontology, botany, entomology, embryology, psychology, anthropology, microscopy, and various other subjects. It gives in the February number nine very fine plates, illustrating the various subjects treated upon.

Vick's Illustrated Monthly Magazine, which needs no description, will be sent one year with THE WEST-AMERICAN SCIENTIST for the price of the one, \$1.25.

Bulletin of the Torrey Botanical Club (price \$1.00) with THE WEST-AMERICAN SCIENTIST, \$1.25.

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THE UNION was established in 1868. Until 1871 it was published only once a week, when the daily edition was begun. THE DAILY UNION is published every morning except Monday. THE WEEKLY UNION is published every Thursday.

THE SAN DIEGO UNION is the oldest of the 41 newspapers published in Southern California. Of the 389 papers published in the State, 297 have been started since it began publication. It is more than five years older than 245 of the journals of California, and more than ten years the senior of 168 of them. It has a larger bona fide circulation than any other newspaper published in Southern California.

THE WEEKLY UNION

A large, eight-page paper of fifty-six columns, circulates very largely abroad, as well as at home. It goes to nearly every family in the county, and its subscribers "stay with it." It is conceded to be the best California weekly published out of San Francisco. Both daily and weekly editions circulate largely through Southern California, Arizona, New Mexico, and contiguous territory. It has subscribers in thirty-five of the thirty-eight States, and in six of the eight Territories; in British Columbia, Canada, England, Scotland, Ireland, France, Germany, Switzerland, Italy, Spain, the Sandwich Islands, China, Japan, and the Australian Colonies. The wide circulation, influential position and representative character of the paper are undisputed. Persons wishing accurate information respecting the southern part of California should subscribe for THE UNION. Sample copies sent on application.

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Practical articles on Horticulture, Agriculture and applied Science; Popular articles on the leading Scientific subjects of the day; General, Zoological and Botanical Notes and News; Notices of Books and Periodicals; Faunal and Floral Lists; Descriptions of New Species; Proceedings of the San Diego Society of Natural History, and important papers read before the same; accounts of the Agassiz Association, etc.

THE JOURNAL WILL NOT BE LIMITED IN ITS SCOPE IN ANY PARTICULAR.

Respectfully asking such encouragement, financial and otherwise, as we may seem to deserve, the publisher remains, sincerely,

C. R. ORCUTT,

San Diego, California, U. S. A.

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This Journal offers an almost wholly new field of advertising, embracing the intelligent, reading public of Southern California, and amateur and professional scientists throughout the United States. Rates, 10 cents per line first insertion; 5 cents per line each subsequent insertion; 10 lines to the inch. Terms, cash, in advance.

[CIRCULATION OF THIS NUMBER, 1,000.]

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OBJECTS OF NATURAL HISTORY.

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The West-American Scientist.

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No. 4.

A popular review and record
for the Pacific Coast.

PUBLISHED MONTHLY BY C. R. ORCUTT.

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BEAUTY.

MRS. C. K. SMITH.

There's beauty in the virgin spring,
When in the wood she weaves her bowers;
There's beauty where the wild birds sing,
And echoes start among the flowers.

There's beauty in the pine-clad mount,
Where zephyrs sigh and tempests fall;
There's beauty in the gushing fount,
Where Heaven's arch is over all.

There's beauty in the humble flower,
In meadow, grove or green hill side;
A beauty of enticing power,
Wherever lovely flowers abide.

There's beauty in the silver moon,
The twinkling stars that shine by night;
That on our world look mildly down
And glad us with their mellow light.

There's a beauty which never dies,
A beauty of the rarest kind;
It claims its kindred in the skies,
It is the beauty of the mind.

When this in kindness, truth and love,
Beams forth upon mankind,
We own its source is from mankind.
And feel its power divine.

SAN DIEGO, February 13, 1885.

THE PERICUE INDIANS.

BY L. BELDING.

Probably these Indians were never numerous though the Victoria mountains would have supported a large population.

Father Baegut says there were 4,000 Indians in the southern part

of the peninsula of Lower California when the missions of Santiago and San Jose del Cabo were destroyed by them in the year 1734, but that they numbered only 400 in 1772 (Chas. Rau, Sm. Rp. 1864 p 384)

It was a prime object with my companion Dr. H. Ten Kate, of the society of anthropology of Paris, and myself as well, to find a living representative of the original Lower Californian, which we probably found on the Rancho San Jacinto, owned by the Vallerrino family. But we could get no positive or definite information concerning this Indian woman, who must have been about seventy-five years old, although from La Paz to Cape San Lucas she was universally reputed to be a pure blooded Indian. She differed widely from the Yaquis and other Indians from the east side of the Gulf, being of good stature, robust form and dark complexion, with a cranium which resembled those found in the caves.

Dr. H. Ten Kate offered to photograph the hacienda and its occupants, hoping by this means to get her photograph, but his diplomacy failed, although backed by our distinguished guide, Don Juan Dios Angoula, who had long been a friend of the family.

We saw three of her children who were good examples of the

better class of Mexicans, their father having been a Mexican or Spaniard. This woman is probably the only living pure blooded native south of 24 degrees 30 minutes.

The Indians of Lower California south of 24 degrees 30 minutes buried their dead in caves below shelving rocks, without regard to the points of the compass, usually painting the bones, but how they made the bones clean and ready to be painted is still unknown. At Zorillo we were shown a small cave in a granite rock by our local guide, who said that an Italian collector, several years before, had found bones of a "gentile," the Mexican name for an Indian or heathen.

The sand in the cave was dry, coarse disintegrated granite, about a foot deep. By digging in it I found the well preserved skeleton of an adult male Indian, who was perhaps the last of the Pericues. This skeleton was wrapped in cloth made from the bark of the palm and bound with three ply cord which had been plaited as sailors make sennit, the material being fiber of the agave. Dr. W. H. Dall mentions in the Smithsonian contributions to knowledge, number 318, that the mummies of the Aleutian Islands, were bound with cord quite similarly braided in square sennit.

The package, which was about twenty inches long, did not appear to have been disturbed since burial, although a femur and some small bones were missing, and nearly all of the bones had been unjointed. The bones of the hand

were inside of the skull, which was full of small bones and sand. Meanwhile Dr. Ten Kate found the skeleton of a girl about twelve years old. This was also in excellent condition, although differing from those found elsewhere, in not having been painted, a rare exception. For the skeletons found by Dr. Ten Kate on Espiritu Santo Island, at Encenada and Los Martires, which he kindly allowed me to inspect, had all been painted the usual brick red, with the exception of one the Doctor found at Los Martires which had a skull of very inferior, almost idiotic form.

The few bones we afterwards found in a cave near Candelario and several skeletons found at San Pedro by Dr. H. Ten Kate had also been painted. All of the skulls were of one general form, namely, the pyramidal—high, long narrow, with wide, prominent cheek bones.

The only ornaments, or other objects of aboriginal handiwork found with the skeletons, were two small, neatly worked, pearl oyster shells, which were in the package with the bones of the young girl found at Zorillo. These shells had been polished on the convex side, the edges finely serrated and pierced at the apex as if to be suspended about the person for ornament.

Our readers are presented this month with a very valuable table computed from thirteen years observation at the signal service of this place, and for which we are indebted to the kindness of J. C. Sprigg, Jr., Sergt. S. S.

Meteorological Data compiled from 13 years observations at San Diego, Cal. including the year 1884.

SEASONS	TEMPERATURE						MONTHS	RELATIVE HUMIDITY		RAINFALL	
	AVERAGE FOR		MAXIMUM OF EACH		MINIMUM OF EACH			AVERAGE FOR	Av'rge	Total	
	M'nths	Seas'n.	M'nths	Seas'n.	M'nths	Seas'n.		M'nths	Seas'n.	Month	Seas'n.
Spring	55.7		99.0		38.0		March	75.5		1.38	
	57.7	58.1	87.0	*99.0	39.0	38.0	April	73.0	74.0	0.84	2.63
	61.0		94.0		45.4		May	73.6		0.41	
Summer	64.4		94.0		51.0		June	74.2		0.07	
	67.1	66.7	86.0	94.0	54.0	51.0	July	76.6	76.0	0.02	0.37
	68.7		91.5		54.0		August	77.2		0.28	
Autumn	66.8		101.0		49.5		September . .	76.3		0.04	
	62.9	62.7	92.0	101.0	44.0	38.0	October	72.0	71.8	0.49	1.14
	58.3		85.0		38.0		November . . .	67.1		0.61	
Winter	55.1		82.0		32.0		December . . .	69.2		2.41	
	53.7	54.4	78.0	82.6	32.0	32.0	January	70.6	71.3	1.81	6.83
	54.3		82.6		35.0		February . . .	74.1		2.61	
Annual Average.	60.5		HIGHEST *101.0		LOWEST 32.0			73.3		10.97	

The Average Relative Humidity between sunrise and sunset is about 9 per cent. lower than recorded in above table. Prevailing direction of wind is West.

CASTOR OIL PLANT.

The castor oil plant of commerce is obtained from the nuts of *Ricinus communis*, a euphorbiaceous plant supposed to be a native of Barbary but now widely naturalized in Africa, the south of Europe and America. The oil is a mild purgative, but the entire plant possesses active properties. The ancients administered the seeds entire but their variable action, producing sometimes fatal effects, led to their disuse.

Castor oil is much used in oriental countries and the south of Europe for burning, as well as a medicine, and its manufacture is actively carried on at St. Louis the beans being produced in southern Illinois. The method of extracting

the oil is simple the product equals about one-third of the seeds employed, and when of a good quality is a thickish fluid of a very pale yellow color.

The castor plant is naturalized to a considerable extent in the vicinity of San Diego, where it forms a fair sized shrub equal to any of the indigenous plants and its cultivation in the future may furnish another profitable industry for southern California.

*An unusual degree of temperature continuing less than two hours, and due, no doubt, to forest fires, which were raging at the time in the vicinity of San Diego.

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SAN DIEGO, CAL., MARCH, 1885.

ERITRICHIMUM.

Dr. Asa Gray, in recent contributions to the botany of N. A., reduces *Eritrichium* to a subgenus of *Omphalodes*, distributing the species through several genera, the larger number falling to *Krynitzkia* and *Plagiobothrys*, two genera formerly suppressed which are now reestablished.

The check-list of our plants is changed as follows, the species of *Eritrichium* becoming;—

- Krynitzkia californica*, Gray.
- var. *subglochidiata*, Gray.
- oxycarya*, Gray.
- microstachys*, Greene,
- angustifolia*, Gray.
- barbigera*, Gray.
- intermedia*, Gray.
- muriculata*, Gray.
- Jonesii*, Gray.
- micrantha*, Gray.
- var. *lepida*, Gray
- circumscissa*, Gray, L. Cal.
- pterocarya*, Gray.
- ramosissima*, Gray, (E. *ramosum*.)
- Jamesii*, (S. Bernardino.)
- leucophaea*, S. E. Cal.

Echidiocarya urcina becomes *Plagiobothrys ursinus*, and *E. californica*, P. Cooperi.

ZOOLOGICAL NOTES.

W. H. Dall of Washington, D. C., finds upon the examination of the animals of *Nacella depicta* and *N. paleacea* that they belong to the genus *Acmaea* instead of *Nacella*.

J. J. Rivers of the University of California, has collected some small corals, *Balanophyllia elegans* (Verrill) on rocks a little below low water mark at Monterey. The animal is of a beautiful red color and might easily be taken for a small actinia.

A new work on the land shells of North America, by W. G. Binney, to be published by the Smithsonian Inst., is now in press.

A small slug, perhaps undescribed, has been found in this county and in Lower California, and is now in the hands of an eminent foreign scientist for determination.

Pearls are sometimes found in the common California mussel.

Mr. J. W. Huggins, of this city, discovered in his garden a small bird, evidently fastened in a tree which upon approaching was stimulated to a successful effort to escape. It was found that it had left several of its tail feathers which had been securely fastened to the tree by a strong spider's web.

The same observer noticed another bird in evident distress which also escaped upon his approach, leaving several feathers in the mouth of a scorpion's burrow.

OUR PENINSULA FLORA.

Visiting on the 4th instant, the low mesa of the peninsula in front of the city of San Diego, the shrubs of the southern portion were found to consist mainly of *Rhus integrifolia*, growing in dense clumps a few feet high. *Simmondsia Californica* of only a foot in height, forming thick mats several feet in diameter upon the earth, *Ephedra Californica*, *Artemisia Californica*, and tallest of all *Yucca baccata* with trunks six feet high, already budded to bloom while the other shrubs were all in full bloom, except the *Artemisia*. *Clematis pauciflora* was trailing over them with a profusion of flesh-colored flowers, and an occasional vine of *Megarrhiza Californica* in fruit and flower.

Among the bushes were the blue heads of *Brodiaea capitata*, the purple *Mirabilis californica*, *krynitzkias*, *Phacelia tanacetifolia*, *Nepheila racemosa*, *mosackia glabra*, *Lupinus truncatus* and a few other flowers, while beneath them grow *Pterostegia*, *Tillæa minima* and other inconspicuous plants.

A few cacti grew along the edge of the mesa in company with *Lycium Californicum*, *Eragrostis fasciculatum*, *Frankenia*, *Bigelovia*, etc., while the space between the clumps of bushes was occupied by *Oenotheras*, *Euphorbia polycarpa*, *Senecio*, *alfillaria*, *Draba cuneifolia*, interspersed with small clusters of *astragalus* or crazy weed, cotyledons, ice plants and stones ornamented with bright colored lichens.

The peculiarities of the flora are still undeveloped at this season of

the year, though most of the plants were earlier than on the mainland. The *rhus* and *simmondsia*, which grow to be fair sized trees among the hills in sheltered places, here form only low, rounded clumps.

CONTEMPORARY JOURNALS.

Journal of the New York Microscopical Society. Issued in nine monthly numbers at \$1 per year. Benjamin Braman, editor.

The American Naturalist, a popular illustrated monthly magazine of natural history and travels, \$4 per year. McCally & Stavely publishers, 237-9 Dock st., Phil.

Tidings from Nature. For young naturalists. An excellent monthly published by H. M. Downes, Rutland, Vt., at 25c per year, (after April 1st, 40c.)

Canadian Science Monthly. Devoted to Canadian naturalists and popular science. \$1 per year. A. J. Pine, editor, Wolfville, N. S.

Hoosier Mineralogist and Archeologist. A 25c monthly. Published by H. F. Thompson, 17 Butler st., Indianapolis.

National City Record. A weekly newspaper of Southern California. \$2.50 per year. Wm. Burgess, editor, National City, Cal.

Ladies Home Journal, Dewey & Co., San Francisco, Cal. A \$1 monthly devoted to literature, art, fashion, etc.

The Collectors' Companion. A new 50c monthly devoted to stamp collectors. Published by J. H. Raymond, 162 Center st., Chicago.

Pacific Science Monthly. A new 50c journal edited by S. Bowers, San Buenaventura, Cal.

PUBLICATIONS RECEIVED.

Memorial of George Bentham, by Asa Gray. From the American Journal of Science, February 1885.

American association for the advancement of science. Constitution, list of meetings, officers and members for the thirty-third meeting, in Philadelphia, September, 1884.

The Methods of Statistics. By Dr. Franklin B. Hough. Proc. Am. A. A. Sci., 1884.

Botanical Contributions. By Asa Gray. Proc. Amer. Acad. Arts and Sci., XX. Contains a revision of some Borragineous genera, and descriptions of thirty-nine new species of gamopetalæ, with remarks on others.

Contributions to American Botany, XII. By Sereno Watson. Proc. Am. Acad. Arts and Sci., XX. Contains a history and revision of the roses of North America and descriptions of some new species of plants, chiefly from our western territories.

GENERAL NOTES.

Only about 24,000 periodicals published in the world. Subscriptions taken at this office for any or all.

Dr. Parry is now in England, and intends visiting Paris and Geneva in May, returning to America in August.

L. Belding, Superintendent of the Pacific District of the Ornithologists Union, is intending to visit the mountains of Lower California again this spring.

Prof. Asa Gray, in company with his wife and Prof. W. G. Far-

low, visited the city of Mexico on their way to Southern California, reaching San Diego on the 19th inst.

The third lecture under the auspices of the Society of Natural History was delivered by Mr. Stuart Stanley on the evening of February 26. He gave an instructive account of the Soudan and of the present condition of affairs in that country.

BOTANICAL NOTES.

Isoetes of the check-list of Southern California plants is considered a new species.

Abutilon Streetsii, Watson, ined. of the same list proves identical with an Arizona species which Prof. Watson now publishes as *A. Lemmoni*.

California *Erythrææ* are wanted for which a liberal exchange will be given. Thirty-five specimens of every species except *E. venusta* and *E. Douglasii* are desired.

Deschampsia gracilis and *Bromus Orcuttianus* are described as new species from San Diego, by Dr. Geo. Vasey in the February number of the Botanical Gazette.

Many aquatic plants are making no appearance this spring, owing to the lack of rain, and 1885 is now likely to prove a botanical failure as regards the coast region of California. Many of the species that do make an appearance are stunted or rare and later than usual in blooming.

There are more than 250 botanical names in the Old Testament.—Littell's Living Age.

There are probably a million stamp collectors in the U. S. All the way from \$5,000 to \$200,000 have been spent by wealthy gentlemen in perfecting collections.—Canadian Science Monthly.

The American Association for the Advancement of Science has a total membership of over 2,000.

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THE JOURNAL WILL NOT BE LIMITED IN ITS SCOPE IN ANY PARTICULAR.

Respectfully asking such encouragement, financial and otherwise, as we may seem to deserve, the publisher remains, sincerely,

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The West-American Scientist.

Vol. I.

San Diego, California, April, 1885.

No. 5.

A popular review and record
for the Pacific Coast.

PUBLISHED MONTHLY BY C. R. ORCUTT.

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NOTES ON CHORIZANTHE LASTAR- RILEA, PARRY.

BY C. C. PARRY.

In a recent examination of the early collections of *Chorizanthe* etc., in the old world herbaria, some facts of general botanical interest were brought to view; most important of all being the types of Bentham's original descriptions in establishing the sub-order *Eriogoneæ*. Among these I was particularly interested in tracing up the botanical history of *Chorizantho*, *Lastarriæa*, *Parry* (*Lastarriæa Chilensis*, Gay). Owing to the inconspicuous characters of this otherwise well marked species, in the older herbarium specimens, it was frequently inadvertently mixed with other species, and when properly separated had received several unpublished generic names, being variously referred to *Paronychiaceæ*, *Ilecebraceæ*, or *Eriogoneæ*.

It was, however, fairly represented by authentic specimens in all the early collections from Chili, South America, as far back as 1830, and by both Coulter and Nuttall, from Southern California, 1832-36.

By Nuttall, whose complete specimens were collected at Santa Barbara in 1836, its diagnostic botanical characters were clearly determined, though not referred

to any natural order. In his specimens at the British Museum, the accompanying label marked with his usual * indicating a new genus, the following brief description is given, (the original contracted Latin being translated), viz:

"* *Ancistrophyllum Californicum*. Annual; leaves 5, verticillate; stem jointed, fragile; flowers sessile, dichotomous, calyx prismatic, 5 cleft, uncinatè, corolla none; stamens 2 - 3 ? ovary slender 3 angled, stigmata none. Santa Barbara, Upper California."

With still another Nuttallian specimen (probably on cursory examination) is the following label, viz:

"* *Corrispermum spinulosum*."

In other fragmentary Nuttallian specimens in the Kew Herbarium, this species is mixed on the same sheet with *Chorizantho uncinata* Nutt., and so referred in Bentham's hand writing, followed also by Prof. Gray on another mixed sheet. In South American specimens in the Kew Herbarium, there is a similar confusion in the older collections, the following label accompanying one of the oldest, viz:

"50 Poppig, Pl. Chil.

Hamaria Poppigii, Ky. (ined).
Synop. Pl. Am. Aust. Misc. Nov.
gen. e familia *Paronychiaceæ*? in
arenosis Montes, Aug. *floreus*."

On still another Chilian speci-

men the accompanying label is the following, viz.:

"No. 228 Guliemin, 1830,
Gen. Nov. *Donatia?* Ex. Gay."

Even as late as D. C. Prodromus, this plant is included among the "*Dubiæ*" at the close of *Eriogoneæ*. The natural inference from the above ascertained facts is that the obscure characters, and imperfect knowledge of this species, up to a late date prevented a clear understanding of its true systematic relations. With the publication of Gay's *Fl. Chilensis*, in which this plant is figured, and fully described under the name of *Lastarriæa Chilensis*, Gay, and the subsequent elaboration of Prof. Gray, and Bentham, its true place in the natural system is clearly determined.

In venturing to differ from the last named authorities as to its generic character, in referring it to a reduced form of *Chorizanthæ* (*Proced. Dav. Acad. Science*, Vol. IV., page 47). I was forced to this view in an endeavor to systematize all the material in reference to this genus, accumulated by extensive field observation, and access to all the available collections and descriptive works.

The main point of difference lies in the view taken of the floral organs, and as to whether the involucrel appendage, or the perianth, is obsolete in this particular species. Noting, then, the marked persistence of the involucrel character; on which, in fact, Bentham mainly relied in establishing the sub-order *Eriogoneæ*; and seeing no good and sufficient reason why the organ in this species, which

occupies the position and has all the morphological characters of a *Chorizanthoid* involucre, was not such in fact. An explanation was sought for the apparent absence of the internal perianth by referring it to a reduced form, as a lobed ring in the throat of the involucre, its lower part being adnate to the tube in a similar way, as the stamineal whorl is not unfrequently adherent to the perianth, being carried on its inner face as an obscure thread, as well as occasionally reduced in number, from nine, to six, or three. What very materially helps to sustain this view, is the modification which the perianth is plainly seen to undergo in a regular series of reduction, being traceable from several flowers to each involucre, pedicellate and partly exsert, as in *Centrostegia* section, gradually reduced to single flowers by partial or entire obsolescence of the secondary ones, and still farther in *Euchorizanthæ* section, becoming nearly or quite sessile and strictly uniflorous, showing also a more or less adnation of the stamens to the tube of the perianth, thus as it were foreshadowing what we actually find in *Chorizanthæ Lastarriæa*, viz: a blending of the perianth with the involucrel tube. As serving still farther to confirm this view, it is possible by careful dissection of well macerated young specimens to detach the adherent ring, extending as a membranous expansion lining the involucrel tube just as in the analogous case of adherent stamens, the filament can frequently be separated as a continuous thread to the base of the perianth.

Granting then what is unavoidable, the liability to modification of the Chorizanthoid perianth in the way of reduction and partial obsolescence, coupled with the remarkable persistence of the involucre characters, and the above view removes at once the anomalous features of the species, and fulfills all the desirable systematic conditions.

On the other hand, the previously received view involves much more serious and insuperable difficulties, placing this otherwise well characterized plant entirely out of analogy with all other allied *Eriogonous* genera in the entire absence of an involucre, either in the usual form of a segmented whorl or as a simple bracteate floral appendage; assuming moreover that a perianth which in all other allied species has certain fixed characteristics, only subject to reduced modification of parts, but never of structure, can take the puzzling form of an ordinary involucre!

When such irreconcilable facts are once fairly placed by the side of a more natural and simple explanation, the question of choice cannot long remain doubtful.

Kew, England, November, 1884.

The Bulletin of the California Academy of Sciences, No. 3, February, 1885, has been received and contains much of botanical interest from the pens of Rev. E. L. Greene, Mrs. Mary K. Curran, and H. W. Harkness, the latter on fungi. H. H. Behr contributes to the literature on lepidoptera in descriptions of new species, etc.

CONTEMPORARY JOURNALS.

The American Monthly Microscopical Journal, Romyn Hitchcock, editor and publisher, Washington, D. C., \$1 per year. With this well established periodical and the journal of the New York Microscopical Society, the microscopist can keep well posted on the news in the various departments.

Mind in Nature, a popular monthly journal of psychological, medical and scientific information, is announced to be published the first of every month, by the Cosmic Publishing Company of Chicago, at \$1 per year. Its object is to furnish, in a popular manner, information regarding psychological questions, the relations of mind to the body, etc.

The Mining Review of Chicago, is the leading mining journal of the United States, published weekly at \$3 per year.

Prof. W. G. Farlow delivered a very interesting popular lecture on marine algæ, under the auspices of the San Diego Society of Natural History, the evening of March 26.

Mr. Joseph Surr, recently of London, gave the fifth lecture of the course under the same auspices, to a large audience, the evening of March 30, on "A Walk in London."

This paper is usually issued on or near the fifteenth of each month.

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SAN DIEGO, CAL., APRIL, 1885.

EDITORIAL NOTES.

We have adopted the rule of not italicizing scientific names, a custom of no real value, and of many disadvantages.

We would repeat that we wish to make this journal the representative of the naturalists of western America, and we thank those who have given us their prompt support. The Pacific coast is poor in active workers, and the few are scattered over a wide, undeveloped field, rich in the beauties of Nature. By co-operation the great work before them can be best performed.

It is going the rounds of newspapers that California ostrich eggs are only \$120 per dozen; we may add that chickens are held at \$50 and hens at \$1,000 each, while the eggs are equal to two dozen common hen's eggs and weigh about three pounds apiece.

The SCIENTIST is mailed between the fifteenth and twentieth of each month.

DISTINGUISHED BOTANISTS IN CALIFORNIA.

Dr. Asa Gray, and Professor W. G. Farlow, the distinguished scientists of Harvard College, who are at present visiting Southern California, were tendered a reception by the Historical Society of Southern California at Los Angeles on the evening of March 16. Each of the distinguished guests responded to the Society's greeting in an appropriate speech, and from Dr. Gray's, we quote the following paragraph:

"That we have enjoyed your scenery, your climate and your hospitality, goes without saying. But beyond that, we have had the pleasure—peculiar to botanists—of meeting old friends, seen before, only in altered guise—your flowers, many of which were before familiar to us only in their dried form. These beautiful flowers of Southern California turn up their bright eyes to me as I pass, and say: 'Don't you know us?' And I look down at this one for a moment and say: 'Oh, yes, you're so and so. Menke discovered you;' or to that one, 'Yes, your name is such and such. You were wrongly christened, and had to re-name you;' or to a third, 'Yes, I know you—you are one of my own children, classified and named by myself ten or twenty or forty years ago, or perhaps only yesterday.' And there is the further pleasure of meeting among you some of the correspondents whose work has been so valuable to me—as Messrs. Nevin, Lyon and Oliver. There are, too, the

Parishes, of San Bernardino, who have done a remarkably extensive work. It is to all these gentlemen that your Society may look to build up its natural history side. I trust they will prepare for the society a full herbarium of Southern California flowers. I hope and anticipate that your society will do much for science."

The address of Professor Farlow was of a more scientific nature treating of the diseases of fruit trees caused by fungi.

Dr. Gray, who is accompanied by his wife, and Professor Farlow, made a short stay at San Diego, returning north and visiting Santa Barbara and other places of interest in Southern California.

GENERAL NOTES.

Rev. E. L. Greene is en route to Guadalupe and Cerros Islands on a botanical survey of those places.

Dr. Asa Gray and wife, with Professor Farlow, made but a short stay at San Diego, leaving for Santa Barbara and San Francisco. They will probably return to the east in May.

The publisher of this paper, in company with the editor, and several others, is absent on another botanical expedition into the Californian peninsula.

A pearl weighing 93 carats and valued at \$17,000 has just been shipped from Guaymas, Mexico, for London. It was bought of an Indian for \$90, and is believed to be the largest in existence.—Canadian Science Monthly.

THE GEODE.

MRS. Z. R. CRONYN

Before me lies a tiny crystal palace,
With doors forever closed, if so I choose,
As fair within as any lily's chalice
Where night has dropped its offering of dews

No footstep ever echoed through its arches,
No voice has rung through chamber or recess
The centuries have passed in long, slow
marches,
And still this palace home is tenantless.

Ah! once the little fairies reveled gaily
On this old earth of ours, but now no more!
Man's strange devices tear and ruin daily
The play-ground where the elvies trooped
before.

Or else I might be sure some tiny creature,
Beleaguered here, had walled herself within
Where enemy nor element could reach her,
Self-separated from accusing kin.

Perhaps—who knows? perhaps some prisoned spirit,
Caught fast in one convulsive grasp of fate,
So still, that if we list we cannot hear it,
Has waited, through the ages, at the gate.

Then, shadow of unbound Prometheus,
hover,
Above me as I break these prison bars!
And so—I break, and kneel as any lover
Beside these wondrous concaves full of
stars.

Fair pillars are there, chastely hewn and
beveled,
And colonnades aglitter in the light
And pavements, not like man's—all square
and leveled
But rugged with a thousand jewels bright.

A fitful iridescence quivers faintly
About the corridors and columns small
And lo, in this recess so white, so saintly,
I find the crucifix upon the wall.

SOCIETIES.

The regular semi-monthly meeting of the San Francisco Microscopical Society, was held at the Society's rooms, No. 120 Sutter St., on Wednesday evening, March 11, 1885. Sundry scientific periodicals were added to the files.

Dr. Selfridge exhibited an interesting specimen of supposed meteoric origin. Its surface and outlines were more regular than is usually the case with meteorites, but it possessed one characteristic of those interesting bodies in a remarkable degree, viz: extreme hardness.

Dr. S. M. Mouser then exhibited his newly acquired microtome or Section Cutter, of the celebrated "Thoma" pattern. It is exceedingly elaborate in construction, but consists essentially of a frame of cast iron, on which slide two carriers. A large and finely finished knife is clamped to one of these, which slides on a horizontal plane. The second carrier (which holds the specimen to be cut) moves on an inclined surface.

Professor Thoma has based the construction of this microtome upon the principle (first theoretically deduced, and then practically demonstrated) that a body sliding between two inclined planes and touching the latter at five points only, will slide evenly and exactly over such planes even if they be not geometrically true. A knife attached to such a carrier will, therefore, always cut perfectly parallel sections of an object which is elevated after each cut. As a practical exemplification of the perfection with which

the above principle has been worked out in the Thoma microtome, it may be stated that it permits the cutting of serial sections of well hardened animal tissues of certain kinds, as thin as .002 mm. (.00008 in.), and even such a comparatively coarse tissue as liver can, if well hardened, be cut to .01 mm. (.0004 in.) The ability to produce sections of such wonderful delicacy has given a great impetus to histological and pathological research of late.

Mr. Breckenfeld exhibited a "Graduated Blue Glass Modifier" which has just been brought out by the Bausch and Lomb Optical Company.

At the meeting of March 25, 1885, a valuable donation was received from Lieutenant Thos. L. Casey, U. S. A., consisting of three volumes of his "Contributions to Coleopterology," just published.

D. J. N. Stallard of this city was nominated for resident membership.

On the announcement that a new and much enlarged edition of Habirshaw's rare and valuable "Catalogue of the Diatomaceæ" was about to be published, it was unanimously resolved to order a copy for the Society's library.

A very interesting demonstration of the capabilities of a new ophthalmoscope was given by its inventor, Mr. Louis A. Berteling.

He also exhibited the "Professional" microscope, manufactured by the Bausch & Lomb Optical Co., and being the most elaborate form made by it. Nearly all the revolving parts are furnished with

silvered graduations, the stage and sub-stage are provided with improved centring adjustments, and its design is evidently the result of a successful attempt to produce an instrument fully equal to the highest class of microscopical work.

Dr. C. P. Bates exhibited an ingenious and efficient "warm stage," for use in the study of "pure cultures" of Bacteria and similar minute organisms.

After an interesting informal discussion on the merits of the various exhibits, the meeting adjourned.

Tetracoccus discus, Parry, unfortunately secures the luxury of a synonym in Professor Watson's T. Engelmanni, published only a few days later in contributions to American botany, XII, Proc. Am. Acad., Vol. XX.

G. W. Lichtenthaler, who has recently visited the Sandwich Islands, spent some time collecting at San Diego on his return to Bloomington, Ill.

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Vol. I.

San Diego, California, May, 1885.

No. 6.

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for the Pacific Coast.

PUBLISHED MONTHLY BY C. R. ORCUTT.

Entered as second-class mat-
ter at San Diego Post-office.

HISTORICAL NOTICE OF *PINUS TORREYANA*.

BY C. C. PARRY.

[Read before The San Diego Society of Natural
History November 2d, 1883.]

In the Spring of 1850, when connected with the Mexican Boundary Survey, my attention was first called to a peculiar species of pine growing on the Pacific coast at the mouth of the Soledad valley, San Diego county, by a casual inquiry from Dr. J. L. Le Conte, the distinguished American entomologist, then staying in San Diego, who asked what pine was growing near the ocean beach at that locality. Not having any specimens to show, he simply mentioned at the time its dense cones, and its long, stout leaves, five in a sheath. Not long after an opportunity offered to the writer for a personal investigation, having been ordered by Major W. H. Emory to make a geological examination of the reported coal deposits on the ocean bluff above Soledad.

In making a section of these strata (see Report of the Mexican Boundary Survey, Vol. I, Part 2) it was necessary to follow up some of the sharp ravines that here debouch on the ocean beach, and here my attention was taken up by this singular and unique maritime pine, which, with its strong clusters of terminal leaves and its

distorted branches loaded down with ponderous cones, was within easy reach of botanical clutch. From the notes and collections there made a description was drawn up dedicating this well marked new species to Dr. John Torrey, an honored friend and instructor both of Dr. Le Conte and the writer.

Of the few specimens then collected a single cone and bunch was sent to Dr. Torrey, to be figured for Mexican Boundary Report (Vol. II, p. 10, pl. 58-59). While there it fell under the notice of some inquisitive botanist, who extracted some of the loose seeds, which were planted, but by some inadvertence were mixed with a three-leaved species. When growing the two different kinds became confounded and it was inferred that the present discoverer was mistaken in regarding this species as five-leaved.

Prof. Parlatore, the elaborator of *Coniferae* in D. C. Prodrômus added to this confusion by ignoring the name first proposed and substituting that of *Pinus lophosperma*, but fortunately the earlier publication of the Mexican Boundary Survey, with an accurate figure, permanently fixed the name of *Pinus Torreyana*, Parry thus commemorating one of our most honored American botanists by association with a tree peculiar

to the Pacific coast in a region which had been so often enriched by his early botanical labors as a collaborator.

Subsequently collectors have frequently visited this locality, bearing away to the remotest portions of the world seed of this pine, which, so far as is known, is confined to a coast line of not more than four miles, lying between San Dieguito and about a mile below Soledad and extending scarcely a mile inland.

The bulk of the tree growth is here mainly confined to a series of high broken cliffs and deeply indented ravines on the bold headlands overlooking the sea south of Soledad valley and within the corporate limits of the town of San Diego. Here within a radius of not more than half a mile this singular species may be seen to the best advantage clinging to the face of the crumbling yellowish sandstone or shooting up in more graceful forms its scant foliage in the shelter of the deep ravines, bathed with frequent sea fog. One of the finest specimens seen reaches a height of nearly fifty feet and shows a trunk eighteen inches in diameter at base.

Thirty years after this first discovery, in the fall of 1880, the writer visited this locality for the second time, accompanied by the well known botanist, Dr. George Engelmann of St. Louis. At that time more complete examinations were made and sections of a trunk over one foot in diameter were procured and sent to the Forest Commission of the Tenth United States Census.

Only a short time since the writer again visited the locality, aided by the liberality of the California Southern Railroad Company, whose track makes this fine resort easily accessible by barely an hour's travel from San Diego. Here, seeking shelter from the fervid rays of a February sun under the scant shade of this decrepit forest, listening to the sullen dash of the Pacific waves against the bold shores, among other thoughts suggested by the inspiring scene and its past associations, one floats uppermost like drifting seaweed and finds a fitting expression here. Why should not San Diego, within whose corporate limits this straggling remnant of a past age finds a last lingering resting place, secure from extermination this remarkable and unique Pacific coast production, so singularly confined within its boundaries, dedicating this spot of ground forever to the cause of scientific instruction and recreation? Where wiser generations than ours may sit beneath its ampler shade and listening to the same musical waves thank us for sparing "that tree."

Phacelia oxodes, Kellogg, was again found on the shores of Todos Santos Bay, a coarse viscid plant from six inches to six feet in height with a large perennial root.

A cultivated plant of *Escholtzia* in this city bore one hundred and seventy-five flowers for several days in succession the first week in May.

ONLY A BEETLE.

A distinguished naturalist was once shut up in a gloomy French prison for some political reason. While there his active mind prevented him from sinking into despondency, for even his cheerless cell furnished him with food for thought and study. The very insects, which to another would have been merely objects of aversion, were to him as fresh leaves from the ever interesting book of nature.

The surgeon who visited the prison found the naturalist one day intently examining a beetle, which had intruded on his solitude. He informed the physician that the insect was a rare one, and proceeded with the enthusiasm of a naturalist to speak of its peculiarities. The physician begged that he might have it for two young friends who were ardent students of the science, and it was readily granted to him.

The students were well acquainted with the fame of the celebrated Latreille, and when they learned his situation they forthwith took active measures to secure his release. So successful were they that the scholar was at length set at liberty, and could ever afterward feel that he owed his life to an insect. A month later, and all his fellow prisoners were put on board a ship for transportation. The vessel foundered in the Bay of Biscay, and all on board perished.

How small the means God often uses to save our life or take it away!—Selected.

CONTEMPORARY JOURNALS.

Pine and Palmetto, Vol. 1, Oakland, Cal., 35 cents a year, is a neat four-page semi-monthly, edited by Paul Goldsmith, of Oakland, Cal., and A. C. Whitney, of Metrose, Fla.

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SAN DIEGO, CAL., MAY, 1885.

EDITORIAL NOTES.

We have lately received a call from our young Poway entomologist, Frank E. Blaisdell, who has paid especial attention to Coleoptera, his local collection of beetles alone containing about seven hundred species.

We cannot help admiring the Century Magazine, which monthly presents its readers with such a variety of pure, original matter, and maintains so high a standard in the quality of its literary and artistic contents.

It is hard to keep posted on the latest scientific news without Science, the well known weekly magazine, which is unsurpassed in the ability and fairness with which it discusses scientific subjects. With Science, and The American Naturalist, the general reader can keep reliably posted on the news of the day throughout the world of nature.

From a special New York correspondent of the WEST AMERICAN SCIENTIST we learn of the

death of Franz Abt, the German composer, born in Prussian Saxony in 1819. When only twenty-two years old he became director of music in the Zurich Theatre, and finished "Agathe," or, as it is better known in America, "When the Swallows Homeward Fly," the 14th of May, 1842, which made him world-renowned shortly after. Abt's compositions were not entirely vocal; but it is said that his songs outnumber any other writer of Lieder.

We acknowledge the card of Lieut. Thos. L. Casey, U. S. A., who paid San Diego a short visit about the middle of last month, during our absence in Lower California. We understand he found during his brief stay about eighty species of beetles which he had not found in the vicinity of San Francisco, where he is now stationed, collecting twenty species in the low peninsula of San Diego bay.

PUBLICATIONS RECEIVED.

Prodromus Monographiæ, Oedogoniarum, auctore, V. B. Wittrock, Upsala, 1877. From the author.

On the Development and Systematic Arrangement of the Pithophoraceæ. A new order of algæ, by Veit Brecher Wittrock, Upsala, 1877. From the author.

Bulletin de la Federation des Societes d'Horticulture de Belgique, 1882, Liege, Belgium, 1884. From the secretary. Contains a list of botanists, botanical gardens, museums, papers and societies.

A vindication of the authenticity of the elephant pipes and inscribed tablétis in the museum of the Davenport (Iowa) Academy of Sciences, from the accusations of the Bureau of Ethnology. By Chas. E. Putnam, President Davenport Academy Natural Sciences, Davenport, Iowa, 1885.

BAJA CALIFORNIA NOTES.

A new mineral is being mined at San Antonio, a few miles from Todos Santos Bay, to which the name of Antonite has been given. It is used for oramental purposes, in imitating moire antique silk, etc.

A common species of mineral was found in a most beautiful form at Hansen's ranch, near an elevation of 6,000 feet, on the 22d of April. It was a novelty for a San Diegan to be botanizing in the snow, but beautiful manzanita blossoms, violets, grasses and the rare *Astragalus Sonoræ* fully repaid the editor for cold fingers.

Swainson's hawk was for the first time found in the peninsula, near the United States border, in the mountains, on April 23d.

Most of the shrubs in the vicinity of All Saints Bay were more than a month earlier than in the spring of 1882. The manzanitas, flowering ash, wild lilies and others that were in bloom on the 10th of April, 1882, were found in bloom on the same day of the month this year. The same was the case with Parry's wild rose, while Parry's horse chestnut was found in full bloom, but its leaves withered and mostly fallen.

[Written for the Scientist.]

Into the crucible of thought,
Many a bright vision must melt,
Before a dainty work is wrought,
Whose power and beauty can be felt.
And patience is the staff whereon,
Should Science in its progress lean,
That it may prove a power upon
Which all may rest in trust serene.

SOCIETIES.

SAN FRANCISCO MICROSCOPICAL SOCIETY, semi-monthly meeting, April 8, 1885. Six pamphlets and periodicals were contributed to the library. Dr. J. H. Stallard was elected a regular member. The president, Dr. S. M. Mouser, exhibited a slide containing a section from a malignant tumor. Mr. W. Pazant showed specimens of the eggs and completely developed larvæ of *Pulex irritans*, the common flea. Mr. A. H. Breckenfeld exhibited Vol. I of Coles' "Popular Microscopical Studies," consisting of twelve slides, each accompanied by a chromo lithographic plate, and a descriptive pamphlet.

April 22. Five periodicals were added to the files. Capt. Mortimer, a corresponding member, sent a rich sample of diatomaceous mud from Cuxhaven, Germany. Samples of recent diatomaceous material from Alaska and other points on the Pacific Coast were received for distribution. Dr. J. M. Selfridge read a paper on "Sarcoma." Mr. C. W. Banks exhibited a new class microscope. The society decided to hold its annual exhibition the third week in May, Messrs. Bates, Banks and Breckenfeld being appointed a committee for arrangements.

SOUTHERN CALIFORNIA SNAKES.

A great variety of snakes exist in Southern California, and a credulous listener will be told some startling tales—about rattlesnakes ten feet long, rattlesnakes pursuing horsemen on the desert trails, snakes with legs, snakes with two tails, and snakes!

Perhaps some may be startled to be told of the existence of a representative of the great Boa constrictor family of the tropics, a species of *Charina*, not rarely found throughout the county where it is known as the India rubber snake. When disturbed it tries to "tie itself into a knot," thinking, like the foolish ostrich, to save itself from its enemies by hiding its head, or, perhaps the inherent instinct of its great relatives, the Boa constrictor and anaconda, is shared to some extent by this harmless snake, causing it instinctive to coil in the imaginary act of enveloping its prey. It has a very thick body, short, blunt tail, slate-colored, brownish above.

One of the more common snakes is a species of *Pityphis*, the Bull or Gopher snake, which is harmless and performs valuable service in the destruction of vermin. Another harmless and valuable species is the Pilot, of the genus *Ophibolus*, marked by pretty black and white bands, and which is known to destroy rattlesnakes occasionally by swallowing them alive!—seizing the rattlesnake unaware by the head, thereby rendering it harmless. The King snake, less common in this region, is a similar species marked with red bands in addition to the black

and white bands, and is credited with performing the same valuable service for mankind of destroying rattlesnakes.

During a recent trip, traveling over 350 miles of mountain and coast road, only two rattlesnakes were seen out of more than a dozen serpents. One of these was of a reddish color and was induced to strike at a stick, extending about one-third of its length in the attempt. Failing in its attempt, it commenced to *advance toward* its tormentor to attack him, when it was promptly shot. The black rattlesnake is livelier and more venomous but smaller than the yellow, while on the desert a third species is found, still smaller and more pugnacious, and of a lighter color nearly white sometimes.

Closing these brief notes, it is only necessary to mention the long and slender "racer," the rare "garter snake," a species of *Phimothya*, the water snake and a small blue snake; while doubtless many other kinds abound which it would be interesting to know of, perhaps some still unknown to "Science,"—that august personage that vainly strives to keep track of Nature's endless forms.

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The West American Scientist.

VOL. I. SAN DIEGO, CALIFORNIA, JUNE, 1885. No. 7.

THE FISHES OF SAN DIEGO, CALIFORNIA.

A REVISION OF THE LIST OF FISHES MADE NOVEMBER 5, 1880.

BY ROSA SMITH.

ORTHAGORISCIDÆ—THE HEAD-FISHES,

Mola rotunda, Cuvier.—Sun-fish; head-fish; mola. “Pelagic, inhabiting most temperate and tropical seas, swimming slowly about near the surface; common northward to Point Concepcion.”

TETRODONTIDÆ—THE PUFFERS.

Tetrodon politus, Girard.—Puffer; smooth balloon-fish. “San Diego to Panama; very common southward.” Twice recorded from San Diego.

HIPPOCAMPIDÆ—THE SEA-HORSES.

Hippocampus ingens, Girard.—Sea-horse. Occasional.

SYNGNATHIDÆ—THE PIPE FISHES.

Siphostoma punctipinne (Gill), J. & G.

Siphostoma auliscus, Swain.

Siphostoma bairdianum (Dumeril), Swain. “Santa Barbara and Lower California.”

Siphostoma leptorhynchum (Girard), J. & G.

GASTEROSTEIDÆ—THE STICKLEBACKS.

Gasterosteus microcephalus, Girard. Tia Juana River.

PLEURONECTIDÆ—THE FLAT-FISHES.

Aphoristia atricauda, Jordan & Gilbkr. —Sole. Rather rare.

Hypsopsetta guttulata (Grd.), Gill. Diamond Flounder.

Pleuronichthys coenosus, Girard. Common.

Paralichthys californicus (Ayres), J. & G.—“Halibut.”

Citharichthys sordidus (Grd.), Gunther.—Plaice. Found along the entire coast, but not common here.

OPHIDIIDÆ.

Ophidium taylori, Girard.—A small band-like fish, rarely taken from the bay.

BLENNIDÆ—THE BLENNIES.

Cremnobotes integripinnis, Rosa Smith.

Clinus evides, J. & G. (= *Gibbonsia elegans*, Cooper).

Isesthes gilberti, Jordan.

Isesthes gentilis (Grd.), J. & G.—The four last named Blennies are small fishes inhabiting rock-pools.

Heterostichus rostratus, Girard.—Kelp-fish. A prettily marked fish of various shades of green and gold, reaching a length of fifteen inches. Not rare.

BATRACHIDÆ—THE TOAD FISHES.

Porichthys margaritatus (Richardson), J. & G.—“Very abundant from Lower California to Puget Sound.”

GOBIESCIDÆ.

Gobiesox rhesodon, Rosa Smith.—Small, 2½ inches long. Found adhering to the under surface of stones. “San Diego to the Gulf of California.”

COTTIDÆ—THE SCULPINS.

Scorpaenichthys marmoratus (Ayres), Grd.—“Cod.”

Leptocottus armatus, Girard.—Twelve inches long. Kodiak to Todos Santos Bay.

Oligocottus analis, Grd.—Seven inches long. Very abundant in our tide-pools.

SCORPENIDÆ—THE ROCK-FISHES.

Scorpaena guttata, Girard.—Sculpin.

Sebastes flavidus, Ayres.—Yellow-tail rock-fish.

Sebastes mystinus, Jordan & Gilbert.—Black rock-fish.

Sebastes atrovirens, Jordan & Gilbert.—Garrupa

Sebastes miniatus, Jordan & Gilbert.—Rasher.

Sebastes constellatus, Jor. & Gilb.

Sebastes auriculatus (Grd.), J. & G.—“Vancouver’s Island to Cerros Island, very abundant.”

Sebastes vexillaris, Jor. & Gilb.—Garrupa.

Sebastes carnatus, Jor. & Gilb.

Sebastes chrysomelas, Jor. & Gilb.

Sebastes serripes, Jor. & Gilb.—Tree-fish. “San Francisco to Cerros Island.”

The foregoing ten species of *Sebastes* (rock cod) are all valued as food fishes.

GOBIIDÆ—THE GOBIES.

Gillichthys mirabilis, Cooper.—Mud-fish. Little fishes living in shallow water, burrowing in mud.

Typhlogobius californiensis, Steindachner.—A pink fish three inches long, burrowing in sand among rocks.

LATILIDÆ—THE BLANQUILLOS.

Caulolatilus princeps (Jenyns), Gill.—White-fish; yellow-tail. Common outside.

POMACENTRIDÆ.

Chromis punctipinne (Cooper).—Blacksmith.

Pomacentrus rubicundus (Grd.), J. & G.—“Gold-fish.” Gariabdi.

LABRIDÆ—THE WRASSE-FISHES.

- Trochocopus pulcher* (Ayres), Garman.—Red-fish; fat-head.
Dried in immense numbers by Chinese at Roseville.
PlatyGLOSSUS semicinctus (Ayres), Gunther.
Pseudojulis modestus (Grd.) Gthr.—Senorita; pesce rey.

EMBIOTOCIDÆ—THE SURF-FISHES

Viviparous fishes of the Pacific Coast:

- Abeona minima* (Gibbons), Gill.
Micrometrus aggregatus, Gibbons.—Sparada; "minnow."
Brachyistius frenatus, Gill.
Amphistichus argenteus, Agassiz.—Surf-fish.
Holconotus argenteus (Gibbons), J. & G.—Wall-eyed perch;
white perch.
Ditrema jacksoni (Agassiz), Gthr.—Surf-fish; croaker; black
perch.
Ditrema laterale (Agassiz), Gthr.—Blue perch; surf-fish.
Ditrema furcatum (Grd.), Gthr.

SCIENIDÆ—THE CROAKERS.

- Sciaena jacobii* (Steindachner), J. & G.—Rare.
Roncador stearnsi (Steind.), J. & G.—Roncador.
Corvina saturna (Grd.), J. & G.—Red roncador.
Umbrina roncador, Jor. & Gilb.—Yellow-finned roncador.
Menticirrus undulatus (Grd.), Gill.
Cynoscion nobile (Ayres), J. & G.—White sea bass; sea trout;
corvina.
Cynoscion parvipinne, Ayres.—Blue-fish: corvina.
Seriphus politus, Ayres.—Queen-fish; king-fish.

SPARIDÆ.

- Girella nigricans* (Ayres) Gill.—Blue-fish.
Scorpius californiensis, Steindachner.—Medialuna.
Xenistius californiensis (Steind.) J. & G.
Pomadasys davidsoni (Steind.) J. & G.—Sargo.

This list contains 109 species and will be concluded in next issue.

Bull. No. 4, U. S. Geol. Survey, received from the author, Dr. C. A. White, describes some aberrant forms of Chamidae from Texas, a new nautiloid genus found in Arkansas, and some Alaskan fossils collected by W. H. Dall,—*Cyprina* ? *Dallii*, *Belemnites macritatis*, and *Aucella concentrica*, Fischer (variety). Illustrated by 9 plates; price 35 cents. These bulletins can be obtained by purchase by addressing the Director of the U. S. Geol. Survey, Washington, D. C.

VENTURA SOCIETY OF NATURAL HISTORY.

April 5, 1885. The president, Rev. Stephen Bowers, gave a brief account of a cave and its contents which he had explored in the San Martin mountains, exhibiting some of the objects obtained. The cave contained nine baskets in which were stored a variety of Indian head-dresses made of feathers, and implements of stone, bone, shells and wood; a bone whistle made from the leg of a deer, and four perforated discs with wooden handles fastened by asphaltum cement—the first known instance where stone hammers with perforations for handles have been found in this country, were among the more important discoveries.

April 20. Mr. and Mrs. Wycoff were elected members. The president exhibited several shrimps obtained by dredging. Gen. Vandever read a paper on the Aryan race and language.—*Pacific Science Monthly*.

[Written for the SCIENTIST.]

Searchers of oldest records find
 Something like windows for the mind.
 Yet all they learn of ages past,
 From fossil pages first and last,
 Teaches that much remains unknown,
 Unseen, save by One eye alone,
 The widest vision ever given
 To mortals here below from heaven,
 Is just sufficient to discern
 There's everywhere much more to learn;
 And humility is the grace
 That beams upon the wisest face!

ANTS HARVESTING.

BY MISS F. E. FISH.

A few days since, observing a colony of ants engaged in carrying to their home something that looked like, and upon examination proved to be, the seed vessels of *Lepidium*, containing good, plump seeds, I had the curiosity to follow the line of busy workers a rod or more till a patch of the ripened weed was reached, which was evidently their harvest field. Are ants near sighted? or was it an idle fellow taking a "pasea" that climbed a dried grass blade from base to apex, looked about, and finally went away empty handed? Another, finding the fruit he sought, commenced to detach it from the stalk. He was soon joined by a fellow worker, and their united efforts accomplished the work in a minute or two, when the first carried it away, holding it vertically and looking likely to be capsized by his freight in a moderate breeze.

DEATH OF PROFESSOR PETER LUDWIG PANUM.

Professor Peter Ludwig Panum, a prominent physiologist, died on May 6, 1885, at Copenhagen. The deceased delivered physiological-chemical lectures in the cities of Leipsic and Wurzburg, in Germany, also in Paris, and by his practical experience he received in 1853 a call as Professor in the University of Kiel, Germany. His name was well known in Europe and abroad, and during his eleven years activity at that University his only thoughts were devoted to the study of Physiology. Panum was the founder of the Physiological laboratorium at Kiel. In the year 1863 he received a call to the University at Copenhagen as professor and was a prominent member of the physiological science there. His death is regretted by the scientific world in general and especially by physiologists.

PH. HEINSBERGER.

International Correspondence Bureau, New York, May 26, 1885.

THE SAN DIEGO SOCIETY OF NATURAL HISTORY.

June 5, 1885. Miss Rosa Smith made some interesting remarks on a hammer-headed shark (*Sphyrna zygaena*, M. & H.), taken off Cerros Island, Lower California, in March and secured for the society's museum. These sharks have lived since the Cretaceous period and this species has been known to science for over 300 years. It is common to all warm seas.

C. R. Orcutt presented a section of bark from the *Pinus Jeffreyi* ? of the table-lands of Lower California. The bark had been bored into at varying distances from the base of the tree to the branches—doubtless the work of *Colaptes auratus*; and in about one-third of the holes were acorns of the *Quercus Emoryi*, very tightly fitted, the holes containing the acorns apparently newly made. The remaining holes were weather-beaten; and in them were equally tightly fitted bits of the granite gravel and bits of wood of near the same size as the acorns.

A paper from *Science*, May 29, on the Monterey pine and cypress, by Dr. Asa Gray, was read.

C. R. Orcutt was elected a life member, and H. W. Fairbanks an active member, of the Society.

John G. Capron and Joseph Surr were appointed a committee to take such steps as are possible for the preservation of the few remaining trees of the Soledad pine (*Pinus Torreyana*, Parry) found within the corporate limits of the city of San Diego.

CURRENT LITERATURE.

The Museum, of Philadelphia has just made its first appearance as a monthly for young people and is a highly creditable journal. Price \$1.50 a year. It will rank with the best journals of the day and is a valued addition to our exchange list.

The second annual report of the Bureau of Ethnology to the Smith. Inst. contains a great mass of literature on the Myths of the Iroquois, Art in shells of the ancient Americans, animal carvings from the mounds of the Mississippi valley, the Zuni, etc.

The Century for May begins its thirtieth half-yearly volume with a first edition of a quarter of a million copies. It contains an interesting article on the New Orleans Exposition, an account of Greely at Cape Sabine, and a discussion by T. T. Munger on Immortality and Modern Thought—a subject possessing the greatest interest to the thoughtful reader, and here ably treated by a writer who cannot be too widely read. The Century Co., N. Y.

Science, May 8, gives four fine composite portraits of American scientific men, one of twelve mathematicians, another of sixteen naturalists and a third of thirty-one prominent men of science. The arrangements were such that an exposure of sixty-two seconds would be sufficient to take a good picture, and with an exposure for two seconds of the negatives of each of the thirty-one men was obtained a photograph showing the prominent characteristics that were common to all, *without the individual characters of any*.

Space forbids separate mention of the many papers received, but their publishers and authors will please accept thanks.

BOTANICAL NOTES.

The beautiful *Gilia bella*, Gray, was found among the earlier flowers on the mountains of Lower California during April, while *Gilia Orcuttii*, Parry, was found abundant on the hills in this county at an elevation of about a thousand feet.

Rev. E. L. Greene made a very successful trip off the coast of Lower California, returning with probably thirty new species of plants. Among them was a new *Eschscholzia*, with small greenish flowers and of a very different aspect from the other species of the genus. A type of a new genus was found on one of the islands and a second congeneric species on the mainland. He also obtained specimens of Veatch's "elephant tree," *Veatchia Cedrosensis*, Gray. Mr. Greene found several interesting plants on his return to San Francisco from this place, by rail.

THE SAN FRANCISCO MICROSCOPICAL SOCIETY.

May 13, 1885. Dr. J. H. Stallard gave a demonstration of the method of cutting thin sections of animal tissues by the "freezing process." Henry C. Hyde called attention to the comparative advantages and disadvantages of the various forms of "camera-lucidas" or drawing prisms, which gave rise to an animated discussion.

May 21. The annual reception tendered by the members of the society to their friends was held at Irving Hall, and was in every respect the most successful ever held in the city. Arranged on tables along the sides and end of the hall were thirty-nine elegant microscopes, representing the best work of all the more renowned opticians of the world. Among the objects displayed were slides of diatoms, Comma Bacillus, crystals, moths, seeds, blood corpuscles and many other specimens of popular or scientific interest which were viewed by the many delighted visitors who thronged the hall and departed with a better insight into the marvelous beauties that are revealed only by the microscope.

THE NEW ORLEANS EXPOSITION.

The Cotton Exposition held at New Orleans has been remarkably successful and as far as magnitude is concerned can well claim to rank with the two greatest World's Fairs ever held. The exhibitions of the natural resources of the Southern and Western States and Mexico were never excelled. The Department of Agriculture, and various states made a very large collection of nearly all the grasses of the country, a descriptive catalog of which has lately been received from the author, Dr. Geo. Vasey.

The most interesting collection of herbarium specimens was that of a thousand or more finely prepared California plants, the work of the well known botanist, Mr. J. G. Lemmon. The ferns of the Pacific Coast constituted a striking feature of this collection of plants, which were mounted upon bristol board and each enclosed in a light glass frame and arranged where they could be easily examined, or, if necessary, removed for closer study. Thanks to the energy of the Vice-President of the Pacific Slope, Mrs. J. G. Lemmon, the Women's Department of California contained over 2,000 exhibits, while the other departments were mostly well represented.

GENERAL NOTES.

Dr. Parry is now visiting on the continent of Europe.

Prof. Sereno Watson has returned to Cambridge from Guatamala.

Dr. Asa Gray and wife and Prof. W. G. Farlow have returned to Cambridge from their visit to California.

Corrections to May number: Read *Phacelia ixodes*, Kell., instead of *P. oxodes*, p. 38; and read *fruit* instead of *bloom*, sixth line from bottom of first column on p. 41.

A list of the mollusca of the vicinity of San Diego, Calif., and Todos Santos Bay, Lower Calif., with notes on distribution, etc., will soon be published in the Proceedings U. S. National Museum.

We desire correspondence with every naturalist or collector on the Pacific Coast, and every scientist interested in our natural resources, and will thank all who have or will send us notes and news or publications—scientific or otherwise—relating to the coast.

Three bulletins of the U. S. Geological Survey on California Paleontology, by Dr. C. A. White, are now in press. One will describe a new genus of Chamidae and several new gasteropods from the vicinity of Todos Santos bay, on the western coast of Lower California.

Rev. E. L. Greene, in Bull. Cal. Acad. Sci., No. 3, describes two new genera of Cruciferae, *Heterodraba milateralis*, common in the wheat fields of San Joaquin valley and extending to Lower California; and *Athysanus pusillus*, before placed by botanists in the genus *Thysanocarpus*.

NOTE.

THE WEST AMERICAN SCIENTIST was first issued in December, 1884, as a 4-page monthly at fifty cents per year. It is the official organ of the San Diego Society of Natural History, but is independent of that or other organizations. It will soon give a synopsis of the proceedings of that society and other valuable matter regarding the natural resources of the Pacific slope.

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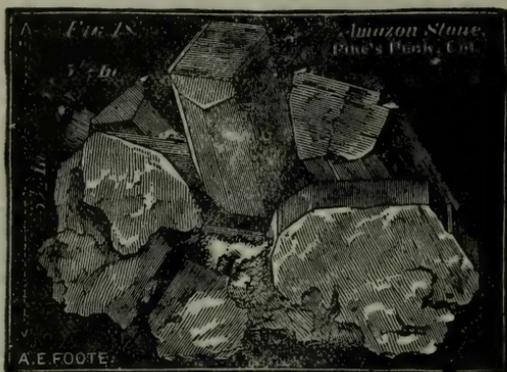
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Vol. I. JULY & AUGUST, 1885. No. 8.

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(CONCLUDED FROM No. 7.)

THE FISHES OF SAN DIEGO, CALIFORNIA.

A REVISION OF THE LIST OF FISHES MADE NOVEMBER 5, 1880.

BY ROSA SMITH.

SERRANIDÆ—THE SEA BASS

- Stereolepis gigas* Ayres.—Jew-fish; black sea bass.
Serranus clathratus (Grd.) Steind.—Rock bass; cabrilla.
Serranus maculofasciatus Steindachner.—Cabrilla.
Serranus nebulifer (Grd.) Steind.—Johnny Verde.

STROMATEIDÆ—THE BROAD SHINERS.

- Stromateus simillimus* (Ayres) Gill.—Pompano.

CARANGIDÆ—THE PILOT-FISHES.

- Trachurus picturatus* (Bowdich) J. & G.—Horse mackerel.
Seriola dorsalis (Gill) J. & G.—Yellow-tail.
Caranx caballus Gunther (= *Trachurus boops* Girard, San Diego, 1857). "San Diego to South America."

SCOMBRIDÆ—THE MACKERELS.

- Sarda Chilensis* (Cuv. & Val.) J. & G.—Bonito; Spanish mackerel; skipjack; tuna.

SPHYRÆNIDÆ—THE BARRACUDAS.

- Sphyræna argentea* Girard.—Barracuda.

ATHERINIDÆ—THE SILVERSIDES.

- Leuresthes tenuis* (Ayres) J. & G.
Atherinopsis californiensis Girard.—California smelt.
Atherinops affinis (Ayres) Steind.—Little smelt.

MUGILIDÆ—THE MULLET.

- Mugil albula* Linnæus.—Mullet.

SCOMBERESOCIDÆ—THE GAR-FISHES AND FLYING-FISHES.

- Tylosurus exilis* (Grd.) J. & G.—Needle-fish; gar.
Hemirhamphus rosæ Jordan & Gilbert.—Little half-billed gar.
Exocoetus californicus Cooper.—Flying-fish.

CYPRINODONTIDÆ.

- Fundulus parvipinnis* Girard.—Killifish.

SALMONIDÆ—THE SALMON FAMILY.

Salmo irideus Gibbons.—California brook trout; rainbow trout.

ENGRAULIDIDÆ—THE ANCHOVIES.

Stolephorus ringens (Jenyns) J. & G.—Anchovy.

Stolephorus delicatissimus (Grd.) J. & G.

Stolephorus compressus (Grd.) J. & G.—“Sprat.”

Stolephorus nanus (Grd.) J. & G.

CLUPEIDÆ—THE HERRINGS.

Clupea mirabilis Girard.—California herring.

Clupea sagax Jenyns.—California sardine; sadina.

ALBULIDÆ—THE LADY-FISHES.

Albula vulpes (L.) Goode.—Bone-fish.

MURÆNIDÆ.

Muræna mordax Ayres.—Conger eel.

CEPHALOPTERIDÆ.—THE SEA DEVILS.

Manta birostris (Walbaum) J. & G.—Sea devil; devil-fish: manta. “We are informed on good authority that one or more individuals of this gigantic species have been taken by whalers near San Diego.”—Jordan & Gilbert in Synopsis of Fishes of North America.

MYLIOBATIDÆ—THE EAGLE RAYS.

Myliobatis californicus Gill.—Stingray having a long whip-like tail. Common.

TRYGONIDÆ—THE STING RAYS.

Urolophus halleri Cooper.—Round sting ray.

Pteroplatea marmorata Cooper.—Broad sting ray.

Trygon dipterura, Jordan & Gilbert.

RHINOBATIDÆ—THE LONG-NOSED RAYS.

Rhinobatus productus Ayres.—“Shovel-nosed shark.”

Rhinobatus exasperatus Jordan & Gilbert.

Rhinobatus triseriatus J. & G.

SQUATINIDÆ—THE ANGEL SHARKS.

Squatina angelus Dumeril.—Angel-fish; monk-fish; angel shark.

HETERODONTIDÆ—THE PORT JACKSON SHARKS.

Heterodontus francisci (Grd.) Gill.—A small, spotted shark with spirally twisted egg-cases.

GALEORHINIDÆ—THE TRUE SHARKS.

Mustelus californicus Gill.—Hound shark.

Triacis semifasciatus Girard.—Dog shark.

Galeorhinus zyopterus J. & G.—Oil shark.

Galeorcerdo tigrinus Muller & Henle.—Tiger shark.

Carcharias lamiella Jordan & Gilbert.

SPHYRNIIDÆ—THE HAMMER-HEADED SHARKS.

Sphyrna zygaena (L.) M. & H.—Hammer-head. An example 52½ inches long was taken March, 1885, off the Cerros Islands. One specimen has been sent from San Pedro, California, to the Smithsonian Institution. "A large shark found in all warm seas."

SCYLLIIDÆ—THE ROUSSETTES.

Scylliorhinus ventriosus (Garman) J. & G.—Swell shark. The flattened elongate egg-cases occasionally seen on our sand beaches belong to this shark.

BRANCHIOSTOMATIDÆ—THE LANCELETS.

A representative of this family has been found on the coast of the United States, on the Atlantic side, and on the Pacific Coast a species also occurs (*Branchiostoma*, Cooper, Nat. Wealth Cal. by Cronise, p. 498, 1868), three specimens having been dredged at "San Diego in ten fathoms' water; they here were yellowish, translucent, with a brown streak near the back."—(Cooper MSS.) It may be that this form belongs to the genus *Epigonichthys*.—Dr. Theodore Gill in Proc. U. S. National Museum, 1882.

NOTE TO MY CORRESPONDENTS.

Having returned from Lower Calif. and found a century or more correspondents awaiting a reply, and as many publications requiring examination, I found it impossible to attend to each at once, and, therefore, in the hasty preparation of this number of the SCIENTIST I have endeavored to answer as many as possible, and ask my other correspondents to accept a copy as a sign that they will not be neglected, that they will receive due attention as soon as circumstances will permit. [See cover adv.]

Sincerely,

C. R. ORCUTT.

The expedition of Dr. H. Ten Kate, jun., through the southwest of the United States and northwest of Mexico, performed in about thirteen months—from November, 1882, to December, 1883,—resulted in many valuable discoveries and observations which are described at length by him in a recent volume written in Dutch. He passed thro Texas and Arizona, visited Sonora and the southern extremity of the Californian peninsula—where he found graves of the Pericu Indians—and then passed thro Sonora again to central Arizona, to Zuni and the Pueblos of New Mexico, securing a variety of notes on botany, geology, zoology, Indian customs, etc.—*Science*.

STRAY LEAVES FROM A NOTE-BOOK.

June 22, 1885. Leave the "quiet city by the sea," bid adieu to 'Uncle Sam,' and stay over night at 'Aunt Jane's' [Tijuana, or Tia Juana, valley] on Mexican soil.

6-23. Take the wrong road and go to San Icedro. Camp at a pretty grassy place by a spring and find the buff-colored *Diplacus*.

6-24. Reach Ticate. Find the grand *Romneya* poppy in bloom.

6-25. Most unfortunately, we step into the United States [without knowing it till afterwards]— and inquire the price of goods in a 'Mexican' store, at Lucas'.

5-26. 'Staying over;' amuse myself by pricking my fingers on the thistle sage—trying to get the seed. Find the small-flowered canchalagua [*Erythraea Douglasii*, Gray] abundant, the flowers closing in the afternoon, and albinism seemingly not rare to it, more than to *E. venusta*. Notice a lizard with a fine butterfly in his mouth.

6-27. Catch a pretty lizard marked with black and white stripes, the tail of a bright indigo blue. Another visits the tent and tries on my coat. He accepts an invitation to go with me to San Diego. Give a small reception to about fifty ants, who are warmly received. Kill our last flea—can get no more until we reach Encenada, as they are not found on the mountains. Fling away the last tick also, as we have a rabbit for supper.

6-28. Sunday again, very warm. Among our visitors are a swarm of flies, rare beetles and spiders. A garter snake looks in upon us but makes a short stay.

6-29. Go to Campo, U. S. A., thence to Nehi, drink a gallon of milk for supper, given us by Mr. Adams, 'the first man'—to visit these mountains. 6-30. Watch the men brand a lot of calves, and go a mile for the fun of cutting off both ends of a rattlesnake—the first, and last, for the trip.

July 1. Leave Nehi. Camp at Japa. 7-2. Hire all the Indians we could get at Juarez; camp at Topo. 7-3. Indians return with *Tecos semilles*,—'don't care to work any more,' they tell us in Spanish. 7-4. Celebrate the day by putting on clean shirts and by washing out gold and rubies, a thousand or more, out of the soil. Find the new slug (*Limax*) in great numbers around the water, and some very large, an inch and a quarter long. 7-5. End of second week from home. Warm.

7-6. Get two more Indians and start for another canyon with them. Reach the highest place on the road, at 6,000 feet altitude.

7-7. Get more seed. Camp at the large lagoon on the mountain. Find many flowers but none new. 7-8. Start for San Rafael, camp beyond Hansen's houses and enjoy a rainy afternoon from

beneath the canvas. 7-9. Find a new shrub, apparently a *Condalia*—probably *C. spathulata*, Gray. See as many as fifty jack-rabbits in the valley of San Rafael. Camp near the village.

7-10. Collect fresh-water algæ, some very pretty kinds, and dry my plants. 7-11. Start for Encenada and reach a pretty, shady place by running water. Find a seemingly new *Phacelia* and an *Ellisia*, growing among the bushes. Also an inconspicuous *Mimulus*, and *Datisca glomerata*, B. & H., abundant. Here spend our third Sunday, the 12th.

7-13. Find *Æsculus Parryi*, Gray, in bud, flower and fruit! Also find *Phacelia grandiflora*, Gray, and a number of other plants. Reach Encenada, send a letter home through the kindness of Messrs. Flower, interview the acting Governor, and lay in a new stock of provisions—not failing to obtain a new stock of fleas.

7-14. Pass through 'Purgatory' and camp at La Grulla, after a hard and unprofitable drive of twenty-four miles. 7-15. Collect some very fine fresh-water algæ from the hot springs, of which there are about fifty, and after enjoying the hospitalities of C. B. McAleer at the old headquarters of Gen. Walker's filibustering party, we go on to Santo Tomas, where a plant of a genus unknown to us, and a couple of species of *verbena* reward the day's work.

7-16. Reach the La Playa of S. Tomas where a few dead shells of *Haliotis rufescens* are found; and find great pools in the rocks lined with *thousands* of the purple-spined sea-urchins, forming one of the most beautiful sights imaginable.

7-17. Start for San Vicente and make a 'dry' camp—neither feed nor water for the horses. 7-18. Take the wrong road and go to San Jacinto, and find nothing except another, rather fine, *verbena*. Find the road to S. Vicente is washed out and impassable. Remain over the 19th.; the 20th start for San Diego, at La Grulla again the 21st, the 22d at Punta Banda, the 23d at Encenada and Sauzal, the 24th at Guadaloupe, and the 28th back at Aunt Jane's and Uncle Sam's, reaching S. Diego by noon.

Local botanical notes will be reserved for a separate article in a future issue. The distribution of herbarium specimens for this year, by the editor, will be made about the first of September. The set will only contain a century, or less.

Mrs. M. K. Curran, M. D., made a hasty trip through Southern California recently, securing some new, and other plants of interest.

[Written for the SCIENTIST.]

As the lion creeps in ambush,
To spring upon his prey,
As Aurora's morning blushes
Foretell the coming day;

As the spread sails of the good ship
Assure the wind is right,
And the calm wave brightly mirrors,
Every star of night;

Thus gross darkness from the nations,
In haste, now glides away,
Before the searching gaze of Truth,
Lit up with Heaven's own ray.

ON THE SPELLING OF CERTAIN NAMES.

A note in one of our exchanges takes the ground that the name "Tia Juana" should not be spelt as one word, "Tiajuana;" however, as it is spelt Tijuana by the people in Lower California, and pronounced *Te-wha'-na*, we should not consider the objections made as valid.

The cause of the spelling reform would gain greatly if the Spanish names of places should be spelt more as they are pronounced, rather than by following the old Spanish spelling. That this can be done is shown by the fact that Mohave is now rarely spelt with a j: canon *can* be spelt canyon, as it should be; while *La Hoya* is found to be the *correct Spanish* way of spelling "La Jolla."

SAN FRANCISCO MICROSCOPICAL SOCIETY.

June 10, 1885. The report of the committee in charge of the late Annual Reception was read and adopted. A living bookworm from an old Hebrew Bible was shown under the microscope. Mr. Banks gave a demonstration of the relation of the electric light to microscopy, etc.

June 24. Several valuable donations were made to the library and museum: among them the first installment of a series of California diatoms, that compared favorably with the best work of professional workers, prepared and presented by Wm. Norris. Dr. J. H. Stallard read a paper on the "Pathogenic Bacilli," followed by animated discussion.

[We have received the proceedings of another of these interesting meetings, but no date given. At this meeting Dr. J. M. Selfridge read a paper entitled, "Bacteria and their relation to health and disease." He held that bacteria are the *result* but not the *cause* of the decomposition of organic substances.]

PUBLICATIONS RECEIVED.

Space forbids the separate mention of all the papers received, but their publishers and authors will please accept our thanks and this journal in acknowledgment.

Bulletin of the Torrey Botanical Club: XII, 5, May, 1885; pp. 12.

Botanical Gazette: X, 7, July, 1885; pp. 15.

The Am. Mo. Microscopical Journal; VI, 6, June, and 7, July, 1885; pp. 20.

Journal of the N. Y. Microscopical Society: I, 5, May, 1885; pp. 16.

The Young Mineralogist and Antiquarian: Vol. I, 1885. We regret to learn that this excellent, and ably conducted journal will not be continued.

The Chicago Mining Review: XIII, No's for June, weekly; XIV, No's for July, 1885, pp. 8.

The American Rural Home; XV, No's for June—July, 1885, weekly; pp. 8.

National City Record: III, No's for July, 1885, weekly, pp. 8.

The Naturalist in Florida: I, 5, May, 1885; pp. 8.

The Canadian Science Mo.; III, No's 4 and 5, April and May, 1885; pp. 24.

The Journal of Mycology; I, 7 July, 1885; pp. 12.

American Jeweler; IV, 7, July 1885; pp. 20.

The Bookmart; III, 26, July, 1885; pp. 20.

The Museum; I, 3, July, 1885; pp. 17. An excellent magazine for young collectors: \$1.50 per year, single copies 15 cents. Address the editor, P. O. box 22, Philadelphia.

Science; V, No's for June, weekly; VI, No's for July, 1885.

The Synchronyria of the United States; by W. G. Farlow; pp. 11, 1 plate.

La Belgique Horticole Annales de Botanique et d'Horticulture; by Edouard Morren, Liege, 1884; pp. 375; ill. by 16 colored plates, and by several engravings. The text consists of descriptions of new plants, translations, etc., of interest to the botanist and horticulturalist.

The Century: XXX, 3, July, 1885: pp. 158. This number gives some interesting notes on the life of Frank Hatton in north Borneo, and on the death of this promising young explorer, who died in his twenty-second year, in the service of the government of Sabah. He was the pioneer of scientific investigation among the mountains of Borneo, and Nature has lost an ardent student from the fatal elephant hunt of March 1st, 1883. The articles on the civil war which are continued render this popular magazine of great

historic value, aside from other literature and the discussion on the topics of the time.

The American Naturalist: XIX, 7, July, 1885; pp. 91.

GENERAL NOTES.

L. Belding will probably make another trip to the mountains of Lower California this season.

D. Cleveland has returned from the mountains of this county, where he has been botanizing.

G. W. Michael, Jr., of Morro, has found an apparently new species of *Habenaria*, which Rev. E. L. Greene has provisionally named *H. Michaeli*.

A correspondent in Florida writes that the well known fan palm of California [*Washingtonia filifera*, Wendl.] is a failure on the high sandy ridges, though it does tolerably well in the lowlands, especially where there is a clay subsoil.

Nearly eight hundred living specimens of *Tapes staminea* from the shores of Puget Sound, W. T., have been received at the Wood's Holl [Mass.] station of the U. S. Fish Commission. Between four and five thousand were shipped from Tacoma, of which only 768 reached Wood's Holl alive after a seven days' journey. A number appear to be active in their new home. This clam is one of the most highly prized of the west-coast species, of which there are several used for food, and is known as the 'hard shell' or 'little round clam.' In this connection it is interesting to note that the common east-coast soft-shelled clam, *Mya arenaria*, which was introduced on the Pacific coast several years ago, has become thoroughly acclimated there, and is now very abundant.—*Science*.

SAN DIEGO SOCIETY OF NATURAL HISTORY.

August 7, 1885. Committee on the preservation of *Pinus Torreyana* reported the favorable action of the city trustees and of the county board of supervisors, by passing ordinances for their preservation. The committee of meteorology reported the establishment of two new stations for making observations. Rev. Frank A. Mansfield's donation of five volumes of scientific value was reported and Dr. H. W. Gould presented specimens of infusorial earth from Santa Catalina Island, and from Lower California. Mr. J. M. Asher made interesting remarks on destructive insects. John N. Young was elected an active member.

SCIENTIST ADVERTISEMENTS.

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Barb of sting ray	.10-25
Star fish and ophiurans, 1 inch to 1 foot across	.10-1.00
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Crabs and other crustacea	.10-1.00
Fiddler crab	.15
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Pine cones, large	.50-1.35
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Tryon, Geo. W., jr.—Structural and Systematic Conchology; an introduction to the study of Mollusca. 3 Vols, 140 plates. Fine edition, with duplicate plates on India tinted paper, cloth, \$45. Colored edition; 72 plates colored, cloth, \$33. Plain edition, cloth, \$20. Thin paper, 3 Vols in one, \$12. A few soiled copies, \$5 and \$8.

Tryon, Geo. W., jr.—Manual of Conchology with illustrations of the species. Now publishing in yearly volumes of four quarterly parts. Vol. 5 completed January, 1884. Colored edition, plates carefully colored by hand, per Vol. \$20. Plain edition, per Vol. \$12.

Subscriptions received for the above by the editor of this journal. Subscriptions also received for any American or Foreign periodicals at publisher's lowest prices.

see within

Vol. I.

SEPTEMBER, 1885.

No. 9.

THE

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The West American Scientist.

VOL. I.

SAN DIEGO, CALIF., SEPTEMBER, 1885.

No. 9

BOTANICAL SUMMARY FOR 1885.

The past season has been productive of few discoveries in S. California and the collections that have been made are poor and not comparable to those of the previous year.

The most extensive collection was that made by Rev. E. L. Greene in April on the coast of Lower California and the adjacent islands of Guadalupe and Cedros, containing about thirty new species which are described by the collector in a Bulletin of the Calif. Academy of Sciences, No. 4, issued Aug. 29.

In this and the preceding bulletin, No. 3, Mr. Greene makes the following changes in the botanical nomenclature of the plants of this vicinity:

Of the California poppies he makes several species, limiting the name, *Eschscholtzia Californica*, Cham., to a perennial plant, abundant near San Francisco; naming the common form around San Diego as *E. peninsularis*; a more robust annual as *E. Mexicana* and still another from San Jacinto mountain in this county as *E. Parishii*.

The following new genera are described or reinstated:

<i>Heterodraba</i> ,	type, <i>Draba unilateralis</i> , M. E. J.
<i>Athysanus</i> ,	" <i>Thysanocarpus pusillus</i> , Hook.
<i>Bebbia</i> ,	" <i>Carphephorus junceus</i> , Bth.
<i>Mimetanthe</i> ,	" <i>Mimulus pilosa</i> , Watson.

Diplacus (Nuttall); three species are given as found in this region—*D. puniceus* (*Mimulus glutinosus* var. *puniceus* of Gray), *D. leptanthus* and *D. longiflorus*—that were originally so named by Nuttall and a fourth is described from Low. California as *D. arachnoides*, n. sp.

Another section of *Mimulus*, *Eunanus*, is given generic rank.

Eucrypta, a section of *Ellisia*, is also promoted, on account of the discovery of Nuttall's second species, *E. paniculata*, among the hills of the peninsula.

Ceanothus verrucosus, Nutt. is re-established (this is the common white-flowered shrub. distributed as *C. cuneatus*).

Mimulus luteus, L. is said to be South American and our plant is referred to *M. guttatus*, DC.

Mimulus nasutus, Greene, a well marked new species, abundant

throughout the State but has escaped notice till lately, doubtless from its resemblance to the last.

Mimulus moschatus v. *longiflorus*, Gray, is called *M. inodorus*, n. sp. and described as "scentless, possibly only annual; certainly never rooting at the joints." But it is certain that the plant of the mountains of this county, called the musk plant, is not scentless; I believe roots at the joints and is an annual. Mr. Greene probably had another plant than Gray's var. of *M. moschatus*.

Mimulus androsaceus, Curran, seems identical with the plant distributed under the name *M. Palmeri*, in its turn evidently a robust form of what Dr. Gray named *M. exiguus*, which name has priority.

The shrub so often collected near San Diego and called *Eriodictyon tomentosum*, Bth., is now referred to *E. crassifolium*, Bth. by Mr. Greene who writes that the former name belongs to a Monterey plant. A new species from the vicinity of Todos Santos bay is named *E. sessilifolium*, which has been collected by several and heretofore distributed as a variety of *E. angustifolium*, or under Dr. Parry's MS. name, *E. intermedium*. These are all generally known as Yerba Santa and seem to run very near each other.

Engelmann's *Quercus Palmeri* seems to have been first described as a species by Kellogg as *Q. Dunnii*.

Mr. Geo. C. Deane has found near his place at El Cajon the following that are not on my check-list; *Gnaphalium decurrens*, var. *Californicum*, Gray; *Baeria tenella*, Gray; *Euphorbia albomarginata*, Torr. & Gray.

The plant distributed as *Baeria Clevelandi*, Gray, is only a var. of *B. gracilis* instead.

The following additions were made to the flora of the peninsula the past season;—

Nemacladus tenuissimus, Greene, n. sp.

Aplopappus junceus,

Petalonyx linearis,

Pentachaeta paleacea,

Hosackia argyraea,

Nicotiana trigonophylla, Dunal.

Castilleja stenantha, Gray.

Artemisia Mexicana, Gray.

Lippia nodiflora, Michx.

Gilia (*Collomia*) *gracilis*, Dougl.—the Chilean form.

Pentstemon centranthifolius, Bth. and *P. labrosus*, Hook. f.

Lupinus concinnus, Agardh. *Lathyrus palustris*, L.

Silena Douglasii, Hook. *S. conoidea*, Wats.

Lemmonia Californica Gray. Trichostema micranthum, Gray.

Hesperochiron Californicus, Watson. Mountains.

Claytonia exigua, Torr. & Gray.

Franseria chenopodifolia, Bth. Todos Santos bay and also on the Tijuana, both sides of the line.

Erigeron divergens, T. & G. (E. incomptus appears to be the same—a short rayed form).

Platystigma Californicum, B. & H.

Tragia stylaris, Mull. Rumex maritimus, L.

Parkinsonia aculeata, L.—in cultivation.

WASHINGTONIA ROBUSTA, WENDLAND.

Few American botanists are probably aware that a second species of Washingtonia has ever been described from California. The following correspondence explains itself.

Washingtonia robusta is only a form of *W. filifera*, much stronger, smaller, with red leaf-stalks and horizontal growing leaves; I should say a *selected form* and this form must have also been noticed by the seed collector in California, as he labelled it differently and in fact proved it to be a distinct variety, which has been described from a fine specimen, which belongs here to an amateur, by Herr Professor Wendland, an authority on palms! DE S.

Gand, Belgium, Nov. 28, 1884.

As far as we can ascertain the original locality of *Washingtonia robusta* is the border of the Sacramento river in California.

V. A. & Co., Paris.

Revue Horticole, for 1883, says of *W. robusta* that it was first exhibited at the International exhibition at Ghent in 1883 and was awarded 3d. prize for new palms; also that it is "a species remarkable from its resemblance to *Pritchardia filifera*, from which however there are notable differences; it also possesses the "advantage of adapting itself to pot culture." I find nowhere any fuller description of this species. I saw it growing at Federal Point, Florida, in the grounds of E. H. Hart, with *W. filifera* close by; it had not differentiated enough for me to see much difference at that time. It was four or five feet high with bright pea-green leaves covered with white threads like the other.

Mr. Hart writes that he now notices a very marked difference between them; the *W. filifera* when thrifty making a larger leaf

and the blade wavy something like *Latania borbonica* except that the points are not drooping. In *W. robusta* the leaf is quite flat and of a somewhat deeper shade, but no bluish or glaucous tint. Geo. Such obtained the original seed—it seems from L. Calif.

GEO. A. PURDIE, Boston.

I obtained the seed from John Rock.

GEO. SUCH.

The variety to which you refer must be the *Washingtonia* with drooping leaves—collected on the islands off Lower California. It has drooping leaves in the style of *Latania borbonica* and is more graceful in habit and more robust in growth than the fan palm of the Colorado river, of which it is undoubtedly only a variety.

Fishermen and prospectors collected the seed and I received them from second parties since gone to Mexico. I do not know on which island they grow.

JOHN ROCK.

San Jose, July 31.

It is necessary to add a few notes to these extracts:—

No palms are indigenous to the Sacramento valley in Calif.

No palms are found on any island off the west coast of L. C. except on Guadaloupe Island, where only *Erythea edulis* is found.

From a careful examination of a leaf and petiole of *W. robusta* received through Mr. Purdie, grown in Florida, I can detect no material difference from the palm in cultivation at S. Diego which is the one found wild in Lower California by Dr. Palmer and other collectors since.

Mr. J. Rock writes me also that he obtained seed of another palm, which from the description must be *Eryrea armata*—only found wild in the same vicinity as our San Diego palm. This would seem to indicate that the mythical *W. robusta* is identical with the species described in the *Botany of California*, pp. 211 & 485, by Prof. Watson as *W. filifera*. He refers, on p. 485, to “mature fruit of what may prove a second species, said to come from a much larger sized tree and to be found a hundred or more miles to the east of San Bernardino” which had been secured by Mr. Wright from Indians.

This may prove the typical *W. filifera* of the Colorado river. The necessity of more material for comparison is evident.

It would be well perhaps, in this connection, to place on record the fact on the north side of Guadaloupe Island, the petioles of the leaves of *Erythea armata* are armed on the margin with small stout spines; but on the south side of the island they are unarmed as stated by Prof. Watson.

SAN FRANCISCO MICROSCOPICAL SOCIETY.

July 22, 1885. The library was enriched by the addition of 19 bound volumes of the *Journal of the Royal Mic. Soc.*, and the *Quarterly Journal of Mic. Science*, completing the set of each.

F. L. Howard read a paper on Epizoa, a group of parasitic crustacea. Mr. Breckenfeld exhibited *Argulus foliaceus*, a very pretty little crustacean, known to fishermen as the fish louse.

Mr. Wickson exhibited the eggs, larva and perfect insect of a fly found in the experimental garden of the university affecting the quinoa plant, which was introduced last year from Chili as likely to prove a valuable forage plant.

Aug. 26. A communication was received from Prof. Geo. Davidson, enclosing specimens of ribbon grass with diatoms *in situ*, which had been forwarded to him from Allan Island, W. T. Upon examination, the grass was found to be encrusted with a rich and almost perfectly pure collection of discoid diatoms belonging to the genus *Arachnoidiscus*. Specimens of a small lichen, *Cladonia bellidiflora*, Ach., were exhibited by Mr. Breckenfeld. Mr. H. C. Hyde exhibited two electric lamps just received by him; also the new Zentmayer-Abbe condenser and a "multiple" objective by Crouch.

September 23. The largest attendance for the year was had at the unique and beautiful display of incandescent metals under the microscope. The tables were well covered with the current numbers of the leading scientific journals of this country and of Europe. John G. Clark was duly elected a resident member.

Prof. George Davidson presented other specimens of ribbon-grass, encrusted with diatoms of the genera *Triceratium*, *Navicula*, etc. in addition to *Arachnoidiscus*, which however predominate.

After the disposal of the routine business, Mr. Chas. W. Banks gave a demonstration of the combustion of metals in the electric spark, using the society's largest microscope, as well as his own fine "Beck" instrument. A minute "Geissler tube" was shown.

Mr. Banks also showed the effects of the passage of the electric spark through various substances, such as oil, metal-filings, etc.

The new U. S. postal cards issued Sept. 1, differ considerably from the old ones in appearance. The size is exactly the same. The design is printed in light brown; Jefferson's head is given instead of the head of the Goddess of Liberty; "United States" is given in full instead of the monogram; and the line of direction is changed to "Nothing but the address to be on this side."

CTENUCHA BRUNNEA, MALE.

Front of head, black. Eyes, brownish. Vertex and occiput, bright scarlet. Labial palpi, scarlet; terminal joint, black. Antennae, long and pectinated. Maxillae, brown. Dorsal surface of prothorax, mesothorax and abdomen, bright metallic blue. Patagia scarlet, tipped with blue. Legs blackish, with the tips of the tibiae and inner surface of anterior femora white; posterior coxae, whitish.

Anterior wings, clear pale brown, with the veins and the costal and outer edges, margined with black. Outermost costal, and fringes, white, interrupted with black in the middle of the outer margin. Posterior wings, velvety black with bluish reflections; fringes white, interrupted near the anal and apical angles with black. Under surface of wings, velvety black, except the central portion of the fore wings, which is brown,—a shade lighter than that exhibited upon the upper surface.

The specimen above described was captured Sept. 8, in Mission valley, being the first I have observed in this county. When first seen it was running over the ground and suffered itself to be taken without attempting to fly, exhibiting a tendency to remain quiet when disturbed. This species has been taken in Marin Co. and on San Miguel Island, off the Californian coast. F. E. BLAISDELL.

GENERAL NOTES.

Dr. Parry and wife have returned from England.

Bears are unknown to the inhabitants of Lower California.

Rev. E. L. Greene has been appointed instructor in botany at the University of California, at Berkeley.

Twenty-three ostrich chicks have been hatched at the farm of the American Ostrich Co., in this county, whose experiment seems likely now to be successful.

Dr. C. C. Parry has been invited to take charge of the Engelman herbarium, which is to be deposited in the Shaw botanic gardens of St. Louis, Mo.

“Tijuana” seems to be merely a contraction of Tia Juana—aunt Jane in Spanish—which is common among the Mexicans though probably there are no authorized rules for so doing.

Sept. 13 San Diego was slightly shaken by an earthquake that extended from east to west; the first shock (at near 4.30 A. M.) was followed by several lighter ones. A week later, another series of shocks was felt at about 7 A. M.

The San Diego Society of Natural History proposes to petition congress for a deed to the San Miguel mountain near this city to be used for scientific purposes. It would form fine site for an observatory and should be set aside for that use.

A plant collected by Mr. Belding in June, 1883, on the Victoria mountains of the southern portion of the peninsula and first described by Rev. E. L. Greene as *Orthocarpus Beldingi*, has since been made the type of a new genus, *Clevelandia*, dedicated by the author to Mr. D. Cleveland of this city.

A new edition of the Naturalists' Directory is now in preparation and will be issued in January next by S. E. Cassino & Co., of Peabody, Mass.. Those interested in any branch of science should send in their names for insertion (for this no charge is made). It will be devoted to American naturalists and those in want of correspondents on any subject, or wishing to effect exchanges of any kind, will find the work of great value. Price, \$2 in cloth, or \$1.50 in paper.

The annual meeting of the American Association for the Advancement of Science was held at Ann Arbor, Mich., commencing Aug. 26. The attendance was small, only 346, but the papers presented were up to the average in quality and the meeting generally satisfactory in its results. It is found necessary to omit the special report of Ph. Heinsberger of N. Y.; but we would refer all who desire an exhaustive account of the proceedings and addresses, to the Association number of *Science*, of Sept. 11. Price, 35 cts.

PUBLICATIONS RECEIVED.

The Naturalist's Journal; monthly, 50 cts. per year. Frankford, Philadelphia, Penn.

Babyhood; a monthly magazine for mothers. 18 Spruce st. New York. \$1.50 per year.

Queries; a monthly review of literary, art, scientific and general educational questions of the day. Buffalo, N. Y. 50 cts. per yr.

Dr. J. H. Oyster, of Paola, Kansas, has compiled a catalog of the phaenogamous plants, ferns, etc., of N. A. containing over 10,000 species, that will prove convenient for exchanges. Price, \$1.

The Museum, formerly published at Philadelphia, has been merged with the *American Antiquarian*, published at Clinton, Wisconsin,—a \$4 magazine edited by Rev. Stephen D. Peet. Mr. Barber will now edit a new department in the latter journal, to be

called "the museum," but we fear it cannot take the place of the sprightly journal that will certainly be missed.

The Century for August contained the second part of a finely illustrated account of "Typical dogs" by Mr. John E. Thayer. The popular scientific mind during the summer seems to have run to dogs and cholera. But the June *Century* contained two articles of great interest to naturalists—a beautiful illustrated one on the royal family of orchids; and a sketch of "The three Herschels" with their portraits.

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The publisher of the WEST AMERICAN SCIENTIST makes the following liberal offer to all reliable parties: The journal for one year for the regular subscription price, \$1, and a FREE ADVERTISEMENT, or exchange notice, of not more than three lines single column measure, in each monthly issue for the year! Each additional line \$1 per year. This offer is made in the belief that all who give our advertising columns a fair trial will give us their future patronage. Can you not try us to the extent of a single subscription and thus secure a valuable journal of original matter and three times the value of your money in advertising free?

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ENTOMOLOGY.

About Insects and How to Observe Them. Ebell.	\$.30
Guide to the Study of Insects. Packard.	5.00
Spiders; their Structure and Habits. Emerton.	1.50
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Pine cones, large,	.50-1.35
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Tryon, Geo. W., jr.—Manual of Conchology with illustrations of the species. Now publishing in yearly volumes of four quarterly parts. Vol. 5 completed January, 1884. Colored edition, plates carefully colored by hand, per Vol. \$20. Plain edition, per Vol. \$12.

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Vol. I.

OCTOBER, 1885.

No. 10.

THE
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One of the most important topographical features of the County is the Bay of San Diego—a beautiful sheet of water more than 15 miles long, being the only land-locked harbor south of the Bay of San Francisco within American territory. The country embraced within the boundary lines of the County presents a constant succession of mountains, valleys and table lands, giving a wide range of adaptation to industrial pursuits and the climatic conditions suited to almost any possible need or preference.

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VOL. I.

SAN DIEGO, CALIF., OCTOBER, 1885.

No. 10.

BOTANY OF THE CORONADOS ISLANDS.

On the 16th. of May last on my return course from Guadaloupe and Cedros in company with Mr. Dunn, I had the pleasure of a three hours ramble on the principle one of the group of rocky islets above named. The chief object I had in view on landing was the obtaining of good specimens and a more thorough knowledge of the little known *Lavatera insularis*, peculiar to this island.

On a single mile's length of rocky ridge rising sharply from the sea, no great number of species of flowering plants would be looked for. The only portion of the island presenting any level, or even gently sloping, surface is the north end; and here would have been found, at an earlier date in the year, a rank growth of a very considerable number of the familiar annuals of Southern California. This year, the early drought had brought them to a dwarfed and early maturity.

Almost the only species remaining in good condition, of both flower and fruit, proves to be a new *Malacothrix*.

The southern half of the island was not visited; but its rocky and sterile aspect is not inviting. The *Lavatera* occurs in considerable abundance, on the east side, about midway of the ridge and near its highest part, mostly in the shade of high, precipitous rocks.

The following list of nearly seventy species of flowering plants and ferns will hardly prove exhaustive. A more favorable season as regards rainfall and more thorough exploration of all parts of the islet may raise the number to eighty or ninety species. As on all our coast islets where no goats or sheep have yet grazed, the luxuriance of the plants is something to delight every botanist. On these little spots only can one form a just conception of what meadows of the Pacific coast were fifty years ago.

Clematis pauciflora, Nutt.

Delphinium simplex, Dougl.

Eschscholtzia peninsularis, Greene,

Lepideum nitidum, Nutt.

Isomeris arborea, Nutt.

Oligomeris subulata, Boiss.

Silena laciniata, Cav.

Lavatera insularis, Watson. A widely branching shrub, 3-6 ft. high; not an herbaceous perennial, as supposed by Mr. Watson. The flowers are exactly those of *L. Guadaloupensis*, but the foliage and the involucre are different.

- Erodium cicutarium*, L'Her.
Rhus integrifolia, Nutt.
Trifolium tridentatum, Lindl.
Hosackia glabra, Torr.
Astragalus leucopsis, Torrey & Gray.
 Cotyledon (4 species undetermined),
Echinocystis macrocarpa, Greene,
Mamillaria Goodridgii, Scheer. Abundant at the summit of the island, and very large.
Cereus Emoryi, Engelm.
Opuntia var. *occidentalis*, Engel. and *O. prolifera*, Engel.
Mesembrianthemum aequilaterale, Harv. & *M. crystallinum*, L.
Apiastrum angustifolium, Nutt.
Daucus pusillus, Michx.
Galium Rothrockii, Gray.
Aplopappus squarrosus, Hooker & Arn.
Gnaphalium ramosissimum, Nutt.
Encelia Californica, Nutt.
Leptosyne maritima, Gray.
Perityle Californica, Benth.
Baeria gracilis, Gray, and *B. anthemoides*, Gray,
Eriophyllum confertiflorum, Gray,
Amblyopappus pusillus, Hooker & Arn.
Artemisia Californica, Less.
Stephanomeria v. rgata, Benth.
Rafinesquia Californica, Nutt.
Microseris linearifolia, Gray,
Malacothrix insularis, Greene. On nearly level ground, just above the cliffs of the northern shore of the island, abundant.
Sonchus oleraceus, Linn.
Gilia multicaulis, Benth.
Nemophila aurita, Lindl.
Phabelia ixodes, Kellogg, and *P. distans*, Benth.
Krynitzkia barbiger, Gray, and *K. maritima*, Greene,
Dichondra repens, Forst,
Convolvulus occidentalis, Gray,
Lycium sp.?
Antirrhinum Nuttallianum, Benth.
Collinsia bicolor, Benth.
Mirabilis Californica, Gray,

Eriogonum fasciculatum, Benth.
Aphanisma blitioides, Nutt.
Chenopodium Californicum, Watson,
Atriplex Californica, Moq. and *A. canescens*, James,
Suaeda Torreyana, Watson,
Parietaria debilis, Forst,
Euphordia misera, Benth.
Calochortus splendens, Dougl.
Stipa sp.? *Festuca Myurus*, L., *Bromus* sp.? and *Elymus*
condensatus, Presl. are the grasses found.
Polypodium Californicum, Kaulfuss, and *Pellaea andromedae-*
folia, the only ferns seen.

EDWARD L. GREENE.

CALIFORNIA PLANTS OF HORTICULTURAL VALUE.

In 1825, the interest in Western American botany culminated in a desire to know something more definitely of the floral productions of this region. Accordingly, under the auspices of the London horticultural society, David Douglas, a Scotch gardener, visited the Pacific coast and discovered many of the choicest treasures of California's flora. Other explorers followed after, sending seeds and plants to Europe for cultivation, many of which have met with the appreciation of every lover of flowers.

The Californian flora is probably richest horticulturally in its great variety of brilliant liliaceous plants—peculiarly its own, and which are extensively cultivated in Europe though little known in America. Our Southern Californian flora possesses certain Mexican characteristics in addition—such as cactuses, palms, etc., and is noted for its beautiful ferns and flowering shrubs.

The lily, the 'king of flowers,' is too well known to need the repetition of any stereotyped praises of its stateliness and beauty. There are about fifty species, of the northern temperate zone, extensively cultivated for their showy and often fragrant flowers.

The following Californian varieties are highly prized in Europe where some of the very handsome forms are in great demand:—

Lilium Parryi, stout, 2 to 5 ft. high; flowers lemon-yellow, large and very fragrant. Thrives in wet, sandy soil. Very rare.

L. Washingtonianum, tall, 4 to 6 ft. high, stout; white and very fragrant flowers. A beautiful species, growing in loose soil on ridges or lightly shaded hillsides.

L. rubescens, an exceedingly rare lily resembling the last, the flowers changing from white to dark ruby-red after opening.

L. parvum, slender, foliage light-colored; flowers from two to fifty in number, bell-shaped, light yellow center with brown dots, the upper half of petals scarlet.

L. maritimum, small, dark foliage, 2 to 5 ft. high; flowers deep crimson dotted with black, 2 to 20 in number.

L. pardalinum, tall, stout, leaves light green; flowers large, center yellow, tips of petals scarlet blotched with brown.

Var. *puberulum*, center of flowers light orange,—brilliant.

Var. *Californicum*,—the most brilliant form.

L. Humboldtii, large and stout. 3 to 8 ft. high, bulb very large, foliage dense; flowers orange colored, spotted with brown. Thrives in dry open places.

L. Columbianum, a graceful miniature of the last.

The calochortuses, excepting the lilies, are the finest of the bulbous plants of California. The long, glossy leaf and the either short and weak or tall and strongly erect flower stems bearing few to many handsomely formed and brilliantly colored flowers render them particularly desirable. Those known as the star tulips are low and flexuous, usually nodding; and include the following:—
Calochortus albus, pendulus and pearly white.

Var. *paniculata*, dwarf form.

Benthami, light yellow, open bell-shaped.

Wallacei, similar to last, purple center to flower.

elegans, 'celestial star tulip,' lilac-white.

mauveanus, similar to the last.

caeruleus.

Tolmiei, pure lilac.

lilacinus.

nudus, white flowers.

The mariposa or butterfly tulips are erect, stout and many flowered; the flowers are large, open cup-shaped and of brilliant colors. The following are the principal varieties:—

Calochortus Weedii, deep yellow, with dark brown spots on each petal. Very fine and rare.

luteus, clear lemon yellow, darker at center.

Var. *oculatus*, very brilliant colors.

Var. *citrinus*, marked with scarlet.

venustus, petals white or pale lilac above, marked with maroon and gold.

splendens, petals lilac.

Palmeri, rose-purple, fine and rare.

longibarbatatus.

Gunnisoni, a splendid form, petals lilac.

Leichtlini, creamy white, tinged with green on back.

The alliums or onions are pretty, small, flowers, mostly light to deep rose color. *A. serratum* is very dark and rich; *A. unifolium* is light rose; *haematochiton*, and *fimbriatum*, are other fine sorts.

Muilla maritima is whitish, resembling the alliums.

Bloomeria aurea is a fine plant, with large umbels of golden flowers. *B. Clevelandi* is similar but only a few inches high.

Brevortia coccinea is a fine thing, the petals crimson, tipped with pea-green, related to the *brodiaeas*.

Camassia esculenta is 1 to 2 ft. high, stout with dark blue to nearly white flowers; *C. Leichtlini* has light blue flowers.

Zygadenus Fremontii, the California water-lily, bears creamy-white flowers in fine spikes, varying in height from a few inches to four feet according to the native ground.

Chlorogalum pomeridianum is tall and produces a spike bearing hundreds of small, pearly-white flowers.

Brodiaea is a genus of beautiful plants, peculiar to California, producing in midsummer clusters of bright, glossy flowers, generally of long duration. The prominent species are—

Brodiaea grandiflora, bearing a large, purple umbel;

minor, smaller than the above;

congesta, producing a slender scape;

capitata, showy;

gracilis, and *B. ixioides*, with yellow flowers.

The fritillarias are handsome plants related to the Crown Imperial: *F. recurva* is brilliant crimson; *F. liliacea* and *pudica* are white; *atropurpurea*, purple; *lanceolata* and *parviflora* yellow; and *biflora* nearly black.

Erythronium grandiflorum, 'dogstooth violet' is a pretty thing; var. *albiflorum* has large, yellow flowers and beautifully mottled leaves; var. *Smithii* produces nodding, bell-shaped, purple flowers.

(To be continued.)

REVIEWS.

'The botanical gazette' announces in its Association number of Sept. & Oct. that it will enlarge to 24 pp. at the close of its present, tenth, volume and increase its subscription price to \$2. This is one of the ablest conducted, and the leading botanical, monthly in the country.

'The Century' completes its thirtieth volume with the October number, which contains an interesting 'Study in independent journalism,' with a portrait of Samuel Bowles. A finely illustra-

ted article on the 'Great river of Alaska' is contributed by that interesting writer, Frederick Schwatka. 'Tuscan cities,' 'The last days of General Grant,' and other papers render this number specially interesting to the general reader.

A new edition of the Naturalists' Directory is now in preparation and will be issued in January next by S. E. Cassino & Co., of Peabody, Mass.. Those interested in any branch of science should send in their names for insertion (for this no charge is made). It will be devoted to American naturalists and those in want of correspondents on any subject, or wishing to effect exchanges of any kind, will find the work of great value. Price, \$2 in cloth, or \$1.50 in paper.

'The naturalists' journal,' monthly, 50 cts. per year. Frankford, Philadelphia, Penn.

'Babyhood,' a monthly magazine for mothers. 18 Spruce st. New York. \$1.50 per year.

'Queries,' a monthly review of literary, art, scientific and general educational questions of the day. Buffalo, N. Y. 50 cts. per yr.

SAN DIEGO COUNTY AGRICULTURAL AND HORTICULTURAL FAIR.

The first county fair held at San Diego on Oct. 28, 29 and 30, 1885, under the auspices of the horticultural society, was eminently a success and highly creditable to the city and county. It is impossible to give a correct idea of the fine display of northern fruits such as apples and pears, which was a pleasant surprise to every one.

The exhibits of semi-tropical fruits,—pomegranates, figs, Japanese persimmons, guavas, bananas, oranges, lemons, olives, grapes, etc. etc.—showed what the county was capable of producing in competition with the whole world.

The big squashes, melons and beets were not wanting. The comb and extracted honey was not to be excelled. Pottery from Elsinore represented a new industry for the county.

The art department was crowded with proof of real talent which would be an honor to any city of twice the population of San Diego.

The collections of minerals and fossils from the county were disappointing. The best one was from Elsinore, exhibited by Mr. John D. Hoff, consisting of gold ores, clays, etc. The botanical exhibits consisted of a cabinet of native and West Indian woods, and a few of the native grasses of the county. 'The native grass crop of San Diego county is now worth at least a million dollars annually,' yet they were classed among the 'Flowers and ornamental plants!'

The natural history department was highly creditable considering the number of naturalists, scarce half a dozen. A hundred and seventy species of fish were shown by Miss Rosa Smith; a fine collection of bird skins and eggs by Mr. Perley E. Kent, of Poway; and a large collection of coleoptera by Mr. O. N. Sanford.

Limnaea humilis was collected by the hundreds in April, 1885, in a small artificial pond in the vicinity of Todos Santos bay, Lower California. The pond was near ten years old, a few inches deep and about six feet across, fed by a windmill from a well twenty feet deep. For miles there is no surface water naturally and it was a great surprise to find this mollusk in such a location. How came it there?

SELECTED POPULAR MISCELLANEA.

The Brookville (Ind.) society of natural history has proposed the formation of a state academy of science.

There are in the United States thirteen well marked kinds of rattlesnakes, four moccasins or copperheads and four coral snakes, besides four small ground rattlesnakes. These are our only poisonous species.

Exchange notices are the means of increasing collections at slight cost.

A sporting association in Portland, Oregon, recently received sixty pheasants from China. They were presented to the state by Mr. Denny. The legislature refused to even pass suitable laws for their protection, so that the beautiful birds were shipped to an island in Puget sound where they can breed unmolested.

About three hundred amateur papers are now published in the United States. One by one they start and one by one they 'sell out,' 'are happy to inform their readers of having merged with—' or silently discontinue publication.

Portland, Oregon, can boast of a sea serpent story.

A new society of natural history has lately been formed in Humboldt Co.

About 59 provisional postage stamps were issued in 1861 by various post masters in southern cities prior to the regular issues of the Confederate States.

SCIENTIFIC SOCIETIES OF CALIFORNIA.

California academy of sciences. San Francisco. George Davidson, A. M., Ph. D. president; S. B. Christy, Ph. D., corresponding secretary. Has museum and library. California state geological society. San Francisco. Henry G. Hanks, president; S. Heydenfeldt, jr., secretary.

Geographical society of the Pacific. San Francisco. (?)

Natural history society. San Francisco. Wm. H. Barrows, pres.; Wm. C. Flint corresponding secretary.

San Diego lyceum of natural history. (?)

San Diego society of natural history. George W. Barnes, pres.; Miss Rosa Smith, cor. secretary. Has museum and library.

San Francisco microscopical society. P. O. box, 1327, San Francisco.

Ventura society of natural history. San Buenaventura. Stephen Bowers, pres.

Santa Barbara society of natural history. H. C. Ford, pres.; Mrs. R. F. Bingham corresponding secretary.

Humboldt society of natural history. Arcata, Humboldt Co.. Carl C. Marshall, secretary.

Agassiz association. 17 chapters.

(Any information regarding California societies will be gladly received.)

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

SAN DIEGO SOCIETY OF NATURAL HISTORY. October 2, 1885. Present, 12 members and 3 visitors. Reports of committees:—John G. Capron, on preservation of *Pinus Torreyana*. Donations:—Mrs. E. D. Buell, spider; C. R. Orcutt, shells.

Publications received:—Proceedings of the Minnesota academy of natural science; Proc. Canadian institute; Le naturaliste Canadien; Terraces of Potomahana (a poem) by Frank Cowan; Bulletin of the Essex institute; U. S. census, vol. ii; Report of the department of the interior, on mortality and vital statistics; The West American scientist. Communications:—Rosa Smith, on the scale insects (specimens exhibited). Committees appointed:—to petition congress for San Miguel mountain; on a society seal; on collecting the dues of the society, etc.; on the proposed exhibition at the county fair. Elections:—Rev. E. S. Chase and John P. Burt as active members; Miss S. S. Church as an associate member.

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THE UNION was established in 1868. Until 1871 it was published only once a week, when the daily edition was begun. THE DAILY UNION is published every morning except Monday. THE WEEKLY UNION is published every Thursday.

THE SAN DIEGO UNION is the oldest of the 41 newspapers published in Southern California. Of the 389 papers published in the State, 297 have been started since it began publication. It is more than five years older than 245 of the journals of California, and more than ten years the senior of 168 of them. It has a larger bona fide circulation than any other newspaper published in Southern California.

THE WEEKLY UNION

A large, eight-page paper of fifty-six columns, circulates very largely abroad, as well as at home. It goes to nearly every family in the county, and its subscribers "stay with it." It is conceded to be the best California weekly published out of San Francisco. Both daily and weekly editions circulate largely through Southern California, Arizona, New Mexico, and contiguous territory. It has subscribers in thirty-five of the thirty-eight States, and in six of the eight Territories. In British Columbia, Canada, England, Scotland, Ireland, France, Germany, Switzerland, Italy, Spain, the Sandwich Islands, China, Japan, and the Australian Colonies. The wide circulation, influential position and representative character of the paper are undisputed. Persons wishing accurate information respecting the Southern part of California should subscribe for THE UNION. Sample copies sent on application.

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THE CITY OF SAN DIEGO, CAL.

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The Climate.—No place on the continent can show so favorable weather and health records. No heated terms in the summer or cold spells in the winter—no malaria. Physical labor is here performed with the least discomfort the year round. Professor Agassiz visited San Diego in August, 1872, and then said: "This is one of the favored spots of the earth, and people will come to you from all quarters to live in your genial and healthy atmosphere." Many have been disappointed and imposed upon by the ingenious and extravagant assertions of interested parties in favor of other places. Therefore we urge you, *if interested*, to examine the Signal Service and other reliable records. You will find that San Diego may rightfully claim the best climate to be found anywhere. Mean temperature—spring 60, summer 67, fall 63, and winter 54 degrees.

Health and Pleasure Resort.—Florida, Mt. Desert, and other places are good at some particular season—but San Diego, all the year round, as a summer resort, is the best in the world. All the conditions required to insure the greatest amount of recreation and benefit to the pleasure seeker, or those in declining health, are found in the City and County of San Diego—such as first-class hotels, boarding houses, good roads and drives, hunting, fishing sailing, sea baths, hot springs, clear skies, and many other features of interest to visitors.

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Pinyone pine, Pinus Parryana, a very graceful tree, excellent for lawns, each. 25 cents, per 100 in box.....	10.00
Washingtonia filifera, California fan palm, each.....	.50
Guava, fine strawberry, in box, 15 cents each, per 100.....	8.00
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Vol. I.

NOVEMBER, 1885.

No. 11.

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SAN DIEGO COUNTY, CAL.

San Diego County is situated in the southern extremity of California—the Pacific ocean on the west, and the grand Colorado river on the east. The Coast Range divides the County into two grand divisions. The eastern side has some good land, but is noted chiefly for its valuable mines and minerals. The western side slopes toward the ocean, is interspersed with plains, valleys and table lands, running streams, timber and productive soils. It is well adapted to the diversified pursuits of agriculture, horticulture and grazing. It is this part of the County which is now being rapidly improved. The area of the County is equal to that of Massachusetts, Connecticut and Rhode Island combined—being 14,969 square miles. Population of the County in 1880 was 8618; in 1884 it had increased to 13,000. Assessed valuation in 1880 was \$3,525,253; in 1884, \$8,140,000.

One of the most important topographical features of the County is the Bay of San Diego—a beautiful sheet of water more than 15 miles long, being the only land-locked harbor south of the Bay of San Francisco within American territory. The country embraced within the boundary lines of the County presents a constant succession of mountains, valleys and table lands, giving a wide range of adaptation to industrial pursuits and the climatic conditions suited to almost any possible need or preference.

Two transcontinental railways traverse the County—the Atlantic & Pacific and the Southern Pacific. Along the lines of these roads, and in other parts of the interior of the County, are many thrifty towns and settlements, which cannot here be described or mentioned, but just such localities as many would like for health, profit and a pleasant home.

The whole range of farm and garden productions of every kind, raised anywhere in the United States, are successfully and profitably grown here, as well as a long list of tropical and semi-tropical fruits—such as figs, lemons, limes, oranges, olives, bananas, and many others—all unsurpassed in either size, quantity or quality,

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The West American Scientist.

VOL. I.

SAN DIEGO, CALIF., NOVEMBER, 1885.

No. 11.

NOTES FROM ALASKA.

We are permitted to make the following extracts from a private letter received from Chas. H. Townsend, who, it will be remembered, was present at the San Diego society of natural history at its October meeting last year. He was then on his way to Lower California to make collections of the vertebrates of the coast region. After returning to Washington, Professor Baird sent Mr. Townsend to Alaska, there to make collections for the U. S. Nat'l Museum.

The letter was written at Ounalaska, Aleutian Islands, October 20th, 1885. Mr. Townsend says: "I have been a little nearer to the north pole than I expected to be when I left Washington. The U. S. steamer 'Corwin' called at St. Paul Island, June 20th, bound for the Arctic. Receiving a very cordial invitation to join Lieut. Cantwell's Koowak river exploring party as naturalist, I took my luggage aboard and by July 2nd. found myself inside the Arctic Circle.

Leaving the ship at Kotzebue Sound we started up the unknown river in a steam launch and reached the source in less than a month. Everything was successful; exploration, zoological collecting, photography and general discovery.

We joined the 'Corwin' Sept. 1st. at Kotzebue sound and started southward again, calling at Cape Prince of Wales, Pt. Clarence, Golovin bay, St. Michaels and St. Matthews Islands. At St. Michaels we picked up an English sportsman and his companion, who had arrived overland from Canada via Great Slave Lake, Makenzie river and Yukon river. Their object was musk ox, reindeer and other large game. They claim to be the first white men to cross British America solely 'for fun.' They have been more than a year on the way.

The 'Corwin' also took on board there an exploring party consisting of Lieut. Allen and Sergt. Robinson, U. S. A., and Sergt. Fickert of the Signal corps. They had entered the mouth of the Copper river near Mt. St. Elias, ascended to its source, crossed

the mountains to the Tannenah river, which they followed to the Yukon and thence to the sea. A very severe trip as it was made on foot and in birch canoes. As they started in March they suffered greatly from cold and want of food. They have done themselves great credit.

At St. Matthews Island, where we stopped a day, I killed a polar bear of the largest size, which I hope you may see in the National museum some time.

Arriving at the Pribylor Islands I disembarked, the 'Corwin' going on to San Francisco, she having the crews of two shipwrecked whaling vessels on board which she had picked up while our exploring party was up the new river. I remained a month at St. Pauls collecting fur seals and then came here on the Alaska commercial company's schooner 'Turner,' where I am now doing some collecting. I expect to take the company's steamer 'Dora' for San Francisco in two weeks."

WASHINGTONIA ROBUSTA.

[Translated from the 'Revue Horticole,' Sept. 1885, by Mrs. G. A. Purdie.]

Toward the end of the summer of 1883 I received from the celebrated establishment of Mr. L. Van Houtte at Ghent the offer of a certain number of *Pritchardia filifera* to be used in planting the parks on the shores of the Mediterranean. These plants having become quite common in the south of France where they are raised by thousands, I responded that I would take fifteen only of the specimens named. Hardly had these fifteen samples arrived at Cannes when Mr. Van Houtte wrote me that an error had been made and that the palms I had received were not *P. filifera*. He added that the seed and specimen plants had been submitted to the eminent palmographer of Herrenhausen (Hanover), Mr. H. Wendland who had just discovered among them a new species of the greatest possible beauty—the *Washingtonia robusta* and in the April, 1883, number of the 'Berliner Gartenzeitung,' a journal edited by Dr. Wittmark appears a note (p. 198) from Mr. Wendland of which this is a translation:

WASHINGTONIA ROBUSTA, HERM. WENDLAND.

As a novelty of the first rank I desire to make known to palm amateurs that Mr. Louis Van Houtte, of Ghent, is the fortunate possessor of this pearl and that some time since he had the kindness to send me a beautiful specimen with a request for name.

I found it to be a second species of *Washingtonia* and I have named it *W. robusta*.

It is distinguished from *W. (Pritchardia or Brahea) filifera* by its more robust and compact habit, its sparse leaves of a bright green, its petioles furnished with strong curved spines, recurved backwards, by a deep blackish violet tint on the back of the sheaf, more or less prolonged on the petiole and by the smaller and rounder leaf blade.

This species originated on the borders of the Sacramento river, in California. It might well replace as a house plant the popular *Livistona sinensis (Latania Borbonica)*. It is a greenhouse plant but on the Mediterranean it would grow as in its native home.

H. WENDLAND.

The predictions of Mr. Wendland have been largely realized. Already numerous specimens of *W. robusta* are growing in the different houses of Europe, where it shows much vigor, is well furnished with leaves in contrast with the thinly-clad stems of *W. filifera* which they try in vain to make flourish. Some fine specimens were to be observed in a large lot of palms exhibited at Antwerp on the first of last August by the house of Van H.

But it is in the south of France that one sees the prodigious growth and rare elegance of *W. robusta* cultivated in open ground. In my garden of Cannes-Eden at the close of the year 1883 the plants sent by Van Houtte were set in place, having attained at that time 0m60 in height. In 14 months the dimensions measured from the living plants (February 7, 1884) were as follows: total height, 2 metres; six leaves; trunk very robust, not enlarged at base. Length of petiole, 0m90; diameter of blade, 1m20. Leaves patulous, drooping—not erect—patulous like *W. filifera*. Petioles sheathed at base of a reddish fawn and yellow tint, highly colored, abruptly contracting to a plano-convex, two-edged (not triangular) stem pale green striated with yellow and bordered its whole length by two broad lines, of a deep fawn yellow similar to the strong basilar spines, which are at first ascending, then interspersed with others turned up and finally toward the summit all recurved, accompanied by an intermediate tomentose white wooly substance.

Ligule erect, oblong-obtuse, bifid, lacerated, parchment-like, dry. The leaf-blade half round, folded like a fan (as in *Thrinax chuco* and not unevenly gyrose as in *W. filifera*), whole to the middle, then divided into sharp gladiate rays edged with white filaments which are bent downward and gathered in a crown at the acute sinus, then ascending and contorted along the edges of the lobes and finally raised up and gathered together at the top in

a white and slender tuft. The plication of the leaves in vernation makes the sharp extremities lie on the entire portion of the leaf blade which occasions circular undulations of elegant appearance on the expansion of the leaf.

A tree of such great beauty promises remarkable decorative effects on our Mediterranean coast where it will equal the *W. filifera* in vigor and hardiness and surpass it in elegance.

Our readers will take note that it is well to discard definitely the inaccurate names of *Pritchardia filifera*, *Brahea filimentosa* or *filifera* for the first discovered species of this genus. The plant belonging decidedly to the new genus *Washingtonia* of which I will here give a description. [Then follows a description of the genus compiled from Wendland, Sereno Watson and other authorities. TR.]

* * * * *

Of the history and country of *W. robusta* but little is known. Mr. Roetzel is said to have gathered the fresh seed in Arizona (one of the southern of the United States of America) and sent them to Europe. On the other hand, Messrs. Dammann et cie of Portici, near Naples, have lately received and distributed large quantities of seed of this species but say they know little about its native country except that the tree grows on the Sacramento river in California.

ED. ANDRE.

GENERAL NOTES.

Look over your collections and see if you have Carpenter's *Cocum Cooperi*,—if so, label it *C. Californica*, Dall, N. SP., as the name *C. Cooperi* was preoccupied by S. Smith.

Mr. Bryant Walker, 18 Moffat Building, Detroit, Mich., asks in behalf of John W. Taylor, of Leeds, England (editor of the *Journal of conchology*), full and detailed information in regard to the distribution throughout the United States and Canada, of all the land and fresh-water mollusks common to Great Britain and N. America; including such as are allied, if not identical, with corresponding British forms.

Letters to the editor of 'Science' should be addressed in the future to 47 Lafayette place, New York, as the place of publication of that journal has been removed from Cambridge.

There has just been added to the unique collection of woods in the American museum of natural history in New York city three specimens of rare trees and more are on the way. One is of *Picea Breweriana*, a spruce found near the summit of the Siskiyou ran-

ges in California; another is *Larix lyata*, the larch discovered on the northern slope of Mt. Stewart, W. T., where it grows above the other trees; the third is *Cupressus Macnabiana*, of a limited range in Lake county, Calif..

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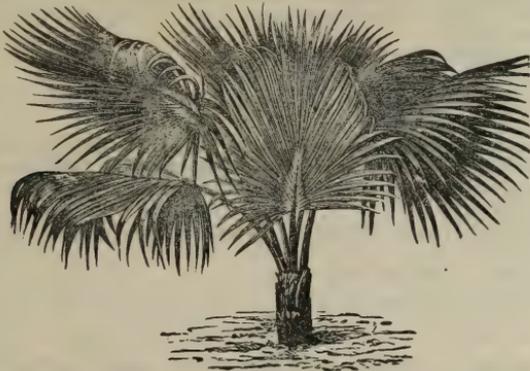
The two forms of *Myosurus* found on the San Diego mesas are named by Rev. E. L. Greene, in a monograph of that genus now in press, as *M. minimus* vars. *apus* and *filiformis*. The latter, a tall and slender form, has been distributed as *M. aristatus*, Bth..

CALIFORNIA PLANTS OF HORTICULTURAL VALUE. II.

The palms have been treated upon in the past pages of this paper so that merely a few notes need here be given.

Washingtonia filifera, Wendland, is not, as heretofore stated, the only palm known in California north of the boundary as Mr. W. G. Wright has obtained seed of three other kinds—only one of which, *Erythea armata*, is known to botanists.

Erythea edulis, Watson, makes the third known Californian palm.



Fan palm.

Washingtonia robusta, Wendland, is a fourth palm credited to California but its habitat is unknown. We give a translation in this number of an account of this species. It cannot be what we have in this region, as at first supposed, but is likely to prove a native of Mexico.

Brahea edulis is a synonym of *Erythea edulis*, Watson, and *B. glauca*, *B. armata* and probably *B. Roetzlii* are synonyms of *E. armata*.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

SAN DIEGO SOCIETY OF NATURAL HISTORY. Nov. 6, 1885. Reports of committees—H. W. Gould, on the county fair exhibit; E. W. Hendrick, esq., on the seal, recommending that the seal bear the profile of G. W. Barnes, the founder of the society, with the name of the society and date of organization; C. R. Orcutt, on the delinquent dues, etc.. The annual reports of the officers were received. Officers and several new members were duly elected.

SAN FRANCISCO MICROSCOPICAL SOCIETY. Oct. 14, 1885. Regular semi-monthly meeting was held at its rooms, No. 120 Sutter St. Exhibitions: Microscopical slides forming a part of Cole's 'Microscopical studies.'

Nov. 11. The subject appointed for consideration—Lung structure in health and disease—was elucidated by Dr. J. H. Stallard. Dr. Edward Gray, of Benecia, exhibited the curious seeds of *Orthocarpus purpurascens*.

Nov. 25. During a discussion relative to the food habits and the life history of the grain weevil, *Sitophilus granarius*, some interesting facts were brought out regarding this pest. Some double-stained sections of plants were shown by Mr. R. K. Pearce and other specimens were exhibited by A. H. Breckenfeld and F. L. Howard

SCIENTIFIC SOCIETIES OF CALIFORNIA.

California academy of sciences. San Francisco. George Davidson, A. M., Ph. D. president; S. B. Christy, Ph. D., corresponding secretary. Has museum and library.
California state geological society. San Francisco. Henry G. Hanks, president; S. Heydenfeldt, jr., secretary.

Geographical society of the Pacific. San Francisco. (?)

Natural history society. San Francisco. Wm. H. Barrows, pres.; Wm. C. Flint corresponding secretary.

San Diego lyceum of natural history. R. J. Gregg, pres.; Geo. N. Hitchcock, cor. secretary. Has museum and library.

San Diego society of natural history. George W. Barnes, pres.; Miss Rosa Smith, cor. secretary. Has museum and library.

San Francisco microscopical society. P. O. box, 1327, San Francisco.

Ventura society of natural history. San Buenaventura. Stephen Bowers, pres..

Santa Barbara society of natural history. H. C. Ford, pres.; Mrs. R. F. Bingham corresponding secretary.

Humboldt society of natural history. Arcata, Humboldt Co.. Carl C. Marshall, secretary.

Agassiz association. '24 chapters.

(Any information regarding California societies will be gladly received.)

PUBLICATIONS RECEIVED BY THE EDITOR.

Journals:—American naturalist; Century; Science; American rural home; Journal of the New York microscopical society; American monthly microscopical journal; Journal of mycology; Stamp world; Microscopical bulletin; Random notes on natural history; Bulletin of the Torrey botanical club; Botanical gazette; Mining review, of Chicago; National city (Calif.) record; Canadian science monthly; Plain truth, of Barham, San Diego county, Calif.; American jeweller; Bookmart; Hoosier mineralogist and antiquarian; Babyhood (18 Spruce st. New York city); Pine and palmetto; Western oologist; Agassiz journal; Queries; American florist; Capital city philatelist; Hoosier naturalist; Plain talk; The new moon.

Proceedings of the royal malacological society of Belgium: vol. xi, 1882; vol. xii, 1883; vol. xiii, '84; and vol. xiv, '85. From the secretary.

Bulletins of the U. S. geological survey: No. 15, Notes on the mesozoic and cenozoic paleontology of California, by Dr. C. A. White; No. 18, On marine eocene, fresh-water miocene and other fossil mollusca of western North America, by Dr. C. A. White. From the author.

Bull. U. S. geological suavey no. 22. On new cretaceous fossils from California. By Dr. C. A. White. From the author.

Autobiography and reminiscences of the late August Fendler; edited by Wm. M. Canby.

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San Diego County is situate in the southern extremity of California—the Pacific ocean on the west, and the grand Colorado river on the east. The Coast Range divides the County into two grand divisions. The eastern side has some good land, but is noted chiefly for its valuable mines and minerals. The western side slopes toward the ocean, is interspersed with plains, valleys and table lands, running streams, timber and productive soils. It is well adapted to the diversified pursuits of agriculture, horticulture and grazing. It is this part of the County which is now being rapidly improved. The area of the County is equal to that of Massachusetts, Connecticut and Rhode Island combined—being 14,969 square miles. Population of the County in 1880 was 8618; in 1884 it had increased to 13,000. Assessed valuation in 1880 was \$3,525,253; in 1884, \$8,140,000.

One of the most important topographical features of the County is the Bay of San Diego—a beautiful sheet of water more than 15 miles long, being the only land-locked harbor south of the Bay of San Francisco within American territory. The country embraced within the boundary lines of the County presents a constant succession of mountains, valleys and table lands, giving a wide range of adaptation to industrial pursuits and the climatic conditions suited to almost any possible need or preference.

Two transcontinental railways traverse the County—the Atlantic & Pacific and the Southern Pacific. Along the lines of these roads, and in other parts of the interior of the County, are many thrifty towns and settlements, which cannot here be described or mentioned, but just such localities as many would like for health, profit and a pleasant home.

The whole range of farm and garden productions of every kind, raised anywhere in the United States, are successfully and profitably grown here, as well as a long list of tropical and semi-tropical fruits—such as figs, lemons, limes, oranges, olives, bananas, and many others—all unsurpassed in either size, quantity or quality.

Pamphlets and other descriptive matter furnished free. Address,

Immigration Association, San Diego, Cal.

The West American Scientist.

VOL. II.

SAN DIEGO, CALIF., JANUARY, 1886.

No. 1.

LAND SHELLS OF SAN DIEGO.

A stranger to the Pacific coast in search of terrestrial snails in the vicinity of San Diego, would meet with many disappointments if he were only acquainted with the New England methods of capture. In vain would be the search beneath tempting stones or stray bits of wood which former experience had led him to believe capital lurking places for these animals.

At first, only tantalizing to the naturalist, the deserted homes of a few helices will alone reward the most diligent search. But the haunts of the beautiful mollusks—too often considered nearly as treasures for his conchological cabinet,—may in time become known to the student or the collector ; along the coast the succulent plants, cactuses, etc., will be found giving shelter and food to *Helix Stearnsina*, a fine conical and beautifully mottled shell, which, if particularly robust or found on an island is usually called *Helix Kellettii*; the broad stems of opuntias will be discovered protecting the small delicate shell of *Helix Traskii* during the winter rains ; and, after displacing a few tons of rock, the zealous doctor may find in the rocky canyons or among the foothills the large, banded *Helix tudiculata*, *H. Newberryana*, and if especially fortunate, a few individuals of *Macrocyclus sportella*.

Along the muddy banks of the small rivers when in their proper mind—i. e. when not bottom side up, as is proverbial of Californian rivers during the summer,—or climbing among the reeds or willows where they may have become lodged during high water, will be found hundreds of the amber-colored *Succinea Oregonensis* of Lea which might almost be considered an amphibous mollusk. Also on the dryest mesas, or on the high table lands of Lower California on the very brink of the Colorado desert, this same careless snail may be found occasionally, aestivating on the under side of some friendly succulent.

After the first flush of victory over these discoveries has subsided, one may recall that notwithstanding the most diligent search, not the faintest trace of pupas or other minute shells has been seen and such it will then be considered hopeless to find. But the not finding, is not the best proof in the world that a thing is not. And so you will think, when, carelessly turning over a fallen yucca trunk in one of the least promising locations, you have the experience of the writer of actually finding twenty-one healthy, living representatives of Gabb's Pupa hordeacea at one peep! Like the boy crossing the London bridge time and again in the hope of finding another penny, may be your future search for these dainty 'babies'.

But you are destined to still greater surprises may be, as wandering among the pines on a visit to the 'mountains', Cuyamaca or Paola, your instinct for shells is awakened by the sight of a veritable decaying log lying on a moist bank by running water! Promptly begins the search,—and lo! the results!—a half dozen of *Zonites conspectus*, an equal number of *Z. fulvus*, possibly one or two *Z. arboreus*, an example of *Vertigo ovata* and a limax—scarcely distinguishable from its eastern cousin!

A more robust, very depressed form of *Helix Traskii* than the typical shell found near the coast will reward your further search at this elevation, of six or seven thousand feet.

From the above it will be seen that the land mollusks of San Diego and its vicinity—including the county, itself far larger than the state of New York,—can be divided into two distinct classes; first, those of the coast region, that find it necessary to aestivate during the long, dry summers; and second, those of the high lands where frost and snow compel them to hibernate.

The first class is peculiarly Californian, none of the six or eight species being found outside of the Californian province, which properly extends from British America, to the southern extremity of Lower California,—where the helices are of the Californian types, but the bulimuses are wholly Mexican.

The second class excluding the mountain variety of *Helix Traskii*, is largely cosmopolitan. Only *Zonites conspectus*, Bland, found from Alaska to San Diego, is restricted to the Pacific coast, and that is closely allied to an eastern species. The others are found from Oregon to Maine, through the northern United States and three of them are identical with British forms.

The season is becoming of great promise to the farmer and botanist alike on account of the early rains, but there is no telling 'till afterwards.

MOLLUSKS OF SAN DIEGO.

San Diego county forms the southern portion of the state of California. It is bounded on the east by the Colorado river, on the south by the Californian peninsula and on the west by the Pacific ocean. Its fresh-water fauna is small, owing to the limited amount of surface water and lack of running streams. We shall treat of the few fresh-water mollusks in a separate paper. Its terrestrial fauna is also limited to a few representatives in the sub-kingdom, though of far greater interest than that of the fresh water. To the marine fauna, therefore, we have to look for the greatest number of representatives of this class, and we need not look in vain.

From the present state of our knowledge we should consider that the marine fauna of San Diego possesses a greater number of the species of the Lower Californian coast than of the Californian province of mollusks to the north, and that the true dividing line between the northern and southern faunas is at Point Conception.

The beaches along the shores of San Diego bay are sandy or muddy. Near the entrance is an extensive bed of clay and boulders, known as La Playa, and forming the principal station for the pholads, rock pectens (*Hinnites giganteus*) and other shells that are not found elsewhere on our coasts in any number. The bay is protected on the west by a high promontory, Pt. Loma, which has a rocky ocean beach and a long shingle beach by the entrance to the harbor. On the southwest, the bay is protected by a low, narrow peninsula, with a hard, sandy ocean beach. To the north of San Diego lies a large lagoon known as 'False bay,' possessing extensive muddy flats and a narrow peninsula of sand dunes on the west. North of the beach similar to that on the west of Pt. Loma, rocky pools with irregular stretches of flat or broken boulders partially imbedded in shell sand, beneath which a rich harvest of minute shells may be gathered. It will thus be seen that San Diego possesses a great variety of beaches, each prolific in certain forms of marine life, as yet, but partially known to the world.

A mollusk is an invertebrate animal, having a soft, fleshy body (whence the name), which is inarticulate, and not radiate internally. There are two subdivisions of this branch of the animal kingdom, but this article will treat of the first only as the second division contains minute or little studied animals which renders it impossible for them to be satisfactorily considered at present. Each of these subdivisions is divided usually into three classes.

The nautilus, the squid and the devil fish are of the first and the highest class of mollusks, and distinguished from others by having a distinct head with perfect eyes and a circle of arms around the mouth, some or all of which are adapted for clinging.

Octopus punctatus, of Gabb, is practically the only representative known at San Diego of this class, and needs no further description than that it is the common devil-fish or cuttle-fish found on all our rocky beaches, which, with its eight long arms armed with tenacious suckers and a well supplied bottle of ink, is a terror to the timid. It often reaches a large size, when it becomes a really dangerous customer. Its usual size with us is ten or twelve inches from tip to tip of the arms. A large one is able to inflict a serious wound with its beak. Some Indians consider the flesh a delicacy.

The pen of a species of squid has been found on our beach and would make the second species at San Diego belonging to this class.

Argonauta argo, of Linæus, the argonaut or paper nautilus, common to all warm seas, has been found off the coast of California, according to Cooper, who mentions that hundreds were found on the beach at Sta. Cruz Island. The argonaut swims in deep water so that it is rarely caught, and is most frequently obtained by its being washed ashore in a storm when it is sometimes found in large quantities.

No attempt at classification will be made in this paper. We shall only give the three classes, Cephalopoda (containing the *Octopus* and argonaut), gastropoda and acephala, to the second of which we now come.

The gastropods have a distinct head with eyes and tentacles and move by crawling on a broad expansion called the foot. This class includes all the mollusks generally called snails, and contributes a great variety of curious and beautiful forms to conchological cabinets. The most beautiful of 'sunny San Diego shells' is the Californian pearl or ear shell, *Haliotis*, and excepting that and a few others, they are largely of dull and homely colors; so that it is not for their beauty, but for their rarity; for an innate love of nature, or the craze of collecting (too often the latter) that we seek the homes of these humble creatures.

The first family in the great class now under consideration is that of the spiny rock shell, *Muricidae*, representatives of which we may find on many mantels in the royal murex of the tropical seas.

Murex trialatus, of Sowerby, very rarely found on our rocky beaches, varies in color from pure white to brown, and often banded. The shell is one to two inches long, with a well developed spire and canal, and easily recognized by the three foliaceous, wing-like varices or expansions which gives it a triangular appearance, and from which it receives its name.

(To be continued.)

EDITOR'S NOTES.

It is considered probable that Dr. Parry and his wife will visit San Diego this winter.

Mr. G. W. Lichtenthaler, of Bloomington Illinois, intends to spend the winter months in California. Mr. Lichtenthaler has traveled over the Atlantic coast and from San Diego to Alaska on the Pacific coast and visited other places in forming his fine collection of marine plants and shells, and has over 50,000 specimens of the latter, 800 specimens of marine plants, and nearly all the ferns of the United States.

Two important events were celebrated in the United States on the 18th. of November last: one, the 75th, birthday of the nation's botanist, Dr. Asa Gray, of Cambridge Mass.; and the other, the completion of a transcontinental railway to San Diego. At the suggestion of the Editors of the 'Botanical Gazette', many of the botanists of North America united in presenting to the foremost botanist of the country a token of love and esteem in the shape of a silver vase appropriately decorated with some distinctively American plants which are most closely associated with Dr. Gray. In San Diego, the importance of the day was made memorable by processions, speaking, and a grand display of the horticultural productions of the county.

Saxifraga Parryi still remains in bloom, notwithstanding that it made its first appearance as early as the last of September; this reminds us that it was in its glory when the first number of this journal appeared and that with this number we enter upon a second year of the WEST AMERICAN SCIENTIST.

'Diluvium, on the end of the world', by Geo. S. Pidgeon, 1885 predicts that the end will occur about the year 1892, basing the prediction on natural causes which are discussed at length that would have a tendency to destroy the earth's equilibrium in case the Sahara desert is flooded as has been proposed. Those looking for the near approach of the end of the world will find the logic a startling indication of the fulfilment of their expectations. Price, in paper \$1.00; in cloth \$1.25. This office.

PEARLS. From the California pearl shell, 25 cents to \$10 each; from the cockle, *Venus fluctifraga*, ten to twenty-five cents; from the pearl oyster, \$1 upwards; Japanese 'cat's eye pearl,' \$1. Every cabinet should contain one of these pearls.

COINS—in any quantity wanted in return for shells, curiosities, etc.

BOOKS—old or new or on any subject—always wanted at this office: we never pay cash except for rare works. A large number of books for sale, and we can always supply anything that may be wanted with promptness.

THE SOUTHERN GEOLOGIST. The only paper published in the south, devoted to geology and archaeology. A list of the best American writers has been secured for 1886. Only 50 cents per year, 5 cents per copy. Subscribe now, and receive a fine Indian arrow head (mention this paper). J. A. MURKIN, JR., Nashville, Tenn.

THE CHAMBERED NAUTILUS.

This is the ship of pearl, which poets feign,
 Sails the unshadowed main,—
 The venturesome bark that flings
 On the Sweet summer wind its purple wings,
 On gulfs enchanted, where the siren sings
 And coral reefs lie bare,
 Where the cold sea-maids rise to sun their streaming hair.
 Its webs of living gauze no more unfurl;
 Wrecked is the ship of pearl!
 And every chambered cell
 Where its dim dream-life was wont to dwell
 As the frail tenant shaped his growing shell,
 Before thee lies revealed,—
 Its irised ceiling rent, its sunless crypt unsealed
 Year after year beheld the silent toil
 That spread his lustrous coil;
 Still, as the spiral grew,
 He left the past year's dwelling for the new,
 Stole with soft step its shining archway through,
 Built up its idle door,
 Stretched in his last found home, and knew the old no more.
 Thanks for the heavenly message brought by thee,
 Child of the wandering sea,
 Cast from her lap, forlorn!
 From thy dead lips a clearer note is born
 Than ever Triton blew from wreathed horn!
 While on my ear it rings,
 Through the deep caves of thought I hear a voice that sings:—
 Build thee more stately mansions, O my soul,
 As the swift seasons roll!
 Leave thy low-vaulted past!
 Let each new temple, nobler than the last
 Shut thee from heaven with a dome more vast,
 Till thou at length art free.
 Leaving thine out-grown shell by life's unresting sea.

OLIVER WENDELL HOLMES.

EXCHANGE NOTICES, ETC.

NOTICE:—This column will hereafter be open to offers to exchange books, instruments, specimens, etc. by subscribers. Right to refuse any notice reserved.

Wanted—To purchase, LEPIDOPTERA (Heterocera) from the West and South-West. Address, Dr. Chas. S. Mc Knight, Saranac Lake, Franklin Co., New York.

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EDITORS & PUBLISHERS.

PUBLICATIONS RECEIVED BY THE EDITOR.

Journals:—American naturalist; Century; Science; American rural home; Journal of the New York microscopical society; American monthly microscopical journal; Journal of mycology; Stamp world; Microscopical bulletin; Random notes on natural history; Bulletin of the Torrey botanical club; Botanical gazette; Mining review, of Chicago; National city (Calif.) record; Canadian science monthly; Plain truth, of Baham, San Diego county, Calif; American jeweller; Bookmart; Hoosier mineralogist and antiquarian; Babyhood (18 Spruce st. New York city); Pine and palmetto; Western oologist; Agassiz journal; Queries; American florist; Capital city philatelist; Hoosier naturalist; Plain talk; The new moon.

METEOROLOGICAL SUMMARY.

For October, 1885, at San Diego, California. Mean barometer, 29.906. Temperature, maximum, 71.2; minimum, 57.0; mean, 63.9. Number of foggy days, 00; of clear days, 18; of fair days, 13; of cloudy days, 00; of days on which rain fell, 2. Amount of rainfall, 0.24 inches.

For November, 1885, at San Diego, California. Mean barometer, 29.977. Highest temperature, 76.40; lowest temperature, 41.5. Number of foggy days, 00; of clear days, 14; of fair days, 13; of cloudy days, 3; on which rain fell, 8. Amount of rainfall, 1.56 inches.

J. C. Sprigg, Jr., Sergt. signal corps, U. S. A.

The following shells will be mailed, postage paid, at 5 cents each, \$5 per 100.

From Europe: *Helix aperta*, *rupestris*, *acuta*, *ericetorum*, *striata*, *trochoides*, *terrestris*, *tropidophora*, *pulchella*, *carthusianella*, *carthusianorum*, *carthusiana*, *cantiana*, *nigensis*, *elegans*, *ventricosa*, *cornea*, *neglecta*, *variabilis*, *mozambicansis*, *terventis*, *lasciolata*, *pustula*, *caperata*, *conspurcata*, *ciliata*, *austriana*, *arbustorum*, *asperata*.

From San Diego and vicinity: *Acmaea asmi*, *patina*, *persona*, *scabra*, *spectrum*, *astyrus carinata*, *barbata gradata*, *barlecia stbtenuis*, *haminea virescens*, *cerithioides sacrata*, *bythinella intermedia* and *binneyi*, *conus californicus*, *coecum orcutti*, *lasea oubra*, *tissurella volcano*, *bittium tuberculatum*, *donax californicus*, *heterodonax bimaculatus*, *litorina scutulata* and *planaxis*, *lottia gigantea*, *oystrea lurida*, *haliotis cracherodii* and *splendens* (small), *septifer bifurcatus*, *succinea oregonensis*, *myurella simplex*, *nuttalliana scabra*, *nassa tegula*, *omphalius fuscescens*, *phasianella compta*.

American shells: *Helix palliata*, *mitchelliana*, *nickliniana*, *striatella*, *monodon*, *leaii*, *arborea*, *alternata*, *septemvolva*, *inflecta*, *hirsuta*, *reflecta*, *solitaria*, *albolabris*, *profunda*, *clausa*, *labyrinthica*, *lineata*, *multilineata*, *pensylvanica*, *edwardsi*, *perspecta*.

THE AMERICAN NATURALIST.

A popular illustrated monthly magazine of Natural History and Travel. This journal of popular Natural Science is published by Messrs. McCalla & Stavely, Philadelphia, Pa., under the editorial management of Dr. A. S. Packard, Jr., and Prof. E. D. Cope, with the assistance of eminent men of science.

Each number of the Naturalist contains carefully written original articles on various subjects, and in addition eleven departments—Recent Literature, Geography and Travels, Geology and Palæontology, Mineralogy, Botany, Entomology, Zoology, Physiology, Psychology, Anthropology, Microscopy and Histology. The department of Botany is edited by Prof. C. E. Bessey, that of Microscopy is edited by Prof. C. O. Whitman, that of Mineralogy is edited by Prof. H. C. Lewis, and that of Physiology by Prof. Henry Sewall, while the department of Geography and Travels is edited by W. N. Lockington. Subscription Price \$4 per year in advance. Remittances by mail should be sent by a money order, draft on Philadelphia or New York, or registered letter to McCALLA & STAVELY, 237-9 Duck Street, Philadelphia, Pa.

CORRESPONDENCE.

ILEX—For special purpose, connected with my botanical studies, I desire to have a list of the species of Ilex native to the Pacific Coast of the United States. I also desire to know if any of the species were used by the aborigines as a beverage, and, if so, what particular species.

R. E. M. HALE,

No. 65, Twenty-second Street, Chicago.

SAN FRANCISCO MICROSCOPICAL SOCIETY.

DECEMBER 9, 1885—Dr. Thomas Morfew was duly elected to resident membership. Specimens of a diatomaceous deposit found near Redding, California, were shown by Dr. C. P. Bates. Dr. Edward Gray exhibited a water immersion, one-tenth of an inch objective, just received by him, constructed by the Gundlach Optical Company on the new formulae of E. Gundlach. E. J. Wickson presented a paper on the parasitic 'Dodder' (*Cuscuta*), accompanied by drawings, etc.

Prof. J. G. Lemmon writes: "My Arizona potatoes are doing well, 4½ inches in circumference the third year. The third species are discovered, and that I thought new proves so and is named by L. Blanchard of the French *Revue Horticole*, *Solanum Lemmoni*."

AN EXCELLENT PAPER.

It seems almost unnecessary for us to call attention to a paper so well and favorably known as the *Youth's Companion* of Boston. It has been for fifty-eight years a weekly visitor, and each year has shown more clearly its wonderful usefulness to the class of readers for whom it is prepared.

It would be interesting to trace its influence in the case of two families, one of which began, we will suppose, twenty years ago, to provide it for their children to read, while the other furnished the more sensational publications. The contrast would no doubt be a striking one.

Parents can give their children few things of more value and importance in their growth of mind and of character than a wide-awake, intelligent, wholesome paper into whose management the publishers put conscience and moral purpose as well as money and ability.

N. L. Britton, Ph. D., of the Columbia College School of Mines, will edit the 'Journal of the New York Microscopical Society' during the coming year, instead of Mr. B. Braman, who finds it impossible to continue the work on account of his professional duties.

FERNS.

A large order of plants, containing near 3,000 kinds, mainly of tropical regions, many of which are extensively cultivated for ornament. Some of the beautiful varieties peculiar to California are difficult to grow with success, so that *Notholaena* and *Cheilanthes* (two of the most interesting genera) should be avoided by amateurs. The roots are sent out late in the summer when they are perfectly dry in which condition they reach their destination (with the exception of *Woodwardia* and the *Aspidiumes*, which have to be sent out damp.)

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<i>Gymnogramme triangularis</i> , Kaulf. Calif. goll fern. One of the most successfully grown.....	.10	.75
Variety <i>viscosa</i> , Eaton. Silver fern.....	.10	.75
<i>Notholaena Newberryi</i> , Eaton, Cotton fern.....	.25	2.00
<i>Notholaena Californica</i> , Eaton. Better known as <i>N. Candida</i>50	3.00
<i>Cheilanthes Californica</i> Matl. Lace fern.....	.25	2.00
<i>Cheilanthes Clevelandi</i> , Eaton, Lip fern.....	.50	3.00
<i>Cheilanthes myriophylla</i> , Deso.....	.55	3.00
<i>Pellaea andromedae folia</i> , Fee. A fine rock fern.....	.15	1.00
<i>Pellaea Ornithopus</i> , Hook. Tea fern.....	.10	.75
<i>Adiantum emarginatum</i> , Hook.....	.25	2.00
<i>Adiantum Capillus-Veneris</i> , L. Venus-hair.....	.25	2.00
<i>Woodwardia radicans</i> , Smith. Immense fronds, 3 to 8 feet tall!60	5.00
<i>Asplenium Trichomanes</i> , var. <i>incisum</i> , Moore. Feather fern. A rare and lovely species.....	.50	3.00
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FOR CALIFORNIA.

Readers who wish to know more about the mid sunset land of the Pacific Slope, its rare products and wonderful resources and climate, will do well to send fifty cents for a map and 12 sample copies (worth \$1.25) of the (illustrated) *Pacific Rural Press*, the largest and best agricultural weekly in the West, and one of the freshest and most original home farm papers in the world. Established January 1, 1879. Address PACIFIC RURAL PRESS, 252 Market St., San Francisco.

EXCHANGE NOTICE.

Over 200 back numbers of many of the leading Magazines and Reviews, both home and foreign; many other papers and books; also, botanical specimens, shells, etc., to exchange for papers, books, etc., on botany and conchology, and botanical specimens and shells; also, a large number of coins to exchange for the above. Correspondents please send complete lists of whatever they have to exchange. Address, G. R. LUMSDEN, 54 Second St., Norwich, Conn.

Among the plants collected by Miss F. E. Fish at Sauzal, in the vicinity of Todos Santos Bay, Lower California, were the following:

- Cordylanthus Kingii*, Watson.
- Polygala Fishiae*, Parry.
- Venegasia carpesioides*, D. C.
- Calochortus splendens*, Watson.
- Euphorbia albomarginata*,
- Oxalis Wrightii*, Gray.
- Castilleja stenantha*, Gray.

WANTED.

Manuscripts and Autograph Letters of distinguished people. Ancient and Modern Curious Manuscript, relics or books. Pay cash. Write what you have to C. F. Gunther, 78 Madison St., Chicago.

A manual of American land shells, by W. G. Binney, has just been published by the Smithsonian Institution as Bulletin No. 23 of the U. S. National Museum. It is arranged according to the geographical distribution of the species rather than according to the systematic classification. Seventy-three species are given as belonging to the Pacific province, which includes the territory west of the Sierra Nevada and Cascade mountains from Alaska to San Diego. Two species found at San Diego—Say's *Vertigo Ovata*, and *Pupa hordeacea* of Gabb—are omitted, which would raise the number to seventy-five.

Dr. V. B. Wittrock, in the second fasciculus of his 'Erythræ exiscata,' issued December 1, 1885, describes a new species of *Erythræa*, from Washington Territory, under the name of *E. Curvistaminea*. The plant was collected by W. N. Suksdorf. It is nearly related to *E. Douglasii*.

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