VOLUME VI. APRIL, 1889. WHOLE NO. 42.

THE West American Scientist.

A popular review and record for the Pacific Coast.
Official Organ of the San Diego Society of Natural History.

C. R. ORCUTT, - - EDITOR.

CONTENTS:

SAMUEL CARSON & CO.,
PUBLISHERS.

No. 208 Post Street, - San Francisco, Calif.

No. 961 Fourth Street, Plaza, San Diego, Calif.

PRICE 10 CENTS. PER YEAR, $1.00.

PUBLICATIONS OF SAMUEL CARSON & CO.

No. 208 Post Street, San Francisco.

The San Francisco Book-House.

Publishers, Booksellers, and Stationers.

A History of the College of California.

BY S. H. WILLEY, D. D.

It is now more than twenty years since the College of California was merged into **The California University.** The History of the old College is largely contemporaneous with the Early History of the State. The work is published by subscription.

1 vol., 8vo, 400 pages, cloth, paper label, - $4.00
1 " " " " bound in sheep, - 5,00

California Tourists' Guide.

Revised and brought down to date; containing just such information as every Tourist wants.

The Guide will contain two maps of the city—one a bird's-eye view of San Francisco and surroundings, the other a street map. Table of distances, rates of fare, hotels and routes of travel, etc.

170 pages, 16mo, cloth limp, $1.00; illuminated paper covers, 50 cents.

California Pictures in Prose and Verse.

BY BENJAMIN PARKE AVERY.

Quarto, cloth, 344 pages, beautifully illustrated with Engravings after drawings from Nature. $3 00.

California, Three Hundred and Fifty Years Ago.

MANUELO'S NARRATIVE.

Translated from the Portuguese by a California Pioneer.

1 vol., 12mo. cloth, $1.50.

The above book purports to be a translation of a recently discovered Portuguese MS. giving a Sailor's Narrative of a Sojourn in California and Life Among the Indians 300 years ago.

The Island Worlds of the Pacific Ocean.

BY CHARLES MARION TYLER.

With Maps and Illustrations.

1 vol., 8vo, 337 pages, cloth, - - **$2.00**

Some pains have been taken to make this work standard and reliable, especially with reference to the History, Discovery, Ethnology, Chronology, Geography, Area, Population, and Products of various Islands of the Pacific Ocean. The work is profusely illustrated both with wood-cuts and lithographs.

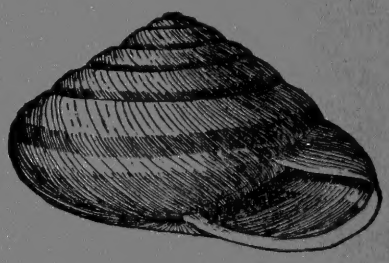
A Book for the Sea-side, the Lake, and the Forest.

West Coast Shells.

A familiar description of the Marine, Fresh Water, and Land Mollusks found in the United States, west of the Rocky Mountains.

BY JOSIAH KEEP, A. M.

(Professor of Natural Science, Mills College).



At the sea-side, many pick up and admire a few shells without knowing anything of their name or nature. By the aid of this book such aimless shell-gathering may happily be changed into a source of intelligent and elevating pleasure.

The Frontispiece is a hand-painted engraving of the very rare and beautiful *Surcula Carpentriana.*

The book contains upwards of 230 pages, and 200 Engravings, and is carefully printed on fine, heavy paper, and neatly bound in cloth.

Price, Postage Paid, $1.75, net.

THE WEST AMERICAN SCIENTIST.

VOL. VI. APRIL, 1889. No. 42

CREMATION.

(Read before the San Diego Society of Natural History, March 1, 1889.)

BY GEORGE WILLIAM BARNES, M. D.

Having been asked for some expression upon the subject of cremation, I beg the privilege of submitting, briefly, a very few of the many and weighty reasons I have for favoring incineration in preference to inhumation of the dead.

First: reasons based on sanitary grounds are most potent. The earth is the most convenient depository for putting out of sight whatever is offensive or deleterious or cannot be tolerated above its surface. The soil is not, however, always destructive, but often preservative of the products o animal and vegetable decomposition. It is more than a probability that pestilential diseases are by earth-burial transmitted from one generation to another, and thus perpetuated indefinitely. If the seeds of plants can be preserved for centuries, and then under favoring conditions be made to germinate and reproduce their kind, so the germs of contagious disease after having been entombed for ages may be warmed into life under suitable environment, and spread contagion among the living. To this source may often be attributed the sudden outbreak of epidemics and the occurrence of forms of disease not previously known in the locality. Evidence is not wanting that bodies which had perished from infectious disease on being exhumed or the products of their decomposition disturbed many years after interment have communicated the same disease to the living.

A full acceptance of modern theories of germ ætiology need not be implied in the belief that from this Pandora's box or mummy dust a flood of evils may desolate the land.

If phosphorescent and gaseous emanations may ascend from decaying bodies through a considerable stratum of earth, whether harmless in themselves or not, they may be the vehicles for conveying the seeds of disease to the living. In view, therefore, of the frequency with which such products of decay are disturbed and brought to the surface by voluntary and accidental agencies there are the strongest reasons for the conclusion that the sum of human suffering and the records of mortality are largely swelled by these influences.

Cemeteries are a growing evil and a danger. They encroach upon the domain of living men and their uses. They pollute the air and the water. One generation of men revels out its little life upon the earth, passes away and gives place to a succeeding one. But cemeteries seem designed to endure forever. Fifty millions of people in our own land walk the earth to-day. Where shall they be laid, and where the millions of the next succeeding generations? The moving tides of living humanity will be turned from their channels to give way to the advancing armies of the dead.

Says Sir Henry Thompson, "No dead body is ever placed in the soil without polluting the earth, the air and the water above and about it."

The experiments of Pasteur and others have shown that earthworms bring to the surface myriads of bacteria from the bodies of decomposing dead.

No successful means of counteracting these destructive agencies have been discovered. All known disinfectants are under some circumstances imperfect and unreliable, or of difficult or impossible application. Those upon which the greatest reliance has been placed are too often only deodorants. The only true disinfectant is fire. Correct principles of cleanliness require that filth likely to become dangerous which cannot be otherwise perfectly destroyed, should be burned. The value of this principle in the sanitation of cities, is so well recognized that methods are being introduced of destroying by fire garbage and all animal and vegetable substances liable to decay.

With the general adoption of cremation there would likely follow relief of one of the burdens of society in funeral reform. While there is nothing in the process of incineration of bodies calculated to detract from a becoming reverence for the "mold once hallowed by the Almighty's breath," it is calculated to detract in some degree from the superstitious reverence now prevailing for "this muddy vesture of decay which doth grossly close us in," the barren casket from which the gem—the man himself—has fled forever.

The method of cremation furnishes us with a residuum in the ashes derived from the actual substance of the body of the departed—a tangible memento—which may be inurned and preserved with all the care and reverence and adorned with all the beauty which a refined taste can suggest. The preservation of such a memento in the case of earth burial would be impracticable and most undesirable.

Every consideration of value is in favor of cremation. Objections to it are of sentiment and not of reason. They exist usually

only in the minds of those who have scarcely contemplated the subject. In such minds it seems associated with the fagot, the funeral pyre and the rude processes of the ancients. In imagination the dead body is still endowed with sensation, and in the crematorium are kindled anew the fires of the inquisition. The modern method accomplished by suitable apparatus has so little similarity to those heretofore practiced as to constitute it a very different process. The latter is conducted with all due regard to the most tender sensibilities of the friends of the deceased, and though carried on in the midst of a densely populated neighborhood, and in the presence of such spectators as may be permitted to witness it, there is nothing in it to shock or offend the senses.

The body enveloped in a sheet saturated with a solution of alum or asbestos is placed by delicately acting machinery in a retort at white heat—2000° to 2500° Fahrenheit—and is quickly and beautifully diffused in the air without visible flame or vapor, all gases being consumed in the retort.

Contemplate for a moment the beauty of this transformation compared with the stages of slow decay, through which the buried body is compelled to pass in order to reach the same end, through oxidation, which, in either case, is a combustion by which it is returned "earth to earth, ashes to ashes and dust to dust." In the latter case we contemplate the forms of loved ones presenting spectacles too shocking to desire to witness or to permit the thoughts to dwell upon; the ghastly remains of poor mortality being even more repulsive by contrast with the pomp of funeral pageant and the gaudy trappings of the grave.

There is some force, it is admitted, in the objection, the only plausible one to cremation, that it would destroy evidences of crime which might be obtained by the exhumation of bodies. But instances are so rare of conviction of criminals brought about by evidence thus obtained that the preservation of bodies in the earth with their dangers to the living would hardly be justifiable on that account. In a portion of the instances in which poison has been detected in the exhumed body, it was impossible to determine whether it had been introduced into it before death or after it, to thwart the ends of justice. Notwithstanding official vigilance and the rigid application of legal processes, a very large proportion of the criminals of our country go unwhipped of justice. It were better that a few more should escape the penalty due to their crimes than that thousands of innocent children should perish.

Death should be robbed of all its terrors. The shabbiest of fears that weigh upon the minds of many who approach the dark valley are those of premature burial and body snatching. They may be dissipated as perfectly as can the body be.

We might well exclaim with Goethe:

"O for the wise custom of the ancients to dissolve
The perfect, the sublime dignity of human form,
Which nature earnestly and slowly built,
After the spirit, the efficient has been severed,
By the action of purest flame.
O treasure up in a most precious urn
The dull remains of ashes and of bones,
That these arms, in vain extended,
May hold but something that unto this heart,
Which anxiously is yearning into empty space,
I still may press what is its melancholy own."

THE GOLD FIELDS OF LOWER CALIFORNIA.

The present excitement in San Diego, in fact throughout Southern California, over the reports of remarkably rich discoveries of gold in Lower California placer mines, will render any information on this subject of popular interest, even if not of real scientific value.

The gold belt of Lower California, if the whole of the peninsular is not to be included in a general way, may be said to extend from near the United States boundary, south along the mountains for two hundred or more miles, and an average of fifty miles in width.

The old Juarez district lies some forty miles southeast of Campo, and comprises many thousands of acres of auriferous land, only a few hundred of acres of which has been even partially worked or prospected. For possibly half a century these Juarez placers have been worked in a primitive way by Mexicans, Indians, and a few stragglers from the outside world, though at one time several hundred men were employed in digging the gold.

These mines are located on broad table lands on the top of the mountain system of the peninsula, with numerous depressions and broad, shallow valleys, where the miners were usually most successful. The mines consisted mainly of square holes dug from two to five or six feet in depth, from which the lower layer of clay-like soil was taken, and either carried a few miles to water and washed out, or the water would be brought to the mine in casks and used over and over until a new supply became necessary. This slow and wasteful way of working the mines yielded the workmen from two dollars a day upwards, the average yield perhaps exceeding four dollars, but at present, or when I last visited this district, less than a dozen men were engaged in the work. I have myself washed gold out of the soil in these mines, and it would be difficult to find ground that would not yield at least a color in the whole of this vast district.

Another equally extensive district is that east of the old Hanson ranch, similar in general character, in fact, an extension of it, but at a higher elevation being nearly six thousand feet above the

sea. Quite a camp was once established at this point, but owing to the propensity of the miners for stealing cattle from Mr. Hanson, the camp was finally destroyed and prospectors given little chance to learn the true value of the district.

Other placers similar in character to the above are to be found throughout this gold belt, back of San Rafael and San Quintin, in various directions, but none of them have been well prospected or worked by any experienced miners. The extent and richness of these large tracts of land cannot therefore be foretold. Doubtless, many fortunes await those lucky few who may first prospect the gulches leading *from* the placers, or who may select carefully their claims. If the reports now in circulation prove reliable, this discovery exceeds any made in the days of '49.

The gold belt may be said to be bounded on the north by San Diego County, though gold is found in nearly all parts of San Diego County in greater or less quantity; on the east the Colorado desert is a sufficient barrier for the present, until transportation can be provided, while no southern limit is known, though we may for convenience limit it to the peninsular range, ending in the San Pedro mountain, about which our interests in the gold developments must center. We may expect all sides of this great mountain and its dependencies to be thoroughly prospected in the near future, and no one need be surprised at some rich developments.

The discovery of these rich placers, though they may be limited possibly in extent, will result in the rapid development of the mineral resources of this important territory. Even if the present excitement is doomed to be short lived, we shall not see the day when the placers of the peninsula will become wholly exhausted.

But it is not to the placers that we shall look for the greatest returns, but to the ultimate discovery and development of the many quartz veins known to exist below the line.

Promising quartz mines are now being developed at Los Cruzes, at San Rafael, and near the Santa Rosalie Bay, two hundred miles south of the first named, while numerous valuable quartz veins are being *denounced* (located) around the Santa Clara placer mines, around which the present excitement centers. The Santa Clara placers are 150 miles from San Diego, and already boast a mining camp variously estimated at from 300 to 2,000 population, where no one has been previously living, while all the surrounding towns are reported as virtually deserted.

If the reports continue favorable, the editor will debate the question—which is the mightier, the pick or the pen? and give our readers the latest news from the mines.

C. R. Orcutt.

HINTS ABOUT KILLING LEPIDOPTERA.

It is important when collecting insects, to preserve their form, color, and scale-covering. With Lepidoptera the importance of such care is evident. Many rare and desirable specimens are found to be, when captured, more or less diverted of their hypodermal coloration; such individuals should always be preserved until replaced by better.

Avoid hastily killing by pinching, as such a procedure destroys the symmetry and relative position of the parts so treated. Do not unthinkingly and carelessly grasp the wings; but, on the contrary, handle gently with forceps or fingers, being careful to grasp the sides of the thorax from the under surface of the insect without applying too great compression; the appendages may often be utilized for this same purpose. The main object being to preserve the natural appearance of the specimens for study, and to give a neatness and perfectness to the collection, which always reflects great credit upon the collector.

The use of chloroform, ether and cyanide of potassium as agents for destroying life is not entirely satisfactory, as a rigidity is imparted to the muscular structures, rendering a quick and easy manipulation difficult, owing to the persistency of the positions assumed at death.

Exposure to the vapor of aqua ammoniae produces complete flexibility, with the objection that it requires too long a time to suffocate the larger species and the liability to bleach and destroy the animal colors. An agent which will quickly kill and impart relaxation to the muscles is a desideratum of great importance to the collector of these fragile and delicately tinted insects. Such a result can be obtained by the combined action of aqua ammoniae and cyanide of potassium.

Every collector of Lepidoptera should have two or three wide mouthed bottles or jars of different sizes—the smaller to receive the micro-lepidoptera; the larger ample enough to contain the larger species of Sphingidæ and Bombycidæ. Each jar or bottle should be prepared in the following manner: First place a layer of cotton in the bottom thoroughly saturated with the ammonia, over this is to be placed a thicker layer of dry cotton, upon which the potassium should be placed and the whole surmounted by another mass of cotton, covered by a piece of thick paper, previously punctured and neatly fitted into the bottle in such a way as to hold the cotton in place.

The jars should at no time be long inverted. It is best to prepare them a couple of weeks before using, then add a fresh supply of ammonia, and a good result can be expected.

Such is my method for killing Lepidoptera, and I have had excellent success, as shown by the rapidity with which I can mount my specimens, with the removal of scales reduced to a minimum.

F. E. Blaisdell.

CORONADO, Jan. 6th, 1889.

PRELIMINARY DESCRIPTIONS OF NEW SPECIES AND GENERA OF CHARACINIDAE.

CURIMATINAE.

South American Characinidae with greatly convoluted intestinal canal, short dorsal fin, and imperfect dentition. Limnophagons.

Division I. Teeth nour.

Psectrogaster gen. nov.—Post ventral region trenchant, the scales of each side with a narrow margin bent over the ventral ridge and terminating medially in a spiniform process. Preventral region rounded, predorsal region scaled. Scales 50-60. Typr.

Psectrogaster rhomboides sf. nov.—? Curimatus cyprinoides, Steind. Flussfische Sudam. II 34, 1881 (Rio Putz). Types: Nos. 20,303, 20,304 and 20,306. Over fifty specimens collected by O. St. John in the Rio Putz. No. 20,310, one specimen from San Goncallo.

It is our opinion that Dr. Strindachner erroneously identified specimens with a serrate belly with the Salmo cyprinoids Linnaeus. But whether *cyprinoides* has a serrate belly or not, the specimens from the Rio Putz are quite different from those from the Amazon, to which the name cyprinoids would have to be restricted. Air bladder tapering backward, its tip extending to origin of anal fin. Origin of dorsal about equidistant between tip of snout and base of upper caudal fulcra. Depth 2¼-2 3-5. Lat l. 53-58.

Psectrogaster amozonica sp. nov.—Types: many specimens from Teffe, Içа, Tabatinga; Obidos, Fonteboa, Lago Alexo, Jutahy, Tonantins, Sautarem, Hyavary, Curnpira. Air bladder attennate backward, its tip reaching the end of the anal fin. Origin of dorsal about equidistant from tip of snout, and from tip to adipose fin. Depth about 2¼. Lat. l. 49-56.

Curimatopsis microlepis sf. nov.—Type: No. 20,344. One specimen collected by M. Navez at Jatuarana. Lateral line developed on about twelf scales. Anterior dorsal rays prolonged, reaching adipose fin.

Light brown with iridescent metalic reflections. Margins of the jaws and inner surface of the lower jaw dark brown. Head 3⅓; depth 2¾–3¼. D. 11–12; A. 11. Lat. l. 60.

The only other known species of this genus has but 30 scales in the lateral line.

CURIMATUS.

1. Species with the caudal scaled to its tip. *Curimatus serpae* sp. nov. Types. No. 20,320 four specimens from Serpa.

Predorsal region sharply keeled to the occipital crest. Head

3¼–3 2-5; depth 3; scales 6, 39–41–5; color of alburnus and meyeri. *Curimatus lepidurus* sp. nov.

Type: No. 20,291 and 20,292. Five specimens collected by C. F. Hartt in the San Francisco below its fall.

Predorsal region with a distinct median and indistinct lateral keels. Sides and lower parts yellowish, back bluish, each scale of the sides with a narrow median line of golden. Head 3½; depth 2½–2¾; scales 9–43 to 45–7.

C. H. and R. S. Eigenmann.

A NEW FLORIDA BULIMULUS.

BULIMULUS HEMPHILLI, sp. nov., Fig. 449 of Binney's Manual of American Land Shells, Bulletin U. S. National Museum, No. 28.

Shell imperforate, very thin, transparent, amber colored and marked by coarse lines of growth; body whorl with six revolving and slightly interrupted brownish-red bands; the lower two being close together and upon the rounded base, spire obtuse, whorls five, slightly convex, the body whorl constituting two-thirds of the entire length of the shell. Suture slight, base uniformally and gracefully rounded. Aperture direct and oval, peristome thin. "Jaw and lingual dentition that of nitelinus" (B. Serperastris Says)." Dr. Binney. Length, 19 inches, diameter, 8 inches. Hab. both coasts of South Florida.

Remarks: Mr. Henry Hemphill of San Diego, Cal., first found a few dead and badly preserved specimens of this shell in 1384 at Marco, West Coast of Florida. From these, Dr. Binney thought them identical with B. Floridanus, Pf. (See Manual of American Land Shells, 1885.) Numerous specimens collected during the past summer by the author and Mr. G. W. Webster and son, prove beyond a doubt that this is not identical with the shell figured and described on page 407 of Dr. Binney's Manual. The B. Hemphilli is more ventricose, not angular at base, imperforate, differs in color, and in fact, there is a general difference.

Berlin H. Wright.

LAKE HELEN, FLA.

DESCRIPTION OF NEW NEMATOGNATHOID FISHES FROM BRAZIL.

MICROLEPIDOGASTER, G. NOV.

Type: *Microlepidogaster perforated*, sp. nov.

This genus is closely related to *Octocinclus*, differing from that genus in the armature of the belly and in the position of the dorsal fin.

Those genera of Plecostominæ destitute of an "adispose" dorsal fin, may be distinguished by the following key:

(*a.*) Temporal plate perforate. (Species of small size.)

(*b.*) Ventral surface covered by three series of large plates; dorsal fin inserted over the origin of the ventrals.

Octocinclus.

(*bb.*) Ventral surface covered by minute granular plates; dorsal fin inserted far posterior to the ventrals, its origin equidistant from tip of snout and base of caudal.

Microlepidogaster.

(*aa.*) Temporal plate imperforate.

(*c.*) Ventral surface covered by about three series of large plates. (Species of small size.) *Hisonotus.* (*

(*cc.*) Ventral surface naked or covered by minute granular plates. (Usually species of large size.)

(*d.*) Margin of the snout granular. *Rhinelepis.*

(*dd.*) Margin of the snout with spines; lateral plates isolate. *Acanthicus.*

Microlepidogaster perforatus sp. nov.

Type: No. 8,182; one specimen. .032 m. to base of caudal. Rio Carandahy, Brazil.

Broad and depressed anteriorly, the depth less than the width. Head broad, depressed, its depth little more than two in its length to the end of temporal plate; its width 1½ in its length. Snout narrow, pointed; loreal region concave. Eye 4 in snout, 8½ in head; interorbital concave, equal to the post-orbital portion of the head.

All of the plates hispid, most so on the tail, not keeled. Belly entirely covered with small granular plates to between the ventrals. Lat. l. 27.

Rhinelepis lophophanes sp. nov.

Type: No. 8,164; one specimen .018 m. to base of caudal. Santa Cruz, Brazil. Collected by Dom Pedro II.

Greatest depth equal to the greatest width. Occipital with three strong spiniferous ridges, a short median one and two longer lateral ones; similar crests extending from posterior margin of orbit to edge of temporal plate. Nasal pits margined by spiniferous ridges. Lower surface of head naked, margined by a series of recurved spines. Coracoid and scapula granular; belly with a small granular plate between posterior margins of ventrals; a larger plate behind the pectoral. Lateral and dorsal plates keeled. D. I, 7; A. 6; Lat. l. 22.

This species differs widely from the other species of *Rhinelepis*, as may be seen from the following comparison:

a. Ventral surface mostly naked.

*) Gen. Nov. in press.

b. Lateral plates not keeled; head not crested.
Parahybae.

bb. Lateral plates all keeled; occipital with three crests.
Lophophanes.

(*aa.*) Ventral surface entirely granular.

(*c.*) Eye 6–6⅘ in, the head to end of occipital plate; head arched above; opercle and interopercle with spiny margins; lateral plates keeled; surface of all the plates entirely covered with spiniferous ridges. *Agassizii.*

(*cc.*) Eye small, 10 or more in the head; head flattish above; lateral plates not keeled. *Aspera.*

The specimens belong to the Museum of Comparative Zoology at Cambridge, Mass., and the numbers given refer to the catalogue of the Museum.

C. H. & R. S. Eigenmann.

NOTES ON THE FLORA OF CUSTER COUNTY, COLORADO.—III.

TOWNSENDIA SERICEA HOOK.—Common on the prarie, one of the earliest flowers of the year. It is also recorded from Fremont Co., and Miss M. Sidford has collected it at Colorado Springs, El Paso Co.

SOLIDAGO MISSOURIENSIS NUTT.—Abundant at about 8,400 feet. The larvœ of the beetle (Trirhabda flavolineatus) feed upon it. These larvœ, which have not previously been described, are about twelve millimetres long, moderately stout, with all the segments approximately of equal size. The head is very dark brown and shiny. The body is a dark metallic greenish blue, pale yellowish green beneath, sparsely hairy with short hairs, and having a row of raised tubercles on each side, one on each segment. The legs are black, pale at their bases.

ASTER LŒVIS, L., VAR SIMPLEX.—This answers to the description of lœvis, except that the flower head has only 17 to 18 rays. It is locally abundant at about 8,400 feet. Æcidium compositarum, mart. is found upon its leaves.

ERIGERON RADICATUS, Hook.—Common on the prairie, and flowers early in the year.

ANTENNARIA DISICA, Gœrtn—Very abundant in open ground, and very variable. The ordinary form has white flowers, but a var. rosea is not unfrequent, in which the flower heads appear of a beautiful pink color.

GYMNOLOMIA MULTIFLORA, (Nutt.)—Abundant; the homopterous insect, Publilia modesta uhler, occurred upon it in great abundance just in front of my house. I also found G. multiflora

in Delta and Mesa counties. Bombus rufocinctus, cress, visits its flowers in Custer Co.

ACHILLEA MILLEFOLIUM, L.—Exceedingly abundant in Custer County, and known also from the following counties: Pueblo, Routt, Fremont, Lake, Eagle, Garfield, Mesa, Summit, Delta, Gunnison, El Paso and Saguache. I have found Cantharis compressicornis on its flower heads in Custer Co., also Trichodes ornatus.

SENECIO FEUDLERI, Gray.—Frequent in open ground.

TROXIMON AURANTIACUM, Hook.—Not rare at about 8,400 feet, but I fonnd it more commonly in Delta Co.

CAMPANULA ROTUNDIFOLIA, L.—abundant, and also found in Mesa, Delta and Summit counties. There is a variety which has white flowers, and it is a most singular fact, first noticed by Mrs. M. E. Cusack, that these turn blue in drying for the herbarium. Campanula uniflora, L., and C. planiflora, Eng., also occur in Custer Co.

ARCTOSTAPHYLOS UVA-URSI, Spreng.—Covering large tracts of ground in the woods, begins to flower in the latter part of April. A var. alba, with the flowers white, and smaller than the type, occurs rarely. The ordinary form was also found in Pueblo and Summit counties, and Miss M. Sidford reports it from Colorado Springs, El Paso Co.

PYROLA SECUNDA, L.—Not unfrequent in the mountains.

DODECATHEON MEADIA VAR. ALPINUM, Gray.—In the mountains, to 11,000 ft., abundant.

ANDROSACE SEPTENTRIONALIS, L., and A. occidentalis, Pursh.—Abundant about the edge of the timber and in clearings at 8,200 to 8,500 ft.

PRIMULA PARRYI, Gray.—Very frequent high up on the range. The smaller species, P. angustifolia, Torr., was found at over 11,000 ft., but so far, only on the other side—in Sagnache County.

PRIMULA FARINOSA, L.—Years ago, I received an example of this species, collected by Mr. W. West at Malham, Yorkshire, Eng., and always regarded it as one of my most interesting specimens; but I had never found it growing until June 12th, 1888, when I quite unexpectedly came across it in flower by the roadside near Ula. This seems to be the most southern locality recorded for it in Colorado.

GENTIANA HUMILIS, Stev.—In damp meadows; begins to flower about the middle of April. The flowers vary in colour from nearly white (albescens) to blue (cœrulea).

GENTIANA SERRATA, Gunner.—Abundant and very conspicuous. Found also in Mesa and Summit counties.

MERTENSIA OBLONGIFOLIA, Don., and M. alpina, Don.—Very frequent at about 8,200 feet and upwards.

SOLANUM TRIFLORUM, Nutt.—A common garden weed; also met with in Pueblo Co.

SOLANUM ROSTRATUM, Dunal. The only locality in Custer Co. is in the eastern part, near to the boundary of Pueblo Co. It probably does not occur even as high as 7,000 ft.

PENTSTEMON ACUMINATUS, Dougl.—Very common at about 8,300 ft., in open ground.

APHYLLON FASCICULATUM, Gray.—On the prairie, at about 8,000 ft. *T. D. A. Cockerell.*

WEST CLIFF, CUSTER CO., COLO.

BRIEF ARTICLES.

OUR ABALONE FISHERIES.—It is estimated that some three hundred tons of the shells of the abalone were shipped from San Diego during the past year. Fifty tons were handled by Mr. A. Wentscher in January of the present year, but this does not indicate an increase in the trade. The greater portion of these shells are collected on the coast of Lower California. The Chinese are the principal gatherers, notwithstanding they are prohibited by Mexican laws. The shells are sold at $20 to $35 per ton, according to the quality, and the dried meat of this mollusk, which is in great demand in China, brings $110 per ton. The species mainly collected in this vicinity (San Diego) are Haliotis splendens, Rve., and H. cracherodii, Leach, with occasionally a few specimens of H. corrugata, Gray. The red abalone (H. rufescens, Swains) seems to be most abundantly obtained at Monterey. I have never seen it at San Diego, though I have found it on the Lower Californian coast at the Santo Tomas landing. *C. R. Orcutt.*

COLORADO BEETLES.—I recently sent Dr. John Hamilton, among other Coleoptera, a couple of species collected by Plateau Creek, near Eagalite, Mesa Co., Colo., on Sept. 20, 1887. One of them proves to be Trechus micans, Lec. (= Chalybeus Mann.) while the other is identified somewhat doubtfully as the ♀ of Eleodes quadricollis, Esch. Dr. Hamilton writes: 'The Eleodes quadricollis ♀ ? agrees exactly with the ♀ of that species from near San Diego, Calif., in my collection, but as the females of same species are almost inseparable without the ♀ belonging, and E. quadricollis having never been recorded from Colorado, this may be an abnormal ♀ of E. extricata.' Later, he writes that E. quadricollis has been recorded in the report of Wheeler's Survey from South Park and Pagosa (Park and Archuleta counties), so mine will be only a new county record.

T. D. A. Cockerell.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

THE SAN DIEGO SOCIETY OF NATURAL HISTORY.—March 1, 1889. Geo. William Barnes, M. D., on Cremation.

BIBLIOGRAPHY.

I. B. ELLIS and B. M. EVERHART. New species of Fungi.—*Journal of Mycology.* October 1888, pp. 97-107. Several western species are described as new, viz.—Parodiella fruticola, Sphœrella applanata, Peziza clavigera and Phoma mamillariœ from Montana; Sphœrella spartinœ from Nebraska; and Dermatea pruinosa from Colorado. The precise locality of D. pruinosa is not given, but the type specimen was on the bark of Populus tremuloides, in Western Custer County, at about 8,400 feet.

T. D. A. C.

JAMES CASSIDY. Report of experiments with Potatoes and Tobacco. Bull 4. Colorado Experiment Station. On p. 13, Solanum tuberosum var. boreale is added to the flora of Colorado. Attempts were made to cultivate it. *T. D. A. C.*

C. H. AND R. S. EIGENMANN. New species of Cyprinodon (C. nevadensis), from Inyo Co., Cal., Bull. Cal. Acad. Sci., 2d Ser., Vol. I, 270. *C. R. O.*

THE NATURALIST. No. 161, Dec., 1888. The December number of this admirable periodical, devoted to the Natural History of the North of England, contains some articles of interest to the naturalist on this side of the water. On p. 354, Mr. I. Cordeaux records the occurrence of an example of the American Pectoral Sandpiper (Tringa maculata) on the Yorkshire Coast—this being the fourth example which had been taken in Yorkshire.

There is also a valuable Bibliography of Cryptogamic Botany for the North of England, 1886 and 1887. It is remarkable how many species we have in Western America which are common also to England, and this resemblance is especially marked in the mountain regions. Going somewhat casually through this bibliography, we note the following species, for instance, common to the North of England and Colorado: Thudium blandovii, Bryum muhlenbeckii, Grimmia trichophylla, Mnium serratum, Morchella esculenta, Æcidium compositarum, Dicranum fuscescens, Cladophora glomerata, Draparnaldia plumosa, Solorina saccata, Hedwigia ciliata, Hypnum eugyrium, Iungermannia bantriensis, I. cordifolia, Funaria hygrometrica, Webera nutans, Mnium punctatum, Amblystegium serpens, and A. radicale.

T. D. A. C.

H. I. ELWES exhibited a number of butterflies, collected in California and Yellowstone Park, at a meeting of the Entomological Society of London, Eng.; among them was the species

known as Erebia haydenii, Edw., which, however, Mr. Elwes considered would prove to be a Cœnonympha. "Entomologists' Monthly Magazine," Nov., 1888, p. 144. *T. D. A. C.*

C. H. MERRIAM describes a new fox, Vulpes macrotis n. sp., from S. California. Proc. Biol. Soc. Washington, 1888. *T. D. A. C.*

I. W. DOUGLAS describes a new species of Coccus, which he calls C. agavium n. sp., in Ent. Mo. Mag., Dec., 1888, p. 150. It was from an Agave which had been brought to England from one of the Southern States. Search should be made for the "white cottony matter" on the under side of the leaves of Agaves in California, Arizona, etc., in the hope of meeting with this species. *T. D. A. C.*

I. P. NORRIS. A series of eggs of Sitta pygmœa. Orn. and Ool., Nov., 1888, p. 173. Nine sets described, one from Estes Park, Colo., and the rest from Fort Klamath, Oregon. *T. D. A. C.*

CHAS. F. MORRISON. A list of the Birds of Colorado. *Ornithologist and Oologist*, Oct., 1888, p. 145; Nov., p. 165. This valuable list, of which the first two parts have appeared, was compiled for the Colorado Ornithological Association (now the Colorado Biological Association). It gives full and interesting details respecting every species of bird at present known from Colorado. The only omissions we note at present are of the entirely light cream-colored aberration (might be called albescens) of Anas boschas recorded by W. G. Smith in 1887, and two hybrid ducks recorded by the same author, and referred to Querquedula Cyanoptera x discors, and Anas strepera x Americana respectively. *T. D A. C.*

I. P. NORRIS. Nesting of Otocoris alpestris strigata *Orn. and Ool.*, Nov., 1888, p. 162. On the nesting of this bird in Oregon; description of the eggs. *T. D. A. C.*

H. R. TAYLOR. Nesting of the Golden Eagle. *Orn. and Ool.*, Nov., 1888, p. 172. The nesting of Aquila Chrysaetus canadensis in Santa Clara County, California. *T. D. A. C.*

CALIFORNIA STATE BOARD OF FORESTRY. The second biennial report (1887–88) contains an essay on the "Pines of the Pacific Coast," particularly those of California, by the State botanist, J. G. Lemmon, accompanied by numerous artotype illustrations of the cones, seeds, leaves and trees of the various species treated. Of special interest is the recording on pages 106 and 111–112 of the discovery by T. S. Brandegee, on the east (the shore) end of Santa Rosa Island of about 100 trees of Pinus Torreyana, Parry—a species hitherto only known from a very limited area at Delmar, San Diego County. Mr. Brandegee does good work wherever he goes, and this discovery of his during the past season (1888) is not the least important of his con-

tributions to botanical science. The form of pinus Jeffreyi found on the mountains in northern Lower California at an elevation of about 4,000 feet received from Mr. Lemmon the varietal name peninsularis. *C. R. O.*

C. C. PARRY. Ceanothus, L., a synoptical list comprising 33 species, with notes and descriptions. Proc. Dav. Acad. Sciences, V., 162–174. C. intricatus, from summit of Mt. Tamalpias, Calif. (Curran); C. Andersoni, Santa Cruz mountains (C. L. Anderson, 1887); C. divergens, from Napa Valley, are the new species described. The white-flowered species from the mesas of San Diego and Lower California, are generally distributed as C. Cuneatus, Nutt., is referred to C. verruccosus, Nutt., instead. What has generally been referred to C. sorediatus, Hook and Am., from Southern California (and so disributed) Dr. Parry speaks of as "an aborescent form of C. hirsutus, Nutt., or possibly an undescribed species." Dr. Parry also reviews certain species of Chorizanthe in an accompanying paper (pages 174–176), describing two new California species. *C. R. O.*

W. G. FARLOW. On some new or imperfectly known algae of the United States.—I Bulletin Torr. Bot. Club, xvi, 1–12. Several new species from the California coast are described, with notes on others. *C. R. O.*

TROPICAL AFRICA. By Henry Drummond, L. L. D., F. R. S. E., F. G. S. New York, 24 East 4th street: The Humboldt Publishing Company. Price, fifteen cents. A work of almost thrilling interest, giving an account of the authors experiences and observations in a trip through some of the most mysterious portions of the continent which is now attracting so largely the attention of the public. It is very racily written, and and the author is both graphic in his descriptive passages, and witty in his observations The very interior life of the country, where civilization has just begun to wrestle with barbarism, is laid open. Much of the book is devoted to a discussion of the slave trade, which has depopulated whole regions of the continent; and Professor Drummond is very anxious to see a combination of European powers for the pupose of bringing it to an end.

EDITORIAL.

With this issue, Messrs. Samuel Carson & Company, 208 Post street, San Francisco, California, assume the entire business management of the WEST AMERICAN SCIENTIST and become its publishers, the editorial management remaining unchanged. Comment is unnecessary.

San Diego is entering upon a new era in the history of her remarkable development, as a glance at a few great enterprises will abundantly demonstrate. The completion of the great

flume, at a cost of nearly a million dollars, by which the pure, mountain water is brought to our doors, is an event worthy of record, and one which was fittingly celebrated on Washington's birthday.—The building from San Diego of the Cuyamaca Railroad through the interior of our county, traversing the fertile valleys of El Cajon, Santa Maria, Ballena and others, and rendering our great mineral belts easily accessible, is another enterprise of which we may well feel proud, and by which hundreds of miles of travel can be saved in our overland communications.—The new management of the International Company of Mexico is actively pushing forward the preliminary work of the peninsula railroad in a way that inspires confidence, notwithstanding the frequent disturbing rumors that gain circulation.—The discovery of remarkably rich placer gold mines about 50 miles from Todos Santos Bay, Lower California, in the latter part of February, has created as great an excitement as we have known since the collapse of wild real estate speculations. The actual development of valuable quartz mines below the line is still more encouraging.—A new land and water company has been formed to develop the eastern half of San Diego County by providing irrigation for the 5,000,000 acres embraced in the plains known as the Colorado Desert. The cause of humanity is not being neglected among these great enterprises. The Hospital of the Good Samaritan will soon be open to all creeds, all nationalities, all physicians, and all ministers," in the support of which San Diego will bring credit upon herself.—Nearly a million of dollars has been provided by the will of the late James M. Pierce and by Bryant Howard and E. W. Morse for the establishment of a series of benevolent and educational institutions in our city, which will be open to all classes and will provide for a boy's and girl's home, kindergartens, a school of technology, and other equally worthy departments.—The San Diego College, at Pacific Beach, the College of Fine Arts of the University of Southern California, the Southwest Institute, and other schools, are all active in providing for the present and future educational needs of the country. In view of all the above, in connection with the natural and commercial advantages of San Diego one may be pardoned for predicting concerning the future, but we will resist the temptation.—P. E. Truman, of Dakota, has spent his winter vacation from his law practice in collecting the lepidoptera of Southern California. He has promised to contribute to these pages the results of his labors.—The California Ornithological Association was to be organized at the California Academy of Sciences, San Francisco, on February 9th. We hope to report some good work for them.—We are advised that a scientific association has been formed in Washington Territory, but we have been able to gather no details.—Prof. D. S. Jordan, of Indiana, writes concerning the fish discovered on the Colorado Desert, and described in these pages

(V. 2-4): 'They are certainly Cyprinodon macularins, B. and G.; C. Californiensis, a later name, may be based on young males. The description is too poor to be certain.'—The editor collected in January, at Todos Santos Bay, Lower California, two species of coral, one, a small branching red species, and the other apparently identical (though the specimens were much smaller) with a species collected by J. J. Rivers, at Monterey, in 1884 (Ballanophyllia elegans, Verrill).—We have to acknowledge the receipt of valuable publications from many sources, and our thanks are especially due for such favors to Drs. C. C. Parry, R. W. Shufeldt, D. S. Jordan and C. A. Greene, Messrs. Coulter & Rose, William Danbar, T. D. A. Cockerell, Sereno Watson, Geo. F. Kunz, J. G. Lemmon, W. G. Farlow, Wm. Trelease, Alexis A. Julien, G. W. Lichtenthaler, F. A. Sampson, S. W. Davis and others.—An interesting paper on cremation is presented in this issue from the pen of Geo. William Barnes, M. D., who for so many years has been president of the San Diego Society of Natural History. The subject is worthy of careful consideration.—The Colorado Biological Association is doing good work for that State under its able secretary and our valued correspondent, Theo. D. A. Cockerell, who assists us with our Bibliography, which will hereafter be an important feature of this magazine.—It is not improbable that the WEST AMERICAN SCIENTIST will be adopted by the Association as its official organ. We aim to make the magazine a true representative of the scientific activity of societies and individuals in the West, and shall cordially welcome co-operation.—In securing the services of experienced publishers, with every facility for its regular and creditable appearance, the SCIENTIST enters upon a new era of prosperity. Our magazine was the first to be issued from the City of San Diego, but it is distinctively West American—not local—in character, and it is fitting that we should be equally represented in what are destined to be the two greatest cities of the Pacific Coast.

NOTES AND NEWS.

Dr. R. W. Shufeldt, who has been stationed for a number of years at Ft. Wingate, N. M., where he has done much valuable work for science, has returned to his home in Washington, D. C.

W. G. Wright is making the acquaintance of the butterflies of Mexico, and will no doubt return with many new and beautiful forms from the islands and coast of the Gulf of California, beside adding otherwise to the fauna and flora of the regions visited.

Three new species of fish have been added to our San Diego fauna the present winter; and two others, one a rock cod (Sebastichthys chlorostictus), previously known from Monterey

northward, and the other a blue cod (Ophioden elongatus), known from Alaska to Santa Barbara, have been taken in our waters.

The U. S. Steamer Albatross will spend the larger part of March and April in the Gulf of California, investigating the temperature and depth of its waters to determine if the conditions are favorable to the shad, which have been planted at the mouth of the Colorado river. The scientific staff will study the shore fauna of Lower California on their return.

C. H. and R. S. Eigenmann have devoted the winter to the study of the embryology of our fish, especially of the herring, the smelt, the rock cods (the young of which had never been described), and of the Embriaticoids of San Diego, the eggs of which had never been seen before.

E. W. Roper, of the Bay State, has collected nearly 200 species of mollusks at San Diego during his six weeks' visit, and will visit other localities northward before his return East. He visited Todos Santos Bay, Lower California, in January, in company with the editor, where we found a rich harvest of marine forms to gather.

Pupa Californica, Rowell, has been added to our fauna by the editor, who finds it abundant under the dead decaying plants of the Beach Strawberry (Mesembrianthemum aequilaterale, Haw.), both at San Diego and at Ensenada, Lower California.

California is to have another observatory to be located near Los Angeles in connection with the University of Southern California. They will seek to surpass even our famous Lick Observatory in power of lens.

F. Stevens of Ballena visited us recently. He will 'ranch it' by proxy, and collect birds the present season.

Dr. Edward Palmer has been exploring the vicinity of San Quintin Bay, Lower California, and has added somewhat to our flora.

C. H. Townsend, C. H. Gilbert and Mr. Alexander of the scientific staff of the Albatross, and C. H. Eigenmann, visited Ensenada, Lower California, in February, returning overland. The common fresh water terrapin (actinemys marmorata) was the only thing reported to us as being collected.

Robert Douglas, who with his son, Thos. H. Douglas, is in charge of the grounds of the arboretum, to be established in connection with the Leland Stanford, Jr., University, has favored us with his society recently. Nine hundred acres, or more if required, are to be devoted to the arboretum at Palo Alto, California, making this the largest similar establishment in the world. Every known tree or shrub that can be made to thrive on the Pacific Coast is intended to be included, and especially all of our native species.

Each year the *Youth's Companion* presents its readers with instructive articles on science and natural history. The prospectus for 1889 announces the following for the current volume: The Wonders of a Crystal, by Prof. Tyndall; A Chapter on Elephants, by Prof. Huxley, the eminent biologist; Insect Life, by Prof. C. V. Riley, Chief of the U. S. Entomological Commission; Talks About Birds, by Miss E. F. Morrison, in which the art of keeping and raising pet birds will be explained in a clear and attractive manner; Bashful Drummers, by Bradford Torrey, giving an account of some interesting birds; Papers on Electricity, by several eminent and practical writers; and articles on interesting astronomical events, by Miss Emma M. Converse, and other writers, including the directors of some of the great observatories.

The especially interesting features of the March *Century* are the essays on Rules of the House of Representatives, by Hon. Thos. B. Reed of Maine; a full length portrait of the United States, by Dr. Edward Eggleston—a review of James Bryce's famous work on the 'American Commonwealth;' and Lieut. W. H. Beehler, on 'The Use of Oil to Still the Waves.'

Garden and Forest is doing good work for the cause of American forests, and for the interests of North American horticulture, not the least of which is the interest it is striving to arouse in the developing of our arid regions of the West.

ERRATA.

We have a larger list of errors, both of omission and of commission, to chronicle in this issue than is pleasant for an editor. Those committed in our last number were so grievous that we considered it advisable not to distribute it to our subscribers, nor to attempt another issue until sure of its appearing in a manner that would not bring discredit to either the editor or his trusting contributors. The description of 'A New Florida Bulimulus,' should have appeared in the suppressed number, but our printer mixed the Mss. with others belonging to the *Old Curiosity Shop*, a magazine edited by E. M. Haighe, of Riverside, Cal., so that the description appeared in the latter instead. Further comment is useless, beyond adding that from some cause yet unexplained to us, proofs were seen by neither our proof reader or by the editor until too late.

The more important corrections to be made in the fifth volume, are:

On page 10, 18th line from bottom read, maloaeflora, instead of maluceflora.
On page 10, 10th line fron the bottom, read Torr, instead of Tow.
On page 11, 11th line from the bottom, read Sedum, instead of Sedun.
On page 11, 9th line from the bottom, read Smitheus, instead of Smithens.
On page 12, 22d line from the bottom, omit oleander.
On page 12, 21st line from the bottom, read Canadensis, instead of canaelensis.
On page 12, 19th line from the bottom, read Œnothera, instead of O. Enothera.
On page 12, 13th line from the bottom, read Heliotropium, instead of Heliotiopicum.
On page 12, 8th line from the bottom, read Eremocarpus, instead of Eremoceupus.
On page 14, 13th line from the bottom, read Tineina, instead of Fineina.
On page 15, 4th line from top, read Confused, instead of Confessed.
On page 17, 3d line from top, read I. Var. Maculatus, instead of I. Var. Imaculatus.
On page 17, 1st line from top, add after Watson, *In this vicinity.*
On page 18, 26th line from bottom, read Rubida, instead of Nebida.
On page 18, 9th line from bottom, read Locustidae, instead of Lecustidoe.
On page 19, 2d line from bottom, read Oncocenemis, instead of Oncoenemis.
On page 20, 5th line from top, read larva, instead of larval.
On page 20, 6th line from top, read fly, Trypeta, instead of flytrypeta.

LUPINUS PARVIFLORUS VAR. SERICEA. On page 11, a new variety of lupin is described and named *sericea*, but from some accident it has got placed under L. argenteus, whereas it really belongs to L. parviflorus, Nutt., having all the essential characteristics of that species. Both L. argenteus and parviflorus seem very variable, especially the former.

December 22, 1888. *T. D. A. Cockerell.*

"NOTHING SUCCEEDS LIKE SUCCESS."

(*Editorial from the Cosmopolitan, December, 1882.*)

Before those famous taxidermists and hunters, the Verraux Freres, established themselves in Paris, natural history museums were compelled to rely upon picking up their specimens in all parts of the world. The keen intelligence of the Verraux Bros. was not long in discovering a means of serving the cause of science and of advancing their own fortunes at the same time. They established a sort of clearing-house for wild beasts, birds, fishes, and reptiles, with branches in every quarter of the globe, and from whom you could order a stuffed elephant, giraffe, a Bengal tiger as you would flitch a bacon from your butcher, or a boiled lobster from the fish-monger.

While the Verraux Freres were gaining a world-wide reputation, an American lad, William H. Winkley by name, was pursuing his studies at the famous technical schools of the French capital, and, when his means were all but exhausted, he left his lodgings in the Latin quarter and apprenticed himself under these famous masters. After serving a long and laborious apprenticeship in the study of animal forms, anatomy, and drawing, he considered himself sufficiently equipped for the practical work of his vocation Returning to America, and selecting a small interior town where rents and living expenses were light, he set up anestablishment of his own, as large as his limited means would allow.

To-day, he supplies the largest museums of the world with stuffed specimens from the elephant down to the smallest rodent, besides large quantities of minerals, rocks, fossils, casts of fossils, skins, and skeletons (unmounted) of animals of all classes, and often the wild animals themselves, alcoholic specimens, insects, crustaceans, shells, echmoderms, corals, sponges, and botanical specimens, from every quarter of the globe and in a great variety of form and price. Also anatomical preparations, chemical, philosophical and optical instruments, with Naturalists' supplies of every description, and, the Verraux Freres being now dead, he has established, as they did, stations upon every continent for the collection of natural history specimens. The attaches of all the stations are over 100 in number, many of whom are specialists.

At his American headquarters at Clearfield, Iowa, there are not far from 100,000 specimens of all classes. Besides mounting the skins sent in by his own collectors, this eminently successful taxidermist takes custom work in his department from those desiring the same, and many hundreds of persons and museums throughout the civilized world are constantly sending him mammal and bird skins and skeletons for restoration. Especially is this true of those scientific persons and wealthy individuals, who, while abroad, have shown prowess in the hunt.

But it is not alone in taxidermy that this cosmopolitan naturalist has won an unrivalled reputation. Years ago he devised a plan whereby even those of moderate means could possess a good cabinet. This, the installment plan, has from the start been a success, and in hundreds upon hundreds of cases has proven itself an inestimable boon to those of moderate means who desire a good collection. Many of the best collections in this country have been obtained entirely upon this plan and students, professional men, schools and colleges have all expressed themselves perfectly satisfied with its workings in their respective cases.

Prof. Winkley is strictly honest and reliable, and if any of our readers want anything in his line (see advertisement elsewhere,) we would recommend them to write to him.

This unsolicited editorial was written more than seven years ago. In the interim we have grown considerably, and to-day stand at the head of the museum furnishing business in the world. We are the only house outside of Paris, that sells collections on installments. Do you want to secure a good collection on easy terms? If so, write to us.

W. H. WINKLEY, Clearfield, Iowa.

☞ Persons having private collections that they wish to dispose of, would do well to send lists to us.