

SAN DIEGO MEETING
OF THE
PACIFIC DIVISION
OF THE
American Association
FOR THE
Advancement of Science
AND
Participating Societies

August 9th to 12th
1916

PRELIMINARY ANNOUNCEMENT.

BY THE
EXECUTIVE COMMITTEE
OF THE
PACIFIC DIVISION

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AMERICAN ASSOCIATION
FOR THE
ADVANCEMENT OF SCIENCE
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PRELIMINARY ANNOUNCEMENT

OFFICERS OF THE AMERICAN
ASSOCIATION FOR THE
ADVANCEMENT OF SCIENCE

- C. R. VAN HISE, President, President of the University of Wisconsin, Madison
L. O. HOWARD, Permanent Secretary, Chief of the Bureau of Entomology, Washington

Officers of the Pacific Division

- W. W. CAMPBELL, President, Director of the Lick Observatory, University of California, Mount Hamilton
D. T. MACDOUGAL, Vice-President, Director of the Desert Botanical Laboratory, Carnegie Institution, Tucson.
A. L. BARROWS, Secretary-Treasurer, University of California, Berkeley

Executive Committee of the
Pacific Division

- D. T. MACDOUGAL, Chairman, Director of the Desert Botanical Laboratory, Carnegie Institution, Tucson.
W. W. CAMPBELL, ex-officio, Director of the Lick Observatory, University of California, Mount Hamilton
E. C. FRANKLIN, Professor of Chemistry, Stanford University
T. C. FRYE, Professor of Botany, University of Washington, Seattle
C. E. GRUNSKY, Consulting Engineer, San Francisco
G. E. HALE, Director of the Mount Wilson Solar Observatory, Carnegie Institution, Pasadena
V. L. KELLOGG, Professor of Entomology, Stanford University
A. C. LAWSON, Professor of Mineralogy and Geology, University of California, Berkeley
E. P. LEWIS, Professor of Physics, University of California

Committee on Arrangements in San Diego

- FRED BAKER, Chairman, Point Loma
W. C. CRANDALL, Business Manager of the Scripps
Institution for Biological Research, La Jolla
STANLEY HALE, San Diego Chamber of Commerce,
San Diego
E. L. HARDY, President of the California State
Normal School, San Diego
E. L. HEWITT, Director of the School of American
Archaeology, Santa Fe, New Mexico
DUNCAN MACKINNON, Superintendent of Schools,
San Diego
W. E. RITTER, Director of the Scripps Institution
for Biological Research, La Jolla

Sub-Committee on Excursions

- F. B. SUMNER, Chairman, Scripps Institution for
Biological Research, La Jolla
GEORGE F. MCEWEN, Scripps Institution for Bio-
logical Research, La Jolla
E. L. MICHAEL, Scripps Institution for Biological
Research, La Jolla

GENERAL ANNOUNCEMENTS

Headquarters and Registration.—The hotel headquarters and registration office of the Pacific Division will be in the U. S. Grant Hotel. All those attending sessions of the San Diego meeting, whether members of the American Association or of participating societies or not, are requested to register at the headquarters office, and to secure there the general program for the meetings.

Mail and Telegrams.—Mail and telegrams for persons attending the meeting should be addressed in care of the Pacific Division, American Association for the Advancement of Science, U. S. Grant Hotel, San Diego. Every effort will be made to deliver promptly all mail and telegrams thus addressed to those who have registered.

Validation of Railway Tickets.—Railway tickets purchased upon the receipt certificate plan should be left with the Secretary at the headquarters office of the Pacific Division in the U. S. Grant Hotel as soon as possible after reaching San Diego, together with the validation fee of fifty cents, in order that the tickets may be signed by the Secretary and a railway representative. The tickets may be called for on the day following their deposit with the Secretary. All those attending this meeting are earnestly requested to attend to this matter promptly.

Election of Officers.—According to provisions of the constitution of the Pacific Division of the American Association, the election of seven members of the Executive Committee from nominations prepared by a duly appointed nominating committee or received from the floor at the time of election will be held at the evening session of the Pacific Division on Thursday, August 10th, 1916, preceding the general address of that evening.

Meetings of Societies.—Sessions of participating societies will occupy Thursday and Friday, August 10th and 11th, and will be held in rooms of the San Diego High School.

Those desiring to offer papers at the sessions of any of these societies should submit the titles of their papers to the secretaries of the respective societies at an early date in order to be accorded a place upon the program. In all cases abstracts of these papers limited to about 300 words should be submitted with the titles.

Saturday, August 12th, will be reserved for excursions, which may be continued also on Monday and Tuesday of the following week.

GENERAL SESSIONS OF THE PACIFIC DIVISION OF THE AMERICAN ASSOCIATION

Three general addresses, at which the public will be welcome, will be given under the auspices of the Pacific Division of the American Association. These addresses will be presented by Dr. W. W. Campbell, Director of the Lick Observatory, Mount Hamilton, and President of the Pacific Division of the American Association for the Advancement of Science, upon the topic, "What We Know about Comets"; by Dr. Barton W. Evermann, Director of the Museum of the California Academy of Sciences, San Francisco, upon the topic, "Modern Natural History Museums and Their Relation to Public Education"; and by Dr. F. F. Wesbrook, President of the University of British Columbia, Vancouver, upon a title to be announced later. The addresses will be given in an assembly room of the U. S. Grant Hotel on the evenings of Wednesday, Thursday, and Friday, August 9th, 10th, and 11th, at 8 p. m.

Following the address of the President of the Division on Wednesday evening, August 9th, a reception will be tendered to the visiting members of the American Association and societies participating in these meetings, in the ball-room of the U. S. Grant Hotel.

MEETINGS OF SOCIETIES

Astronomical Society of the Pacific

S. D. TOWNLEY, President, Stanford University, California

C. S. CUSHING, 1st Vice-President, First National Bank Building, San Francisco

H. D. CURTIS, 2nd Vice-President, Mount Hamilton, California

A. H. MARKWART, 3rd Vice-President, 377 Palm Ave., Oakland, California

D. S. RICHARDSON, Secretary-Treasurer, 2541 Hilgard Ave., Berkeley, California

The Astronomical Society of the Pacific will hold meetings on Thursday, August 10th, at 10 a. m. and 2 p. m. and at the same hours on Friday, August 11th, if the number of papers presented warrants. The Astronomical Society of Pomona College will participate in these meetings.

It is expected that Professor S. D. Townley, President of the Society, will preside and will present the opening paper. Attention is also called to the fact that Dr. W. W. Campbell's address, as President of the Pacific Division, will be on the subject, "What We Know about Comets."

Papers have already been promised by astronomers of the Lick, Solar, and other Pacific Coast observatories, and a good program is assured. A special feature will be the attention devoted to problems presented by the nebulae.

Members who expect to attend the meetings are requested to notify one of the members of the Program Committee, Messrs. Aitken, Leuschner, and Seares. The Program Committee also requests that titles of papers to be presented be sent in by July 1st with a statement of the time required for reading.

Abstracts should be furnished not later than July 29th.

Cordilleran Section of the Geological Society of America

C. F. TOLMAN, President, Stanford University, California

JOSEPH A. TAFF, Secretary, 781 Flood Building, San Francisco

CHARLES E. WEAVER, Councillor, University of Washington, Seattle

The Secretary of the Cordilleran Section will welcome worthy papers from any of the members of this Section. Members of the Palaeontological Society of the Pacific Coast and members of the Seismological Society of America who contemplate attending the meetings at San Diego are cordially invited to submit papers and join with the meeting of the Cordilleran Section in case their own organizations do not hold meetings.

Attention is especially called to the number of features of peculiar geologic interest which are to be found in the vicinity of San Diego. Among these are the cliff sections on Point Loma, and the great Coronado sand spit, the accumulation of which south of the long, high promontory of Point Loma has formed San Diego Bay. San Clemente Island is noted for a remarkably fine series of uplifted marine terraces. The northern end of the granite mountains of the Peninsula Range of Lower California may be reached at Foster, about 30 miles by rail northeast of San Diego. The gem deposits of Mesa Grande and Pala occurring in white pegmatite dikes running across the gray country rock of diorite and gabbro, and the remarkable granite peneplain of the Perris Valley may be reached by automobile from San Diego with railway connections at Perris.

Western Society of Naturalists

BARTON W. EVERMANN, President, California Academy of Sciences, San Francisco

JOHN F. BOVARD, Vice-President, University of Oregon, Eugene

E. L. MICHAEL, Secretary, Scripps Institution for Biological Research, La Jolla, California

L. L. BURLINGAME, Treasurer, Stanford University, California

The Western Society of Naturalists will hold sessions in conjunction with the San Diego Natural History Society and the Pacific Coast Branch of the American Phytopathological Society on Thursday and Friday morning and afternoon, August 10th and 11th.

These sessions are designed for the presentation of certain biological topics of wide range which will be of common interest to botanists, zoologists, and the general public.

Worthy papers upon more limited fields of botany or zoology will also be welcome.

Among the papers which will be presented at the San Diego meeting are the following:

Composition of the Rancho La Brea Fauna. John C. Merriam, Professor of Palaeontology and Historical Geology, University of California.

Eugenics and War; and, Isolation and Production of Germinate Species. David Starr Jordan, Chancellor, Stanford University.

An Amateur Naturalist in Formosa. Dr. Fred Baker, Point Loma.

Biology's Contribution to a System of Morals Adequate for Modern Civilization. W. E. Ritter, Scientific Director, Scripps Institution for Biological Research, La Jolla.

The Mutation Theory and the Species Concept. R. R. Gates, Acting Associate Professor of Zoology, University of California.

Papers have been promised also by Professor H. M. Hall, Dr. Joseph Grinnell, and Mr. Tracy I. Storer, University of California; by Professor Harry Beal Torrey, Reed College, Portland; by Dr. D. T. MacDougal, Desert Botanical Laboratory, Tucson; and others.

On Thursday afternoon, August 10th, the session will take the form of a conference upon the tuna fisheries of Southern California. A consideration of the tuna fisheries is especially appropriate at this time in view of the recent development of this industry, the establishment of tuna canneries at San Diego and other ports of Southern California, and the work of the "Albatross" of the United States Bureau of Fisheries in tuna investigations in Southern California waters this summer.

Titles of papers to be presented at these meetings together with brief abstracts of the papers should be in the hands of either the President or the Secretary of the Society not later than July 20th.

Pacific Slope Branch, American Association of Economic Entomologists

E. D. BALL, President, Agricultural College of Utah, Logan

E. O. ESSIG, Secretary-Treasurer, University of California, Berkeley

The first meeting of the Pacific Slope Branch of the American Association of Economic Entomologists will be devoted largely to organization and plans for future work. It is the desire of the officers, however, to present as complete a program as the limited time will allow.

The following papers have already been submitted by title:

Host Relations of Ecto-parasites. Vernon L. Kellogg, Stanford University, California.

Economic Syrphidae in California. W. M. Davidson, United States Bureau of Entomology, Walnut Creek, California.

The Chrysanthemum Gall-fly. E. O. Essig, University of California, Berkeley.

Some Scale Insects of Oregon. Leroy Childs, Oregon Agricultural College, Hood River.

The Fruit-Tree Leaf Syneta, Spraying Data, and Biological Notes. George F. Mozenette, Oregon Agricultural College, Corvallis.

Ecological Society of America

VICTOR E. SHELFORD, President, University of Illinois, Urbana

W. M. WHEELER, Vice-President, Bussey Institution, Boston, Massachusetts

FORREST SHREVE, Secretary-Treasurer, Desert Botanical Laboratory, Tucson, Arizona

The Ecological Society of America will hold sessions for the presentation of papers, and in addition to this will conduct excursions which will be of especial interest from the points of view of animal and plant ecology in the vicinity of San Diego. Among these excursions will be a trip by automobile into the Cuyamaca Mountains east of San Diego, which may be extended to the desert foothills on the edge of the Imperial Valley, thus making possible a comparison of the coastal,

mountain, and desert fauna and flora. The exact itinerary of this trip will be determined later by the wishes of those who make it.

A day will also be spent at La Jolla, affording opportunity for examination of the work in marine ecology at the Scripps Institution for Biological Research, and for a trip on foot or by automobile to the colony of Torrey pines six miles up the coast from La Jolla, to the chaparral covered hillsides, and to the beach in the vicinity of La Jolla.

TRANSPORTATION RATES

Railway Rates.—The usual excursion rates of a fare and a third have been granted by the railroads from points in the states of Arizona, California, Oregon, Washington, Idaho, Nevada, and Utah and from British Columbia. In taking advantage of these rates, members are cautioned to secure special certificates when purchasing their tickets to San Diego, paying one full fare from the point of departure to San Diego. These certificates when signed by the Secretary of the Pacific Division and by a railway representative at San Diego will entitle the holder to a return ticket upon the payment of one-third of the regular fare, (validation fee, fifty cents).

Tickets will be on sale in California, Arizona, Utah, and Nevada from August 7th to 15th, inclusive, and in Oregon, Washington, Idaho, and British Columbia from August 2nd to 11th, inclusive. Tickets must be presented for the return portion of the trip on trains leaving San Diego between the dates August 9th and 17th.

Visitors attending the San Diego meeting from the north may include a trip to the Yosemite Valley on either portion of the trip by choosing a route over the San Joaquin valley lines of either the Southern Pacific or Santa Fe railways. Transfer from the main lines is made at Merced and the additional cost of the trip from Merced to the Yosemite Valley including automobile transportation from the end of the railroad at El Portal into the Valley, is \$18.50. If the trip is extended to the Wawona and Mariposa groves of big

trees, the charge is \$29.75 and if by way of Glacier Point, \$34.75.

One fare rates to San Diego have been quoted as follows:

Los Angeles.....	\$ 3.75
Tucson	23.20
Salt Lake City, via San Francisco	43.85
via Salt Lake Route	34.35
Reno	22.20
San Francisco	16.80
Portland	34.70
Seattle	40.30
Vancouver	44.55
Moscow	45.80

Special Exposition rates have been made from points in Utah to San Diego, Los Angeles, Oakland, and San Francisco over lines of the San Pedro, Los Angeles, and Salt Lake Railway (Salt Lake Route): sale dates daily from May 1st to September 30th, return limit October 31st. Full information concerning these rates may be secured from local agents.

Pacific Coast Steamship Company.—San Francisco to San Diego and return, \$17.00, good until October 31st. Leave San Francisco Mondays and Fridays, 4 p. m.; returning, leave San Diego Wednesdays and Sundays, 11 p. m.

Seattle, Tacoma, Everett, and Victoria (direct) to San Diego and return, \$53.00, good until October 31st. Leave Seattle, Mondays 11 p. m., and Fridays 11 a. m. Fares include berth and meals on steamers.

Los Angeles to San Diego and return, \$3.00, good until October 31st; luncheon included on south bound portion of trip, berth and light breakfast included on north-bound portion. Steamer train leaves Pacific Electric Station, Sixth and Main Sts., Los Angeles, 9:15 a. m., Wednesdays and Sundays.

Pacific Navigation Company.—San Francisco to San Diego and return, \$12.50, berth and meals extra. Tickets on sale from June 1st to September 30th, good for 90 days, return limit not later than October 31st. Leave San Francisco, Wednesdays and Fridays, 4 p. m.; returning, leave San Diego, Fridays and Sundays, 8 a. m.

Los Angeles to San Diego and return, \$2.50, limitations as above. Steamer train leaves

Salt Lake Route Station, Los Angeles, for San Pedro, 2 p. m., Thursdays and Saturdays.

Great Northern Steamship Company.—Portland to San Diego, by steamer to San Francisco and by rail from San Francisco to San Diego, fare one way, \$31.70. Return fare over same route, subject to usual conditions for railway tickets on receipt certificate plan, \$14.70.

HOTELS

U. S. Grant Hotel, Plaza, San Diego Association Headquarters

City Hotel Address	MINIMUM RATES Rooms without Bath		EUROPEAN PLAN Rooms with Bath	
	S'gl.	D'bl.	S'gl.	D'bl.
SAN DIEGO—				
U. S. Grant Plaza	\$1.50	2.50	2.50	4.00
Maryland F St. bet. 6th and 7th Sts.	1.00	1.50	1.50	2.50
San Diego Broadway and Union St.	1.00	1.50	2.00	3.00
New Southern 6th and B Sts.....	1.00	1.50	1.50	2.00
Barbara Worth Plaza75	1.00	1.50	2.50
Albany Union and E Sts.....	.75	1.00	1.00	1.50
St. James 6th St., bet. E and F Sts.	1.00	1.50	1.50	2.00
Churchill 9th and C Sts.....	1.00	1.50	1.50	2.00
Barstow 4th and A Sts.....	.50	1.00	1.00	1.50
Jewett 4th and A Sts.....	1.00	1.50	1.50	2.00
PASADENA—				
Maryland Colorado St. and Los Robles Ave.	1.50	2.50	2.50	3.00
La Casa Grande Colorada St. and Euclid Ave.....	1.50	2.00	2.00	3.00
Vista del Arroyo 125 S. Grand Ave.....	1.50	2.00	2.00	3.00
LOS ANGELES—				
Alexandria 5th St. and Broadway..	2.00	3.00	2.50	4.00
Van Nuys 4th and Main Sts.....	1.50	2.50	2.50	4.00
Lankershim 7th St. and Broadway..	1.50	2.50	2.50	3.50
Angelus 4th and Spring Sts....	1.00	2.00	2.00	3.00

City	Hotel	MINIMUM RATES		EUROPEAN PLAN	
	Address	Rooms without Bath		Rooms with Bath	
LOS ANGELES (Continued)					
	Rosslyn	S'gl.	D'bl.	S'gl.	D'bl.
	5th and Main Sts.....	1.00	1.50	1.50	2.50
	Hayward				
	6th and Spring Sts....	1.00	1.50	1.50	2.50
	Hollenbeck				
	2nd and Spring Sts....	1.00	1.50	1.50	2.00
	Clark				
	4th and Hill Sts.....	1.50	2.50	2.00	3.00
	Stowell				
	414-418 S. Spring St...	(None)		1.50	
	Gates				
	6th and Figueroa Sts...	1.00	2.00	1.50	2.50
SAN FRANCISCO—					
	Palace				
	Market and New Mont- gomery Sts.	2.00	3.00	2.50	4.00
	St. Francis				
	Geary and Powell Sts.	2.00	3.50	2.50	4.00
	Fairmont				
	California and Mason Sts.	(None)		4.00	7.00
	Stewart				
	353 Geary St.	1.50	2.50	2.00	3.50
	Plaza				
	Post and Stockton Sts.	1.50	2.50	2.00	3.50
	Bellevue				
	Geary and Taylor Sts.	(None)		2.00	3.00
	Terminal				
	60 Market St.	1.00	1.50	1.50	2.00
	Clift				
	Geary and Taylor Sts...	(None)		2.50	4.00

SCIENTIFIC EXCURSIONS FROM SAN DIEGO AS A BASE

There are many feasible excursions to be made in the vicinity of San Diego which are of particular scientific interest. Any of these excursions can be arranged upon two days notice if requested by a sufficient number of persons. Several trips are specifically suggested below. Persons desiring to join one or more of these excursions should notify Dr. F. B. Sumner, La Jolla, California, Chairman of the Excursion Committee, at as early a date as possible. In view of the unusually low rates made for these trips on this occasion it may be necessary to limit the size of parties in certain cases. Further announcements concerning the trips which will be arranged will be made during the meetings on August 9th, 10th, and 11th.

Scripps Institution for Biological Research.—

The dedication exercises for the recently completed museum building and concrete pier of this Institution will be held on the afternoon of Wednesday, August 9th, beginning at 3 o'clock. Members of the societies participating in the San Diego meetings are cordially invited to attend. The Institution will be open to visitors, and all parts of the work now in progress may be seen.

The shore at La Jolla is fantastically eroded in caves and reefs, making interesting beach and reef collecting possible. A group of Torrey pines, forming a peculiar "botanical island," lies four miles up the coast from the Scripps Institution.

Round trip railway fare between San Diego and La Jolla, 40 cents; round trip automobile fare between La Jolla and the Scripps Institution, 25 cents per passenger; if extended to the Torrey pines, 50 cents per passenger in parties of three or more.

Coronado Islands.—A group of precipitous islands and rocks, sixteen miles south of Point Loma, containing rookeries of seals and sea birds, possessing intimate faunistic and floristic relations with the mainland, and displaying abrupt escarpments on the seaward side with marked convolutions in the sharply dipping strata. Daily excursions during August; round trip fare, \$1.00.

San Clemente Island.—Noted for fine examples of uplifted marine terraces, remains of primitive South Coast Indians, and peculiar differences from the main land in respect to flora and fauna. Two day trip by specially chartered launch; expenses per person for party of ten will amount to \$10.00 or \$15.00.

Pala and Perris Valley.—An automobile trip of one day from San Diego to Perris will permit a visit to the gem tourmaline, lepidolite, and kunzite mines near Pala. Pala is of further interest because of the remains of early Spanish settlements and the Indian village there. From Elsinore is obtained an excellent view of the granite peneplain of the Perris valley. Railway connections for Los Angeles may be had at Perris. Automobile

fare from San Diego, round trip, \$6.00 per person.

Foster and Mesa Grande.—The heart of the northern end of the Peninsula Range of mountains of Lower California may be reached by rail at Foster, about 30 miles northeast of San Diego, or by automobile direct from San Diego. From Foster an automobile road extends to Cherry Ranch, near the Mesa Grande mining district, where valuable deposits of gem tourmaline, pink beryl, and garnet have been found. A deposit of topaz is located near Ramona on the way to Mesa Grande. Dumortierite is found near Dehesa which may be reached by a digression from the road to Foster. Round trip automobile fare from San Diego, \$3.50 per passenger.

Campo, Pine Valley, and Viejas Grade.—An excellent opportunity to observe the gradations of fauna and flora between the coast at San Diego and the Cuyamaca Mountains at Campo. One day fare, \$5.00. This trip may be extended for a second day to include Cuyamaca, to the northward on the Pacific Slope, or Mountain Springs, in the desert foothills east of Campo. The latter extension offers a chance to compare the biota of the desert slope with that of the coastal gradient. Expense, including meals, lodging, and automobile fare, about \$8.00 for the two-day trip.

El Centro, Calexico, and Imperial Valley.—Traversing the full range of life in the coastal, mountain, and desert regions, and affording opportunity to examine portions of the geologic and geographic formations of the Salton Sink region. Railway connections at El Centro. Auto-stage fare one way, \$4.00 (one day); round trip fare, \$7.50 (two days).

Otay Valley.—An excellent opportunity to see the topography of the coast foothills and the agricultural activity in the region about San Diego, also the scene of the disastrous flood of Janaury 27th, 1916. Automobile fare, \$1.50.

Kelp Beds.—The "Alexander Agassiz," attached to the Scripps Institution for Biological Research, will make a trip to the extensive kelp beds off shore near San Diego. A

demonstration of the various types of deep sea collecting apparatus used by the "Agassiz" will also be given at this time.

Industries of Special Scientific Interest.—Attention is particularly called to the canneries of the San Diego tuna companies, which will be open for inspection by visiting members of the societies participating in the San Diego meetings. The kelp-potash industry has been developed in San Diego by a plant of the Hercules Powder Co. and by the Swift Fertilizer Plant.

POINTS OF INTEREST IN THE VICINITY OF SAN DIEGO

Among places of general interest in the vicinity of San Diego are: Point Loma, which affords a fine view from high ground of the environs of San Diego, a visit to the old Spanish light house, and a drive through the grounds of the Theosophical Institution; Fort Rosecrans and the Quarantine Station; the headquarters of the Army Aëronautical Corps and School of Aviation on North Island; Coronado, hotel and beach; relics of Mexican life still preserved in the "Old Town"; the Mission of San Diego de Alcalá in the Mission Valley, five miles east of San Diego; and Tia Juana, Mexico, reached by rail and also by a half day's auto-stage trip. The Museum of the San Diego Natural History Society in the Hotel Cecil will be open to visitors at all times.

THE PANAMA-CALIFORNIA EXPOSITION

The Panama-California Exposition at San Diego was organized to celebrate the opening of a new period of development for California upon the completion of the Panama Canal. In the type of buildings constructed along the best lines of Spanish-colonial architecture, the Exposition reflects the culture of old Spain and its influence throughout Spanish-America. The success of this Exposition during 1915 has warranted maintaining it for the year 1916. With increased exhibits it is more than ever a unique Exposition, repre-

sentative of the history and resource of the Southwest.

The anthropological and ethnological collections at the San Diego Exposition, portraying the history of the human race, were provided for and paid for by the citizens of San Diego through the Directors of the Panama-California Exposition. They were assembled by the School of American Archaeology, with assistance from the staff of the Smithsonian Institution, and have been pronounced among the most important ever made. The entire Science and Education Building is devoted to these exhibits.

Among other exhibits of special scientific interest may be mentioned those of the Forest Service, fully illustrating the activities of this Service in the replanting, protection, and scientific utilization of American forests; those of the Bureau of Fisheries, in a special building 120x100 feet, containing a large fresh and salt water aquarium; the exhibits of practical agricultural importance of the Bureau of Plant Industry, the Bureau of Animal Industry, the Bureau of Chemistry, the Office of Public Roads and Rural Engineering, and the displays of the Weather Bureau, including a weather map for the whole of the United States, kept constantly up to date.

The San Diego Historical Society has installed at the Exposition a valuable exhibit of rare books and manuscripts.

For the agriculturist this Exposition will be especially interesting on account of the model farms maintained in every stage of cultivation and production, presenting the typical Californian agricultural industries, scientifically conducted.

SOUTHERN CALIFORNIA

Southern California presents a number of features of general interest for visitors. Among these may be mentioned the trips to Santa Catalina Island and to Mount Lowe and the Alpine Tavern. Several regularly organized excursions may be taken from which the characteristic features of the region may be seen. Among these are the Inside Track Trip through the Pomona Valley and the

vicinity of San Bernardino, Redlands, and Riverside on the Southern Pacific Railway, the Orange Belt Special over the Salt Lake Line, and the Kite Shaped Track Excursion by the Santa Fe Route through the same region. Lines of the Pacific Electric Railway have been extended widely in the vicinity of Los Angeles and afford ready access to the beaches, the San Gabriel Mission, the Ostrich Farm, the motion picture plant at Universal City, and the suburbs of Los Angeles. The South-west Museum, at Avenue Forty-six on the Garvanza car-line, the Museum of History, Science and Art at Exposition Park, and the museum of the Chamber of Mines and Oil, 224 South Spring Street, are well worth visiting. The asphalt pits of Rancho La Brea, from which an extensive collection of remains of Pleistocene animals has been recovered, are situated a few minutes walk from the Rosemary Station of the Santa Monica line of the Pacific Electric Railway. A large display of these fossils is on exhibition at the Museum of History, Science and Art.

Visitors who are interested in desert flora should choose a day train across the Mohave or Colorado deserts if traveling by either the Southern Pacific or Santa Fe routes.

MARINE BIOLOGICAL STATIONS OF CALIFORNIA

Assembly in Science at the Scripps Institution for Biological Research, La Jolla, June 26th to August 5th.

Six courses of general lectures will be given by members of the staff of the Institution upon local coastal physical geography, physical oceanography, messages of marine biology to student and teacher, studies on the characteristic marine fauna and flora of Southern California, heredity, environment and adaption, and the relation of biology to the sciences of man. Address Dr. William E. Ritter, Scientific Director, Scripps Institution for Biological Research, La Jolla, California.

The Marine Biological Station of the University of Southern California at Venice will offer a regular course of instruction in

zoology during the summer session of the University beginning June 29th and continuing for six weeks. The station is equipped with facilities for a limited number of investigators. Dredging and collecting trips will be made frequently during the summer by the "Anton Dohrn". Address Professor Albert B. Ulrey, Director of the Marine Biological Station, University of Southern California, Los Angeles.

The Laguna Beach Laboratory of Pomona College will be open throughout the summer. General courses in marine biology will be given. Opportunities for special research will also be provided. Address Professor William A. Hilton, Pomona College, Claremont, California.

The Marine Laboratory of Stanford University at Pacific Grove will be open for its twenty-fifth summer session for six weeks beginning May 22nd. Courses in general zoology and embryology, and opportunity for advanced study will be provided. Address Professor J. O. Snyder, Stanford University, California.

The Herzstein Research Laboratory of the University of California at New Monterey is available for investigations upon special problems. Address Professor S. S. Maxwell, Department of Physiology, University of California, Berkeley.

MOUNT WILSON SOLAR OBSERVATORY

The Director of the Mount Wilson Solar Observatory cordially invites the mathematicians, astronomers, and physicists of the Pacific Division to visit the shops and laboratories in Pasadena (Santa Barbara Street, near North Lake Avenue) and the Observatory on Mount Wilson. The Mount Wilson Auto-stage Company maintains a daily auto-stage service between Pasadena and the summit, where accommodations for the night may be found at the Mount Wilson Hotel. If time is limited the round trip from Pasadena can be made in a day.

The schedule for the round trip from Los Angeles to Mount Wilson is as follows: leave

Pasadena, corner Raymond and Colorado Streets, 9:45 a.m., arrive Mount Wilson 12 noon, leave Mount Wilson 3 p.m., arrive Pasadena 5 p.m., round trip fare, \$3.00.

LICK OBSERVATORY MOUNT HAMILTON

Members of the Pacific Division of the American Association and their traveling parties are cordially invited to visit the Lick Observatory of the University of California at Mount Hamilton, near San Jose, and to make their presence known to the astronomer in charge. The Observatory is open to visitors daily, from 8 a.m. to sunset, but the telescopes are available for general observation only on Saturday evenings between 7 and 9 o'clock.

Mount Hamilton may be reached by auto-stage leaving San Jose at 8:30 a. m. daily except Sundays, arriving at the Lick Observatory before noon, leaving the Observatory at 1:30 p. m., and reaching San Jose about 4 p. m. Round trip fare, \$3.00. Stage headquarters are the Mount Hamilton Garage, 223 South First Street; telephone, San Jose 968. If notified on the preceding day the stage will call at the Southern Pacific passenger station at 9 a. m. to meet passengers arriving from San Francisco on the train which leaves the Third and Townsend streets station at 7 a. m. A special auto-stage leaves San Jose at 4:30 p. m. Saturday afternoons, reaching the Observatory about 7 p. m.

There are no hotel accommodations at the summit and opportunity is provided for visitors to obtain lunch or dinner at the Smith Creek Hotel, seven miles below the summit. Among San Jose hotels may be named the following:

Hotel Vendome, room and breakfast, \$2.00.
Hotel St. James, room and breakfast, \$1.50.
Hotel Montgomery, room and breakfast, \$1.50.

Alexandria Apartments, 2nd and San Antonio Streets, rooms 75c.

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"NATURE AND SCIENCE ON THE PACIFIC COAST"

For a comprehensive description of the natural features of the Pacific Coast those planning to attend the San Diego meeting of the Pacific Division are especially directed to this handbook issued under the auspices of the Pacific Coast Committee of the American Association in May, 1915. (Paul Elder and Co., San Francisco, \$1.50.)

"A scientific Baedeker of the West. * * * Though professedly written for the scientific traveler, it is not a technical treatise for specialists, but rather a presentation by specialists, each of his own field, for the use and enjoyment of others. * * * It is a rich mine of information tersely told, without effort to adorn or to exploit the resources of this interesting land for the tourist or prospective purchaser of town lot or orchard. It seeks merely to direct the attention of the intelligent traveler to those physical features of the Coast which it may be worth his while to understand." Dial, Chicago, June 10, 1915.

SOCIETIES AFFILIATED

WITH THE PACIFIC DIVISION

A. A. A. S.

ASTRONOMICAL SOCIETY OF THE PACIFIC
SAN FRANCISCO SECTION

AMERICAN MATHEMATICAL SOCIETY
CALIFORNIA SECTION

AMERICAN CHEMICAL SOCIETY
PUGET SOUND SECTION

AMERICAN CHEMICAL SOCIETY
TECHNICAL SOCIETY

OF THE PACIFIC COAST
CORDILLERAN SECTION

GEOLOGICAL SOCIETY OF AMERICA
PACIFIC COAST PALAENTOLOGICAL
SOCIETY

SEISMOLOGICAL SOCIETY OF AMERICA

BIOLOGICAL SOCIETY OF THE PACIFIC

COOPER ORNITHOLOGICAL CLUB

PACIFIC SLOPE BRANCH

AMERICAN ASSOCIATION OF ECONOMIC
ENTOMOLOGISTS

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