San Diego, California: Site of the GSA 1979 Annual Meeting

San Diego, California, will host the 92nd annual meeting of the Geological Society of America from November 5 to 8, 1979. Highlights of the meeting will be the centennial anniversary of the U.S. Geological Survey and recognition of the international geological communities of Canada, Central America, Mexico, and the United States.

The San Diego area has a variety of geologic features and an equable climate that combine to make the city ideal for conventions. The high coastal cliffs, especially at La Jolla, provide excellent exposures of Mesozoic and Cenozoic sedimentary rocks; the inland areas are comprised of the Mesozoic Peninsular Ranges batholiths and their roof pendants. A variety of active processes is evident along the open coastline, in San Diego Bay, and in Mission Bay. Groundwater problems and geologic hazards are evident throughout the metropolitan area and in suburban areas.

San Diego’s location allows for a wide variety of field trips. These will include ground, water, and air trips of local and regional scope, as well as opportunities to visit regions in Mexico. Climatic conditions during early November are usually mild, with some morning fog and generally sunny days with little chance of rain. There is a strong possibility of Santana winds from the desert, which create dry, warm weather with dazzling visibility.

Headquarters for the annual meeting will be the Convention Center at the Town and Country Hotel located in San Diego’s Hotel Circle. Seven associated societies will hold concurrent annual meetings with GSA: Cushman Foundation, Geochemical Society, Geoscience Information Society, Mineralogical Society of America, National Association of Geology Teachers, Paleontological Society, and Society of Economic Geologists.

Special recognition is given to the centennial of the U.S. Geological Survey.

Additional copies of this announcement are available from: Meetings Department, Geological Society of America, 3300 Penrose Place, Boulder, Colorado 80301.

LOCAL TRANSPORTATION

GSA shuttle buses will be provided at no extra cost for convenient transportation between the many hotels in Hotel Circle and the Town and Country Convention Center. BADGES MUST BE WORN TO BOARD THE SHUTTLE BUSES. This service is scheduled from Sunday noon through Thursday afternoon, generally starting at 0700 hours. Additional buses, furnished by the merchants of Mission Valley, also will be running but on a less comprehensive and less convenient route.

Hotel limousines and taxicabs make frequent runs to and from San Diego International Airport, which is only about five miles from Mission Valley, keeping local transportation costs relatively low.

PREREGISTRATION

Preregistration is highly recommended because preregistration fees are substantially lower than on-site registration fees. Preregistration fees will be accepted in U.S. currency only and are as follows:

- Professional: $55
- Student: $28
- Spouse/Guest: $20

To preregister and to make other reservations, use the forms that appear in this announcement. All must register to participate in events associated with
the meeting, except that nonregistered persons may accompany registered delegates to luncheons, dinners, and evening events.

Reservations for field trips and special events must be made NOW. Preregistration for the meeting is required for participation in all field trips and events. Meeting and field trip preregistration forms should be mailed to the Boulder address shown on the preregistration forms. The forms must be postmarked by September 14, 1979. Cancellations must be made in writing and received in Boulder no later than October 5, 1979; fees will not be refunded after that date. NOTE: All cancellations will be subject to a $10 processing fee.

**ON-SITE REGISTRATION**

Only U.S. currency will be accepted during the meeting. On-site registration fees will be as follows:

<table>
<thead>
<tr>
<th>Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>$65</td>
</tr>
<tr>
<td>Student</td>
<td>$32</td>
</tr>
<tr>
<td>Spouse/Guest</td>
<td>$25</td>
</tr>
</tbody>
</table>

Monday – Thursday

<table>
<thead>
<tr>
<th>Type</th>
<th>Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional</td>
<td>$32</td>
</tr>
<tr>
<td>Student</td>
<td>$12</td>
</tr>
</tbody>
</table>

Registration material and tickets may be picked up beginning at 1030 hours on Sunday, November 4, 1979, in the Atlas Ballroom Foyer of the Town and Country Hotel Convention Center. The registration area will be open the following hours:

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sunday</td>
<td>1030–1800</td>
</tr>
<tr>
<td>Monday</td>
<td>0700–1700</td>
</tr>
<tr>
<td>Tuesday</td>
<td>0800–1700</td>
</tr>
<tr>
<td>Wednesday</td>
<td>0800–1700</td>
</tr>
<tr>
<td>Thursday</td>
<td>0800–1200</td>
</tr>
</tbody>
</table>

**HOUSING INFORMATION**

All registrants are urged to make application for housing as soon as possible. The San Diego Convention and Visitors Bureau will act as housing bureau. Reservation forms are included in this announcement and should be sent to GSA Housing Bureau, 1200 Third Avenue, Suite 824, San Diego, California 92101 before October 5, 1979. If after making reservations you find it necessary to change them, write directly to the housing bureau at the above address. NOTE: The mailing address of the housing bureau is NOT the same as the mailing address for preregistration and field trip forms.

Limited student housing (mostly floor space) will be available at residences of geology majors at San Diego State University. Reservation cards will be sent on a first-come, first-served basis, providing a self-addressed, stamped envelope with an indication of the number of spaces required is sent to: Associated Geology Students, Department of Geological Sciences, San Diego State University, San Diego, California 92182. Attention: Student Housing.

**LOCATOR BOARD**

A booklet of all preregistrants with hotel reservations will be included in the meeting packet. A locator board for posting of on-site registrants will be set up in the registration area. If you have preregistered and are staying at one of the recognized hotels or motels listed on the housing form, your name will be listed in the booklet. If, however, you make housing reservations after the deadline or are planning to stay with friends in the San Diego area, you will need to notify the Meetings Department to have your name listed.

During the annual meeting, if your name is not listed on the board, please notify the person at the locator-board desk, which will be set up in the registration area.

**SPECIAL EVENTS**

**Sunday, November 4**

City Tour and Harbor Cruise. A pleasant afternoon as an introduction to San Diego is provided on Sunday, November 4, by a one-hour cruise of San Diego Harbor, aboard a comfortable excursion boat. A bus tour will follow, which will include the modern downtown complex; the colorful Embarcadero, which is home port for the largest tuna fishing fleet in the nation; the palm-lined resort and marine developments of man-made Harbor Island and Shelter Island in San Diego Bay; the broad and sparkling view of San Diego Bay from the Old Lighthouse area of Cabrillo National Monument on the tip of Point Loma; the municipal aquatic playground of Mission Bay Park; the elegant coastal residential areas of La Jolla; and Balboa Park, which contains the world-famous San Diego Zoo. The tour bus leaves the Town and Country Convention Center at 1215 hours and returns at 1700 hours. The cost is $8, which covers both the Harbor Cruise and the bus transportation. Colorful brochures will help orient participants and will supplement narration by experienced tour guides.

**Monday, November 5**

GSA Presidential Address. Dr. Leon T. Silver, GSA President, will present his presidential address on Monday, November 5, at 1600 hours, in the Town and Country and the San Diego Rooms of the Town and Country Hotel Convention Center. All meeting participants are urged to attend.

**Tuesday, November 6**

GSA Cocktail Party, Annual Dinner, and Medal Presentations. These events will be held on Tuesday, November 6, in the Town and Country Hotel Convention Center. The cocktail party is scheduled from 1800 to 1845 hours, the annual dinner from 1900 to 2015 hours, and the Penrose and Day Medal presentations from 2015 to 2045 hours.

Shortly after the medal presentations, there will be a special program, organized by President Leon T. Silver, celebrating the centennial of the U.S. Geological Survey. Attendance at the annual dinner is not required for admittance to this program.

**Wednesday, November 7**

Sea World Night. Appropriate to the close ties of San Diego to the sea, an evening at Sea World will combine an enjoyable social event with an opportunity to experience outstanding aquatic enter-

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Prepared from contributions from the staff and membership by John C. Frye, Executive Director; Jo Fogelberg, Publications Manager; and June Thomas, Judy Hall, Barbara Patterson, and Ann H. Fogel, Production Assistants.
To reserve your hotel accommodation in San Diego in November, please complete and mail the top portion of this form to:

GSA Housing Bureau
1200 Third Avenue, Suite 824
San Diego, CA 92101

Please PRINT or TYPE information requested.

NAME: ____________________________
ADDRESS: ____________________________
CITY: ____________________________ STATE: __________ ZIP: ________

HOTEL PREFERENCE
1st Choice ____________________________
2nd Choice ____________________________
3rd Choice ____________________________
Special Requirements ____________________________

Arrival Date ___________ ___________/_________ a.m. _______ p.m.

LIST NAMES OF OCCUPANTS

DEPARTURE DATE ___________/_________ a.m. _______ p.m.

INSTRUCTIONS AND INFORMATION FOR HOTEL RESERVATIONS

1. Requests for reservations must be received NO LATER THAN OCTOBER 5, 1979. RESERVATIONS WILL BE ACCEPTED ONLY ON OFFICIAL HOUSING FORM. DO NOT CALL FOR RESERVATIONS.

2. Confirmation will be sent directly to you from the GSA housing bureau. Your confirmation will indicate if a room deposit is required.

3. If after making reservations you find it necessary to change, write directly to the GSA housing bureau, 1200 Third Avenue, Suite 824, San Diego, CA 92101.

4. All cancellations should be made with the GSA housing bureau.

<table>
<thead>
<tr>
<th>HOTEL NAME</th>
<th>SINGLE</th>
<th>DOUBLE</th>
<th>TWINS</th>
<th>SUITES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Town and Country (headquarters)</td>
<td>$30-40</td>
<td>$35-45</td>
<td>$35-45</td>
<td>$75-250</td>
</tr>
<tr>
<td>Hanalei Hotel</td>
<td>$30</td>
<td>$35</td>
<td>$35</td>
<td></td>
</tr>
<tr>
<td>Holiday Inn of Mission Valley</td>
<td>$28</td>
<td>$33</td>
<td>$33</td>
<td></td>
</tr>
<tr>
<td>Kings Inn</td>
<td>$26</td>
<td>$31</td>
<td>$31</td>
<td></td>
</tr>
<tr>
<td>Mission Valley Inn</td>
<td>$30</td>
<td>$35</td>
<td>$35</td>
<td></td>
</tr>
<tr>
<td>Seven Seas Lodge</td>
<td>$28</td>
<td>$32</td>
<td>$34</td>
<td></td>
</tr>
<tr>
<td>Stardust Hotel (1 Bedroom Suites Only)</td>
<td>$32</td>
<td>$34</td>
<td>$38</td>
<td>$85</td>
</tr>
</tbody>
</table>

*Room rates subject to local city tax

HOUSING BUREAU CLOSES ON OCTOBER 5, 1979. SPECIAL RATES APPLY ONLY TO THAT DATE.
THE GEOLOGICAL SOCIETY OF AMERICA

1979 Annual Meeting
San Diego, California, November 5-8, 1979

PREREGISTRATION FORM

Make all checks payable in U.S. funds to:

1979 GSA ANNUAL MEETING
(DO NOT SEND CASH.)

Send this preregistration form with your check to:

1979 GSA ANNUAL MEETING REGISTRATION
3300 PENROSE PLACE
BOULDER, CO 80301

NOTE: All field trip participants MUST register for the meeting. In addition, registration for all field trips must be done on the official field trip form (following page). To facilitate processing and refunds, please send a separate check for field trip registrations.

FOR OFFICE USE ONLY

Balance Due $ Refund $ 

Received Check No. 

Comments: 

Name (Last) (First) (Middle) 

Mailing Address (City) (State/Province) (Zip/Country) 

(Street) 

Phone ( ) (Business) (Home) 

Institution/Employer (Abbreviate for badge) 

Affiliations: GSA GIS GS MSA NAGT PS SEG AAPG AGU SEPM 

(Please circle all societies to which you belong.) 

SPouse/Guest 

(Spouse/Guests are not entitled to attend technical sessions.) 

Name (Last) (First) (Middle) 

Mailing Address (City) (State/Province) (Zip/Country) 

(Street) 

Price each No. Amount

Professional ........................................ (1) $55.00 

Student ........................................... (2) 28.00 

Spouse/guest ................................... (3) 20.00 

SPOUSE/GUEST ACTIVITIES 

Date
San Diego Wild Animal Park .............. Nov. 5 ...... (4) 12.00 

Old Town Lunch and Shopping .......... Nov. 5 ...... (5) 16.50 

Two-hour Harbor Cruise .......... Nov. 5 ...... (6) 7.50 

San Diego Metropolitan Tour .......... Nov. 6 ...... (7) 5.50 

Extended Shopping in Tijuana ........ Nov. 6 ...... (8) 20.00 

Hotel del Coronado ........ Nov. 6 ...... (9) 13.00 

San Diego Wild Animal Park ........ Nov. 7 ...... (10) 12.00 

Deluxe Lunch and Shopping Tour of Tijuana 

Nov. 7 ...... (11) 20.00 

SPECIAL EVENTS 

City Tour and Harbor Cruise ........ Nov. 4 ...... (12) 8.00 

Sea World Night ........ Nov. 7 ...... (13) 20.00 

Annual Dinner ........ Nov. 6 ...... (14) 15.00 

Coal Geology Division Luncheon .......... Nov. 5 ...... (15) 8.00 

Engineering Geology Division Dinner ........ Nov. 5 ...... (16) 11.00 

Geophysics Division Luncheon .......... Nov. 7 ...... (17) 8.00 

History of Geology Division Luncheon ........ Nov. 6 ...... (18) 8.00 

Hydrogeology Division Luncheon .......... Nov. 6 ...... (19) 8.00 

Quaternary Geology & Geomorphology Division Luncheon .......... Nov. 6 ...... (20) 8.00 

MSA Luncheon ........ Nov. 6 ...... (21) 8.00 

NAGT Luncheon ........ Nov. 5 ...... (22) 8.00 

PS Luncheon ........ Nov. 6 ...... (23) 8.00 

SEG Luncheon ........ Nov. 7 ...... (24) 8.00 

Total $ 

FOR OFFICE USE ONLY
IMPORTANT – PLEASE READ

• All field trip participants must register for the meeting.
• Registration for all field trips must be done on the official field trip form. Use a separate form for each registrant.
• Please use ballpoint pen or typewriter.
• Full payment MUST accompany registration.
• Field trip preregistration forms must be postmarked NO LATER THAN September 14, 1979.
• Cancellations must be in writing and received by headquarters no later than October 5 to be eligible for refund. Refunds will be subject to a $10 processing fee.

FIELD TRIP REGISTRATION FORM
SAN DIEGO '79
San Diego, California
November 5-8, 1979

Make check or money order payable to:
U.S. funds to:
1979 GSA FIELD TRIPS
DO NOT SEND CASH

Send this field trip form with your payment to:
1979 GSA FIELD TRIPS
3300 PENROSE PLACE
BOULDER, CO 80301

TYPE OR PRINT CLEARLY

REGISTERED AS □ Professional □ Student

Name

(Last) __________________________________________ (First) __________________________ (Middle) __________________________________________

Mailing Address __________________________________________

(City) __________________________________________ (State/Province) __________________________ (Zip Code/Country) ________________

Phone __________________________ (Business) __________________________ __________________________ (Home) __________________________

Institution/Employer __________________________________________ (Abbreviate for badge)

FIELD TRIPS

Pre-Meeting
1. Quaternary terraces, southern California, Nov. 3-4 . . . . . . . (1) . . $45
2. Santa Cruz Island, Nov. 2-3 . . . . . . . . . . . . . . . . . . . (2) . . $80
3. Colorado Plateau flight, Nov. 3-4 . . . . . . . . . . . . . . . . . . (3) . . $400
4. Salton Basin geomorphology, Nov. 2-3 . . . . . . . . . . . . . . . . . (4) . . $65
5. Pegmatites, San Diego County, Nov. 4 . . . . . . . . . . . . . . . . . (5) . . $37
6. Death Valley, Nov. 1-4 . . . . . . . . . . . . . . . . . . . . . . . . (6) . . $145*
7. Geothermal, Salton Trough, Nov. 3-4 . . . . . . . . . . . . . . . . . (7) . . $70
8. Prehistoric earthquakes, San Andreas Fault, Nov. 4 . . . . . . . . (8) . . $40
9. Borates, southeast California deserts, Nov. 3-4 . . . . . . . . . . (9) . . $90
10. Vizcaino Peninsula, Baja California Sur, Oct. 30-Nov. 4 . . . . (10) . . $350
11. Cretaceous deep-sea fan, San Diego, Nov. 4 . . . . . . . . . . . (11) . . $25
12. Baja California, Mexico, Nov. 1-4 . . . . . . . . . . . . . . . . . . (12) . . $210
13. Northern Baja California, Mexico, Nov. 2-4 . . . . . . . . . . . (13) . . $135
14. Groundwater, southern California, Nov. 3 . . . . . . . . . . . . . . (14) . . $15
15. Coal, Black Mesa, Arizona, Nov. 3-4 . . . . . . . . . . . . . . . . . (15) . . $140
16. Detachment faulting, Colorado River, Nov. 2-4 . . . . . . . . . (16) . . $120

During Meeting
17. San Diego (mini-trips) Nov. 5, 6, 7, 8

On-site registration. Indicate interest. (17) Yes □ No □

Postmeeting
18. Eocene depositional systems, San Diego, Nov. 8-9 . . . . . . . (18) . . $30
19. Geologic hazards, San Diego, Nov. 8 . . . . . . . . . . . . . . . . (19) . . $25
20. Pegmatites, San Diego County, Nov. 9 . . . . . . . . . . . . . . . (20) . . $37
21. Batholith, San Diego County, Nov. 9-11 . . . . . . . . . . . . . (21) . . $145
22. Southern San Andreas fault, Nov. 8-11 . . . . . . . . . . . . . . . . (22) . . $155
23. Miocene strata, southern and Baja California, Nov. 8-10 . . . (23) . . $70
24. Ophiolite, Point Sal, Nov. 8-10 . . . . . . . . . . . . . . . . . . . (24) . . $75
25. Scuba, southern California, Nov. 8-9 . . . . . . . . . . . . . . . . (25) . . $90
26. Northern Baja California, Mexico, Nov. 8-10 . . . . . . . . . . (26) . . $135
27. Northern Sonora, Mexico, Nov. 8-11 . . . . . . . . . . . . . . . . (27) . . $155

TOTAL

*Price excluding lodging and food: $85

NOTE: Participants will be selected on a first-come, first-served basis.

On-site registration will be possible for those trips not fully subscribed.

STATUS COLUMN CODES

✓ = Registration accepted F = Field trip filled
C = Field trip cancelled S = Registrant is standby

FOR OFFICE USE ONLY

Balance Due $ _______ Refund $ _______

Received __________ Check No. __________

Comments: __________________________

__________________________

__________________________
Total cost for this memorable evening is $20.

SCIENCE THEATER

The Science Theater will be located in the Santa Fe, Helix, and Del Mar Rooms in the Town and Country Hotel Convention Center during the following hours:

- Sunday 1300–1630
- Monday 0900–1600
- Tuesday 0900–1600
- Wednesday 0900–1600
- Thursday 0900–1200

The Science Theater will provide registrants with an opportunity to view, during technical session hours, an absorbing program of geologically oriented films. In charge is John S. Shelton, P.O. Box 48, La Jolla, CA 92038.

EXHIBITS

Exhibit space will be available in the Convention Center and Country Hotel. If your university, organization, or company is interested in exhibiting, please write or call: Meetings Department, Geological Society of America, 3300 Penrose Place, Boulder, CO 80301, (303) 447-2020.

GROUP ACTIVITIES

Space assignments for meetings, break- fasts, luncheons, dinners, and cocktail parties have been made, and no further space is available for group events.

GSA COMMITTEE ON MINORITIES

The one-day program, sponsored by the Committee on Minorities in the Geosciences, will be held Tuesday, November 6, at the Town and Country Hotel, headquarters for the GSA Annual Meeting. The program will focus on career opportunities in geology, geophysics, and hydrology for secondary-school teachers, career counselors, and minority students from the San Diego area. There will be an introductory session giving the participants an overview of the geological sciences, followed by a film and slide session. The program will also include a panel discussion and informal discussion groups. A field tour for part of the day is being considered.

SPouse/GUEST PROGRAM

A wide variety of spouse/guest activities has been planned for those not attending the technical sessions. REGISTRATION AS A SPOUSE/GUEST AT THE ANNUAL MEETING IS A PRE-REQUISITE FOR PARTICIPATION IN THE SPOUSE/GUEST PROGRAM AND FOR THE USE OF THE HOSPITALITY CENTER BADGES MUST BE WORN.

The tours and related spouse/guest activities will highlight some of the most interesting aspects of metropolitan San Diego and the surrounding countryside, as well as neighboring Tijuana, Mexico. Costs listed include transportation, admission fees, lunch, tax, and gratuities, except where noted otherwise. Please note that tours are restricted to adults only. All tour buses depart from and return to the foyer of the Town and Country Convention Center.

Monday, November 5

San Diego Wild Animal Park. This recent adjunct to the famous San Diego Zoo is situated in an authentic "African bush" setting in the San Pasqual Valley east of Escondido, about an hour's drive north of the Convention Center. The tour arrives at the Park early enough for participants to take full advantage of all attractions at an individual pace: a monorail ride along the edge of large compounds, where a wide variety of African and Asian animal herds roam through savanna and veldt landscapes as they would in their native lands; spectacular bird-of-prey shows; and dozens of smaller exhibits. The park facilities are not set up for group luncheons, but a variety of snack bars and a restaurant allows each participant to satisfy individual tastes for lunch.

The tour bus leaves the Convention Center at 0930 and returns at 1600 hours. An experienced tour guide on the bus will provide commentary during the trip and to and from the Park. The cost is $12, not including lunch.

Old Town Lunch and Shopping. Old Town marks the location of the first permanent European settlement in what is now California. The little cluster of adobe buildings at the base of Presidio Hill has evolved into an interesting complex of historic landmarks, museums, art galleries, shops, and restaurants. Presidio Hill itself is now a park with important archaeological sites. San Diego's nucleus shifted in the early 1870s to the present downtown site, but Old Town has remained relatively untouched by "progress." Many of its original buildings have been preserved and carefully restored; others have been rebuilt.
Tour buses leave the Convention Center at 1100 hours and go directly to an authentic Mexican restaurant in Old Town for lunch. Lunchtime is made even more enjoyable by gaily decorated tables, music by roaming mariachis, a personal gift for each participant, and a fashion show. A no-host bar is provided.

During the afternoon, participants are free to roam, individually or in small groups, through the colorful shops and historic buildings, but the tour bus must leave promptly at 1500 hours and return to the Convention Center.

The tour is limited by luncheon facilities; reservations by preregistration are highly recommended. Cost is $16.50.

**Two-Hour Harbor Cruise.** This intimate look at San Diego's waterfront, marine industries, and naval facilities is more comprehensive than the cruise during Sunday's tour of San Diego. This cruise covers 25 miles in a circuit around the inner San Diego Bay and out as far as the tip of Point Loma, affording a water-based view of aircraft traffic over Lindbergh Field and North Island Naval Air Station, boat traffic in naval and commercial activities, and the aquatic recreational developments for which San Diego is noted. Abundant sea life—pelicans, sea lions, cormorants, and many other interesting species—further enliven the trip.

Glass-enclosed cabins on the cruise boat make sightseeing comfortable, regardless of weather, but San Diego's usually sunny weather allows open-air viewing from the decks, with only a sweater or jacket for warmth.

The tour bus leaves the Convention Center at 1300 and returns at 1630 hours. Cost is $7.50.

**Tuesday, November 6**

San Diego Metropolitan Tour. This tour covers the same features as the Sunday tour, except for the Harbor Cruise, but includes also a brief stop at the oceanarium at Scripps Institution of Oceanography in La Jolla.

The tour leaves at 0900 and returns at 1300 hours, in time for participants to have a late lunch. Cost is $5.50.

Deluxe Lunch, Shopping, and Sightseeing in Tijuana. This tour offers participants a visit to Tijuana, the gateway to Baja California, with its blend of modern and old Mexico, with the opportunity to sample diverse shops and open-air markets, which contrast strikingly with those in nearby San Diego. Tijuana has been designated as a duty-free zone, with high-quality imported merchandise at substantial savings over U.S. prices. Shoppers may bring back a maximum of $100 worth of goods without paying duty.

Itinerary includes downtown Tijuana, the new shopping area at Agua Caliente racetrack complex (including a government store), and a superb Mexican restaurant for lunch (with a complimentary margarita). Experienced tour guides will accompany each bus, and they can help locate just the right store for special-interest items. A comprehensive booklet will provide a nice souvenir for each participant and will explain not only the Mexican cuisine but also will provide many interesting facts about the sightseeing and shopping.

The tour bus will leave the Convention Center at 0900 and will return at 1600 hours. Cost is $20, including lunch and guidebook.

**Hotel del Coronado.** This tour will cross the Bay Bridge to Coronado and North Island and will proceed first to the marina-oriented Coronado Cays on the Silver Strand sand spit. The highlight of the trip will be a visit to the famous old Hotel del Coronado for lunch, followed by a guided tour of the elegant seaside hotel. First opened in 1888, this hotel is a reminder of a bygone era. Its Victorian styling resembles that of a castle, complete with turrets, cupolas, and rambling red roof. The Hotel del Coronado has hosted countless celebrities, including several U.S. presidents and the Duke and Duchess of Windsor. The hotel has undergone extensive restoration in recent years and still entertains its guests in lavish style.

The tour bus leaves the Convention Center at 1000 and returns at 1445 hours. The cost is $13, including lunch.

**Wednesday, November 7**

San Diego Wild Animal Park. This tour is a repeat of the Wild Animal Park tour on Monday, except that this tour leaves the Convention Center at 0900 and returns at 1530 hours. Cost is $12, not including lunch.

Deluxe Lunch, Shopping, and Sightseeing in Tijuana. This is the same tour as on Tuesday, November 6, except that tour buses will leave the Convention Center at 0830 and will return at 1530 hours. Cost is $20, including lunch and guidebook.

**EMPLOYMENT INTERVIEWS**

Employers of earth scientists and those of you who are seeking jobs are invited to join us in San Diego for the tenth annual employment interview service. All interested employers with job openings are urged to submit their job requirements and receive a computer printout of all the qualified applicants on our file. The minimum fee is $45 for two specialty listings and $12 for each additional listing. Booth rental for interviews is available at a nominal fee. Staff will be available to help with the scheduling of interviews.

Applicants who attended the annual meeting last year reported that interviewing through this service was extremely helpful in their job search. The applicant fee is $15 per year and although you may be unable to join us in San Diego, now is an excellent time to send us your application as your qualifications will be distributed to some 60 employers across the country.

Applications for both employers and applicants appeared in the June issue of GSA News & Information. Application forms and additional information may be obtained by writing:

Charlene Bicknell, Membership Coordinator
Geological Society of America
3390 Penrose Place
Boulder, CO 80301
Phone: (303) 447-2020

**NOTE TO APPLICANTS:** The deadline for application acceptance is September 21, 1979. Any application postmarked after that date will be accepted and put on file, but it will not appear on the computer printout that is sent to employers prior to the annual meeting.

**FUTURE EMPLOYMENT OPPORTUNITIES**

A forum on Future Employment Opportunities in the Geological Sciences is designed to aid students who are seeking jobs and to aid advisors of future geologists. It will also be of interest to potential employers, because it will provide an overview of the employment situation for earth scientists in governmental, industrial, and academic fields.


AUGUST 1979
HOSPITALITY CENTER

Relaxation and light refreshments will be provided to registered guests from Sunday through Thursday, November 4 to 8, in the exotic Tiki Hut near the Convention Center at the Town and Country Hotel. BADGES MUST BE WORN.

Hostesses will help plan individual activities and supply information about local features. Members of the Guest Committee are looking forward to welcoming each of you to San Diego.

TECHNICAL PROGRAM

Symposia

1. Earthquake Hazards and Prediction: Geophysics Division, GSA; James N. Brune and Kerr E. Sieh
2. Depositional Processes in Continental Margin Basins: Michael E. Field and Donn S. Gorsline
4. Mesozoic and Cenozoic Microplate Tectonics of the Pacific Continental Margins: John Hillhouse and David Jones
5. The Nature and Origin of Granitic Magmas: Bruce Chappell
6. Miocene Paleooceanography: CENOP; James P. Kennett and Samuel M. Savin
7. The Evaluation of North American Coal Resources: Coal Division, GSA; Jack A. Simon and Charles D. Masters
8. Collection Development in Geoscience Libraries: Geoscience Information Society; Rosalind Walcott
10. Properties of Silicate Liquids: Mineralogical Society of America; Bjørn Mythen
11. Oxygen and Carbon Isotopes in Foraminifera: Cushman Foundation; Wolfgang H. Berger and Allan W. H. Bé
13. Project CLIMAP: Progress in Understanding Quaternary Climatic Change: W. F. Ruddiman and W. L. Prell
14. Recent Advances in Analytic Methods Applicable to Archaeological Geology: Archaeological Geology Division, GSA; William R. Farrand
15. Perspectives on Government and Science: Occasioned by the Centennial of the U.S. Geological Survey: M. Gordon Wolman
16. Water Quality Management: Hydrogeology Division, GSA; John F. Mann, Jr., and Darwin Knochenmuss
17. Hydrothermal Alteration of the Oceanic Crust (or Deeper?): Geochemical Society; Debra S. Stakes and Michael J. Mott
18. The Environmental Constraints and Impacts Related to the Extraction of Uranium Resources: GSA Committee on Geology and Public Policy; Dawn S. Kaback and Donald D. Runnels
23. Organic Geochemistry Correlations: Organic Geochemistry Division of the Geochemical Society; Colin Barker (full day Sunday)
24. Environmental Geology: Do Academic Programs Meet Current Needs?: National Association of Geology Teachers; Russell Utgard and James Hoffman (Sunday p.m.)

SPECIAL COURSES


American Geological Institute-National Association of Geology Teachers. Workshop; Teaching Problem-Solving Skills in Geology: To be held November 3-4, 1979. A workshop on innovative teaching techniques preceding the GSA meetings in San Diego, California. Sponsored by the American Geological Institute and the National Association of Geology Teachers. Enrollment limited to 30 participants. Fee: $45 (including all course materials). For information write: William H. Matthews III, Director of Education, American Geological Institute, Box 10031, Lamar University Station, Beaumont, TX 77710.


Paleontological Society. Short Course in Arthropods. To be held November 4, 1979, 0900 to 1700 hours, in the Town and Country Hotel. For schedule of program and information, write organizer: Frederick Schram, San Diego Natural History Museum, P.O. Box 1390, San Diego, CA 92112.

MSA Workshop on Asbestos Minerals. No more information available at press time. Watch for announcement in following issues of GSA News & Information and in the Annual Meeting Abstracts with Programs.

FIELD TRIPS

Note: All field trip registrants MUST ALSO register for the meeting.

Registration

Preregistration for field trip is VERY IMPORTANT. Use the official field trip form included in this announcement. Field trip preregistration forms must be postmarked no later than September 14, 1979. On-site registration MAY be possible for those trips not fully subscribed. Participants will be selected on a first-come, first-served basis. Participants should be prepared to make their own arrangements for transportation, lodging, and meals.
not specified in the field trip descriptions. Additional information on some trips is available upon request to GSA headquarters. Beyond that, questions may be answered by the general field trip chairman; write or call Patrick L. Abbott, Department of Geological Sciences, San Diego State University, San Diego, CA 92182, (714) 286-5591.

Cancellations
Cancellations of field trip reservations must be made in writing and must be received at headquarters no later than October 5, 1979, to be eligible for refund. Refunds will be subject to a $10 processing fee.

Weather and Clothing
Early November weather in the southwestern United States and northwestern Mexico is usually warm and sunny. Although rain from an early winter storm is possible, it is even more likely that Santa Ana winds from the deserts to the east will create warm, dry weather with dazzling visibility. Medium-weight jackets should provide ample protection.

PRE-MEETING


Emphasis on late Quaternary tec tonic history of coastal southern California as expressed in deformed marine terraces dated by uranium-series, amino-acid stereochromatology, and carbon-14 techniques. The trip will begin at Point Loma in San Diego, where a 120,000-year uranium-series age from fossil corals makes the Nestor terrace one of only two confidently dated Pleistocene terraces on the west coast. Results of moderate uplift and deformation of the Nestor and other terraces will be seen on the drive to Camp Pendleton and Dana Point, where a larger series of terraces records a greater interval of time and more rapid tectonic uplift. On the way to the classic terrace sequence of the Palos Verdes Hills a stop will be made at one of the historical San Pedro localities to see part of the Los Angeles basin Pleistocene stratigraphic section. Most of the second day will be spent between Ventura and Carpenteria, where a 40,000-year-old terrace rises from sea level to 400 m on the south flank of the Ventura Avenue anticline, and a Holocene surface is approximately 10 m above the sea.

Cost: $45. Includes bus fare, lodging in Ventura, and guidebook.


Group will examine complex stratigraphic relations within Tertiary sedimentary rocks and will walk through part of the crystaline basement complex. Day 1: Half of the group will take an arduous, all-day hike over rugged terrain; the other half will drive to the west end of the island. Day 2: The groups will switch. The hiking group will examine the contact relations between the Santa Cruz Island schist and the basal conglomerate and breccia of the overlying Miocene Blanca Formation, and examine the complex stratigraphic relations within the Blanca Formation, which includes units of tuffaceous volcaniclastic sandstone, conglomerate, and breccia derived in part from reworked silicic ash-flow tuffs. The group at the west end of the island will inspect channelized conglomerate facies of a submarine fan complex in the Eocene Jolla Vieja Formation and coarse-grained facies of the Miocene San Onofre Breccia, the Vaqueros and the Blanca formations. At Near Point, several kilometers to the west of the breccia facies, the sequence grades into thin-bedded, fine-grained sandstone and siltstone with lenses of pebble conglomerate. Intertonguing relations between the San Onofre Breccia and Rincon formations can be seen at Near Point.

Cost: $80. Includes roundtrip airlift from Oxnard, lodging on island, jeep transportation, 1 breakfast, 2 lunches, and 1 dinner. Participants must be ready to hike up to 10 miles over rugged terrain. Participants must bring sleeping bag, a small backpack, and canteen.

3. Roundtrip flight to Colorado Plateau. Saturday and Sunday, November 3 and 4. (Should weather prevent, trip will be offered on Thursday and Friday, November 8 and 9, if quotas can be met.) Twin-engine, high-wing aircraft–max. 24. Leaders: J. S. Shelton, J. C. Crowell, and G. A. Davis.

Emphasis on large structures and geomorphology with opportunities for photography. Weather permitting, features seen will include: Salton Basin folds and shorelines; Martinez landslide; trace of San Andreas fault; plutons; Quaternary volcanism; playas, bajadas, and dune complexes; Death Valley faults, fans, shorelines; Keystone and Muddy Mountain thrusts; Frenchman Mountain faults; Weiser Bowl; Virgin anticline; Hurricane fault; Zion and Bryce; Pink, Grey, White, and Vermillion Cliffs; Lake Powell; Waterpocket and other monoclines; Henry Mountains; incised meanders of the San Juan River; diatremes; Monument Valley; Navajo Mountain; Grand Canyon stratigraphy, unconformities, structures, and volcanism; Lower Colorado River; Whipple Mountains gneiss dome and detachment blocks; Algodones dunes; Laguna Salada and southern Peninsular Ranges.

Cost: $400. Includes roundtrip airlift, lodging, 2 lunches, and guidebook. Trip is weather-sensitive and subject to last-minute modification, postponement, or cancellation.


Trip will visit the Indio Hills badlands, uplifted and deformed along two branches of the San Andreas fault, well displayed native palm oases, laterally offset streams, headed streams, deflected streams, fault scarps, pressure ridges, shutter ridges, stream captures, beheaded alluvial fans, and deformed erosional surfaces. Stop at the relict beaches of Lake Cahuilla with good examples of beach ridges, dune fields, and barrier beaches. Stop at 96-km-long Algodones dune chain and observe mega-barchans of disputable origin. Second day visits include Split Mountain Canyon, where arid-climate stream erosion is well displayed along with good exposures of Late Tertiary anglomerates, mud flows, and lacustrine and shallow marine facies; well-formed barrier dunes near the southwest corner of the Salton Sea; truckhven pediment and desert pavement with at least three erosional surfaces, probably all of Quaternary age; shoreline features on the east face of the Santa Rosa Mountains include calcar-eous tufa-coated rocks, boulder beaches, bayhead-barrier beaches, and wave-cut cliffs; little-known Martinez Mountain rockslide whose vertical fall was about 1,800 m and whose volume is estimated to be between 200 and 300 million m³.

Cost: $65. Includes bus fare, lodging in El Centro, 2 lunches, and guidebook.


Mineralogy and petrology of well-exposed bodies of gem and lithium-bearing pegmatites within the Pala and Mesa Grande pegmatite districts. The tour will include stops for pegmatite inspection and collecting at two active gem mines, the Stewart near Pala and the Himalaya near Mesa Grande, and shorter stops to observe the southern California batholith and the Elsinore fault zones.

Cost: $37. Includes bus fare, deli box lunch, guidebook, and maps.


Emphasis on tectonics and Precambrian stratigraphy. Features to be inspected include Mesoicoic thrust-fault belt west of Las Vegas, upper Precambrian to Cambrian sedimentary section, Death Valley fault zone, Cenozoic extension and low-angle faults, type area for chaos of Noble, tufa-backs, Cenozoic volcanic and sedimentary rocks, Amargosa aureclog, faulted Quia-
ternary section, and much, much more. Quality of geologic exposures in the Death Valley region is outstanding. Several short hikes are planned for detailed observations.

Cost: $145 ($85 rate available for those who sleep outside and provide own food; lodging available for 40 people only.) Includes bus fare, 3 nights' lodging, 3 breakfasts, 4 lunches, 3 dinners, and guidebook.

7. Geology and geothermics of the Salton Trough. Saturday and Sunday, November 3 and 4. Bus = max. 78. Leaders: W. A. Elders, A. de la Peña, and S. Biehler. Emphasis on sedimentation, faulting, volcanism, and hydrothermal manifestations associated with the geothermal fields of the Colorado River delta at the head of the Gulf of California. First day in Imperial Valley visiting East Mesa, Salton Sea, and Brawley geothermal fields. Overnight in Mexicali, Baja California. Second day at Cerro Prieto power plant, then transit Pinusellar Ranges in Mexico to Tijuana, then return to San Diego.

Cost: $70. Includes bus fare, lodging in Mexicali, 2 lunches, and guidebook. Non-United States citizens and naturalized United States citizens must have necessary border-crossing papers in hand before trip starts.

8. Some prehistoric earthquakes on the San Andreas fault, Los Angeles area. Sunday, November 4. Bus = max. 42. Leader: K. Sieh. Examine sites along the San Andreas and San Jacinto faults, within 100 km of Los Angeles, in order to understand aspects of their Holocene behavior. Planned stops include Pallet Creek, where many large earthquakes are recorded in sediments deposited during the last several thousand years; Wrightwood, where trees were tilted by fault slipage underfoot during the great 1857 earthquake; Cajon Pass, where offset Holocene (?) terraces suggest the rate of fault slip; and San Bernardino, where faulted late Holocene sediments are being studied to determine earthquake recurrence along the San Jacinto fault.

Cost: $40. Includes bus fare, 1 lunch, 1 dinner, and guidebook.

9. Borate deposits of the southeast California deserts. Saturday and Sunday, November 3 and 4. Bus = max. 90. Leaders: G. I. Smith, B. C. Burchfiel, and J. F. Mcllister. Trip will visit all three currently active borate-producing properties in the United States and some formerly active sites. The three active properties are notably different in both geology and production methods. Tertiary calcium borates are mined underground at Death Valley, Tertiary sodium borates are mined by open-pit methods at Boron, and Quaternary sodium borate brines are pumped and processed at Searles Lake. En route to these sites, stops will be scheduled to view the scenic and geologically spectacular terrain that characterizes these Great Basin-Mojave Desert settings. Emphasis will be on the Cenozoic evolution of the region but the pre-Cenozoic stratigraphy and structures will be described.

Cost: $90. Includes bus fare, lodging in Ridgecrest, 2 lunches, and 2 dinners.

10. Geology of Vizcaino Peninsula and Cedros Island, Baja California Sur, Mexico. Tuesday and Sunday, October 30 to November 4. Plane, boat, and van = max. 30. Leaders: R. G. Gastril, F. Suarez-V., J. R. Boles, F. H. Klinner, C. Rangin, and D. A. Barnes. Trip will emphasize Mesozoic and some Cenozoic rocks exposed in this southernmost significant exposure of Continental Borderland geology. Late Mesozoic rocks considered to represent an extension of the California Coastal Ranges province are extensively exposed in excellent beach and desert outcrops. Major geologic units to be inspected include blueschist subduction-complex metavolcanics, ophiolite rocks, a thick section of volcaniclastic forearc basin turbidites, oceanic arc-like volcanic and plutonic rocks, and an unusual assemblage of chaotic clastic rocks derived from this arc bearing evidence of both open-ocean and shallow-water environments of deposition. These very significant exposures may provide unique insight into late Mesozoic convergent plate margin geology. Outcrops of fossiliferous Miocene and Pliocene rocks will be visited along with deformed Quaternary terraces.

Cost: $350. Includes fares for boat, vans, and roundtrip plane flight, food, and guidebook. No motels are available; participants must bring sleeping bags. Must have necessary papers to enter Mexico and reenter the United States.

11. Upper Cretaceous deep-sea fan deposits, San Diego. Sunday, November 4. Bus = max. 90. Leaders: T. H. Nilsen and M. A. Arthur. The beautiful coastal communities of La Jolla and Point Loma are sites of excellent exposures of sediments deposited as part of an Upper Cretaceous submarine fan. Outcrops are composed mainly of sandy and conglomeratic inner-fan channel and middle-fan channel facies and muddy interchannel facies. Seafloor exposures present a cross section of the fan and display many unusual sedimentary features which are very photogenic.

Cost: $25. Includes bus fare, deli box lunch, and guidebook.


Cost: $210. Includes bus fare, 4 nights' lodging in El Presidente motels in La Paz (on All Souls' Night), Loreto, Guerrero Negro, and San Quintin, 4 breakfasts, 4 lunches, 3 dinners, and guidebook. Must have necessary papers to enter Mexico and reenter the United States.

13. Geology of northern Baja California. Friday, Saturday, and Sunday, November 2, 3, and 4. Carryalls - max. 32. Leaders: R. P. Phillips and G. Silvera. Day 1: Along coastal route; Miocene basalt, Upper Cretaceous molasse, Jurassic andesite; inland from Ensenada to view a complete section across the granitic and metamorphic rocks of the Pinusellar Ranges batholith. First camp between Miocene basalt-anorthosite and andalusite schist, where cigar-sized andalusite crystals are scattered across the ground. Day 2: Continue inspection of batholith; second camp on the desert alongside 10,000-ft. Mt. Diablo near Miocene diatomite and rich fossiliferous Pliocene beds with monolithic mega-brecias. Day 3: Only fossiliferous Paleocene rocks in peninsular California, 3-km-thick section of tilted Miocene volcanic rocks, Pleistocene and Holocene delta, mudflat, and evaporite deposits of the Gulf of California.

Cost: $135. Includes transportation, prepared meals, staffed camps provided by Wilderness Trails Expeditions, and guidebook. Mexican tourist permit will not be required, but need papers to reenter the U.S.

14. Water management practices in coastal southern California (Hydrogeology Division). Saturday, November 3. Bus - max. 44. Leaders: D. Knochenmus, W. F. Hardt, and J. F. Mann. In semi-arid and highly populated coastal southern California, management practices for water conservation are extensively developed and sophisticated. Such practices as the reuse of water, artificial recharge, water treatment, and salt-water encroachment prohibition will be examined. The trip will include visits to sites from San Diego to Los Angeles with a stop at Orange County's famous "Water Factory 21."

Cost: $15. Includes bus fare, deli box lunch, and collection of papers and brochures.

Bus trip from Phoenix will discuss spectacular geology en route to the Black Mesa coal region. The route will traverse Pre cambrian-Tertiary, Paleozoic-Tertiary, and Mesozoic terrain. The coal occurs in a large remnant of Cretaceous strata in north eastern Arizona. observers. Peabody Coal Company’s Black Mesa coal-mining and reclamation operations on the Navajo Indian Reservation will see the only active coal slurry pipeline operation. Tour the Navajo coal-fired power plant the second day and return by air on a flight swinging near the Grand Canyon.

Cost: $140. Includes bus fare and air fare, lodging in Phoenix and Page, 2 lunches, 1 dinner, and guidebook.


Examination of a spectacularly exposed, low-angle, regional detachment surface of Miocene age and older (Tertiary?): mylonitic gneisses that lie below it. Upper plate, normal faulting, and the relationships of structure to coeval alluvial and lacustrine sedimentation will also be inspected, principally in the Buckskin and Whipple Mountains of Arizona and California, respectively. Below the detachment fault, the transition between regionally developed, mylonitic rocks and their structurally higher, non-mylonitic counterparts will be studied. Many of the localities and relationships to be studied will be seen on moderately strenuous hikes of two to five miles. Participants should be in good physical condition.

Cost: $120. Includes van fare, lodging in Parker for 2 nights, 3 lunches, and guidebook.

During meeting.

17. Geology of the San Diego metropolitan area (mini-trips). Monday, Tuesday, Wednesday, and Thursday morning and afternoon, November 5, 6, 7, and 8. Van–max. 7 per trip. Leaders: B. W. Nocita and San Diego State University staff.

Two-hour-long trips to break the tedium of the technical sessions by learning the geological framework of the San Diego area. Drive east to top of scenic Mt. Helix to view prebatholithic and batholithic rocks and discuss their history. Drive to coast and to the peak of fault-uplifted Mt. Soledad for a spectacular overview of Cenozoic sedimentary rocks, Quaternary deformation, and active processes.

Cost: $2. Includes van fare.

Postmeeting.


Eocene sedimentary rocks of San Diego exhibit integrated nonmarine and marine depositional systems that are unusually well exposed and well understood. Day 1: Trip will follow paleoslope from channel deposits of Ballona fluvial gravels (brought under a semi-arid climatic regime from a large pre Gulf of California source in Sonora, Mexico), through the apex and body of the alluvial fan (exposed in quarries), to the shoreline facies. Day 2: A three-mile walk along the base of the Torrey Pines–Scissps beach cliffs will allow detailed examination of lagun, beach-associated, and shelf facies transected by a major submarine canyon system.

Cost: $30. Includes bus fare, deli box lunch, and guidebook.


Examination of a representative sample of the active geologic processes bedeviling the San Diego metropolitan area. Inspection of effects of high rainfalls of past two years in the urbanized San Diego River Valley and planned, open-space valley of Tijuana River: prehistoric offsets and potentials for movement along Rose Canyon and La Nacion fault systems; ancient and active slump and blockslide landslides in two different geologic terranes; and sea cave formation, collapse, and cliff erosion at Sunset Cliffs. The trip will traverse some of southern California’s most scenic coastline.

Cost: $25. Includes bus fare, deli box lunch, and guidebook.


Mineralogy and petrology of well exposed bodies of gem- and lithium-bearing pegmatites within the Pala and Mesa Grande pegmatite districts. Special features will be long stops for pegmatite inspection and collecting at two active gem mines, the Stewart near Pala and the Himalaya near Mesa Grande, and shorter stops to observe the southern California batholith and the Elsinore fault zone.

Cost: $37. Includes bus fare, deli box lunch, guidebook, and maps.


Field trip will cross the western and central zones of the batholith with an emphasis on structure, including syn- and post-intrusive deformation (mylonitization), geochronology, and compositional patterns both within and between plutons. Walking traverses through major zones of a typical cumulate gabbroic series as well as examination of the complex contact relationships between the gabbroic and granitic plutons. Stops will include metamorphosed (amphibolite grade) prebatholithic sedimentary and volcanic rocks, late Tertiary basalt-andesite complexes, and Quaternary fault zones. The trip will traverse unique southern California coastal mountain and desert geomorphology.

Cost: $145. Includes bus fare, 2 nights’ lodging in Pine Valley, 2 breakfasts, 3 lunches, 2 dinners, and guidebook.


Tectonics of junction between the San Andreas transform system and the Gulf of California divergent plate boundary. Leave San Diego at 1330 hours, Thursday, November 8, driving to the margin of the Salton Trough in the eastern Peninsular Ranges for overnight stop, including briefing session. Among the stops are hikes of about three hours each where details of structural and sedimentary facies, as well as basement rocks, are especially well displayed: One in Split Mountain Gorge, Borrego Valley, and the other in Painted Canyon, Mecca Hills. On Sunday, November 11, a ride up to 8,516 feet elevation on the Palm Springs Tramway is planned.

Cost: $155. Includes bus fare, 3 nights’ lodging, 2 breakfasts, 2 lunches, 2 dinners, tramway ticket, and guidebook.


The middle and late Miocene faulted Continental Borderland off southern California consists of elongate basement uplifts separated by deep-water troughs. Basement uplifts consisted primarily of Mesozoic gneiss-orthogneiss schist west of the present shoreline and Miocene granitic and andesitic rocks in the Peninsular Ranges to the east. Rapid sedimentation and varied provenance produced complex and abrupt facies changes.
and sedimentary petrography. Sedimentary rocks range from coarse conglomerate and breccia wedges (fan-deltas) deposited sub-aerially and in shallow sea water, to bathyal diatomite, shale, and limestone. Examples of some of the sedimentary rocks that formed within this tectonically active borderland setting will be examined during the field trip in outcrops from Laguna Beach to Camp Pendleton, and from Tijuana, Baja California, to Los Coronados Islands where the marine portion of a fan-delta(e) wedge is exposed.

Cost: $70. Includes bus fare 2nd boat passage, 2 deli box lunches, and guidebook. Non-United States citizens and unauthorized United States citizens must have necessary border-crossing papers in hand before trip starts.


Trip will traverse a relatively complete section of the California Coast Range ophiolite, a remnant of composite (two-stage?) Jurassic oceanic crust. The ultramafic and gabbro cumulates, high-level gabbro, diorite, and sheeted-sill complex will be traversed early. The submarine volcanic rocks and pelagic sediment cover will be viewed later.

Cost: $75. Includes bus fare, 2 nights' lodging in Lompoc, 2 lunches, and guidebook. Participants must be prepared for a rugged 4-mile hike and some rock climbing.


The first day will be spent looking at the underwater regions surrounding the Coronado Islands, Mexico. These islands of Miocene(? age are areas of high carbonate production (algal nodules), even though they are in temperate waters and provide an excellent example of the rocky environments off southern California. The second day will be directed at investigating the upper heads of La Jolla and Scripps Submarine Canyon. These nearshore features tap the longshore flow of terrigenous sands moving south along the coast zone and divert coarse clastic sediments and organic material into the deep San Diego Trough to the west. The processes of transportation, erosion, and deposition will be observed and discussed in the field. These canyons have many counterparts in the ancient rocks and should provide the participant with a good insight and a comparative understanding of the marine processes acting in these important nearshore features.

Cost: $90. Includes boat passage, 2 breakfasts, 2 lunches, tanks, weight belts, backpacks, and guidebook. All participants will have to provide proof of scuba certification by one of the major certifying organizations (NAUI, PADI, YMCA, NASDS, or equivalent) and a recent (within one year) physical for eligibility. A swim check will be conducted by the Diving Safety Officer (James Stewart) during the first day's dives to ensure persons diving in the canyons have capability to 80 feet. Need personal flotation device, submersible tank pressure gauge, and wetsuit (can be rented locally).


Field trip will serve as an introduction to the complicated geologic history recorded by the rocks in Sonora. Inspection of major elements of the stratigraphic section of northwestern Mexico, including layered and plutonic rocks that form part of the Pre cambrian basement in Sonora and are the oldest known rocks in Mexico; upper Pro cambrian and lower Paleozoic carbonate and clastic beds; Permian, Upper Triassic and Lower Jurassic limestone and sandstone; Middle Jurassic(? sandstone; the Albion-Aptian sequence; Upper Cretaceous plutonic rocks and Upper Cretaceous(? or Tertiary conglomerate and volcanic beds.

Cost: $155. Includes transportation by vans, 3 nights' lodging in Caborca and Hermosillo, 3 lunches, 2 dinners, and guidebook. Must have necessary papers to enter Mexico and reenter United States. Trip ends in Hermosillo; arrangements must be made to fly from Hermosillo.

cigar-sized andalusite crystals are scattered across the ground. Day 2: Continue inspection of batholith; second camp on the desert alongside 10,000-ft. Mt. Diablo near Miocene diatomite and richly fossiliferous Pliocene beds with monolithic megacreccias. Day 3: Only fossiliferous Paleocene rocks of the Peninsular California, 3-km-thick section of tilted Miocene volcanic rocks, Pleistocene and Holocene delta, mudflat, and evaporite deposits of the Gulf of California.

Cost: $135. Includes transportation, prepared meals, staffed camps provided by Wilderness Trails Expeditions, and guidebook. Will not be required to have Mexican tourist permit but need papers to reenter the United States.


Day 1: Along coastal route; Miocene basalt, Upper Cretaceous molasse, Jurassic andesite, inland from Ensenada to view a complete section across the granitic and metamorphic rocks of the Peninsular Ranges batholith. First camp between Miocene basalt-anorthosite and andalusite schist, where
ABSTRACTS WITH PROGRAMS

To assure delivery before the 1979 meeting in San Diego, orders for Abstracts with Programs must be received by GSA no later than September 15, 1979. Member price is extended to (1) all GSA members who did not pay for this issue at the time they paid 1979 dues, (2) members of affiliated societies, and (3) nonmember authors who have an abstract in this issue. ONLY ONE COPY MAY BE PURCHASED AT THE MEMBER PRICE.

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