



# Torreyana

*A bimonthly newsletter for  
Torrey Pines State Reserve*

Issue 244

March 1997

## President's Message

—John Carson

On behalf of all the docents, thanks to the retiring Board members for their time and outstanding contributions to the Society: Don Grine, who was elected to the newly created position of vice president in March 1995 and served as president from November 1995 to February 1997; Walt Desmond, program and activity director from August 1994 to February 1997; and Pamela Drechsel, editor of the *Torreyana* last year and who remains on the Board to serve as the new program and activity director.

The Docent Society continues its tradition of increasing its activities in support of the Reserve. Whether it be committee work for a possible new interpretive center by the Lagoon, writing a proposal for grant support for a new trail, organizing a Reserve web site, or assisting in Reserve research, there are always docents with the needed expertise and willingness to take on these projects.

The congeniality and dedication of the docents make the Society a very special volunteer group, so it is a real privilege to be your new president. The other Board members and I are committed to working with you for the continued growth and success of the Society. Please let us have your thoughts and suggestions to help ensure a strong future for the Docent Society.

## Docent Society Meeting

March 15th at 9:00 a.m.

Our speaker this month is scheduled for 9:00 a.m., so please be on time. Gordon Gastil, Ph.D., professor emeritus of geology at SDSU, is an expert on the Peninsula Ranges Province of San Diego. During his slide presentation he will speak on the history of the exploration and known geology of the Peninsula. He will also discuss what is unknown and what is left to explore.

## Baja Kumiai Festival — March 15

An afternoon of traditions—the songs, hand games, stick games, native plant walk, and native arts of the Kumiai—will take place at Torrey Circle by the Lodge on Saturday, after the March 15th Docent meeting. The Kumiai are an indigenous people related to the Kumeyaay of San Diego. Here is a chance for the public to experience their unique and wonderful culture. Hear the Kumiai language, listen to their songs, and actively participate in their gentle dances.

Help! We need volunteers for Festival preparations beforehand and on the day of the event between 10:00 a.m. to 5:00 p.m. to greet the public, help with the sales of Kumiai crafts, and be a guide on the native plant walk. Potluck entrees for the Kumiai would be appreciated! If you can help, leave your name and phone number at the Lodge at 755-2063, or with Kathy Watson at 488-8127. THANKS!

**Torrey Pines Association  
Annual General Meeting**  
— Bob Coats, TPA secretary



The 47th Annual Torrey Pines Association General Meeting was held at Scripps Institution of Oceanography on the evening of February 13th. Some 35 members and guests attended the meeting including: San Diego City Councilman Harry Mathis, Julie Hamilton representing the USD Environmental Law Clinic, Karen Burger from the San Dieguito River Valley Land Conservancy and Rangers Bob Wohl and Greg Hackett.

TPA Vice President George Beardsley presided in lieu of President John Fleming, who was present but not up to leading the meeting. The meeting began with the reading of resolutions honoring the contributions of counselors Elizabeth Nicoloff, our Membership Chairperson, and Dave Odell, our Environmental Committee Chairperson. Both Elizabeth and Dave passed away in 1996 and we miss them very much. Tributes to two of our outgoing counselors were also read: one saluting past secretary Victoria Bradshaw and another for George Beardsley, recognizing his efforts over the years as secretary, vice president and president.

Vice President Sally Spiess announced the results of the election of counselors. John Carson was elected to a one-year term, Courtney Coyle and Bill Evarts will serve two-year terms and Bob Coats, Jan McMillan, John Shelton, Sally Spiess, and Nancy Weare were elected to full three-year terms.

Assistant Treasurer Dave Goldberg reported that 1996 was a very good year for the TPA financially, with a year-end balance of better than \$132,000. Treasurer John Shelton allowed that 1997 might be more expensive as *TORREY PINES: Landscape and Legacy* will require a reprint. He projected that \$20,000 to \$25,000 would buy an 8-to-10-year supply.

George Beardsley and Courtney Coyle recapped the TPA's environmental action for the year. The highlights included successful efforts to have erosion control devices that govern runoff from Torrey Pines Mesa repaired and to thwart a proposal made by Jenny Craig Inc. to use a small part of the Reserve adjacent to their property for employee parking! The TPA will continue to monitor these and other impacts on the Reserve and its surroundings.

Secretary Bob Coats introduced our new site on the World Wide Web. Please visit us at <http://www.torreyppines.org>. Visitors will be able to find out more about the TPA, take a brief tour of the Reserve, submit their comments and more. Let us know what you think! To further promote awareness of the Reserve, the TPA, the Torrey Pines Docent Society and the Reserve staff have been investigating the possibility of establishing an interpretive center near the North Beach parking lot. This exploration continues in 1997.

Rangers Bob Wohl and Greg Hackett summarized some of the events and projects of 1996 in the Reserve. They acknowledged, in particular, the matching funds that the TPA has committed for two project grants: one for a "Trail for All People," and the other for trail rehabilitation.

The meeting concluded with a slide show featuring the San Dieguito River Park presented by our guest speaker, Karen Burger.

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P.O. Box 2414

Del Mar, CA 92014

## Docent Bio - Don Grine

—Del Roberts



Donald R. Grine, our indefatigable past president, spent most of his career as a scientist. With a Ph.D. in geophysics from M.I.T., he moved along the ladder of success to become vice president of Maxwell Labs in San Diego. The 1997 edition of *Who's Who in America*

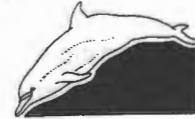
recognized his contributions. But one day, driving to work along the coast, about to face three unpleasant situations, he decided on early retirement. With his beer taste on a champagne salary, he resigned. Now his aim in life is to do only what interests him: bicycling, scuba diving, photography, hiking, and travel.

Fortunately, Torrey Pines is one of Don's interests. He gives nature walks, both to the public and to the students in the School Field Trip program, and teaches the geology class for TP trainees. As president, he brought his valuable experience to the Society by modifying the bylaws, and writing both the annual report and the new Docent contract for the DPR (Department of Parks and Recreation). He became a serious birder after retirement, taking four of Barbara Moore's classes at once, and contributed to our Bird List. He will also give the bird talk this training session. He is a doer, despite his laid-back style, his wry humor, and his insistence that he doesn't take himself too seriously.

Don and his artist wife Joan met in high school, dated in college, and married in 1953. Their daughter and son and three grandchildren live nearby. (Joan contributed the above sketch of Don) When the children were younger, the Grine family used to picnic, before it was illegal, in Torrey Pines and hike the Fat Man's Misery Trail, before it was closed due to erosion.

As nature lovers, Don and Joan have traveled throughout the United States by car, camping in National Parks and deserts. They plan to expand their horizons considerably and go exploring in their recently purchased jeep, complete with a survival package including a winch, pick and shovel, and sledge hammer. They've spent a month on each of

their overseas trips to New Zealand, Italy, Alaska, and Australia. At the Great Barrier Reef, and on frequent trips to Hawaii, Don expanded his scuba diving and underwater photography experience. At home he explores the fish, seals, and invertebrates at La Jolla Cove. However, he stays away from male sea lions during mating season, because they can't tell a rival from a female. "I'm not sure which is worse," he muses.



## Docents Set Another Record

The yearly totals of volunteer hours resemble the Dow stock market index: they just keep setting new record highs. Previous totals were 8500 hours from 79 docents in 1994 and 9400 hours from 82 members for 1995. In 1996, 91 members pushed the total over 11,000 hours! Topping the list was Treasurer June Brickelmaier with 464 hours. Four members contributed between 300 and 400 hours, and nine docents gave 200 to 300. While with this record there does not appear to be any reason to fear a bear market in volunteer contributions, there are a few members—as in the past—who didn't fulfill their year commitment of 72 hours. Those members are urged to join all the rest in helping the Society fulfill its objectives for the Reserve. A special thanks and appreciation goes to Ann Campbell for taking over most of the tabulation of hours from the late, beloved Elizabeth Nicoloff.

## The School Field Trip Program

The School Field Trip Program was such a great success in 1996 that some classes had to be turned away because of unavailable dates. Fifty different schools participated, thanks to co-chairs Joan Nimick and Barbara Wallach and the 25 dedicated docents who introduced 2,724 students and 300 adults to Torrey Pines. Docents gave approximately 816 hours on Wednesday and Friday mornings leading walks. This does not include Barbara's time spent preparing materials, sending out teacher packets, making follow-up phone calls, and recruiting new docents. So join the group and teach more children about the wonders of nature and Torrey Pines.

## Report from the Ranger

—Supervising Ranger Bob Wohl

Well, it's the off season and we're off! (and running!) When I was in Northern California, the living was easier. At Torrey Pines we are setting records for January attendance, after the "dolphin show" and grey whale pods were advertised by the media. Docents and staff were saturated with visitors along the shoreline and bewildering queries, such as "what time do the dolphins come out?" and "where is that overlook where we can see the dolphins?" And all occurring when we had one of the best and earliest wildflower displays in many years.

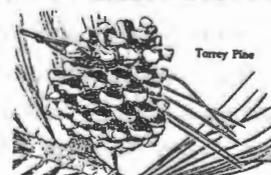
So, what better time than to initiate our Interpretive Trail Patrol training and program for Docents! And what a dramatic turnout—over 30 volunteers came to "experience" the Greg and Bob show. Since the trail program started, a number of Docents have returned with positive reviews for the warm and fulfilling experiences they have had with visitors on the trails: "People are so appreciative and friendly." Of course, the new elfin green Torrey Pines Docent T-shirts make it easier for people to approach and ask questions.

The Buick Invitational Gold Tournament came once again. I watched the sunbathed last day on TV with its blimp shots of the fairways and roughs—that are actually the maritime coastal chaparral-lined canyons of the State Reserve. We did have some controversy over the "inflatable" Buick ad at North Beach and the "commercialization" of Torrey Pines. The Ride and Drive invitational event did net thousands of dollars for the state treasury and employees, while still leaving the North Beach lot open to the general public. However, the ambiguity ("Is this a parking lot for the golf tournament?") and negative reactions to state park and local Buick dealerships may have countered some of the intended gains. I came back this week and found an article from the Wall Street Journal, left on my desk, concerning the national trend in all state parks to make up the difference in diminishing state funding through entrepreneurial efforts. "And for \$2 million, Coca Cola is the official drink of the New York State Park System."

The Annual Meeting of the Torrey Pines Association was successfully held "off premises" this year— in the evening, at Scripps Institution of Oceanography in the 1910 Irving Gill designed, original Old Scripps Building. Freda Reid, Sally Spiess, and former Director Dr. Fred Spiess graciously hosted the event, and gave us tours of the restored Director's Office upstairs, pointing out the National Historic Landmark designation. "And that bungalow, just across the street," said T.P.A. President John Fleming, "was where we lived before we moved into the house at Torrey Pines." (So Guy and Peggy Fleming lived at Scripps Institution too.)

For those of you with Internet passions, the Torrey Pines Association's web site has been open for nearly six months ([www.torreypines.org](http://www.torreypines.org)) exhibiting Torrey Pines in delectable color—just click on the lower arrows, left or right for a short tour—through Bill Evarts' photos, taken from T.P.A.'s membership brochure. We've received two separate offers, from Ken Morgan of Netopolis, Inc. and from Ed Butrovich, who installed Cuyamaca's website, to establish Torrey Pines' own website. Melani Martimod, Jeannie Smith, and other volunteers as well as staff are involved in assembling material.

And Diana Wenman has connected with Bill Hoffman and others at Daniels cablevision in Del Mar. Bill has been roaming the park taking video patches and Diana is eager to assemble and create original videos for us. Bill came to the Lodge and exclaimed, "Diana has so much talent and TV experience. And you have a 75th Anniversary coming up next year? The station manager is eager to do a 30 minute TV show on Torrey Pines." And then I told him what Allyn has been reminding me of, repeatedly, "We have a 100 year anniversary of the creation of Torrey Pines Park—1899 to 1999, and in the year 2000, we are part of the Sesquicentennial celebration of California's birthday— that's the 150th Anniversary of Dr. Parry identifying the Torrey Pine and California becoming a state of the union. So there's a lot coming up!



## Notes from the Archives - C.C. Parry, M.D.

— Maryruth Cox, TPA member



Charles Christopher Parry, for whom the Parry Grove trail is named, was 27 years old when he first came to Torrey Pines in 1850 as a botanist on the U.S.-Mexico Boundary survey. He was looking for coal deposits on the beach, but soon became

intrigued by the pines that sprawled over the sandstone cliffs. He found a branch within "easy reach of botanical clutch" and brought a specimen of the ponderous cones and clusters of strong needles back to San Diego. There he and his friend, J. LeConte described the unusual plant. They named it *Pinus torreana*, after their friend, John Torrey, a distinguished botanist in New York.

Parry was born in England but emigrated to the U.S. when he was nine years old and lived on a farm in New York State. He earned his medical degree from Columbia College (now called Columbia University), and practiced for a year in Iowa. He found, though, that his real passion was collecting plants, and for the next thirty years he joined government survey parties that explored the Rockies, the border with Mexico, California, and the northwest. He discovered hundreds of new species,

including three pines: the Torrey, pinyon, and Engelmann.

Thirty three years after his first visit, Parry returned to Torrey Pines. This time he took the train to Sorrento Valley, then went along the old wagon road to the "Point of Pines." He made his famous statement about the need to preserve the Torrey Pine—"this remarkable and unique Pacific Coast production so singularly confined within its boundaries." He inspired San Diegans to dedicate "this spot of ground forever to the cause of scientific instruction and recreation."

The Parry Grove trail was closed in 1992 after several years of drought and bark beetle infestation had killed most of the trees. That year, a severe storm toppled many of the dead Torrey pines which still can be seen, lying like collapsed giants along the trail. Reopened in 1996, the trail soon became a favorite with joggers, student groups, and those stalwart enough to climb the 101 steps back up to the Whitaker garden. The plants have regrown: there are several young Torrey pines, stands of Virginia bower and vining milkweed among other unusual plants. It is a fitting tribute to a great naturalist.

### Docents Thank Docents

Melani Martinod says, "MUCHAS GRASS-IAS" to those who helped pull out the non-native Earhart grass last month. The Sea dahlia and Miner's lettuce are making a comeback.

Jane and Bob Talbert would like to thank all the docents who brought those delicious refreshments during the past year. Someday, perhaps we could publish a Torrey Pines Docent Cookbook.

**New bylaws** were proposed at the February meeting. Article III Section 2: The annual meeting is changed from February to November. Article IV Section 2: after statement of the election of officers, insert: "and shall serve from the following January 1st through December 31st." If approved at the March meeting, candidates will be nominated in November, and new officers will serve during the calendar year from January through December. This year's officers will end their term in December. In this way, the newly elected officers' names will appear on various reports that are sent out each January.

# How Did Plants Learn About Number Theory?

John Carson

**Background** A person doesn't have to be a numerologist to be impressed – even intrigued – by the way certain numbers and number sequences are always showing up in different areas of mathematics and physical science. One of the simplest appearing number sequences with wide applications [1] is the Fibonacci series, which is 1, 1, 2, 3, 5, 8, 13, 21, 34, 55 ... (hereafter denoted by F), along with the related golden ratio. (Fibonacci, or Leonardo of Pisa, c. 1170 to 1250, was an Italian mathematician; his translations of Arabic math works into Latin were a major factor in introducing Hindu-Arabic numbers and Arabic developments in algebra and geometry to Europeans.) In the F series, after the first two terms the successive numbers are formed by adding the preceding two terms. The ratio of two successive numbers in the series, with the larger being the numerator, approaches  $(1 + \sqrt{5})/2$  for increasingly large F numbers. This ratio, usually denoted by  $\phi$  and equal to 1.618 to four significant figures, is known as the golden ratio. Rectangles considered most aesthetically pleasing have a length-to-width ratio of about 1.6. Artists and architects have been aware of the golden ratio for thousands of years. An example is the Parthenon, which has this width-to-height ratio.

**Fibonacci and Plants** So what is the relevance of all this to plants? Just this: The F series and  $\phi$  appear in various aspects of plant life, even the pine cones found in the Reserve. Here are a few examples [2,3,4]:

- Flower Petals** - The number of petals of some genera, especially in the Asteraceae with large numbers of petals, tends to cluster around F numbers, such as 21, 34, and 55.
- Sunflower Disk Pattern** - The arrangement of the tightly packed disk flowers coincides with a pattern of superposed opposite sense spirals, the numbers of the spirals being adjacent F numbers, e.g., 21 and 34.
- Pine Cones** - The scales fit a pattern of opposite sense spirals, with their numbers being adjacent F numbers, such as 5 & 8 and 8 & 13. (Author's note: I invite docents who have mature complete pine cones to join me for a scale-spiral counting session to check this claim.)
- Phyllotaxis (Leaf Arrangement)** - New leaf growth on a plant stem follows a helical path along the stem. The radial angle between adjacent leaves (in terms of time of development) is usually close to 137.5 degrees, which turns out to be related to  $\phi$ .

**What Does This All Mean?** A common botanist view is that genetics controls plant characteristics and that appearance of certain numbers is coincidence. To this, mathematician T. Pappas responds [4]: "Occurance of Fibonacci sequence in nature is so frequent that one is convinced it cannot be accidental." Past analyses and recent research provide new insight into how the plant relationship with the F sequence may arise. A detailed technical description is rather involved, so only a simplified overview is given here (see the references, especially 3, for more information). a) Geometrical analysis shows that if points are located on a spiral with a radial angle of 137.5 degrees between adjacent points, then sets of opposite sense spirals can be superposed on the points, and the numbers of these spirals are adjacent F numbers. b) Computer simulations indicate that this arrangement makes the optimum use of the space, i.e., the points are most efficiently arranged with no angularly symmetric empty areas. c) Douady and Couder [5] investigated the distribution of magnetic liquid drops in an electromechanical model designed to simulate plant growth. The preferred distribution coincided closely with a 137.5 degree radial angle between adjacent drops, and the opposite sense spiral patterns and F numbers were present. In this model the drop distribution was determined by energy considerations.

**Conclusion** The approach and results discussed here suggest that both mathematics and genetics may be involved in plant growth, with genetics controlling the timing of growth and plant dynamics choosing physical arrangements that mathematics shows are optimum. So plants may know more mathematics than we realized!

## References:

- 1) Schroeder, M. R., *Number Theory in Science and Communication*, Springer-Verlag, 1986.
- 2) Spencer, D.D., *Exploring Number Theory With Microcomputers*, Camelot Publ., 1995.
- 3) Stewart, I., *Nature's Numbers*, Basic Books, 1995.
- 4) Pappas, T., *The Joy of Mathematics*, World Wide Publ., 1986.
- 5) Douady, S. and Couder, Y., "Phyllotaxis as a Physical Self-Organized Growth Process," *Physical Review Letters*, **68**, 2098, March 1992. Note: the French authors' idea of exposition in English makes for tough reading; try ref. 3 first.

### **Torrey Pines Docent Society Board**

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Vice President.....Diana Wenman  
Program/Activity Dir.....Pamela Drechsel  
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Alynn Kaye  
Chris Platis  
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Resource Ecologist.....Mike Wells  
Park Aides.....Mike Calarco  
Stacey De Jane  
David Franks  
Norb Ruhmke  
Parking Enforcement Officer...James Claar  
ESI.....Stacie Hathaway, Charlie Kerns

### **Address changes go to:**

Torrey; Pines Docent Society  
Shirley Musser, Membership Chair  
P.O. Box 2414  
Del Mar, CA 92014  
TP Lodge Telephone: 755-2063

Torrey Pines Association  
P.O. Box 345  
La Jolla, CA 92038

New addition to our animal collection



The *Torreyana* is printed on 100% recycled paper. Deadline for submissions is the 20th of each month.

Editor.....Del Roberts  
*Torreyana Lite*.....Glen Dunham  
Proofreader.....Marion Dixon  
Mailing.....Bob Margulies  
Kathy Estey  
Twinx Hauer

### **Editor's Corner**

Marion Dixon, my mentor, set high standards for the *Torreyana*. But mastering desk top publishing is no simple matter. Next issue I'll work on graphics, but I'm grateful to all the contributors for their excellent articles, and a special thanks to John Carson for his guidance.

Although the deadline for submissions is the 20th of each month, I would be happy to receive any articles in advance. Please discuss them with me first. My Word Perfect is not very compatible with Word, which most contributors seem to be using. The conversion in some cases reads like a foreign language. But keep those articles coming via hard copy or e-mail: romar8@juno.com. You can also put typed messages in the *Torreyana* Box in the docent room.

Del Roberts  
12958 Caminito del Pasaje  
Del Mar, CA 92014

### **Junior Rangers**

Innercity Games, an organization dedicated to helping children in our cities, brought 12 of them to Torrey Pines each Thursday afternoon in February for a Junior Ranger program. One week, docent trainee Katherine Chaffee and Melani Martinod presented the Geology of TPSR. They made a 100 meter timeline of Earth history, and created colorful jello formations representing the Del Mar Formations, Torrey Sandstone, and the Linda Vista Formation. Another week, Kathy Watson featured the animals in the Reserve, showing the Lodge collection, and discussing the four elements of animal habitat. By the end of the month, the Junior Rangers earned their small badges and will be on their way to earning a patch!

MARCH DUTY CALENDAR

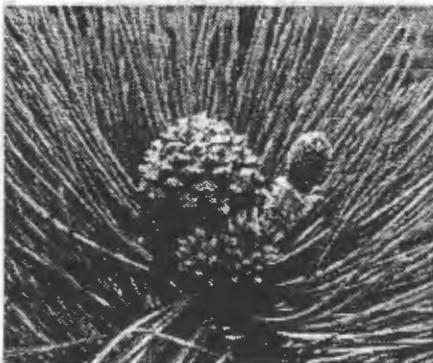
SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
<b>30</b> L Schulman W Ferguson L Schulman W D. Roberts	<b>31</b> L Rudolph L Huber	Duty Coordinator: Elaine Sacks 551-0708 Hours: Lodge Duty 10 - 1, 1 - 4 Walks Sat/Sun/Holidays 11 & 1 If you cannot do your duty, please arrange your own substitute.				<b>1</b> L Grain W Tanalski L Watson W Stiegler
<b>2</b> L Robertson W Ferguson L Heller W D. Roberts	<b>3</b> L R. Miller L Katz	<b>4</b> L Campbell L McNally	<b>5</b> L Cooper L Amanns	<b>6</b> L D. Miller L Shaw	<b>7</b> L Gaarder L Gittelsohn	<b>8</b> L Gaarder W Ferguson L Anasis W Stone
<b>9</b> L Breland W Archer L Anasis W Bressler	<b>10</b> L R. Miller L Campbell	<b>11</b> L Talberts L McNally	<b>12</b> L L	<b>13</b> L Margulies L Hauer	<b>14</b> L L	<b>15 MEETING</b> L Breland W Brav L W D, Miller
<b>16</b> L Clark W Archer L Myers W Dixon	<b>17</b> L Rudolph L Katz	<b>18</b> L Jacobsen L Stein	<b>19</b> L L	<b>20</b> L Smith L Hauer	<b>21</b> L Huber L Gittelsohn	<b>22</b> L Phillips W D. Miller L Myers W Stiegler
<b>23</b> L Robertson W Kamen L Heller W Marley	<b>24</b> L Margulies L Campbell	<b>25</b> L Talberts L Smith	<b>26</b> L L	<b>27</b> L Smith L Davis	<b>28</b> L L	<b>29</b> L Grain W Brav L W Dixon

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