TRAVELS NOW AND THEN

IRELAND 1984


Port Braddon, Northern Ireland

Port Braddon, Northern Ireland


Devenish Island, Lough Erne


July 12, Portstewart


July 12, Portstewart


Family, Silverbay, and Kenbane Head


Portstewart Strand

Portstewart Strand

Portstewart Strand

Sailing on the Bann River, Coleraine


Sailing on the Bann River, Coleraine

Sun. Aug.26, 1984
Flew BA from Belfast to Glasgow - then taxi to Sterling


Sterling Castle, Scotland

Thurs. Aug.30, 1984
Taxi from Sterling to Glasgow airport then flew BA from Glasgow to LHR

Dana and Kathy with the Andersons in Welford

Back to table of contents

Last updated 7/30/99.
Christopher E. Brennen

Thank you

MOST SINCERE THANKS TO:
Larry Barrett and Food and Housing
Revelle Hall Program Advisors
The Revelle Programming Board
Ernie Mort and the Revelle Parent's Fund
Revelle College Council
Revelle Apartments Program Advisors
FOR THEIR GENEROUS FUNDING OF OUR PRODUCTION

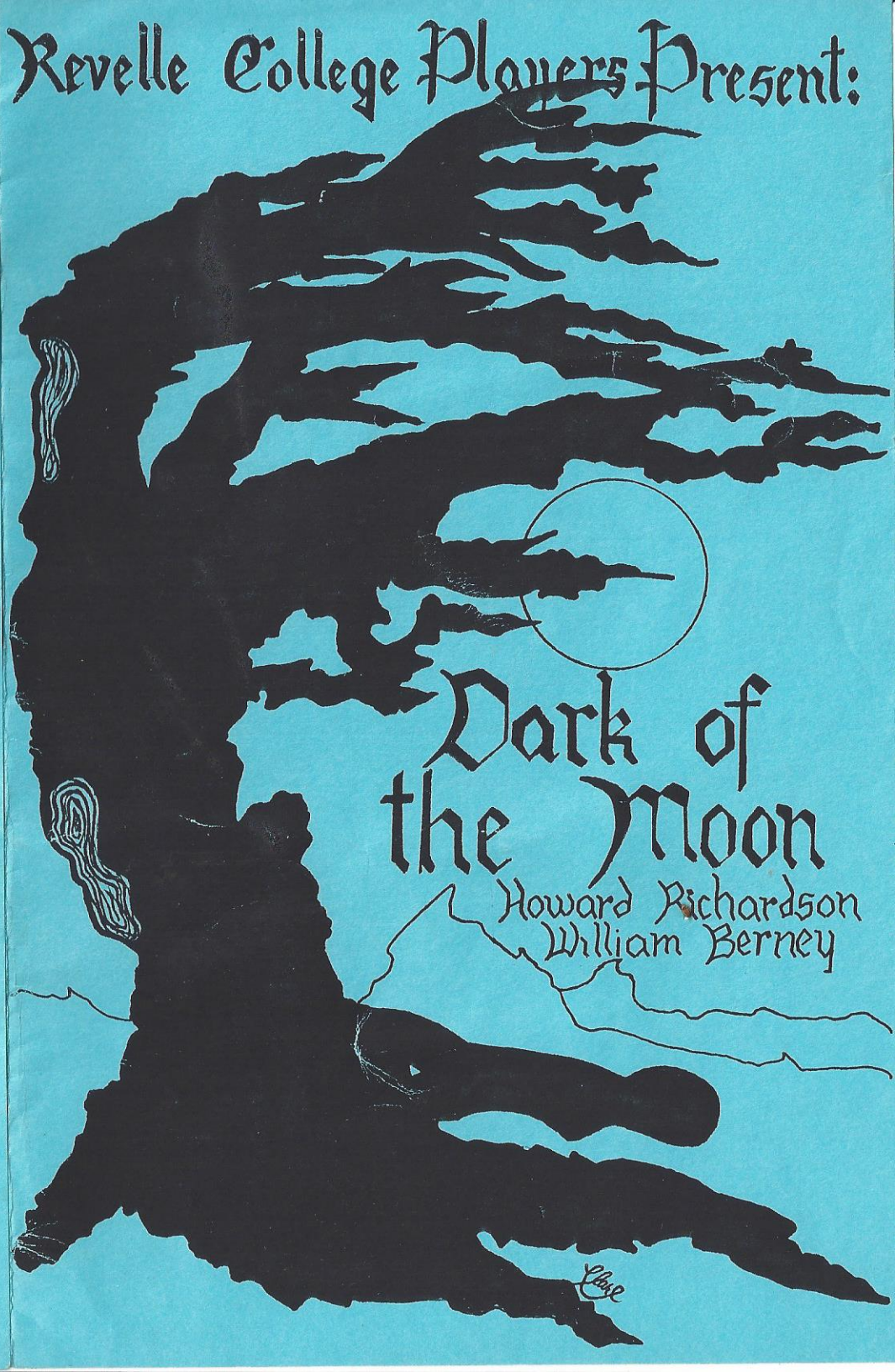
THANK YOU
The Revelle Cafeteria Management and Staff
Bruce Pearson and the University Events Office
Ticketron
The Revelle Resident Dean's Office
Ernie Mort and Hugh Pates
The Revelle Provost's Office
The Revelle Resident Advisors
Dr. Joseph Watson
Professor Luther James
Jim Hett MacDonald
Stephen Loren, Steve Wiig, Loren Davis
Marta Cobarrubias, Mikel Kaufman,
and Jan Hobbel
Dixieline Lumber, 7292 Mirimar Rd.

VERY SPECIAL THANKS TO:
Dave Goodman and Scott Kenney of
Pine Hill Lodge
2960 La Posada Way
Julian, California

Jo Wendt of Spinning Wheel Antiques
Rt. 1, St. Ysabel, California

FOR THE GENEROUS LOAN OF THEIR PROPS AND ANTIQUES

Revelle College Players Present:



Dark of the Moon

Howard Richardson
William Berney

The Cast
in order of appearance

John.....David Christopher Latham
Conjur Man.....Robert Bezverkov
Fair Witch.....Noël Druten
Dark Witch.....Gwyn Murray
Conjur Woman.....Judene Lewandowski
Uncle Smelicue.....Robert Bezverkov
Edna Summey.....Jennifer Willen
Hank Gudger.....John Johnston
Floyd Allen.....Bruce Coberly
Mr. Atkins.....David Joel Wu
Burt Dinwitty.....Paul Kelly
Hattie Heffner.....Vicki Hand
Banjo Man.....Arni Lekven
Miss Metcalf.....Bonnie Jean Hartman
Mrs. Summey.....Danamichéle Brennen
Ella Bergen.....Jennifer Jones
Mrs. Bergen.....Susan J. Kimball
Mr. Bergen.....Matt DeTeresa
Greeny Gorman.....Suzie Kramer
Mr. Summey.....Edward J. Gerard
Marvin Hudgens..... Steven Shaw
Barbara Allen.....Claire Mollard
Mrs. Allen.....Ruth Adlen
Mr. Allen.....Brent Horn
Preacher Haggler.....Brian E. Taylor
Witches.....Suzie Kramer
Jennifer Jones

Production Staff

Director.....Clare Hansen
Producer.....Ira Rubenstein
Publicity.....Kim Svetich
Stage Manager.....Thomica James
Lighting.....John Watson
Sound.....Ira Rubenstein
Costume design.....Clare Hansen
Prompter.....Jennifer Romweber
Programs.....Clare Hansen

Stage Crew

Paul N. Dankiewicz
Lisa Dietrich
Matt Engler
'Rena Hansen
Denis Lee
Kathy MacGregor
Cagney Nay
L. Bentley Davis
D.C. Earwicker
Parvis Ershadi
D.S. Ikehara
Ira Liss
Jon Kevin Nakagawa
Jennifer Romweber

Act 1

SCENE I. The Peak of a Ridge in the Smoky Mountains.
SCENE II. The Central Square of Buck Creek.
SCENE III. Outside the Allen Cabin on Chunky Gal Mountain.
SCENE IV. The General Store of Buck Creek.

intermission

Act II

SCENE I. A Clearning in the Woods.
SCENE II. Barbara and John's Cabin.
SCENE III. The Mountain Ridge.
SCENE IV. The Church in Buck Creek.
SCENE V. The Mountain Ridge.

We real cool. We
Left school. We
Lurk late. We
Strike straight. We

THE CALIFORNIA TEC

VOLUME 85 PASADENA, CALIFORNIA / FRIDAY, MAY 11, 1984

Vote To Be Held On Waited Meals

On Monday, May 14, there will be a vote concerning the style of Food Service next year. It has become clear that there are differences between the waited and non-waited styles of service beyond simple cost considerations. Following is a summary of the two services submitted to the Food Service Committee by Servomation that we feel may be taken as representative and will hopefully enter into your decision on Monday.

"As requested by the food committee at our meeting on April 25, 1984, Servomation is submitting the following figures for two food service plans.

Plan #1—Same style of meal service that is presently being offered. Cafeteria style lunch and family style dinner.

Plan #2—A slightly different style of meal service

continued on page 2

SPORTS DAY: Chris Brennan and Behzad Sadeghi collide as they go for the ball.

Photo by Min Su Yun

Five P

Attardi, Berg,

Caltech News

Five members of faculty have been el National Academy this year in recognit "distinguished and achievements in research," it has bee ed at the Aca Washington D.C.

In this year's elec two other institution and Yale, had fi members elected Academy. The elect five Caltech faculty brings to 59 the num members at Calt Academy, founded i private organization tists and engineers ch acting as an official the federal governm tion to the Academy the highest honors t bestowed upon a sci

Caltech faculty elected are Giusepp professor of biology

PASADENA HOTELS AND MOTELS CONVENIENT TO CALTECH CAMPUS

COMFORT INN, 400 S. ARROYO PARKWAY
818/795-8401
Caltech is a short cab ride.

HOLIDAY INN, 303 CORDOVA
818/449-4000
800/238-8000 toll free

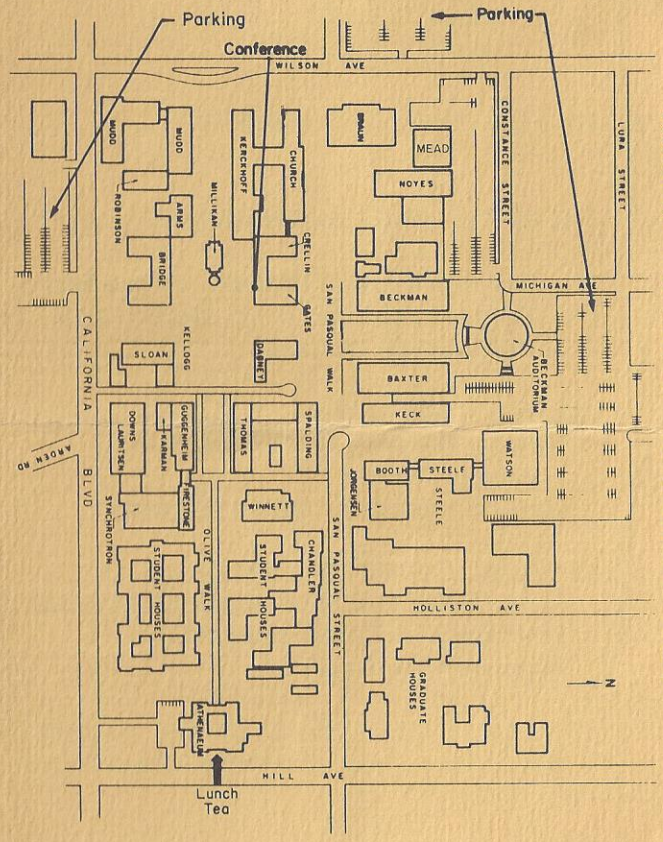
HUNTINGTON SHERATON HOTEL,
1401 S. OAK KNOLL
818/792-0266
800/531-5300 toll free
Airport bus stops here. Caltech is a short cab ride. There is also public bus service within a few blocks of the campus.

IMPERIAL 400 MOTEL, 1203 E. COLORADO
818/449-3170
800/531-5300 toll free
About six blocks from the campus.

PASADENA HILTON HOTEL, 150 S. LOS ROBLES
818/577-1000
Airport bus stops here. Caltech is a short cab ride.

SAGA MOTOR HOTEL, 1633 E. COLORADO
818/795-0431
About six blocks from the campus.

California Institute of Technology
Dean of Students, 102-31
Pasadena, CA 91125
tel: 818/356-6351



FRESHMAN PARENTS' DAY

November 10, 1984

22 Gates

Using any criteria of success, Caltech undergraduates have always been phenomenally successful. Because our students are so exceptional, they deserve the best we have to offer.

Marvin L. Goldberger
President

begin on time

PROGRAM

9:30 a.m. REGISTRATION AND COFFEE
22 Gates

*

10:00 a.m. MORNING SESSION
22 Gates

WELCOME: MRS. SALLI CHANG
President
Caltech Service League

PANEL DISCUSSION: LIFE AT CALTECH

CHAIR: GARY A. LORDEN
Dean of Students
Professor of Mathematics

PANEL: CHRISTOPHER E. BRENNEN
Master of Student Houses
Professor of Mechanical Engineering

MARGARET CARTER
Junior in Environmental Engineering

PAUL FILMER
Senior in Geophysics
Senior Class President

should only take 45 minutes

long sit – can we break it up somehow

LUNCHEON

12:00 Noon ATHENAEUM
say 12.15

*

12:45 p.m. LUNCHEON PROGRAM

CONVENER: MRS. SUSAN KARLIN

DR. MARVIN L. GOLDBERGER, President
California Institute of Technology
Professor of Physics

CALTECH GLEE CLUBS
Donald Caldwell, Director,
Choral Music
Monica Hubbard, Asst. Director

SPEAKER: JAMES J. MORGAN
Vice President for Student Affairs
Professor of Environmental Engineering Science

1:45 p.m. GUIDED TOURS OF THE CAMPUS
Including Some Freshman Classrooms

*

2:45 p.m. to 4:30 p.m. CALTECH SERVICE LEAGUE TEA - ATHENAEUM

CALTECH SERVICE LEAGUE OFFICERS

1984-85 Academic Year

President	Mrs. Salli Chang
Vice President	Mrs. Micheline Vogt
Recording Secretary	Mrs. Lynn Shaw
Corresponding Secretary	Mrs. Betty Weber
Financial Secretary	Mrs. Martha Rogers
Treasurer	Mrs. Thelma Cowan

These officers, plus advisors, project directors and assistants, comprise the Board. They welcome your interest and participation in their service projects.

today:

All the way to state

Pasadena Poly, coached by Brad Hall, right, advanced to the state finals with a 63-38 win over Army and Navy Academy Saturday.

— See story, Page B-1

Man of two minds

Caltech professor of fluid mechanics Chris Brennan hangs up his lab coat once a day and takes on the problems of students at the Pasadena institution.

— See story, Page C-1

STAR-NEWS

PASADENA, CALIFORNIA, SUNDAY, MARCH 11, 1984

Late Sports

Foundation still

● Entertainment, C-5 ● Dine, C-6

Caltech's Brennan:

Doing a study in friendship

By LOUISE EGAN STEELE
Feature Writer

Dabney, Blacker, Fleming, Lloyd, Ricketts, Ruddock, Page . . .

Within the walls of these student houses on the Caltech campus eat, sleep and cram for exams the future scientists who might find new galaxies, curb earthquakes, compute the answers to all mankind's questions.

Within the same walls some of those budding scientists might also be depressed about the break-up of a romance, worried about family problems back east, disenchanted about his or her choice of a career, or just plain furious at a roommate, a blasting stereo down the hall or new house rules that don't seem to make sense.

Where can a troubled undergraduate go?

To the other office of Chris Brennan, professor of mechanical engineering, whose research in fluid mechanics has resulted in important improvements in space shuttle engines and is bringing him and his colleagues closer to a better knowledge of the flow of liquids, air and particles in living bodies.

At some point every day Brennan hangs up his laboratory coat, climbs on his ancient bicycle — "it's quite noisy, you know. Students can't accuse me of sneaking up on them." — and rattles off to his other office, that of master of student houses.

The problems he faces there don't require computers or esoteric laboratory equipment. For those undergraduates with worries and concerns, he offers a friendly ear and a warm, knowledgeable effort to set things right.

And, he'a an omsbudsman with a brogue.

Brought up in Dungannon, Northern Ireland, Brennan entered Oxford University where he pursued his engineering studies all the way through his doctorate.

Walt Mancini / Star-News

Doreen, Chris and Patrick Brennan walk Zebedee

duties as Master of student housing, the family

As on every campus, there are always some young Caltechers with problems, some small, some overwhelming, that need to be aired. That's why Brennan's office is waiting.

is no longer appropriate. Because of all the ethical decisions that have to be made about nuclear power, for instance, and genetic engineering, it is essential for scientists to be able to interact with the rest of society."

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Most of the time all that is needed is a long chat — like a friendly session with a caring uncle who knows what kind of advice to give from his own career and personal experiences. At other times, though, Brennan sees a student in a more serious emotional upset and sends him or her to the psychiatrist or psychologists on campus.

Women make up only 15 percent of the Caltech student body. And, because of earlier educational emphasis, the growth of the number of qualified female applicants, according to Brennan, "is still

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"In a way," said Brennan, "the social set-up of the Caltech campus is something like Oxford's. Each house here, and college there, is a unit unto itself and there's plenty of rivalry among them. That includes amateur athletic matches, with sports done for the fun of it, unlike the semi-professionalism of other American colleges and universities.

"One thing's missing, though," he added with a grin, "there aren't too many of those ancient pubs around here."

The Americanization of Chris Brennan began in 1969 when he and his wife and firstborn daughter came to Caltech for a year of research.

That one year stretched to two, then three, as teaching duties were added to Brennan's basic research. And then? "Well, we just kept staying and loving it." The family touches the Auld Sod every couple of years to visit relatives there.

His wife, Doreen, is from Magherafelt, County Derry. Their Irish-born daughter, Dona, is now a sophomore at UC San Diego. Daughter Katherine, a junior at Pasadena High School, was born in England and 11- year-old Patrick, is the family's USA product.

In September when Brennan took up his new

Walt Mancini / Star-News

Doreen, Chris and Patrick Brennan walk Zebedee

duties as Master of student housing, the family moved bag, baggage and three dogs, including "Zebedee," who's part Irish setter, begorra, into Steele House on the edge of the campus. This is in easy drop-in distance for their young scientific friends.

And "Getting to Know You" is also the current theme song of Doreen Brennan, who works part time in the business office at J. Herbert Hall's. So far she has entertained the whole freshman class, in shifts, at home- cooked dinners dedicated to hearty teen-age appetites.

Since the typical freshman at Caltech — one of the toughest, if not the toughest college in the country to get in to — must have spent more time in high school laboratories and libraries than on the athletic fields or at sock hops, does he or she have trouble adjusting socially to campus life?

"Not any more so here than at any other good university," said Brennan. "In fact, those who may have felt somewhat isolated from their fellow students in high school suddenly blossom here as they find themselves happily socializing with new friends who have the same interests they do.

"And our future scientists here," he pointed out, "are also given liberal doses of the humanities. The old ivory tower concept of science

that need to be aired. That's why Brennan's office is waiting.

is no longer appropriate. Because of all the ethical decisions that have to be made about nuclear power, for instance, and genetic engineering, it is essential for scientists to be able to interact with the rest of society."

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Women make up only 15 percent of the Caltech student body. And, because of earlier educational emphasis, the growth of the number of qualified female applicants, according to Brennan, "is still depressingly slow."

Nevertheless, despite their numbers, distaffers on campus have already produced one duly elected student body president and several house presidents.

Until the gender gap closes, Brennan pointed out, the entering freshwoman, particularly if she's somewhat shy, will have to face a real social dilemma at her very first student mixer. With a ratio of six men to one woman, she'll suddenly find herself bewilderingly surrounded by attentive males.

"You'd be surprised," Brennan said, "how many women ask me how to handle that." His standard advice on that one was not available for publication.

Sometime in May, Brennan will be facing his first Ditch Day as master of student houses. Traditionally that's when Caltech undergraduates "do over" the dorm rooms of seniors off for the day to the beach or mountains. Typically rooms may be filled with sand, cement or a seeded lawn.

Nobody would dare redecorate that other office of Chris Brennan — not when a good application of oil could turn that squeaky bike of his into a silent vehicle for a wheeled watchman.

Rene Barton Rod Van Meter

From the Members of Lloyd and Dabney Houses

Tho Kinnamon 9
Pope

Ray Kent,
Lloyd Warlord

D. Encinas

Arturo Alcazar

Andrew Huntington
& Steve Gomez's Truck
Ken Hennessy
Al Bettencourt

This greeting that's sent
in a neighborly way
Brings all of the season's
best wishes today--
And it's coming to bring you
this warm message, too--
"It's certainly nice
being neighbors with you."

MERRY CHRISTMAS!

And a Happy First Year as
MOSH
and many more to
come.

FLUIDS ENGINEERING DIVISION NEWS

VOLUME 21 NOVEMBER 1984 NUMBER 1

FROM THE FED CHAIRMAN

Over the past fifteen years of my participation in the Fluids Engineering Division activities, there have been substantial changes in the way that the Division has tried to serve its members. This period saw the birth of the Journal of Fluids Engineering thanks to the efforts of Bob Dean and others. It has also seen a major change in the format of our biennial meetings (the Spring Meeting held jointly with a variety of other ASME Divisions or other technical societies and the ASME Winter Annual Meeting attended by many Divisions). Fifteen years ago these were primarily comprised of sessions organized from unsolicited papers many of which had been submitted for publication in ASME Journals. The sessions often had no unifying theme and audience participation was limited. About ten years ago this began to change with the inauguration of symposiums devoted to specific subjects. This continued to grow until now our biennial meetings are almost exclusively comprised of Symposiums and Forums organized by members of the division and satisfying particular needs within the Fluids Engineering community. The contents of this newsletter will attest to the variety and timeliness of these events.

Symposia are designed for the presentation and discussion of completed pieces of research. Generally the papers are published in a bound volume. Forums, on the other hand are designed for short presentations on on-going work. The grandfather of these is the Cavitation and Multiphase Flow Forum which provided a role model for the changes of which I write. Thanks in large part to its organizers Robert Waid and Jack Hoyt, the Cavitation and Multiphase Flow Forum became recognized internationally as an event of importance and significance. The Executive Committee is very grateful to Robert and Jack and also pleased that Ogitisku Furuya has agreed to succeed Jack as organizer of the forum.

This year sees the inauguration of another Forum which we hope will have similar success. The Unsteady Flow Forum will be held every year at the Winter Annual Meeting. Organized by Paul Rothe it is intended to serve the very real needs of those members involved with problems in the area of unsteady flows.

It is, I think, important to emphasize that Symposiums and Forums are suggested and organized by members who can then take advantage of the facilities of the Division and the Society. If you would like to organize such an event please don't hesitate to get in touch with one of the Technical Committee Chairmen.

At the upcoming Winter Annual Meeting in New Orleans in December, the Division will be sponsoring Symposiums on Mass Flow Measurement, on Recent Advances in the Design of Centrifugal Machinery, on Multidimensional Fluid Transients on Instability, Stall and Surge in Pump and Compressor Systems as well as the Third Symposium on Small Hydropower in Fluid Machinery and the International Symposium on Cavitation Inception. We are also co-sponsor of the large and exciting Symposium on Flow Induced Vibrations. In addition to the Unsteady Flow Forum there is also a Forum on Flow Phenomena in Engine Combustion Chambers.

The titles of these symposiums and forums remind me of one of the great strengths of the Fluids Engineering Division namely the mix of academic and industrial (as well as governmental) participation which we continue to foster and to enjoy. In a parallel way the titles range from fundamental or generic subjects (Mass Flow Measurement, Flow Induced Vibrations) to application - specific subjects such as turbomachines and combustion chambers. In my view it is crucial that we continue to nurture relationships between industrial, academic and governmental research.

I hope to see you all at the Winter Annual Meeting. Hopefully you will also be able to attend the Fluids Engineering Luncheon; Arthur Ebeling, Director of Field Services, Regions V, VI and VII has kindly agreed to give the Luncheon address on the subject "The Aerodynamics of Championship Racing Cars".

Finally, let me say that it has been an honor and a privilege for me to serve on the Executive Committee and now to serve as its Chairman. As such I want to thank all of you who have supported the activities of the Division during the past year.

C.E. Brennen
Chairman,
Executive Committee
Fluids Engineering Division

FROM THE FLUID TRANSIENTS COMMITTEE

The Fluid Transients Committee (FTC) organizes symposia and technical sessions on a wide range of unsteady flow topics and fluid transients, either separately or jointly with other committees of the FED or with other Divisions of the ASME. For the coming year, FTC intends to continue to broaden its coverage of unsteady flows without diminishing its traditional coverage of piping transients and waterhammer problems.

We have recently completed a membership survey and have identified about thirty members who wish to help with the committee's work or organizing symposia, forums, and sessions for the presentation of technical papers, reviewing papers, and participating in the Fluids Engineering Division honors programs. In addition, about eighty more want to be kept informed of the Committee's activities, with the hope that later they can take a more active role. The organization of the committee has been streamlined somewhat, under the leadership of the past FTC chairman, Paul Rothe. Two new offices have been created to help allocate the work of FTC to more members; one of the new offices is the Symposia Chairman, who coordinates and schedules the activities of the members organizing future symposia, and the other is the Committee Liaison Chairman, whose duties include communicating with other ASME committees and other societies on the subject of unsteady flow phenomena. There is still plenty of work that needs to be done, so individuals who are interested in FTC membership should contact the 1984-86 Chairman, Frank Dodge, at (512) 684-5111.

At the 1984 Winter Annual Meeting, FTC will sponsor a Symposium on Multi-Dimensional Fluid Transients and a Forum on Industrial Unsteady Flows. We will also participate in several symposia organized by other committees of FED. FTC symposia for other conferences are noted elsewhere in this newsletter. Persons who wish to present technical papers or assist in the organization of these symposia should contact the organizers or the Symposium Chairman, Wushong Yow, at (617) 589-2578.

F.T. Dodge

FROM THE MULTIPHASE FLOW COMMITTEE

The Multiphase Flow Committee sponsored three symposia at the 1984 Spring Meeting in New Orleans. John Jurewicz organized a well-received symposium on gas-solid flows and Mike Roco put together an interesting and well-attended symposium on solid-liquid flows in turbomachinery. The Multi-phase Flow Forum, organized by Jack Hoyt, featured papers on current areas of research in several areas of multiphase flow.

Symposia planned for the future include such topics as cavitating flows, gas-solid flows, gas-liquid flows, three-phase flows, erosion and instrumentation needs. Anyone interested in participating or helping to organize future symposia should contact Clayton Crowe, Mechanical Engineering Department, Washington State University, Pullman, Washington 99164.

The Multiphase Flow Committee has also assembled a list of members according to their specific fields of interest. Please contact Clayton Crowe, if you would like a copy.

C.T. Crowe

Montreal, Quebec
Canada

January 16, 1984.

Dr. Brennen,

Seeing your picture in the December Caltech News prompted me to do something I promised Bev I would do ages ago. I must say you look quite different from the photo taken of you last June. I apologize for the delay in sending same. I hope you will accept it as a small token of appreciation not only from Bev but from me as well, as I always felt very comfortable knowing Bev could and did turn to you for guidance.

It was a great pleasure to meet you last June. I had hoped to speak with you again on graduation day, but the emotions which surfaced that morning left me feeling tongue-tied (most unusual, I can assure you) and in my own world as I thought back over the years as Bev had grown up and matured. Just when you believe that you couldn't possibly feel any prouder, you do and I realize what a fortunate parent I am to have such a daughter.

I speak to Bev about once a month and she sounds very happy. She has pretty well decided to get her Masters of Engineering and, if it can be arranged, a Masters of Computer Science. The idea of going to a laboratory for three years does not appeal to her, but she would like to take advantage of the fact her college and tuition fees are paid for two years.

Bev's brother Stephen is home for a three week holiday. He is enjoying his work in Whitehorse. He seems contented and more self-assured. He tells me when the business is going really well - in a couple of years - he thinks he would like to go to university. I certainly hope he does as he too has the ability, but he never enjoyed having to attend classes. Hopefully being an adult student will make the difference.

Dr. Brennen, once again thank you for being there when Bev needed someone. Best wishes to you and your family for 1984.

Sincerely,

Barbara Robertson

Inside Caltech

A Newsletter
for New Students
March 1984

From the VP's Desk

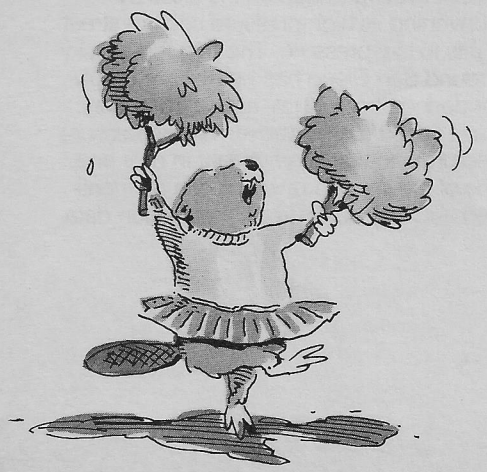
I'm happy to initiate the first *Inside Caltech*, a newsletter devoted to the activities and concerns of Caltech undergraduates. We want to bring you glimpses of our total campus life — the time spent in classrooms, laboratories, and libraries, and the time spent in relaxing and having fun.

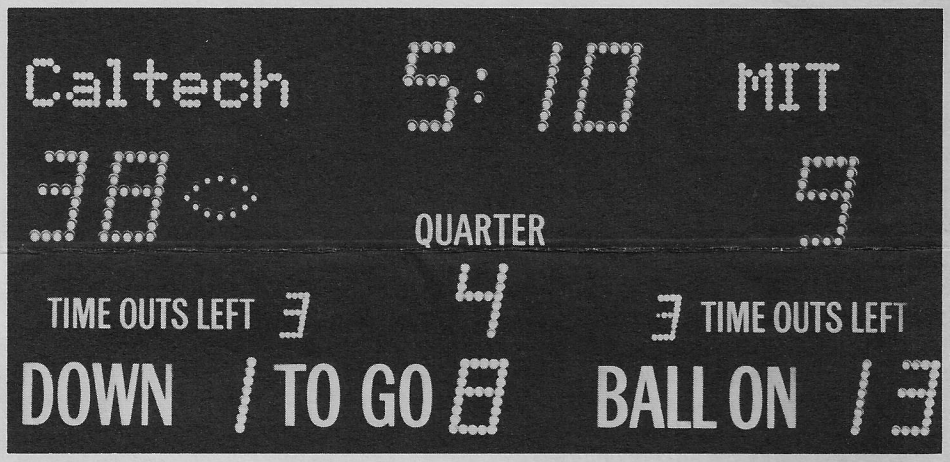
One of Caltech's great strengths, one of the qualities that makes the Institute so special to so many of us, is the openness, accessibility, and responsiveness of our faculty and administrators to the needs and concerns of students. By the way, many Caltech administrators, including President Goldberger, a physicist, teach a course or two from time to time. *Inside Caltech* reports on many of the programs that we think reflect this university's special character: the Faculty-Student Conference and the new student computing facility to be run exclusively for and by the students, yet linked to all computing facilities through the Ethernet.

We want you to know how Caltech works. We invite you to know us even better by visiting the campus when you have the chance.

With best wishes,

Jim Morgan
Vice President for Student Affairs
Professor of Environmental Engineering Science





Los Angeles Times photo

Diagramming a Winning Play

By now, you probably know that Caltech "won" the 1984 Rose Bowl. But the press may have left you a little confused as to how it happened. Here's the story according to Dan Kegel and Ted Williams, who masterminded the stunt.

Q: *What made you two want to play with the Rose Bowl scoreboard?*
A: Well, Techers have something of a reputation for pranks, so for us this was defending the school honor. Only instead of doing it by playing football like the UCLA and Illinois students, we did it with electronics.

Q: *But why the Rose Bowl?*
A: The Rose Bowl is just sitting there, a few miles from campus, almost daring us to go after it. It's sort of like home turf — in fact, the Beavers (Caltech's football team) used to play some of their home games there. Pasadena is like bedlam on the day of the Rose Bowl game, so we know anything we do will be highly visible. In fact, Techers have been trying to pull a stunt at the game for several years now, especially remembering the famous and successful 1961 card stunt prank. This year we succeeded again.

Q: *How did you do it?*
A: Well, we figured out how their computer and control system worked by going to the Rose Bowl several times at night. We then designed a project to "takeover" control of the system by tapping into the cable between their computer and the scoreboard. Challenging aspects of this were determining the correct protocol used on the cable, and also locating the project in a place where it couldn't be found. The project contained an 8086 microprocessor and was radio controlled via our own simple scoreboard command language. We used a portable computer carried in a backpack to send the commands on the day of the game.

Q: *And how did it work?*
A: Perfectly! We were somewhat afraid of it being discovered, but when we went down the night before the game (Techers live at night, frequently) to make a final radio check, our equipment was still working fine.

Then during the game, we transmitted a number of messages, starting near the end of the first half. We had "Caltech," "Go CIT," "DEI" — a well-known in-joke among undergrads here — a picture of a beaver (Caltech's mascot), and so on. It wasn't until our last message — Caltech 38, MIT 9 — that anyone really took notice. We left that one on, and they couldn't get it off — no override — so eventually they just turned off the power, which turned off the time and score as well. We didn't think they were going to do that, but fortunately, the outcome of the game had already become clear.

KNBC 4

NBC Television Stations Division
National Broadcasting Company, Inc.

3000 West Alameda Avenue
Burbank, CA 91523 213-840-4444

December 14, 1984

Christopher Brennen
355 S. Holliston
Pasadena, CA

Dear Christopher,

Beth and I would like to take this opportunity to thank you once again for appearing on ODYSSEY and making our holiday program a success. Your performance was outstanding and we are sure that our viewing audience will find it as entertaining as we did.

Just as a reminder; this special edition of ODYSSEY will air on Sunday, December 23 at 7:30AM.

Sincerely,

Howard Fried

Howard Fried
Associate Producer
ODYSSEY

TRAVELS NOW AND THEN

SKIING 1984

Skiing trip to Big Bear, California, New Year 1984


Big Bear Solar Observatory Lodge


Big Bear Ski Resort


Big Bear Ski Resort


Big Bear Ski Resort


Big Bear Ski Resort


Big Bear Ski Resort

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Last updated 7/30/99.
Christopher E. Brennen