

CHEMISTRY DEPARTMENT NEWSLETTER

August 1980 No 5



Lippincott Visits Department



Under the sponsorship of the Departmental Advisory Council and the Dean's Office, Prof. William T. Lippincott of the University of Arizona, on April 9-11 studied our undergraduate program with particular emphasis on the lower division and service courses, and later submitted a report on his findings to the department and the university. He interviewed indi-

vidual students and faculty within the department; and, because the great majority of the students in lower division chemistry courses are from other departments, he met privately with the Deans of Schools and representatives of eleven other departments.

His report was pleasingly favorable. He found that other departments, whose students we instruct, had "... the highest regard for the department, its chairman and faculty, and its lower division course offerings." There were recommendations made of three general types:

1) He concurred with the other departments that we should "provide more examples to show how chemistry applies to their discipline."

2) He felt that more and continuing review is needed to minimize possible overlap and duplication of topics in two-semester and sequential courses.

3) He noted that "Nearly every lab course could stand one or more exciting and 'modern techniques' experiments," and he urged the university and department to develop a five-year-plan to acquire the necessary new instrumenta-

tion for the big enrollment lower division courses.

Although technically beyond the lower division scope of his initial charge, he urged us to accelerate plans for development of a new upper division General Education chemistry course, and a non-thesis Masters degree in industrial chemistry.

Professor Lippincott was for twelve years editor of the *Journal of Chemical Education* and was awarded the Manufacturing Chemists' Award for excellence in teaching.

The department regularly invites external consultants to visit this campus, to look critically at one or another aspect of our program, and to make recommendations and observations. The 1978 *Newsletter* reported upon a visit by Prof. Leo Brewer, who examined our Masters Degree program. Earlier, Prof. Calvin VanderWerf had reviewed the courses and curriculum for the chemistry major degrees. Of course, there are annual reports required by the American Chemical Society to sustain our status as an "Approved" department.

Higuchi: First Rachele Lecturer

Dr. Takeru Higuchi, Regents Professor of Chemistry and Pharmacy at the University of Kansas, visited this Department during the week beginning November 26, 1979, as Rachele Lecturer; the first of what we hope will be an annual event.

Using as his basic theme the application of physical chemical principles to pharmacy and physiology, he delivered two seminars: *Solubility of Organic Substances in Organic and Aqueous Systems* and *Distributive Tendencies of Organic Substances*. The former was pitched toward undergraduate students and the latter toward the graduate students and faculty. He also spoke on *Society, Economics, and Drug Research* to a general campus audience. Dr. Higuchi visited with students on wide-ranging topics relating to opportunities for chemically-trained students in the pharmaceutical field. Also there were lunches with faculty, conferences with faculty and graduate students, dinners, and a reception attended by University ad-



ministrators, faculty, students, and Rachele Laboratories representatives.

Professor Higuchi is Chairman of the Department of Pharmaceutical Chemistry at the University of Kansas, and President and Chairman of the Board of INTERx

Research Corporation - whose primary goal is to implement the pharmaceutical and drug-delivery concepts developed by Higuchi and his associates during the past several decades. His honors include: the American Pharmaceutical Association's Ebert Prize, the Research Achievement Award in Physical Pharmacy, the 1975 Midwest Award of the American Chemical Society, the Scheele Medal (Stockholm, 1977), the 1977 Kolthoff Gold Medal Award in Analytical Chemistry, and the Volweiler Award of the American Association of Colleges of Pharmacy in 1978. He is an honorary life member of the Japanese Pharmaceutical Society and has many honorary degrees and citations. He has published more than 280 articles, has more than 50 patents, and has trained in excess of 200 doctoral and post-doctoral students.

Prof. Higuchi's visit was made possible by a grant from Rachele Laboratories, and they have generously continued this support. Next year's Rachele Lecturer will be Prof. Charles Casey of the University of Wisconsin, an organometallic chemist, who will visit us next March.

KNIGHTS NAMED OUTSTANDING ALUMNUS



One of our graduates, Evord F. Knights, was honored at commencement as this University's 1980 Outstanding Alumnus. Only one such award is conferred annually.

Dr. Evord Knights received his BS degree in Chemistry in 1964 and is well remembered by the Faculty as a distinguished chemistry student and outstanding personality. He participated actively in Departmental affairs and was involved in an undergraduate research project on ferrocene chemistry under the direction of Dr. Kenneth Marsi, a research effort to which he made significant contributions. After graduation from CSULB, Dr. Knights entered Purdue University where he studied under Herbert C. Brown and was awarded a PhD in organic chemistry in 1968.

While a graduate student at Purdue University, Dr. Knights developed a synthesis for 9-borabicyclo [3,3,1] nonane and examined numerous reactions of this unique and synthetically useful chemical. Numerous journal publications resulted from the work. The technology for synthesis of 9-BBN, as it is now known, has been patented, and it is manufactured commercially under license to Aldrich Chemical Company. The publications which Dr. Knights coauthored with Nobel Laureate Dr. Herbert C. Brown are among the most cited in the current chemical literature. Dr. Knight's collaborative research constituted a portion of the celebrated work in "hydroboration," the principal accomplishment for which Dr. Brown was cited as the 1979 Nobel Prize recipient in Chemistry, Dr. Knights' discovery has achieved the status of inclusion in undergraduate organic chemistry textbooks.

After joining Union Oil, Dr. Knights became involved in palladium and palladium-copper homogeneous catalysis

of ethylene to acetaldehyde. Several patent applications describe this accomplishment. He was then assigned to the task of developing carboxylated styrene-butadiene rubber products for a new polymer emulsion plant. This work led to the development of several successful styrene-butadiene products and evolved into full commercialization. At present Union Oil produces a large volume of this variety of synthetic rubber developed by Dr. Knights.

In 1970 he was asked to join a survey team which performed a comprehensive audit of Union Oil's polymer plant operations. The recommendations of his group doubled plant through-put within three months. He developed the fundamentals of a plant cost accounting system, designed a financial model of the company's polymer plants, analyzed plant labor utility, and established standards of plant performance.

In 1975 he accepted the position of Plant Manager of Union Oil's La Mirada Polymer Plant which he completely reorganized. This was done using the techniques of supervisory development, improved work procedures, and thoughtful scheduling of men and equipment. The physical facilities were completely reworked to bring them into a greatly enhanced operating condition. Within four months the plant experienced a 35% increase in equipment efficiency and a 60% increase in production without additional personnel or capital. He then supervised expansion of the plant to increase production by 265% during the next two years with only a 35% increase in personnel.

Recently, Dr. Evord Knights was promoted to Vice President of Planning and Business Development and now heads the Petrochemicals Group of the Chemicals Division of Union Oil Company of California.

H.C. BROWN: COMMENCEMENT SPEAKER

Professor Herbert C. Brown of Purdue University, 1979 Nobel Laureate in Chemistry, spoke at the School of Natural Sciences Commencement. His topic was "Adventures in Research"; the commencement ceremony was held May 30, at 4 p.m. in the central quadrangle. A reception to honor the graduates was held in the Student Union immediately after the ceremony. All alumni and friends were cordially invited to attend.

Also at this commencement Evord Knights, BS '64, was honored as CSULB's Outstanding Alumnus. Evord received his Ph.D. in 1968 from Purdue for work done under Professor Brown's direction.

Dr. Herbert C. Brown is Wetherill Research Professor Emeritus at Purdue University. At a time when steric hin-

drance was considered to be "the last refuge of puzzled organic chemists," his studies of molecular addition compounds contributed to the reacceptance of steric effects as a major factor in chemical behavior. His studies on aromatic substitution led to a quantitative theory based on the new Brown σ^+ constants. His studies on applications of the borohydrides and diborane to organic synthesis have had revolutionary impact on synthetic organic chemistry. Finally, the new borohydride preparation of active hydrogenation catalysts was discovered in collaboration with his son, Charles A. Brown, and this in turn led to the new simplified Brown procedure for laboratory-scale hydrogenations.

Professor Brown was the Harrison Howe Lecturer in 1953, the Centenary Lecturer of The Chemical Society (London) in 1955, and the Baker Lecturer in 1968. He was elected to the National Academy of Sciences in 1957, the American Academy of Arts and Sciences in 1966, received an honorary Doctorate of Science degree from the University of

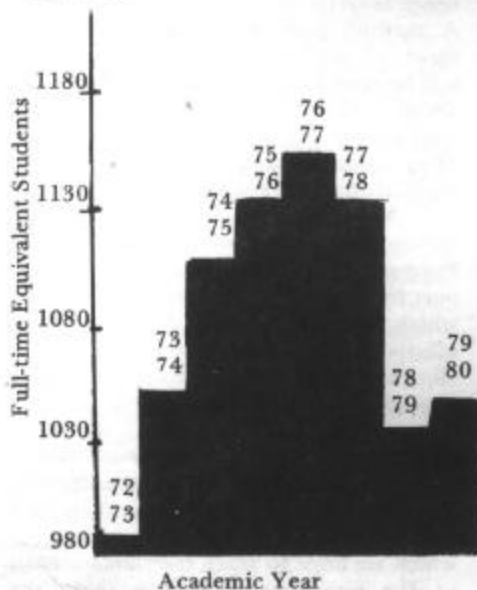


Chicago in 1968 and was elected Honorary Fellow of The Chemical Society and Foreign Member of the Indian National Academy of Science in 1978. Finally, he is the recipient of the Nichols Medal for 1959, the ACS Award for Creative Research in Synthetic Organic Chemistry for 1960, the Linus Pauling Medal for 1968, the Medal of Science for 1969, the Roger Adams Medal for 1971, the Charles Frederick Chandler Medal for 1973, the Madison Marshall Award for 1975, the CCNY Scientific Achievement Award Medal for 1976, the Allied Award for 1978, the Ingold Memorial Lecturer and Medal for 1978, the Elliott Cresson Medal for 1978, and the Nobel Prize for 1979.

THE CHAIRMAN'S MESSAGE

At this time there is still uncertainty about the future of higher education in California. Although Proposition 13 was not the disaster it was predicted to be, this University nevertheless lost about a million dollars in funding as a direct result of passage of that measure.

The problem of effectively reduced funding for higher education is compounded by the potential for eroding enrollments. This can be seen from the enrollment profile in Chemistry. In 1978-79 we suffered a significant decline in chemistry enrollments. This year we have recovered a small fraction of that loss due primarily to an upsurge in enrollment in the School of Engineering. Sharp losses in majors in the biological sciences and some of the applied arts have taken their toll in chemistry service courses for those areas. However, the chemistry degree programs are still strong in quality and numbers.



CSULB CHEMISTRY ENROLLMENTS

Because of the downturn in enrollments, the University is launching a vigorous campaign to recruit students. For example, students applying to CSULB for admission as chemistry majors now receive personal letters from chemistry faculty offering assistance with curriculum and career planning. In this way we hope to attract a higher percentage of those who apply for admission. Last year only about 50% of the applicants with an interest in chemistry actually enrolled. Of course we will appreciate your help in "talking up" our Department and University to students with potential.

Last year we graduated 14 masters students in Chemistry and Biochemistry. This placed us *first* nationally in MS

production among institutions which do not grant the Ph.D. Among all institutions we rank twenty-first in the nation. Our Department graduated 36 bachelors students; this places us fourth among the nineteen-campus CSUC system. This year's graduating class will consist of about 60 bachelors and masters degree recipients.

What do our bachelors students do after graduation? About one-third go on for advanced degrees, another third enter professional schools (medicine, dentistry, pharmacy), and a nearly equal number begin careers in chemistry at the bachelors level. Our record for placement of students in professional schools is quite impressive. All eleven of last year's medical school applicants were admitted; all dental school (three) and pharmacy (five) applicants were also accepted. Pharmacy students are generally admitted at the conclusion of their junior year, so unfortunately we cannot count them as graduates, although we regard them as alumni. We are pleased to have so many excellent students among our majors and are justly proud of their accomplishments.

This year Dr. Don Simonsen will join Dr. Julie Parker Kierbow and Mr. Clyde Osborne as emeritus professors. Don was Department Chairman the year I came to CSULB (1961), and Irene and I still warmly remember his kindness in helping a poor assistant professor and his family find housing. Don plans to maintain an active interest in the Department and will continue to live in Long Beach near the University.

Among those returning from sabbaticals this year will be Dr. John Stern who, with his family, spent a year in London. John was involved in electrochemical research at Queen Elizabeth College of the University of London. Dr. Robert Loeschen will return from Purdue after a year's research in photochemistry. Dr. A.J. "Jack" Berry spent his sabbatical year in residence helping a large number of his research students with their projects. Dr. Charles "Pat" Dunne will be completing a year's leave of absence at the Army Research Center in Natick, Massachusetts doing research in food and nutrient preservation with particular emphasis on the effect of radiation on vitamin stability. Dr. Dorothy "Dot" Goldish will spend the 1980-81 academic year at the University of California, Irvine, with Dr. Harold Moore and his group and will be involved in an organic synthesis project. She is looking forward to her first sabbatical leave after twenty-two years of dedicated service to the Department and University as teacher, associate dean and active member of many committees.

Last year I announced formation of an Advisory Council for the Chemistry Department. In its two years of existence

the members of this council have offered invaluable aid to the Department. Most importantly, students have been placed with their companies in good jobs. Also funds have become available for a Distinguished Visiting Lectureship, and to help support the seminar program and visits by other distinguished educators such as Dr. Tom Lippincott, former editor of *J. Chem. Educ.* Through their generosity a number of awards and scholarships have been established.

We also appreciate *your* response to our invitation last year to help with Department programs. Any contributions will again be matched by faculty contributions and used for the advancement of quality in our Department; e.g., the seminar program and student awards and scholarships. This year I am happy to have the help of Ancel Calloway of Aerospace as an alumni representative on the Advisory Council. He will be responsible for assisting in the promotion of a more active alumni program. Should you wish to help support projects in our Department please write a check in any amount to "The Chemistry Department Development Fund" and send to the Chemistry Department.

All of the faculty send their best wishes! You are always welcome to stop by for a visit. The Chemistry Office has been in the same place for the last 18 years (Science Building 3 Room 242), although we are hoping to move to larger quarters in another year or so. Your cards and letters are appreciated, and we will be happy to insert news about you and your families in next year's *Newsletter*. As ever,

Ken Marau

BUD WHIPPLE DIES

With profound sadness we report the death of Albert R. "Bud" Whipple on July 4, 1979, in San Diego. At his death he was a student in the UCSD Medical School; he was a UCLA graduate.

Although the immediate cause of death was a dissecting aneurysm which allowed blood to fill the sack around the heart thus stopping it; he was a victim of Marfan's syndrome, a rare hereditary disease affecting the collagen of the body. Bud knew that he had the disease and that persons with Marfan's seldom live past the fourth decade, yet he was a cheerful, dedicated, conscientious student and a warm, friendly person who gave much to those who knew him.

We are all happier and better somehow for having known Bud Whipple, and we miss him.

FACULTY NOTES

Robert Loeschen was promoted to Professor of Chemistry, and Thomas Maricich received tenure and was promoted to Associate Professor of Chemistry. Both actions are effective next September.

The University Research Committee awarded grants for the 1980-81 year to chemistry faculty as follows:

Arnold Berry "Cell Membrane

Studies in Duchenne Muscular Dystrophy"

Stuart Berryhill "The Reactivity of Organometallic Compounds"

Jeffrey Kohlberg "Complex

Formation Among Proteins from *E. Coli*"

Charles Dunne "Models for Loss of Vitamin B₆ Activity in Metabolism"

Thomas Maricich "Sulfur-Nitrogen Functional Groups"

Kenneth Marsi "Stereochemistry of Substitution Reactions at the Tetracoordinate Phosphorus Atom"

Linda McGown "Fluorometric Measurement of Monoamine Oxidase Reactions"

Henry Po "Electrochemical Studies on the Redox Properties of Metalloporphyrins"

Nail Senozan "The Effect of Heavy Metal Ions on Oxygen Transport"

Below are brief descriptions of some of these projects; additional reports are planned for future editions.

Henry Po received a two-year research grant from the ACS-Petroleum Research Fund to study the mechanism of electron transfer in the one-electron oxidation of biologically important heterocyclic thioamides.

Nail Senozan received, for the second time, United Nations assignment to consult and teach at Ege University, Izmir, Turkey, from June 2 to July 11, 1980.

JACK BERRY "We are now in the third year of support from the Muscular Dystrophy Association (\$30,046 total) for a research program dealing with Duchenne muscular dystrophy. The present research team includes three graduate students (Tam Chung, Fritz Coffman and Bob Proffitt), an undergraduate student (Char Taylor), and myself. Patient blood samples are delivered by automobile or air freight from several muscle disease clinics in California.

"Duchenne dystrophy is a genetic disease transmitted from mother to male children (x-linked recessive) similar to the well-known hemophilia. It is the most progressive and severe form of muscular dystrophy, usually diagnosed at 3-5 years

of age. The victims gradually go through stages of muscle weakness, to the inability to walk (early teens), to death, usually in the middle of the second decade. There is nothing that can now be done to alter this course.

"The biochemical basis of the disease is an abnormal cell membrane, the details of which are unknown. All tissues are affected, but skeletal muscle tissue most severely so. Red blood cells are most often studied because of the small discomfort to the patient and ease of obtaining samples. Many minor biochemical abnormalities have been reported such as membrane chemical composition and cellular enzyme activities (including our own work on superoxide dismutase). Our most recent efforts deal with ionic calcium transport and metabolism using red blood cells. This looks promising to us since we observed that most of the reported abnormalities have as a common denominator some form of involvement with calcium. This might also explain the severity in muscle since calcium is of great importance in the control of muscle contraction."

STUART BERRYHILL reports that "during this past year I have initiated a research program in organometallic chemistry. Two of the areas I am currently investigating with the able assistance of two undergraduate students are the role of transition metals in stabilizing electron-deficient organic ligands and the uses of nucleophilic additions to iron-complexed olefins in organic synthesis. Financial support from the department and various other on-campus sources has been used to purchase necessary organometallic chemicals, and I am currently waiting for the review of a proposal sent to the Petroleum Research Fund of the American Chemical Society."

JEFFREY KOHLBERG "I've been pursuing research on ribosome structure, along with grad students - Rich Hudspeth, Brian Imai, Steve Souza and Ikuhisa Sawada. We're attempting to find out which ribosomal proteins interact non-covalently with each other in the ribosome by looking for complexes between proteins in solution. We're also trying to covalently cross-link certain proteins to their binding sites on the ribosomal RNA. An NIH grant has made it possible to buy a zonal rotor for doing large-scale sucrose gradient separations, an automated density gradient monitor, and a micro-comparator for reading optical patterns obtained with the analytical ultracentrifuge."

TOM MARICICH reports that "My research activities involve studies of novel functional groups of sulfur and nitrogen.

Derivatives of imino sulfonate esters have shown promising antitumor activity in tests conducted by the National Cancer Institute. Best results, so far, have been obtained against melanocarcinoma in male mice. Modest support (\$6,000) was provided by the Testing Branch of NCI for preparing these compounds. There are currently five graduate students working in my group, including one PhD candidate on a collaborative project with Dr. Fillmore Freeman at UC Irvine. A joint paper on the latter project, involving detection of disulfide oxidation intermediates, was presented at the Pacific Conference on Chemistry and Spectroscopy in Pasadena last fall."

LINDA MCGOWN who joined our faculty last August is well underway with her research program.

"Last semester I initiated my research program with studies on fluorescence analysis of oxidase enzyme systems. A method was developed for measurement of glucose oxidase reactions, and will be described in an article in *Analytica Chimica Acta* later this year. This spring I have turned my attention to the analysis of monoamine oxidase, an enzyme active in neurochemical systems.

"My research has been supported this spring by a Professional Opportunity Program award. I have also received support from several other University sources which will enable me to devote full-time efforts to research this summer, as well as allowing me to purchase an Aminco-Bowman spectrofluorometer."

LES WYNSTON "A new general education chemistry course is on the drawing boards; Jack Berry and I are working on a course called simply "Winemaking" in which we hope to teach the fundamentals of the fermentation process (with the help of the microbiologists) and the chemical and sensory analysis of wine so that the students can easily become home winemakers. This evolved from Jack's interest in making wines at home and my teaching a series of extended education courses, dating back to 1974, called "Wine Evaluation," here on the CSULB campus each semester.

"During the summers, beginning in 1977, I've taken the class abroad on wine (and food) study tours to both Europe and the Orient. It's amazing how much more the participants learn - and retain - by studying the subject "on location." They come from all walks of life, and their ages have ranged from 20 to 73, so far. In 1979, we studied the role of wines (Oriental, American and European) in the Oriental menu, ranging from Japan through China, Thailand, Singapore to Indonesia. Summer, 1980, will see us in Germany, Austria and France for 3 weeks.

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Also, in December-January, 1980-81, we will tour Spain and Portugal for 2 weeks. Alumni and friends are always welcome. Only a few of the tour members are currently enrolled students, and many are repeaters on the tours. I share my students' view that this is a real fun course, and they are surprised how much they learn in the process."

The Editor's Award for *Sharpest-eyed Graduate* goes to Ara Yeramyian, MS '69, based upon the report in the *C&ENews*, p. 92 April 21, 1980 (reprinted by permission).

PISTACHIO STALLS TEXAS CAR

Ara Yeramyian of Philadelphia has passed along a story he saw in *Modern Paint and Coatings*, which had found it in *Automotive Engineering*. It seems that a lady in Texas complained to her automobile dealer that her car wouldn't start when she bought pistachio ice cream. On hot summer days she would buy ice cream at a local shop to take home to her family. When she bought chocolate, vanilla, or strawberry the car started right up, but when she bought pistachio it always stalled.

The automobile dealer found this tale unconvincing. The fault, he figured, lay not in the car but in its driver. Still, the lady was persistent, and she turned out to be right. Investigation disclosed that chocolate, vanilla, and strawberry were prepackaged ice creams, so take-out orders could be dispensed rapidly. Pistachio, on the other hand, had to be hand-packed, which allowed just the extra time needed for the lady's car to develop a vapor lock in the hot Texas sun.

* STAFF TWITTER

by Reva Walther

KERWIN BENNETT - Is a husband, father of 2 and now - DIRECTOR OF LABORATORIES. He is pursuing a M.S. in Biochemistry at CSULB and still manages to be on the soccer field, both with the big boys and little boys. Wife Margaret competes by playing on the women's team in soccer at CSULB.

BOB CLARK - Our "glassblower" resides with lovely wife Sharon and daughter in Lakewood. They came to us from the paradise city of Santa Barbara. Bob also worked at Alfred Univ. in NY. Bob has secret talents, his oil painting and sketches reflect his artistic abilities which will be enriched by a trip to Spain this summer.

HONORS TO CURRENT STUDENTS AND NEW GRADS

Kenneth Branam	Distinguished Service by an Undergraduate in the School of Natural Sciences, 1979-80
	The CSULB <i>Gold Nugget</i> Award, 1980
	<i>Who's Who Among Students in American University and Colleges</i> , 1979-80
Mike Briggs	Natural Science Dean's Student Service Award
Kathleen Cannon	Rachelle Laboratories
Ralph Hall	Summer Research Fellowships
Betty Chang	Rachelle Awards (Outstanding Chemistry Graduate Students)
Brian Imai	
Betty Chang	Union Oil
Gary Tietavainen	Summer Research Fellowships
Diana Delatore	Merck Awards in Organic Chemistry
Mark Phillips	
Kathryn Dennis	Phi Beta Kappa
Tina Kishishita	
Joseph M. Molina	
Kirk Morgan	
Alan Galuska	Chemistry Department Analytical Award
	American Institute of Chemists Award
	Dean Rhodes Memorial Award
Thomas Harman	California Heart Association
Charlene Taylor	Summer Research Fellowships
Jack E. Long	National Cancer Institute
	Summer Research Fellowship
Patrick McKay (1979)	California Foundation for Biochemistry Research
Frank Norton (1980)	Summer Research Fellowships
John Platt	Chemical Rubber Publishing Company
Jeff Shimoyama	Awards to the Outstanding Freshman Chemistry Students
Dean Sequera	Toni Horalek Memorial Award
Steve Souza	Graduate Dean's List

STEVE HEADRICK - Received his BA degree in Chemistry and is continuing his studies toward his MS. He has assumed duties as Stockroom Keeper of SC2, along with Larry Herold. Steve and wife Denise have one little boy and expect another little Headrick this summer.

LARRY HEROLD - Our SC2 Stockroom supervisor in chemicals and bottles, etc. Larry's outside interests include soccer and hopefully a trip into the Sierra.

BOB SOUKUP - Our Equip. Tech. and main fixer upper, has completed, almost single handedly, a home in Idyllwild, shoveled the snow, pounded the nails and laid the floors; it is a beauty! All it needs is the female touch.

Four Chemistry students were elected to Phi Beta Kappa out of a total for the entire University of 36 students elected (many times the statistical expectation).

Editor's Note: Because Bob Andrew's article from the Long Beach *Independent/Press Telegram* caught the flavor of Prof. H.C. Brown's Commencement speech so well, we will share it with you. (Reprinted by permission.)

WIFE'S GIFT GAVE IDEA TO NOBELIST

Dr. Herbert Brown, a Nobel laureate in chemistry who gave the commencement address Friday to the School of Natural Sciences graduates at California State University Long Beach, owed his success to his wife and a graduation present.

His quest for the Nobel Prize began when she inscribed one of his college annuals "To the future Nobel laureate." She perpetuated the idea with the gift she gave him when he graduated from the University of Chicago, a chemistry book on hydrides of boron.

The subject was obscure enough that at \$2 — in that Depression year of 1936 — it was the cheapest chemistry text in the bookstore.

"In her defense," he added, "she likes me to say that it cost her her lunch money for two weeks." The book was fascinating, he said, to the point that boron compounds became the subject of his doctoral research.

Brown himself provided the final ingredient in his formula for winning the Nobel Gold Medal and the \$100,000 check that accompanies it — the type of temperament that kept him researching that doctoral dissertation for 44 years after it had been presented. Since then he has presented more than 800 scientific papers reporting his research.

Thus his advice for the graduates was to find plenty of cheap books to read, select a fascinating subject and stick with it for the rest of their lives. But the majority of his speech did not deal with



their goals for the future, but rather with the experiences — especially the humorous ones — of having won the Nobel Prize.

He related how he first learned of it and the two-hour lunch that followed — with 10 minutes between bites of a very small sandwich as newsmen from around the nation called for interviews. Each interviewer asked the same three questions:

1. How did you feel about winning?
2. Can you explain your research in simple terms?
3. What are you going to do with the \$100,000?

"I felt delighted, as any sane person would," he confided, "and the last question was easy. My wife is also a chemist, and when we were married we agreed that I would handle the chemistry and she would take care of everything else. . ." The money, he said, fell into her area of responsibility.

Brown then proceeded to describe — in terms that must have been hilarious to the budding scientists in their caps and gowns — the simplicity of the language to which he was reduced in explaining to reporters the periodic table, the chemist's Rosetta Stone, by which he translates into human comprehension the building blocks of the universe.

"The central element in the periodic table is carbon, a common element, which is represented in equations by the letter 'C'. . ." By the time he had added H for hydrogen, N for nitrogen and B for boron, Brown was ready to explain in greater depth.

You can combine one carbon atom with four hydrogens to get CH_4 — methane or natural gas — a common substance; you can combine three hydrogens with nitrogen to get NH_3 — ammonia — another common gas. He discovered an easier method to combine a single boron atom with three hydrogen to get BH_3 — borane, a compound so rare that when he began his research only two chemical laboratories in the world were capable of producing it.

Brown didn't bother to tell the non-chemists in the audience that borane, a reducing agent, is useful for making rocket fuel.

His research has made borane and the other hydrogen-boron compounds a little less rare and a lot more useful, and expanded chemical knowledge to the point that he compared it to "a vast continent."



PAT-ON-THE-BACK DEPARTMENT

Among the rewards of the academic life the greatest is the appreciation of our students, and we decided to share one of these with you. The following letter is reproduced by permission.

May 15, 1980

Dear Dr. Kenneth Marsi,

This month I will be graduating from this university with a Bachelor of Arts degree in Chemistry, and I didn't want to leave this university without telling you how much I appreciated the fine chemistry program the Department provides.

Although I intend to pursue a career in Pharmacy, I feel that the chemistry background that I received here was well worth my time. The majority of "my" professors in chemistry were very helpful, and what I appreciated the most was their concern for the students' education. Most of the professors that I took courses from spent extra time when I had difficulty in understanding the subject material, and what was important was that they were accessible to the students (I've heard stories about other universities where the professors are never available for consultations). In addition to the professors, I've had excellent T.A.s. (In fact, if I didn't have the understanding and guidance of my first T.A. - Mrs. Kuprenos - in freshman chemistry, I wonder if I'd be graduating with a degree in chemistry this month). All in all, I've had an enjoyable time while earning the Chemistry degree, and that thanks in part to the whole Chemistry Department.

Finally, I'd like to thank the Chemistry Department for informing the Phi Beta Kappa Committee that I might be eligible for that honor. I had no idea that I met their requirements, and if it hadn't been for this Department, I would never have received a late application. Thank you again! (By the way, I was very fortunate enough to be elected to that honor society.)

In closing, I'd like to say that I'm proud to be graduating this university's chemistry program.

Cordially yours,
Junia Kishishita

REPORT FROM THE STUDENT AFFILIATES

by Mike Briggs

During the 1979-80 academic year the program of the Student Affiliates of the American Chemical Society was overall a success. As in the past SAACS sponsored several speakers from the off-campus chemical community as well as from within the Chemistry Department. This year's speakers included CSULB alumni, Dr. Arie Passchier from Rockwell International and Annette Baumgartner from Aerospace Corporation, who gave a discussion on career opportunities in Chemistry. Dr. Marsi continued to give his traditional orientation to new students.

This year the School of Natural Science held an open house on March 15. The SAACS provided several interesting displays for this event including: demonstrations of N.M.R. spectroscopy, chromatography techniques, and of course the ever-popular chemical magic show.

The SAACS continued to sell lab safety glasses and aprons to students. Funds generated from these sales went to promote faculty-student relations by providing for the annual Christmas party, Spring picnic (ask Dr. Henderson about the softball game) and annual Pizza Awards Banquet. The SAACS also sold C.R.C. Handbooks and A.C.S. T-shirts.

Congratulations are in order for next year's officers: Diana Delatore - President, Jim Denman - Vice President, Gary Steelman - Secretary, William Shoemaker - Treasurer, Gary Jackson - School of Natural Sciences Council Rep.

In closing, the officers of this past year would like to express our gratitude to the faculty, staff, alumni and most of all the students who helped to make this year's activities a success. The officers of the Student Affiliates are Michael Briggs - President; Brian Dubow - Vice President; Jim Denman - Secretary; Erika Schneider - Treasurer.

Typeset & Layout: Word Processing Center
Printing & Photo Processing: Duplicating Center
All the rest of the hard work: Chemistry Office Staff

FROM THE ALUMNI REPRESENTATIVE

From the conversations I have had with Dr. Marsi over the past couple of years, it has become apparent that many chemistry graduates have lost touch with the University. It is important for the Chemistry Department to know where you are and what you are doing. If you know the whereabouts of any other alumni, please inform the department. With this information the department can better assess the job it is doing in filling the needs of the scientific community. A personal note - I'll bet that Dr. Marsi will remember you, and I can assure you that he will appreciate hearing from you and will respond to any cards or letters which he may receive.

Dr. Marsi and his staff undertake worthy projects that are not funded by the University, and for these endeavors they must rely on outside financial support. Examples of these undertakings are: Project Seed (a program sponsored by the American Chemical Society with matching funds), the seminar program, and student awards and scholarships. CSULB does not enjoy the broad support base large universities such as USC, Cal Tech, and UCLA have. To help Dr. Marsi and his staff continue and expand in these areas I urge you to make a contribution (it's tax deductible) to the University and direct it to the Chemistry Department. If your company matches your contribution, be sure to include the proper forms.

I would be happy to correspond with any alumni about ideas for improving the solidarity of the Chemistry Alumni - attendance at athletic events as a group, an annual dinner or picnic, etc.

Technical Staff Your fellow alumnus,
Aerospace Corp.

Arnel Ray Culloway

Alumni Representative

FUTURE PLANS OF SOME OF OUR GRADUATES

(This is a partial list summarizing information available to date. We apologize for any oversights and we will include more data in the next edition. Editor.)

- | | |
|----------------------------------|--|
| Bannon, Steven BS '79 | Baptist Theological Seminary |
| Cachia, Victor BA '80 | Getty Oil |
| Cannon, Kathy MS '80 | Free-lance Technical Writing |
| Carey, Anne T. BS '80 | Rachelle Laboratories, Long Beach |
| Carr, Michael BA '79 | General Dynamics |
| Castellino, Stephen BA '79 | UC Riverside PhD program |
| Chernik, David A. BS '79 | CSULB MS program |
| Coffman, Fritz MS '80 | UCR PhD program
(Biochemistry) |
| Crnkovich, Michael T.
BA '80 | Hughes Aircraft technical
representative aboard the USS
Midway |
| Downs, Gregory J. BA '80 | Medical School |
| Doyle, Gayle Withers BS '79 | Aerospace Corporation |
| Dubow, Brian C. BS '80 | General Dynamics |
| Eliades, George N. BA '80 | Emory University Dental School |
| Galuska, Alan A. BS '80 | Cornell University PhD program |
| Henderson, Leslie BS '80 | Louisiana State University PhD
program |
| Holzner, Michael MS '80 | California Air Resources Board |
| Honda, Donald H. BA '80 | USC Pharmacy School |
| Imai, Brian S. MS '80 | UCD PhD program
(Biochemistry) |
| Jones, Nikola K. MS '80 | Beckman Instruments |
| Jones, Stephen MS '79 | UC Riverside PhD program |
| Jordan, Paul MS '80 | Chicago Medical School MD
program |
| Kishishita, Tina M. BA '80 | UCSF Pharmacy School |
| Klenck, Robert E. BA '80 | University of Arizona MS
program |
| Le, Loc P. BS '80 | CSULB MS program |
| Marsi, Kenneth S. BA '80 | San Diego State University MS
program |
| Maiden, Robert P. MS '79 | West Coast Technical Services,
Cerritos, CA |
| McKay, Patrick A. MS '79 | Genentech Inc., San Francisco,
CA |
| Molina, Joseph M. BA '80 | USC Medical School |
| Morgan, Kirk M. BA '80 | Case Western University Medical
School |
| Nassermoaddeli, Shara BS
'80 | CSULB MS program |
| Nghiem, Ba Tu BS '80 | Kansas U PhD program
(Medicinal Chemistry) |
| Norton, Frank MS '80 | UCD PhD program (Immunology) |
| Schneider, Terrence L. MS
'80 | Rockwell International |
| Scott, Richard A. BA '79 | Arizona State U MS program,
toxicology |
| Sequera, Dean E. BA '80 | Sanitation District |
| Smith, Duane R. BA '79 | CSULB MS program |
| Stephanos, Stephen J. BS '79 | CSULB MS program |
| Woo, Dan H. MS '79 | Aminoil USA, Inc., Huntington
Beach, CA |
| Wuhrman, William B. MS '80 | Hughes Aircraft |
| Yamaguchi, Kenneth BS '80 | CSULB MS program |
| Yeager, Elizabeth MS '80 | Beckman Instruments |

CSULB CHEMISTRY DEPARTMENT NEWSLETTER

An occasional publication of the Chemistry Department for past, present and future students, faculty and friends.

News items are welcomed - even solicited - and may be sent to:

Newsletter
Department of Chemistry
California State University,
Long Beach
Long Beach, CA 90840

Editor-this-issue - Robert B. Henderson

NEWS FROM THE ALUMNI

ALL YOUR NEWS THAT FITS WE'LL PRINT

1962

WELZ, ED BS '62. After 11 years with Rocketdyne Division of Rockwell specializing in GC/HPLC and other instrumental analyses, he returned to the Long Beach area by joining Rachele Labs as Manager of Analytical Laboratories. In 1976 he accepted his present position as Manager, QC and Analytical Services at Thiokol Dynachem. He has been married 18 years and has three children. He writes "I have found that my chemical education has been essentially second to none . . . I function easily and competitively with real world chemists at all degree levels, even from those "prestigious universities."

HUTCHINS, ROBERT O. MS '62 is now a Full Professor of Chemistry at Drexel University. Wife, Gail, also a former CSULB student, is finishing her PhD in Organic Chemistry at Temple University. She has an MS in Chemistry from St. Joseph's University in Philadelphia.

1963

PASSCHIER, ARIE BS '61 MS '63 a research chemist with Rockwell International, participated in a panel discussion on careers in chemistry for a group of about 50 chemistry students at CSULB in April. Dr. Passchier lives in Orange and works at the Anaheim facility of Rockwell.

1964

KNIGHTS, EVORD F. BS '64 has recently been appointed Vice-President, Business Development and Planning, Union Chemical Division, Union Oil Company of California. He is presently stationed at the Chicago office and lives in Palatine, Illinois.

1965

ADAMS, JUDY BS '65 is Risk Manager for Alameda County. She recently coordinated a series of Risk Management seminars across the county.

1967

KNIGHTS, RALPH BS '67, another of our Purdue PhD's, is a research chemist at Mead Johnson in Evansville, Indiana, doing research on protein substitutes.

SENZEL, ALAN J. BS '67 is an independent consultant in analytical chemistry and technical editing and writing. His work includes trace metals analysis in biological fluids; analytical laboratory quality control; health effects; analytical methods for foods, drugs, pesticides; pollution control; process engineering. He received the FDA Commendable Service Award in June, 1978. Alan and wife, Phyllis, have two children: Richard, 8, Lisa, 7.

1968

LEONARD, GLORIA K. BS '68 joined Calgon Corporation about two years ago as Associate District Representative, managing the West Coast Analytical Lab in addition to technical support and field sales in industrial water treatment.

1969

WOODMAN, DONALD A. BS '69 has transferred to Research, Analytical Chemistry, at Riker Laboratories, a subsidiary of 3M. He is taking computer science courses to prepare for graduate school at the U. of Minnesota. He likes the white Christmases and the changes of season, but the Minnesota winters are a bit harsh and too long.

1971

CARRE, DAVID "BUZZ" BS '70 MS '71 is now Dr. Carre, having received the PhD in physical organic chemistry from UC Santa Cruz working under Dr. Claude Bernasconi. He now works at Aerospace Corporation in El Segundo; Buzz distinguished himself by passing all entrance exams upon admission to the PhD program at UCSC.

CHAO, CARL (K.S.) MS '71 is working with an oil company in Calgary, Alberta.

OBERLANDER, JOSEPH MS '71 received the PhD in December, 1979, from the University of Utah, working with Prof. Allred on the preparation and hydrolysis of diazonium salts. Joe now works at Speciality Organics in Irwindale, CA., doing synthesis and pilot plant studies for preparing organophosphorus compounds.

1972

APPLETON, CHRIS BS '72 relocated to the Chicago area last October. He continues as Quality Assurance Supervisor - Technical Services for MacDonald's Corporation. We understand he went through a corporate training program, known as Hamburger U., and graduated *summa cum mustard*.

BAUMGARTNER, ANNETTE BA '72 has been promoted to a research group management position at Aerospace Corporation and directs the work of approximately 85 persons. Annette met with about 50 students in April to discuss careers in chemistry. Her husband, Werner, is a research chemist with the VA Hospital in Westwood. Werner is a former part-time faculty member in our department.

BRAMBLETT, JOE MS '72 is employed by West Coast Technical Services in Cerritos, CA., and is working part-time on the PhD at UC Irvine. At West Coast he carries out environmental studies - especially pesticide and waste water analyses - using gas chromatography/mass spectroscopy and liquid chromatography.

CHUNG, DR. H.-Y. PAUL MS '72 obtained his PhD from the University of Ohio and is now teaching at Feng Chia College in Taipei.

FRISBEE, ROBERT H. BS '72 started last August at the Jet Propulsion Laboratory with the Solid Rocket Propulsion Group. Son Robert James was born Feb. 17, 1979.

HOOVER, MICHAEL BS '71 MS '72 is now Director of the Crime Laboratory at the Long Beach Police Department. He and wife, Diane, have a new baby, Jennifer Jo. Congratulations!

1973

JACOBS, RICHARD L. MS '73 has his own consulting firm, Polymer Engineering Corp., doing R&D in medical and dental applications, fire retardants, low density materials, elastomers, and research in thermodynamics of polymers.

HUTH, STAN BS '73 completed the MS at UC Irvine in 1976 and accepted a position at Allergan Pharmaceutical Co. in Irvine, CA. He is involved in surface chemistry research using attenuated total reflectance spectroscopy in conjunction with protein adsorption. He publishes in ophthalmological and pharmaceutical journals in the area of biopolymers.

RONA, ROBERT MS '73 is a research chemist at Avery International in Pasadena, CA, doing work in polymer chemistry with an emphasis on adhesives.

WEIHE, GARY BS '73 works in the Pioneering Fluid Process Department at Rohm & Haas in Springhouse, Pennsylvania, near Philadelphia. His wife, Chris, is teaching aerobic dancing classes at the YMCA.

AESCHLIMAN, ALAN F. BS '74 lives in Long Beach and is a self-employed consultant for local industries.

GUIDO, DON BS '74 now in his third year at the Illinois College of Optometry, says "I plan to come back to Southern California to practice when I graduate."

HILLS, JOHN J. BA '74 works in the environmental health field at the Orange County, CA, Health Department. He and his wife now have four girls.

LEMOINE, LARRY M. BA '74 is Technical Director for Lamont Labs in Londonderry, N.H. A skilled photographer, he had a one-man show at The 355 Gallery in Boston last August. He is married and has a seven-month-old son.

PHARR, CLYDE BA '74 received the Pharm. D. degree from the USC School of Pharmacy in June, 1978. He is now pharmacist at Fox Hills Community Hospital.

SOYKIN, CYNTHIA TANAHARA BS '74 is employed at West Coast Technical Services as an analytical chemist specializing in gas chromatography. She spent a week last summer with Finnigan in Cincinnati learning about GC/MS.

1975

FREERKS, ROBERT BS '75 will complete his PhD at UC Irvine this year and then moves to Chevron Research at Richmond, CA.

KHALAF, SHADA BS '75 has accepted a position with VAREC in Garden Grove, CA.

LANDRUM, JOHN BS '75 expects to receive his PhD in 1980 from USC, where he has been associated with Dr. Christopher Reed doing research on models for cytochrome oxidase. His wife, Eileen, also a PhD candidate at USC in Molecular Biology, has her BS and MS in Microbiology from CSULB. Soon they move to Miami, where he has accepted an Assistant Professorship at Florida International University.

LARSEN, MARINA (MURPHY) '75 works with Prof. Arthur Adamson at USC on laser photolysis of inorganic compounds. She plans to complete her PhD this year.

ONO, ROBERT BS '75 received his PhD in 1979 then continued as a Postdoc, with Larry Overman at UC Irvine. Currently he is teaching at Pierce College and Saddleback College.

STALLEY, FRED C. BA '75 received the DDS from USC last June and entered the USC Los Angeles County General Hospital program in General Practice Residency. He expects to finish his residency this year. He and wife, Ursula, have one son Sven, born 12/12/77, and they expected another child last December.

1976

BATISTA, SOCRATES MS '76 is teaching in Manaus, Brazil, at the Universidade de Amazonas.

DORSMAN, GREG BS '76, works full-time at Rachele Laboratories while he completes his MS degree in chemistry at CSULB.

UNVER, ERCAN MS '76 was briefly back in the U.S. last August to attend a NATO Advanced Study Institute at Bishop University in Canada on the Environmental Physiology of Fishes.

YUEN, MICHAEL BS '76 is engaged in cancer research with Glenn Tisman, MD in Whittier, Ca.

1977

BROWN, KENNY D. BA '77 reports from Perrysburg, Ohio, that a second daughter, Kathryn A., has arrived; and that he is continuing to work toward a chemical engineering degree.

MADANI-ESFAHANI, MOJTABA BA '77 is teaching chemistry at the high school level. He reported last August that he planned to get married. (Are congratulations in order now?)

ESTRADA, RANDY graduated this June from the medical school of the Universidad Autonoma de Guadalajara, Jalisco, Mexico. Congratulations, Randy!

GOYT, RICK T. BA '77 has a new job with SYVA Company selling systems and reagents for detection of drugs of abuse and therapeutic drug monitoring.

LEE, RICHARD BA '77 is in his third year of medical school at Hahnemann School of Medicine in Philadelphia. Following graduation he will specialize in internal medicine.

THORNHILL, REX BA '77 works for Texas Instruments in Houston in the Process Diffusion Engineering section making MOS/FET's and 16,32,64 K PROMS. He reports that many jobs are available for new chemistry graduates.

OTANEZ, GEORGE A. BA '77 began his second year of Medical School at Creighton U. in Omaha.

BERNABE, ELVIRA A. BA '78 has joined Procter & Gamble as Senior Analyst in the Quality Control Laboratory of the Food Division in Long Beach.

BRESKIN, DENISE BA '78 recently was promoted to Assistant Chemist in the Pharmaseal Laboratories Division of American Hospital Supply Corporation. She was married August 25, 1979.

BURRI, BETTY JANE MS '78 is doing her PhD problem with Dr. William Nyhan, looking for the enzyme defect behind a rare and unnamed disease where 3-methylcrotonyl CoA carboxylase and propionyl CoA carboxylase are deficient.

CALLOWAY, ANCEL BA '78 a research chemist at Rockwell International, has been named Chemistry Alumni Representative on the Chemistry Advisory Council. (See his letter elsewhere in this issue). Ancel's daughter, Lisa, is a sophomore chemistry major at CSULB.

CHAN, STAN G. MS '78. After graduation he did hormone research for six months at Lawrence Berkeley Laboratory, UCB. Then he took a new position as Chemistry Specialist at Coulter Electronics, Inc., marketing clinical chemistry instruments and consulting with doctors in the Bay area.

CHRISTIANSEN, WILLIAM '78 attends UC Medical School in San Francisco. His Summer, 1979, research project, titled "Hepato-biliary Transport of Intestinal IgA", carried out with Dr. Albert Jones, was one of three that won the Dean's Prize in Research.

GRADY, MELANIE M. BA '78 loves her work at McDonnell Douglas as a Product Reliability Analyst, doing spectrographic analyses of various metal alloys and daily wet analyses on process tanks containing etching solution.

HALL, RALPH M. BA '78 proudly reports the addition of son Benjamin to the family last May 31. He expects to complete his MS this summer at CSULB.

KOSTRENCICH, STEVE BA '78 is a Shift Engineer at Rachele Laboratories producing antibiotics by fermentation.

MACLEAN, KURT A. BA '78 began work last fall toward the JD at the UCLA School of Law. His wife also is a CSULB graduate with a BA in Psychology.

MARSI-MANRING, MARIANNE BS '78 is in her second year of graduate studies for PhD in organic chemistry at UCLA. She finished all her "cums" and

course work and is concentrating on her research in organometallic chemistry under Dr. John Gladysz. Her husband Lewis, is also a PhD candidate working with Prof. Chris Foote. Marianne plays the cello in an all-chemistry chamber music group.

PRITSOS, CHRIS A. '78 reports that his PhD work goes well at the U. of Nevada, Reno. He has passed his written work and presented a paper at the FASEB meeting in Anaheim in April: *Chloronaphthoquinone Induced Mitochondrial Swelling: Role of Superoxide*; Pritsos, Burkhardt, and Pardini.

ROGERS, PAT BS '78 is in her second year of graduate work at UCI and involved in a PhD thesis project with Dr. F.S. "Sherry" Rowland.

SCHROEDER, MARTIN MS '78 is now Research Biochemist with Bio-Rad Laboratories in Richmond, CA.

SHELLEY, OREN BS '78 is a doctoral candidate in chemistry at UC Irvine doing solid state chemistry with Dr. John C. Hemminger.

SWEEN, CRAIG BA '78 is attending the Northwestern University Dental School in Chicago, Ill. Last July he married Ronaele Igawa, a Marine Biology student at CSULB.

VALFRE, ERNIE BA '78 has a son, Ethan Jay, born June 12, 1979.

VAN ANDLER, THERESA BA '78 recently transferred from the Anaheim Office of the South Coast Air Quality Management District to the Carson Office, where she is responsible for surveying diverse industrial plants. She hopes to further her education in Environmental Engineering.

WUENSCHHELL, GERALD E. BS '78 began study for the PhD in Chemistry at UCLA last Fall. On May 26, 1979, he and Carol L. Wilde, daughter of Prof. Richard H. Wilde of the CSULB History Department, were married. Carol also is working for the PhD at UCLA, in Biology.

1979

BARKER, SCOTT BS '79 left West Coast Technical Services for Perkin-Elmer, where he is in sales.

BUUS, DELYSE BA '79 is a Medical School student at UCLA, Class of '83.

FRITCH, STEPHEN MS '79 is working at the Long Beach Police Crime Laboratory.

HAGENAH, JEFFREY BS '79 is completing his first year as a PhD candidate in organic chemistry at UCLA as a member of Dr. Mike Jung's research group.

JONES, STEVE MS '79 is in the PhD program at UC Riverside. His research, under the direction of Prof. Donald Sawyer, is on the electrochemistry of biological manganese complexes. Steve and Jane Anderson were married May 3, 1980.

MAIDEN, ROBERT MS '79 works at West Coast Technical Services mainly with high performance liquid chromatography and gas chromatography but also fills in as glassblower.

MCKAY, PAT MS '79 has just accepted a position with Genetech in South San Francisco doing research in genetic engineering -- currently about the hottest thing going in biochemistry.

MCKIBBEN, FRED MS '79 writes that he has passed his Spanish exam at the University of Guadalajara, Mexico. The "OBLIGS" come next; exams on Mexican law, history and geography. Then he can register for Medical School.

MCLAUGHLIN, TONY BA '79 started Dental School at the U. of Washington and his wife is working as a Technical Assistant at Boeing.

OLIVER, DAVID MS '79 is a full-time faculty - the only one in chemistry - at Oxnard Community College, which is still under construction. David and his wife enjoy the area and have purchased a home in Oxnard.

RITLAND, CHRIS BA '79 is working as a Chemist for the Hunter Mining Laboratories, Inc. in Sparks, Nevada.

WINTERS, CURTIS BS '79 will begin his second year as a medical student at USC. His studies have temporarily interfered with his recreational sailing - he participated in the TRANSPAC race in the summer of 1979 along with Fred McKibben MS '79.