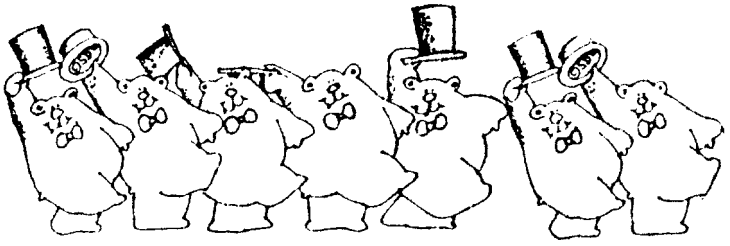
SEAC NEWSLETTER

Volume 4, No. 3, October 1987

The Society for Electroanalytical Chemistry

REILLEY AWARD

Congratulations to Prof. Royce Murray



Professor Royce Murray of the University of North Carolina, Chapel Hill is the Fifth recipient of the C.N. Reilley Award in Electroanalytical Chemistry. This annual award recognizes scientists who have made major contributions to the theory, instrumentation, or application of electroanalytical chemistry. The award is administered by the Society for Electroanalytical Chemistry and is sponsored by Bioanalytical Systems Inc. and the Reilley Endowment Fund of SEAC.

Professor Murray will be presented with the award plaque and a check for $1000 at the Reilley Award Symposium to be held during the 39th Pittsburgh Conference in New Orleans, February 22-26, 1988.

Bulletin Board

JOB OPENING: Postdoctoral Fellow

Available Fall, 1987. Photo/Electrocatalysis of redox reactions in micelles and microemulsions. Ph.D. in Analytical or Physical Chemistry and research experience in electrochemistry required. Familiarity with computer data analysis, surfactant chemistry, and optics desirable. Salary $18,500-21,000 depending on qualifications. Send resume, undergraduate and graduate transcripts and three letters of reference to: Professor James F. Rusling, Dept. of Chemistry (U-60), 215 Glenbrook Rd., Storrs, CT 06268. The University of Connecticut is an equal opportunity/affirmative action employer.

Tenure-Track Position

The Department of Chemistry, School of Chemical Sciences, at the University of Georgia invites applications and nominations for a tenure-track position (academic year) in Analytical Chemistry at any level beginning September 1, 1988. Candidates having solid records of accomplishment in any area of analytical chemical research and a strong commitment to the development of a vigorous program of scholarly research are encouraged to apply. A strong interest in and aptitude for teaching both undergraduate and graduate courses in analytical chemistry should be demonstrated. A curriculum vitae, summary of research plans or program and the names of three or more references must reach the following address by October 1987. Dr. Harry D. Peck, Jr., Director, School of Chemical Sciences, Chemistry Building, University of Georgia, Athens, GA 30602. The University of Georgia is an Equal Opportunity/Affirmative Action Institution.

Assistant Professor In Analytical Chemistry

Applications are invited for a tenure track faculty position in Analytical Chemistry at the level of Assistant Professor. Appointments at more senior levels will also be considered. Successful candidates must demonstrate activity in the Analytical teaching program. Applicants should send a Curriculum Vita, three letters of recommendation and a detailed description of research plans to: Professor Neal R. Armstrong, Department of Chemistry, University of Arizona, Tucson, AZ 85721. EEO/AA.

Summer Internships - 1988

The ACS Division of Analytical Chemistry will once again operate a program of "Summer Internships", aimed at introducing talented undergraduates to the modem analytical chemistry area. Students chosen to participate in the program will be employed by industrial, government or academic analytical laboratories, where they will carry out various phases of fundamental or applied research in the analytical area. Participating laboratories agree to hire one or more students during the summer. Applicants ate screened and evaluated by the Professional Status Committee of the Analytical Chemistry Division, and those students most qualified have their applications and reference letters sent to several of the participating laboratories. These organizations then select those individuals they deem suited for their particular needs and, via the Professional Status Committee, make contact with the students. The Professional Status Committee acts as a broker, soliciting applications from both students and organizations willing to hire the students for the summer; salary and details of employment are between the organization and the student.

Ideally, to qualify for the program, students should be attending a four year college and be between their junior and senior years at the start of the summer of 1988 and have completed a course on Instrumental Analysis. We are also seeking applications from seniors graduating in 1988 who have specifically demonstrated their interest in analytical chemistry by applications to graduate school with the intention of majoring in that area. Graduate students in analytical chemistry will also be considered for the program.

For the 1987 Summer Intern Program, forty-two student applications were received Some of these were rejected on the basis of low grade point averages, insufficient backgrounds in analytical chemistry, or rather restrictive geographic requirements, but efforts were made to place thirty-six students. Sixteen organizations (industrial, government and academic) initially indicated an interest in participating in the program. Of these, eight eventually placed one or more students, four were obliged to withdraw for budgetary reasons, and four were unable to make contact with an appropriate student. The final results were that nine students were placed with eight different organizations. Not all of the students who received offers accepted, of course. A number had found positions on their own or were otherwise occupied for the summer.

The main purpose of this communication is to ask those of you who are SEAC members to 1) consider participating in the program by agreeing to hire one or more students during the Summer of 1987 and 2) request those of you in the academic world to solicit your good undergraduates to apply to this program. Deadline for student applications will be February 15, 1988. More infomiation regarding the program, as well as student application forms, can be obtained from Dr. Robert A. Osteryoung, Chairman, Professional Status Committee, c/o Department of Chemistry, State University of New York at Buffalo, Buffalo, NY 14214, telephone (716) 831-3820.

SYMPOSIUM PROGRAM

Charles N. Reilley Award Symposium, sponsored by the Society for Electroanalytlcal Chemistry

Wednesday, February 24, 1988 - arranged by Richard McCreery, Ohio State University.

1:30 Introductory Remarks - RICHARD L. MCCREERY

1:35 Presentation of Reilley Award to Royce Murray by PETER KISSINGER of Bioanalytical Systems, Inc.

1:45 Electrochemical Voltammetry in Rigid and Semi-rigid Media - J.C. Jemigan, R. Reed, L. Geng, N. Oliver, M. Longmire, ROYCE MURRAY, University of North Carolina

2:25 Anion and Gas Selective Membrane Electrodes: Recent Advances and Future Prospects - MARK E. MEYERHOFF, University of Michigan

2:55 Fast Electrochemistry at Uhramicroelectrodes - LARRY R. FAULKNER, Michael R. Walsh, University of Illinois

3:25 Recess

3:35 Work Function Chemical Sensors, JIRI JANATA, M. Josowicz, A. Riley, University of Utah

4:05 Raman Spectroscopy of Electrochemical Dynamics: Time Resolved Probes of Surface and Solution Reactions, RICHARD L. McCREERY, Richard Packard, Robert Bowling, Ohio State University

Reilley Award Speaker List

Royce Murray
Kenan Laboratories of Chemistry
University of North Carolina
Chapel Hill, NC 275 14
(919) 933-6295

Mark Meyerhoff
Department of Chemistry
University of Michigan
Ann Arbor, MI 4810
(313) 763-5916

Larry Faulkner
Department of Chemistry
University of Illinois
1209 West California Street
Urbana, IL 61801
(217) 333-071 1

Jiri Janata
Center for Sensor Technology
Department of Bioengineering
University of Utah
Salt Lake City, UT 84112
(801) 581-3837

Richard McCreery
Department of Chemistry
The Ohio State University
120 West 18th Avenue
Columbus, OH 43210
(624) 292-2021

Charles A? Reilley Award Symposium Summary

Sponsored by The Society of Electroanalytical Chemistry, organized by Richard L. McCreery, Ohio State University

The symposium will continue a five year tradition of very well attended symposia honoring a highly productive electroanalytical chemist. The award recipient is Royce Murray of the University of North Carolina, who will speak on his extensive achievements in the area of modified electrodes, particularly as amperometric chemical sensors. Following Professor Murray will be Mark Meyerhoff of the University of Michigan, a leader in the area of potentiometric sensors, which are among the most widely used electroanalytical devices. His efforts on membrane modifications of such sensors have led to devices for monitoring a broad range of biologically important materials, with the ease and low cost of potentiometric devices. The third presentation will be by Larry Faulkner of the University of Illinois, one of the

founders of the Society of Electroanalytical Chemistry. The advent of very small (<10 μm) voltammetric electrodes has permitted measurements at very high speed. The use of pulse counting techniques has extended the useful measurement time to ca. 100 nsec permitting examinations of reaction kinetics which were previously not possible. Dr. Jiri Janata of the University of Utah will discuss his efforts on solid state electroanalytical sensors, as potentially cheap and simple chemical sensors. Finally, Richard McCreery of Ohio State will present new time resolved optical probes of electrochemicat processes. Of particular interest are reactions of electrogenerated species and surface changes in carbon electrodes during electrochemical and laser activations.

TREASURER'S REPORT

The Society's 1987 fiscal year ended June 30, 1987, and I am pleased now to be able to present statements of our financial condition at that time. Below, you will find an income statement, which details our receipts and expenses by categories, and a balance sheet, which summarizes our assets and liabilities.

From a financial standpoint, the year was a good one, because we were able to strengthen the Society in several respects. Major progress was made toward our main goal of building the Reilley Award Endowment. On June 30, the endowment stood at $6808.84, up $3311.88 for the year. The growth took place via (a) direct contributions of more than $1000, (b) the Board's directive that one-half of collected annual dues for 1986 and 1987 be devoted to the endowment, and (c) interest. Bioanalytical Systems has made a commitment to support the Reilley Award for a period of ten years. The Board's goal is to have an endowment large enough to support the award after the ten-year commitment expires in 1993. Probably about $15,000 will be required. In the coming year, the total ought to reach a figure close to $9,500, so we are on target. The Reilley Award will ultimately have a unique character in being founded on broad financial support from our whole community. This should be a point of special satisfaction for the members of SEAC and for the awardees.

The year's expenses were largely as anticipated. We have obligations for about $1000 additional in expenses for the 1987 Reilley Award Symposium. These will appear in statements for the 1988 fiscal year.

The Society's assets are now held partly in an interest-bearing money market account in the Lafayette National Bank, Lafayette, Indiana, and partly in a one-year 7.5% certificate of deposit in Champion Federal Savings, Champaign, Illinois. The certificate has a value approximately equal to the Reilley endowment. The Board's current policy is to maintain all assets in federally insured vehicles.

You probably have noticed that dues collection has been creeping to earlier dates in the year. We were quite slow in getting the 1986 dues cards out, because of the need to organize our first massive billing. In 1987, we moved the billing to February, and for 1988 we expect to carry out the billing next month. SEAC's expenses are concentrated in the spring, because many are connected with the Pittsburgh Conference, so it is important for us to collect dues a little earlier in the fiscal year. After this year's move to a November billing, we do not expect to change the billing date again.

Income Statement

Income	
Interest	**437.33**
Endowment Contributions	1018.00
Working Fund Contributions	35 10.00
Annual **Dues Collected**	**3684.79**
Life Dues Payments	**1900.00**
TOTAL INCOME	**10550.12**

Expenses	
Symposium Expense	1033.92
Reilley Award Expense	1406.20
Membership Expense	494.06
Newsletter Expense	585.97
Miscellaneous	40.80
TOTAL EXPENSE	**3560.95**
INCREASE IN NET WORTH	**6989.17**

Balance Sheet
June 30, 1987

Assets	
Working Fund	2369.00
Reilley Endowment	6808.84
Life Member Endowment	2493.75
TOTAL ASSETS	**11671.59**

Liabilities	
Newsletter Payable	0.00
Membership Expense Payable	0.00
TOTAL LIABILITIES	**0.00**
NET WORTH	**11671.59**

If you have questions about the financial aspects of the Society's operations, please feel free to contact me.

Respectfully submitted,

Larry ***R. Faulkner***
Treasurer

TWO NEW REPORTS ON ELECTROCHEMISTRY FROM THE NATIONAL ACADEMY OF SCIENCESINATIONAL RESEARCH COUNCIL

In 1985, the U. S. Department of Energy commissioned an examination of the state of electrochemistry in a general sense and in two particular aspects. The immediate purpose was to gain guidance in the development of DOE's programs relating to electrochemistry, but the reports were intended to be of value to other federal agencies and to the active electrochemical community. Two reports arising from this effort have recently appeared, and a third is nearing publication. The studies were all supervised by the National Materials Advisory Board (NMAB) of the National Academy of Sciences/National Research Council, which established a Committee on Electrochemical Aspects of Energy Conservation and Production. This group was chaired by R. C. Alkire and had the following members: A. J. Bard, E. J. Cairns, D. D. Cubicciotti, L. R. Faulkner, A. Heller, N. Jarrett, R. Latanision, D. D. Macdonald, W. H. Smyrl, C. W. Tobias, and E. B. Yeager. It undertook directly the study of electrochemical issues of large scope. Its findings are now available in "New Horizons in Electrochemical Science and Technology" (NMAB 438-1, National Materials Advisory Board Washington, 1987; available from NMAB, 2101 Constitution Avenue, N. W., Washington D. C. 20418 at $12.50 per copy). The bulk of the "New Horizons" report is devoted to chapters on (a) the socioeconomic significance of electrochemistry, (b) Federal support, (c) opportunities in particular technologies, (d) opportunities in cross-cutting research, and (d) opportunities in education. The chapter on socioeconomic significance is a unique assembly of information on the role of electrochemistry in the American society and economic system. Current domestic electrochemical markets are, perhaps surprisingly, estimated at $30 billion annually, excluding corrosion. The chapter on particular technologies covers batteries and fuel cells, biomedical science and health care, coatings and films, corrosion, surface processing, manufacturing and waste utilization, membranes, microelectronics, and sensors. "Cross-cutting research" is meant to include activities that can have an impact on multiple technologies. Examples include electrochemical engineering, in situ characterization, interfacial structures, materials, photoelectrochemistry, plasmas, and surface reactions. In a chapter containing conclusions and recommendations , the Committee delineates the following points. Each is amplified in text that cannot be reproduced here for lack of space. The points are given below in the language of the report.

(1) Major opportunities for new products and processes based on electrochemistry exist outside of conventional electrochemical industries. Accordingly, we recommend that multi-disciplinary research be pursued vigorously in key high-technology electrochemical areas that have readily apparent commercial appeal. [The report estimates achievable new markets at $20 billion annually during the next decade. Specific technologies tagged with a high priority include advanced energy-conversion devices, microelectronics, high-performance coatings and materials, and biomedical devices, including membranes and sensors.]

(2) Rapid evolution is about to occur in several critical areas of basic electrochemical science, and this will underpin significant new technological developments. Accordingly, we recommend that a commitment be made to accelerate progress in selected areas that now limit development of a quantitative understanding of electrochemical systems from a macroscopic level down to the molecular scale. In addition, we recommend that a separate assessment be made of scientific and technological opportunities in the area of electrochemical surface processing.

(3) Advancements in instrumental techniques make possible major gains in the understanding of the structural and dynamic properties of electrochemical systems and set the stage for the next generation of application. Accordingly, we recommend that advanced methods for characterizing interfacial structure and dynamics be developed vigorously.

(4) A multi-disciplinary approach will be essential to solving many outstanding problems in electrochemical technologi es. Accordingly, we recommend that focused federal action support a broader, multi-disciplinary research and technology base for electrochemical science and engineering.

(5) The United States must be much more effective in transforming electrochemical research results into new and improved products. Accordingly, we recommend that federal support be increased substantially in applied research and exploratory development of targeted areas that have significant economic leverage, with the increase being on the order of $60 million per year. Furthermore, we recommend that a more effective process for science and technology transfer be established for utilization of electrochemical research.

(6) Electrochemical phenomena play an essential role in the economic well-being, security, and health of the nation, and the goal of federal support should be to foster a broad science and technology base in this multi-disciplinary field. Accordingly, we recommend that a new perspective on electrochemical and corrosion phenomena be established in federal programs.

In its charter to NMAB, the Department of Energy asked for a detailed review of status and opportunities in two specific areas: corrosion and in situ characterization of electrochemical processes. The main committee developed separate panels to carry out the reviews. W. H. Smyrl chaired the panel on corrosion, which is now completing its work and is expected to issue a report within the next few months. It will probably carry the title "Agenda for Advancing Electrochemical Corrosion Science and Technology," and it is expected to be available as Report NMAB 438-2. The Panel on In Situ Characterization of Electrochemical Processes has already completed its work. It was chaired by L. R. Faulkner and had the following members: F. C. Anson, A. J. Bard, J. G. Gordon, II, F. W. Lytle, B. Miller, R. M. Wightman, and E. B. Yeager. Its report carries the title "In Situ Characteriza-

tion of Electrochemical Processes" (NMAB 438-3, National Materials Advisory Board, Washington, 1987; available from NMAB at $10.00 per copy). The "In Situ" report contains an overview of issues and separate chapters on five separate aspects of the characterization problem. These include (a) interfacial chemical composition, (b) interfacial structure, (c) ex situ analysis of interfacial structure and its relevance to in situ characterization, (d) interfacial dynamics, and (e) processes in the boundary layer. There are also special appendices dealing with the capabilities of advanced x-ray methods and with scanning tunneling microscopy in the electrochemical context. Conclusions and recommendations are advanced in a separate chapter. The Panel recommends that twelve issues receive emphasis in the near term. Ten represent areas of special promise for research:

Identification of participants in electrode reactions with high chemical specificity.

Observations of dynamics on short timescales and over wide ranges of timescale.

Fine spatial characterization of interfacial structures.

Correlations of in situ and ex situ observations.

Utilization and evaluation of clean, smooth and well-defined surfaces.

Exploration of electrochemistry in unconventional media

Improved characterization of boundary layers.

Advancement and standardization of simulation methods.

Development of standard reference materials for electrochemistry,

Provision of a reliable thermodynamic data base for surface chemistry and electrochemistry.

As in the case of the "New Horizons" report, each emphasized point is amplified by text that cannot be reproduced here. Quite specific recommendations are made about the most promising avenues of development. Two of the twelve points of emphasis concern policies of research administration. One deals with the balance between individual and collaborative research. The Panel recognizes that some problems require a team approach if progress is to be made, but it "strongly disagrees with a view that important research cannot proceed without collaboration." The final point of emphasis addresses the access of electrochemical investigators to central facilities, such as synchrotrons and supercomputers.

NOTE TO THE SEAC MEMBERSHIP:

What are your comments on the research agenda outlined by these reports? We would like to get a dialogue started and will publish your letters to the Editor.

Reflections

by Robert A. Osteryoung

. Editors Note: Each of the winners of the C.N. Reilley award has been invited to share some personal reflections of his career in electrochemistry. Those of Ralph Adams and Fred Anson appeared earlier (Oct., '85 and Oct., '88, respectively).

I have been prodded, bugged, and otherwise harassed by the Editor to submit something in the line of reflections. Reflections is perhaps the appropriate word. Anyone that receives any sort of award has been the focus of the reflections emanating from many others.

It's frightening to think about how long I've been in whatever this business is. As an undergraduate at Ohio University in 1949, I was heavily influenced by a young instructor who had just received her Master's from Illinois, to go there for graduate school. Actually, I initially wanted to go to Princeton - for reasons having to do with then having a "girl-friend" - that's what they were called in those days -who lived in that area. I visited, talked to Prof. Furman, and was eventually told that they would admit me, but not support me the first year, since I had a very bare Chemistry major, having had only three years of undergraduate school (with enough credit hours from the U.S. Navy to graduate in that time). Having run out of my GI Bill, and having no money, I applied, and was accepted with a TA, at Illinois.

I left Illinois with a Masters following my father's death, and worked at the Synthetic Optical Crystal laboratory at Harshaw Chemical Co. in Cleveland, which was run by a man named Harry Kremers, who had been on the faculty, oddly

enough, at Ninois. The first thing they did was to teach me to run a lathe, which cured me of any desire to be a machinist. I was working in the molten salt area, growing $BaTiO_3$ crystals at about 1600°C.

After a year and one-half, I returned to Illinois where Herb Laitinen had been consulting in the molten salt-thermal battery area, and I started to work for him as his first student in that area. Not too long after that another student, Bill Ferguson, arrived to work in the molten salt area and shortly thereafter, Herb left to go on Sabbatical with John Randles, which was probably a wise move. At that time, Keith Oldham was a post-doe with Herb, working on/in/around liquid ammonia, and on occasion neglecting his cold-traps over weekends, which upset our neighboring bacteriologists no end We also played many games of something, as I recall it, called "shove ha-penny". Keith, Herb and Pekka Kivalo, a post-dot from Finland, were starting to work on the theory of irreversible polarographic waves about then. I'll recall that for my thesis, part of which involved impedance measurements, I had rather laboriously derived an equation in several pages; Paul Delahay's "New Instrumental Methods in Electrochemistry" appeared at about the same time as my thesis and he did it in two lines!! One of the interesting things we found, looking back, was that the onset of metal deposition occurred, in molten KCl-LiCl at 450°C, well before the Nemst-predicted value; we had found - as had Buck Rogers at Oak Ridge even before that - what is now called underpotential deposition. (A classmate of mine al Illinois, Bob Sympson, who also worked with Herb Laitinen, accepted a faculty position at Ohio University and has just recently retired, which has started me thinking.)

From them it was on to Rensselaer for five years. RPI had excellent undergraduates, one of them being a then young man named Joe Christie. I taught him Qualitative Analysis, and then Quant, and for reasons best known to him he did a senior thesis with me. He also spent the summer before his departure to Louisiana State to work with Paul Delahay doing polarography with a DME in molten nitrates, something that still horrifies people. My first graduate student at RPI was Ray Kramer, who had gotten his undergraduate degree at Canisius College here in Buffalo, mainly in the evenings. Ray had worked for ALCOA here, and when he completed his graduate work, returned to ALCOA in Pittsburgh and is still there. Troy also resulted in Kathy, Sue and David, my three older children who are known to a fair number of you. After RPI had promoted and tenured me, I departed for sunny California on a years leave of absence that stretched on a bit.

California was great fun: what was then the Atomics International Division of North American Aviation, which became North American Rockwell and is now Rockwell International, was sort of a madhouse. With people like Leo Top01 and Sam Yosim, I got involved in metal-metal salt chemistry; a couple of years later the Science Center was formed under Howard Reiss, and I moved there. One day Bob Pecsok, then at UCLA called me, and said he had a young man who had just finished his undergraduate work looking for a job; I hired him, and that was how George Lauer and I got together. Also, Joe Christie, for reasons best known to perhaps God, decided to leave LSU and wanted a job. He went to work for Sam Yosim, initially, and then Ed Parry at the Science Center. George Lauer and I, working with the famous set of unpublished notes that Don DeFord had put together, started to

build a multi-purpose electrochemical instrument out of 300 volt Philbrick amplifiers. That was exciting - and at times shocking. Together with Ed Parry, who had been hired to run the Analytical Group at the Science Center, we started to work on pulse voltammetry, building a rather strange instrument which was subsequently sold to Beckman. (Interestingly, or perhaps not, Dick Buck then worked for Beckman, and when he left there for North Carolina they gave him the prototype pulse polarograph; several years later he shipped it off to me at Colorado State. The damned thing never really did work.)

The confluence of events also got Fred Anson involved; we had consultants, putting it loosely, and Fred, George, Joe and I had great fun fiddling in the laboratory and making what is now chronocoulometry happen. Also, sometime during my California stay, Keith Oldham came as a visitor from a faculty position at the University of New Castle-upon-Tyne on a joint basis between the Science Center and Fred at Cal. Tech. He ultimately stayed on at the Science Center. George and I also got involved with computers; our first effort was with a multichannel analyzer, and George convinced me that we needed a computer. So, in 1962-63, I think it was, we managed to convince a Science Center Associate Director, Ted Berlincourt, a preceramic superconductor physicist now at ONR in Washington, that we needed this, and we bought a PDP-8, with a 32K disc and 4K of core.

Eventually, both Joe and George went to graduate school at Cal Tech with Fred; George finished, but it took Joe a bit (see below). I was appointed a Visiting Associate at Cal Tech, and "took care" of Fred's research group while he went off on Sabbatical with Lucien Gierst. (I have an extensive file of correspondence which he and I have agreed will be our last joint publication - posthumously.) It was an interesting group; besides George Lauer and Joe Christie, it included Art Hubbard, doing thin-layer work for his thesis, Jim Foster, Peter Lingane, and one Janet Jones. I think my main chore was keeping them from injuring one another. Howard Reiss had this idea that people from the Science Center should spend time at the divisions, and the last two years in California I wound up "managing" something called a Materials and Process Laboratory at Rockwell's Autonetics Division.

These were also the days of the San Clemente Surfing and Discussion Society, (the precursor of the Electrochemical Gordon Conference, WETS and SEAC), and a great party which the late Don Smith used to feature on one of his slides as an input source of noise for his computers. Sometime in 1968, probably at a Gordon Conference during - certainly not following - a WETS party, Dave Mohilner asked if I had interest in the Chairman's job at Colorado State. I think I said damned if I know, but the next thing I knew, come September, 1968, there I was in Fort Collins, Colorado. Shortly thereafter, Janet Jones came to Colorado State as a post-dot with Dave and Joe Christie. Joe had managed to submit a completed thesis on chronocoulometry to Fred at Cal Tech, but not get a degree as a result of not going to an organic chemistry course, and decided - on his way East to accept a job - to go back to graduate school at Ft. Collins.

In any case, ultimately Janet and I got married, Anne and Adam happened, and she got a position in Civil Engineering and Microbiology - but never Chemistry. Joe, thanks to Dave Mohilner's screaming, ultimately got a Ph.D. with me, and married Helena Li Chum, who had come to Colorado State from Sao Paulo, **Brazil,** to work in my laboratory. (If this sounds like a soap opera, isn't life???)

Building a Chemistry Department was a challenge, and most of the time was fun. I recall hiring Al Meyers from Wayne State; the first time I talked to him on the telephone we were both in the hospital, different ones, of **course.** I've been accused of raising the salary, during that period, of inorganic chemists across the country, though I never did manage to hire a senior one.

During that period we started to work on chloroaluminate molten salts with a group of people that included, among others, Larry **Boxall,** now at Martin-Marietta, H. Lloyd Jones, at IBM in San Jose, Bernard Gilbert from Liege, Belgium, Bob Gale, now in Louisiana State, and Jim Robinson, now at **Warrick** in England The "ambient temperature" molten salts were found and have proved a main-stay of our research for the past 9 years. We also did a fair amount on various pulse voltanrmetries, including squarewave, mainly in collaboration with Janet, Joe Christie, (a familiar and recurring name) and John **Turner** (who ultimately completed his Ph.D. with me and post-doc'd with Fred, bringing his rather moribund computer back to life). Our computer hardware included a PDP-12, obtained in 1969 and scrapped (sob) just this year, and a couple of PDP-8/e's, which **are** still going.

I spent a year in Washington at AFOSR, while Janet **was** at NSF, and after ten years as Department Chairman, found I wasn't. In some strange manner, Stan Bruckenstein, then Department Chairman at Buffalo, had run out of analytical chemists. He offered Janet a job, and was willing to take me as well. Many people over the past years have asked "how could you leave Colorado to go to Buffalo". It was relatively easy; we went with some regret but nary a hind look. A group came with us, including John **O'Dea,** who had finished his Ph.D. with me at CSU doing squarewave work. He's been here ever since, as many of you know.

As I look back at what I've written, I have to ask - did all this really happen? I think so - but have a feeling that maybe some of it is a bit in the twilight zone. However, I'm at least sure that I did receive the Reilley Award, for which I am very grateful. It has to be shared with many of those mentioned above, and more who aren't. It has been much fun and more pleasure to interact over the years with people of great talent and the ability to withstand my hysteria. To them I owe a great deal and I hope this tells them, and you, that. Hopefully, the party's not quite over, and with luck, it'll go on for a while.

*Robert **Osteryoung***

Contributions to SEAC's Reilley Award Endowment Fund

The following individuals have made a contribution to the Fund since the last newsletter. Each contribution has been acknowledged, with thanks, for this donation.

Robert V. **Dilts**
John F. Evans

WE NEED TO HEAR FROM YOU!

* No joke is too low (or stale!)
* No announcement is too early!
* Controversial topics welcomed!

Any and all contributions are encouraged and welcomed by the Editor:

Professor William E. Geiger
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