

SEAC *communications*

President's Message

"What's in a Name?"

I should start this inaugural message with acknowledgment of Dennis Evans' diligence as president over the past two years. When one takes the sometimes bewildering step into a position such as this, one quickly realizes how much effort is involved in running a society. Many thanks to Dennis and the hard working officers and board of SEAC for continuing the society's growth and award programs. Special recognition also to Joe Maloy, who capably holds everything together as secretary, and Joe Gordon, who minds the purse strings. By now, you should have received a SEAC membership directory, the very useful product of a major effort by Andy Ewing, Henry Blount, and Joe Maloy.

When the term "electroanalytical" is considered carefully, it is fairly difficult to define in a comprehensive manner. Usually one thinks first of its association with other analytical techniques, as the origin of potentiometry, voltammetry, LC detectors, pH and chemical sensors, and many other successful applications in analysis. There are some special properties inherent in electrochemical phenomena which result from the direct coupling of electronic circuits to the chemical phenomena of interfacial potentials and faradaic electron transfer. These include rapid and variable time scale, small sensor size, high sensitivity, and in many cases high selectivity. The exploitation of these features for chemical analysis forms the basis of a significant fraction of electroanalytical chemistry and its followers.

However, at least as large a fraction of SEAC members work on aspects of electrochemistry which are not necessarily directed toward analysis. Electrochemical energy conversion, electrosynthesis, and corrosion are big areas both economically and intellectually, and are based on the same phenomena of interfacial charge transfer. For example, fuel cells and batteries are likely to become very important on a national and international scale as the cost and pollution of combustion engines become unacceptable to the public. Electrochemists should play a major role in this growth area, but is it electroanalytical chemistry? Should a society with "electroanalytical" in its name be heavily involved in a nonanalytical field?

The good news is we should, and we always have been. The evolution of electroanalytical chemistry in this century has always followed parallel and interrelated tracks directed toward both analysis and interfacial chemistry. It is a strength of the field that development of electroanalytical techniques involves chemical reactions, thermodynamics, and interfacial phenomena which are often common to those inherent in energy conversion or electrosynthesis. In most cases, when you "do analysis" you also "do chemistry" on a faradaic reaction, with all of the thermodynamics and kinetics inherent in any chemical reaction (and then some).

[President's Message continued on next page]

Editorial

This is a somewhat smaller issue than last time, reflecting the vagaries of contributions and the ability of the editor to ferret out interesting tidbits. This issue is also much later than I had hoped because of many distractions and commitments on my time. I had actually begun to assemble this issue two months ago, and I must **apologize** for the lateness of any dated material that I received for publication. As I mentioned in my last editorial, this is an indication of my losing my edge as far as meeting the requisite publication schedule and thus, my desire to step down as editor.

Rick McCreery has provided his first President's Message in which he discusses the boundaries (or lack thereof) of Electroanalytical Chemistry. I'm sure each one of us has his/her own definition of electroanalytical chemistry, and I'm not about to be drawn into arguing semantic differences or nit-picking. I have always made a distinction between analytical and physical electrochemistry because of my own shortcomings in understanding and applying the more rigorous kinetic and mechanistic tools of the physical electrochemist.

Very importantly, I want to remind everyone attending PITTCON '96 that SEAC has several gatherings of interest to its members. First there is the Reilley Award Symposium on Tuesday afternoon (once again in conflict with one of my sessions), followed by our brief annual meeting of the membership which you are encouraged to attend. Of course, don't forget the reception, which also follows the symposium and annual meeting later that evening. Details are given elsewhere in this issue.

Finally, congratulations are once again extended to several of our colleagues. In a somewhat belated notice, Fred Anson was elected a Fellow of the Electrochemical Society and received this honor at the Society's International Meeting in Chicago last October. Also in Chicago, at the fall ACS National Meeting, Ted Kuwana received the Analytical Chemistry Division Award in Electrochemistry sponsored by EG&G Princeton Applied Research. Closer to home, the Reilley Award Recipient this year is Mark Wightman and the Young Investigator Awardee is Louis Coury Jr. (The biographical sketches of Wightman and Coury appeared in the previous issue of *SEAC Communications*). Congratulations to all of you for well-deserved honors.

Dick Durst

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The Society for Electroanalytical Chemistry

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You can't do voltammetric analysis without doing electrosynthesis on a small scale. It is inherent in the field of electroanalytical chemistry that chemical phenomena of wide ranging importance are inseparable from the analytical measurement.

While the term electroanalytical chemistry correctly implies an emphasis on analytical techniques, it does not (and should not) imply an exclusion of reaction chemistry. Most SEAC members do both, and a good electroanalytical chemist is first a good chemist. It is our and SEAC's good fortune that we combine the two worlds.

Richard L. McCreery

Electrochemical "Homeopathy"

In the last issue, I wrote a brief article for the newsletter series on unusual electrochemical phenomena, entitled "Shades of Homeopathy (Or, Where Have All the Ions Gone?)" in which I discussed sub-single-ion detection by an ISE. The electrode exhibited a linear, almost-instantaneous, Nernstian response over an activity range of 24 decades in a solution volume of 5 μL ! I asked SEACers to explain the phenomenon and, as usual, I was overwhelmed by the response.

I received one response, however, that was overwhelming in terms of the volume of pages as well as the explanation. Dr. K. L. Cheng, from the University of Missouri, Kansas City, wrote:

Dear Dick:

I have read your "Shades of Homeopathy!" in the July 1995 *SEAC Communications*. Your Fig. 9 results (Chap. 11 in *Ion Selective Electrodes*) were explained in some of my papers and talks, for example, Capacitor Theory for Nonfaradaic Potentiometry, *Microchem. J.*, 42, 5-24 (1990) and ACS Chicago Meeting DAC poster #54, Neglect of Anions in Potentiometry (August 20, 1995). In the past 10 years or so, we have presented our results to challenge some important concepts in analytical chemistry, such as the second Nernst hiatus, improper definitions of acids and bases by Bronsted-Lowry and Lewis, misleading solution activity and activity coefficient, questionable ion exchange reaction mechanism at pH glass electrode surface, improper pH scale by pH meter, acid-base errors, nonlinear pH-potential curve, etc. They often offended few colleagues. Many people told me why they have not read our papers. Is it our fault? Meantime, we often had a hard time publishing our papers because some editors did not like our provocative ideas and challenges which were criticized as "trashes". Yes, it takes guts to challenge the Nernst equation and solution activity. Recently, our Isotopic disproving Ion Exchange Reaction Between H^+ and Na^+ in pH Glass Electrode paper was rejected by *Anal. Chem.* without review. Fortunately, it will appear in the *J. Electrochem. Soc.* October issue. You may like to read it. It is our belief that we should welcome any reasonable challenges which are so precious to us for progress. We do not have to agree with them, but they should be allowed to be known for discussions. They may be trash or gold!

In answering your question: "Or, Where Have All the Ions Gone?". They all are there. Do not forget the S^{2-} or I^- ions which are adsorbed on the Ag_2S zwitterionic surface, producing a negatively charged chemical capacitor. We used to count men as voters without considering women. Now, it is the equal time to consider both of them. AFFIRMATIVE ACTION!

[Electrochemical "Homeopathy" continued on the next page]

["Homeopathy" cont.]

If our papers were published in popular journals, you may have known the answers a long time ago. Would appreciate your comments.

K. L. Cheng, University of Missouri, Kansas City

P.S. Your case is a clear example of Nernst Hiatus! I used to second the Orion's slogan "Nuts to Nernst!"

Editor's Response:

Unfortunately, as I mentioned in my editorial, because of my many distractions and commitments, I have not been able to read all of the material Dr. Cheng sent me. Consequently, I cannot respond substantively to his capacitor theory of membrane electrode response. However, in glancing through the material, I was unable to locate any reference to the "Nernst Hiatus" that he suggests is the answer to my particular phenomenon. I hope to peruse these papers in the not-too-distant future and comment on what he suggests is a very radical and controversial theory. For those of you interested in learning more about his theory, I have listed below a few more of his publications on the subject.

"Suspension Effect in **Potentiometry**", Part. Sci. & Tech. 7, 139-153 (1989)

"Evidence for Adsorption of Hydrogen and Hydroxyl Ions by **pH-Sensitive Glass**, and Chemical Potential Amplification", J. Chem. Soc., Chem. Commun. 1333-1334 (1988).

"**pH Glass Electrode and Its Mechanism**", Chapt. 20 in *Electrochemistry, Past and Present*, ACS Symposium Series, pp. 286-302 (1989).

"Solid State **pH** and **pNa** Glass Electrodes" and "Effect of Stirring on **pH** Measurements", in *Advances in the Applications of Membrane-Minetic Chemistry*, T. F. Yen et al., eds., Plenum Press (1994).

I invite other **SEACers** to write me with their views, both pro and con, on this concept.

New Awards Chairman

I was recently informed that Dan **Buttry** will assume the duties of the Awards Committee chairman. He is replacing Royce Engstrom to whom we express our gratitude for his past service to SEAC in this capacity.

Henceforth, please send your nomination packages to Dan at:

Prof. Daniel A **Buttry**
Dept. of Chemistry
Univ. of Wyoming
Laramie, WY 82071-3838

For more information, he can be contacted at 307-766-6677 (or 307-766-4363, Chem. Office). His fax number is 307-766-2807 and e-mail: **Buttry@uwyo.edu**

The deadline for the next submission is just after this year's **PITTCON**; March 8, 1996.

From the Mailbag (Electronic and Postal)

Dear Dick:

At the upcoming meeting of the Electrochemical Society in Los Angeles (5-10 May **1996**), a symposium entitled "New Directions in Electroanalytical Chemistry" is to be held. A symposium focusing on the analytical aspects of electrochemistry has not been held in many years, and this symposium is intended to summarize and highlight advances in methodology, instrumentation, and theory. (The Call for Papers for this symposium is appended.) A symposium volume is planned to collate the current state of electroanalytical chemistry. We hope to collect contributions from across the field, so the symposium is broad and inclusive.

Sincerely,

Johna Leddy
Department of Chemistry
University of Iowa
Iowa City, IA 52242

R. Mark Wightman
Department of Chemistry
Campus Box 3290, Venable Hall
University of North Carolina
Chapel Hill, NC 27599-3290

Johna and Mark, I'm sorry this notice was printed too late to meet your deadline for contributions; therefore, I deleted that part of your letter. At least I hope this notice calls your very interesting-sounding symposium to the attention of interested **SEACers**. -Editor

Behind Every Successful Man . . .

Dick,

I would like to acknowledge my wife Lena's help (really all her effort) in putting together the SEAC directory and in setting up the T-shirt sales. Can we put something like the following in the next newsletter?

From Andy Ewing — membership chairperson.

"I want to formally thank Lena Ewing for all her efforts in putting together the first SEAC directory and for handling the making, ordering, and mailing of the SEAC T-shirts. These turned out to be enormous tasks for which I did very

[From the Mailbag cont.]

little of the work. Discussions with past president Dennis Evans prompted us to jokingly declare Lena an honorary SEAC member. In fact, she bought and wears a SEAC T-shirt and, in my mind, is an honorary member. Thank you Lena!"

Dick, If you have a better suggestion of how to do this, I'm all ears. Thanks, Andy

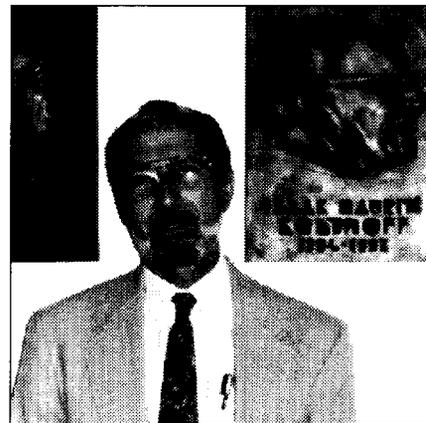
Andy, Your acknowledgment sounds fine as is and I'll run it in the next issue. Your wife really performed a fine service to SEAC and certainly deserves honorary status (although it's not mine to give). At least your note in the newsletter will keep it from being a thankless effort.

Dick

Visit to Kolthoff's Academic Roots

Last October, I was invited to participate in the Ph.D. examination of a student in the Department of Pharmaceutical Analysis of the College of Pharmacy at the University of Utrecht in The Netherlands. It was a novel and extremely interesting experience for me which I thoroughly enjoyed. But that is another story for another time.

Although it didn't occur to me when I was invited, this was the university where I.M. (Piet) Kolthoff (1894-1993) obtained his degree in pharmacy in 1918 and continued on as a lecturer for nine years. When it was discovered that I was an academic descendent of Kolthoff (second generation: I worked for D. N. Hume who received his degree with Kolthoff in 1943), my hosts proudly showed me the bronze bas-relief plaque dedicated to Kolthoff on the occasion of his 100th birthday in 1994. The accompanying photo shows me posing by the sculpture. The other plaque (partially cut off) shows Kolthoff's mentor, Nicholas



Schooli, who taught analytical chemistry in the School of Pharmacy. For those of you who would like to know more about the exceptional Kolthoff, who was reputed to be the father of analytical chemistry in the U.S., I recommend reading the excellent biography written by Herb Laitinen and Ed Meehan in *Anal. Chem.* **56**, 248A (1984) and Mary Warner's article (*ibid.* 61, 287A (1989)).

SEAC Activities at PITTCON

SEAC Board of Directors Meeting

Date: Tuesday, March 5, 11:30 a.m.-1:00 p.m.

Room N132, North Building,
McCormick Place

Open to current and former Board members.

SEAC Annual Meeting

Date: Tuesday, March 5, immediately following the Reilley Award Symposium.

Room E450b, East Building,
McCormick Place

All members and guests are invited to stay for this brief meeting.

Reilley Award Reception honoring R. Mark Wightman

Date: Tuesday, March 5, from 6:00-8:00 p.m.

Clarion Executive Plaza Hotel, Picasso Room.

Members and guests welcome. There will be a cash bar, and SEAC will provide the delicious hors d'oeuvres and stimulating camaraderie. Come join us if you're in Chicago.

Other PITTCON Sessions of Interest

Since I haven't heard from any of our members who are organizing sessions at PITTCON, I am listing below some of the sessions and symposia that I believe may be of interest to SEACers.

Monday Morning

Electrodes As Materials: Where Analytical Chemistry and Materials Science Meet
Electrochemistry: Specific Analytical Applications

Monday Afternoon

Waters Symposium – Ion Selective Electrodes
Bioanalytical II: New Approaches to Optical and Electrochemical Sensors

Tuesday Morning

Bioanalytical III: Applications of Sensors and Electrodes

Tuesday Afternoon

Charles N. Reilley Award Symposium
Pathological Science

Wednesday Morning

In Vivo Analytical Chemistry
Electrochemistry: Sensors

Wednesday Afternoon

Electrochemistry: Charge and Mass Transfer

Thursday Morning

Electrochemistry: Polymers, Surfaces, Films

Thursday Afternoon

Bioanalytical Sensors for the Pharmaceutical Industry
Electrochemistry – Coupled with Spectroscopic and Other Techniques

Postdoctoral Research Opportunity

To: Chemistry Graduate Students
and Post-dots

From: Prof. L.E. Klebanoff, Lehigh
University

Re: Postdoctoral Research Opportu-
nity in Magnetic Phenomena Associ-
ated with Oxidation/Reduction Re-
actions.

I have a one-year postdoctoral posi-
tion available in my group to conduct
a highly novel electrochemical ex-
periment. The position is funded by
a National Science Foundation grant
for the proposed work. The goals of
the project are to probe for the first
time the role of electron spin in elec-
tron transfer between ions in solution
and metallic electrode surfaces. The
research will allow a greater under-
standing of the fundamental nature
of electrochemical electron transfer,
and will also explore new ap-
proaches for investigating the **spin**-
dependent electronic structure of
transition metal complexes **during**
electrochemical oxidation and re-
duction. The post-dot will be respon-
sible for setting up the experimental
apparatus, and for conducting the in-
itial experiments. The one-year sal-
ary will be \$25,000.

If you are interested in discussing
the planned work and the position
further, please contact me via the fol-
lowing routes:

Tel: (610) 758-3592

Fax: (610) 758-6555

E-mail: LEK0@lehigh.edu

Letter:

L.E. Klebanoff
Sinclair Laboratory
Lehigh University
7 **Asa** Dr.
Bethlehem, PA 18015

Thank you very much.

Charles N. Reilley Award -Arranged by Andrew G. Ewing of Pennsylvania State University

Tuesday Afternoon, Room **E450b**, East Bldg.
Andrew G. Ewing, *Presiding*
Pennsylvania State University

1:30

Introductory Remarks — Andrew G. Ewing

1:35

The 1996 Charles N. Reilley Award will be
presented to

Professor R. Mark Wightman
University of North Carolina, Chapel Hill

and

The 1996 Young Investigator Award of the Society
for Electroanalytical Chemistry will be presented to

Professor Louis A. Coury Jr., Duke University

by

Professor Richard **McCreery**
Ohio State University
President, Society for Electroanalytical Chemistry

1:45

Award Address: Electrochemical Detection of
Chemical Messengers with Microelectrodes:
Insights into Cellular Communication in Biological
Systems — R. M. WIGHTMAN,
University of North Carolina

2:20

Wightman Perspectives — ANDREW G. EWING,
Pennsylvania State University

2:30

Structural Control of Reactivity at Carbon Electrode
Surfaces: Specific Sites or bulk Properties? —
RICHARD L. MCCREERY, Ohio State University,
M. Fryling, P. Chen, M.R. Kagan, Yi-chun Liu

3:05

Spatial Relationships on Electrode Surfaces —
ROYCE C. ENGSTROM,
University of South Dakota,
Betsy Ratcliff, Janese O'Brien, Miles D. Koppang

3:40

RECESS

3:55

Award Address: Sounds Like Hot Electrochemistry
LOUIS A. COURY JR., Duke University,
Nanette A. Madigan, C.R.S. **Hagan**, Evan L. Cooper

4:30

Enhancement Of Sensitivity And Selectivity At
Modified Carbon Fiber Microelectrodes
WERNER G. KUHR, Univ. of California at Riverside,
M.A. Hayes, Wilbur B. **Nowall**

SEAC Annual Meeting will immediately follow the Symposium. Please plan
to attend this brief, but important, meeting.

Kudos

TED KUWANA RECEIVES ACS DIVISION OF ANALYTICAL CHEMISTRY AWARD IN ELECTROCHEMISTRY

Dr. Theodore Kuwana, professor of chemistry at the University of Kansas, will receive the Award in Electrochemistry, sponsored by EG&G Princeton Applied Research. Kuwana is best known for his work in electroanalytical methods for biomolecules, carbon microelectrodes, **photoelectrochemistry**, electroluminescence, and developing electrochemical detectors for LC. For almost a decade, Kuwana has been involved in a summer program that allows college teachers to conduct research in bioanalytical chemistry.

(Anal. Chem. July 1, 1995)

FRED C. ANSON ELECTED TO THE POSITION OF FELLOW OF THE ELECTROCHEMICAL SOCIETY

Dr. Fred C. Anson has been selected to receive the position of Fellow of The Electrochemical Society for his contributions to the development of chronocoulometry and thin-layer electrochemistry, for his characterization of adsorbed reactants in electrochemistry, and for the discovery of new electrocatalysts for the electroreduction of dioxygen. Dr. Anson was honored at the Society's 188th International Meeting on October 10, 1995.

Fred C. Anson received his B.S. from the California Institute of Technology in 1954. He then attended Harvard University, where he received M.S. and Ph.D. degrees in 1955 and 1957, respectively. After graduation he returned to California to take a position in the Institute's Division of Chemistry and Chemical Engineering where he has remained. He served as the Division Chairman from 1984 to 1994.

A respected researcher, Dr. Anson has been recognized repeatedly for his efforts in analytical chemistry. He has received numerous awards throughout his career, including a Guggenheim Fellowship (1964), a Alfred P. Sloan Foundation Research Fellowship (1965-1969), the David C. Grahame Award of the Electrochemical Society's Physical Electrochemistry Division (1983), the Alexander von Humboldt Award (1984, 1985, 1986), was elected to membership in the National Academy of Sciences (1988), and the ACS Division of Analytical Chemistry Award in Electrochemistry (1994).

Arthur F. Findeis Award for Achievements by a Young Analytical Scientist

Purpose: To recognize and encourage outstanding contributions to the fields of analytical chemistry by a young analytical scientist.

Nature of the Award: The award consists of \$4,000, a plaque, and a travel allowance of up to \$1,000 to attend the meeting at which the award is presented.

Establishment and Support: The award was established in 1995.

Rules of Eligibility: The awardee must have earned his or her highest degree within 10 years of January 1 of the year of the award. Both the nationality of the young analytical scientist and the arena (e.g., academic, industrial, national laboratory) in which the contributions of the young analytical scientist have been made are unrestricted. Presentation of the award will be made annually at the Eastern Analytical Symposium.

Nomination for the Award: All nominations shall be sent to the Chairperson of the Division of Analytical Chemistry and must be received by September 1. The nomination document shall consist of:

- A letter of nomination
- At least one, but no more than six, seconding letters.
- A biographical statement emphasizing the candidate's involvement in analytical chemical sciences.
- Evidence shall be presented for one or more of the following outstanding accomplishments:
 - Conceptualization and development of unique instrumentation that has had an enabling impact upon analytical chemistry and has substantively advanced the field.

[Continued on next page]

[Findeis Award continued]

- Development of novel and important analytical methods or methodologies that have found significant beneficial applications in the chemical sciences.
- Elucidation of fundamental events or processes involved in or important to analytical chemistry.
- Authorship of books, patents, and/or research papers that have had an influential role in the development of analytical chemistry.
- Other significant contributions to the furtherance of analytical chemical sciences.
- Contributions by a candidate which have been recognized by a prior Divisional or ACS national award shall not be considered by the jury for this award. The jury shall receive from its Chairperson a list for each nominee of any such prior awards, their dates and their citations.
- Supporting attachments.
- The nomination document shall be submitted in one package and shall not exceed 12 pages of text, including nominating and seconding letters, biographical statement, and attachments to the nomination.
- Any candidate previously nominated for the award who was not chosen as the awardee must be renominated for consideration in a succeeding year.

Selection Process: The awardee shall be chosen by a confidential jury to be known as the Jury of the ACS Division of Analytical Chemistry Arthur P. Findeis Award.

Notification: The awardee shall be notified of his or her selection by the Chairperson of the Division of Analytical Chemistry no less than six months before the date of the award presentation. A condition of the award is that the recipient shall deliver at the time of the award presentation an address upon a chemical subject chosen by himself or herself. The Chairperson and Organizer of the symposium honoring the awardee shall be chosen by the awardee.

New Gordon Conference

The first Gordon Research Conference on Chemical Sensors and *Interfacial Design*, will be held JULY 28 - AUGUST 1, 1996, at Colby-Sawyer College In New London, NH (Immediately following the 6th International Meeting on Chemical Sensors in Gaithersburg, MD). This conference is devoted to chemical sensors and the design of chemically sensitive interfaces, with emphasis on (1) fundamental understanding of the interfacial chemistry critical to effective operation of chemical sensors, (2) utilization of sensor platforms to characterize chemically active interfaces and thin films, (3) new developments in chemically active interfaces potentially suitable for sensor research and development, (4) applications of mathematical techniques to the interpretation of sensor responses, particularly in the case of arrays, and (5) synthetic strategies for inter-facial design relevant to chemical sensing.

The main discussion topics, along with the leader and principal speakers, are: **Monolayers, Multilayers, and Polymers for Sensing Applications:** I. Rubinstein, The Weizmann Institute; D. Bergbreiter, Texas A&M; Michael Grunze, University of Heidelberg; D. Charych, Lawrence Berkeley Lab. **Molecular Recognition:** W. Gopel, University of Tübingen; T. E. Mallouk, Pennsylvania State; D. N. Reinhoudt, University of Twente; F. L. Dickert, University of Vienna. **Biosensors & Electrochemical Sensors:** C. R. Martin, Colorado State; W. R. Heineman, University of Cincinnati; M. Aizawa, Tokyo Institute of Technology; R. Zare, Stanford. **Optical and Acoustic Wave-Based Sensors:** D. Walt, Tufts University; M. Arnold, University of Iowa; E. T. Zellers, University of Michigan; D. A. Buttry, University of Wyoming. **ChemFETs, ISFETs, and Gas Sensors:** R. C. Hughes, Sandia National Labs; J. Janata, Pacific Northwest Lab; I. Lundström, Linköping Institute of Technology; N. Yamazoe, Kyushu University. **Sensor Systems & Mathematical Methods:** A. J. Ricco, Sandia National Labs; N. de Rooij, University of Neuchâtel; D. J. Harrison, University of Alberta; G. C. Osbourn, Sandia National Labs. **Commercially Relevant Sensors and Applications:** E. M. Logothetis, Ford Motor Co.; M. Madou, Microfabrication Applications; H. Wohltjen, Microsensor Systems; L. Bousse, Molecular Devices. In addition, R. M. Crooks (Texas A&M) will lead a session of contributed talks to be arranged at the meeting, and J. Stetter (Transducer Research, Inc.) will lead a session of talks by younger scientists in the field.

Applications are especially sought from, and some limited support may be available for, graduate students, postdoctoral associates, and new faculty members. We also encourage applications from industrial scientists worldwide. We encourage participants to submit poster abstracts. To find out more about posters and other important information about this meeting **access our WWW Home page at <http://www.chem.tamu.edu/gordon/grc.html>**. To request application materials contact: The Gordon Research Conferences, University of Rhode Island, P.O. Box 984, West Kingston, RI, 02892-0984; e-mail: app@grcmail.grc.uri.edu

Organizers: Richard M. Crooks, Department of Chemistry, Texas A&M University, College Station, TX, 77843-3255; 409-845-1399 (FAX); crooks@chemvx.tamu.edu. Antonio J. Ricco, Microsensor R&D, MS 1425, Sandia National Labs, Albuquerque, NM 87185-1425; 505-844-1198 (FAX); ajricco@sandia.gov

New SEAC Members

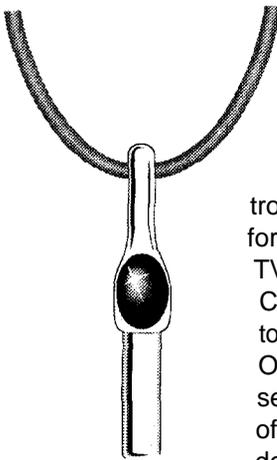
Name	Date	Affiliation
Kubow, Stephen A.	6/3/95	Kean College of NJ
Melroy, Owen R.	6/1/95	IBM, Almaden Research Center
Swain, Greg M.	7/15/95	Utah State University

New Student Members

Adamian, Victor	5/25/95	University of Houston
Baker, Stephanie	7/10/95	University of Toledo
Betz, Andy	9/16/95	Lehigh University
Burns, Francis	6/30/95	University of Toledo
Coleman, John A.	6/6/95	Lehigh University
Ding, Ying	5/16/95	University of Cincinnati
Gao, Xiang	6/6/95	University of Houston
Gratz, Samuel R.	5/16/95	University of Cincinnati
Hu, Zhangmin	5/16/95	University of Cincinnati
Jun, U.	5/23/95	University of Houston
Lee, Wade M.	6/29/95	University of Toledo
Mead, Stephen	6/6/95	University of Houston
Slaterbeck, Andrew F.	5/16/95	University of Cincinnati
Smith, Amy	6/29/95	University of Toledo
Un, Gang	6/24/95	Lehigh University
Van Caemelbecke, E.	5/24/95	University of Houston
Zhang, Jin	5/16/95	University of Cincinnati
Zhou, Xiao	5/5/95	University of Kansas

UNEXPLAINED PHENOMENA

I recently came across an unusual advertisement which may be on a par with "Cold Fusion"! Here is a gift for that really special someone in your life. I'm not sure if it's legal to purchase one for research purposes with my grant money (Don't worry Janet and Henry, it's not an NSF grant), but, if I do, I'll let you know if it works (just kidding again). However, I'm certainly open to comments on this device. It sure sounds like high-tech stuff to me!



Designed to protect you from EMF radiation, it is said that this remarkable pendant also "tunes" you to Earth's magnetic forces!

"...I have noted profound increases in overall energetic vitality..." Dr. Scott Morgan, O.M.D.

Developed by a physicist, specializing in the measurement of electromagnetic forces, the pendant works as a form of grounding device for the more and more pervasive fields surrounding our computers, TV's, and powerlines. But other effects have been observed. B. Carter, for instance, is a professional photographer who has photographic plates showing energy flares emitting from the pendant. Others claim relief from physical disorders and a remarkable sense of renewed energy. The pendant is a tiny energy rod made of magnetic alloys. Under its silver cap a rare Takionic crystal, developed by Japanese scientists, is tuned to the "Schumann

Resonance" (7.83 cycles/second) sometimes called the "brain wave of the planet". Remarkably effective for many users the world over! Comes with silk cord, instructions and velvet gift pouch. #UEE992 - Earth Energy Pendant - \$99.95

