DATA BASES ARE COMING. Anyone in the field of IR spectroscopy knows there is a crying need for digitized data bases. None can dispute the unique suitability of IR spectroscopy for qualitative analysis, but this endeavor is greatly dependent on existing reference data for comparison. In 1981, the late Tomas Hirschfeld wrote an article for this Newsletter addressing this topic [Appl. Spectrosc. 35, 455 (1981)] and stated that the future health of IR spectroscopy as a qualitative tool hinged to a significant extent, on the expansion in the quality and size of existing spectral collections. He further stated that the development of such data bases, along with pattern recognition techniques, would be the salvation from the growing problems in IR qualitative spectroscopy. Coblenz is pleased to announce that two programs to collect and distribute spectra are underway. The Federal government is sponsoring a “clearinghouse” to compile all the existing spectral collections into one base, so that it may be the seed for one IR data base much like the mass spectral data base which is currently distributed by NBS. An article describing this effort is included in this Newsletter. You can help by contributing your spectra. Coblenz is also digitizing its spectral collections, such as the ever-popular Desk Book of Infrared Spectra, and to these collections we would also like to make additions from contributed spectra. An article concerning this effort is also included in this Newsletter, following the one described above. We hope that these efforts can provide the much needed spectroscopic data base that the scientific community has been asking for.

NEWSLETTER SCHEDULES TWO ISSUES A YEAR. The Coblenz Board has decided on a fixed publication schedule of this Newsletter for February and August of each year. This schedule will allow communication with all the Society Members prior to each Board Meeting and will allow time for needed business to be conducted after each set of Newsletter announcements. Anyone wishing to correspond through the next Newsletter should send contributions to Kathryn S. Kalasinsky, Coblenz Society Newsletter Editor, Mississippi State Chemical Laboratory, P.O. Box CR, Mississippi State, MS 39762. (Send your reader opinion polls to the same address.) This Newsletter is open to contributions from Society Members who wish to publish articles on various topics.

KATHY KALASINSKY
Once again we provided a beer-and-snack reception at the Ohio State meeting. Vic Kalasinsky deserves thanks for arranging this get-together, which has become over the past few years a popular tradition.

The financial health of the Coblentz Society is to a large degree the result of our investment program for the development of high-quality infrared spectral collections, through Clara Craver and Chemir Laboratories. We have anticipated that sales of printed spectra will fall off in the coming years and that there will be increased demand for digitized spectra and for peak tables suitable for computer searches. As we develop such products, we may be facing a period of reduced income. Fortunately, our current income from investments is such that we can maintain our present level of activities, but we would like to be able to expand these activities into such areas as greater involvement in professional meetings.

It follows that the Board would be very receptive to suggestions for any Coblentz activities, but especially those that might generate some income for the Society. There have been discussions of our sponsoring technical courses, and of a possible expanded publication program to include such items as spectral indexes. The Board will be considering such items at its coming spring and fall meetings, but I emphasize that input from members is welcome. While the Board is charged with managing the affairs of the Society, we are a small enough and flexible enough organization to allow me to hope that every member feels free to contribute ideas and suggestions. Along the same line, any member who wants to be more involved with Society activities will be welcomed, and you may even find yourself serving on the Board eventually.

The Society's annual meeting will be held on Tuesday, 23 February, at PittCon in New Orleans, immediately preceding the Williams-Wright Award Symposium. It will consist of a brief account of the Society's activities and future plans, and after the symposium we will host our usual wine and cheese reception. I hope to see many of you there. Meanwhile, if you have questions about, or suggestions for, the Society, please feel free to discuss them with me or with any member of the Board of Managers.

ROD McDOWELL

WESTERN SPECTROSCOPY ASSOCIATION

The 35th annual meeting of the Western Spectroscopy Association was held 20–22 January 1988 at the Asilomar Conference Center in Pacific Grove, California. Although many think the meeting is just an excuse to visit the Monterey Peninsula, those who attend regularly know that it also provides the opportunity to see friends and acquaintances from all around the country and to catch up on what is happening in all areas of modern spectroscopy.

The traditional format of previous conferences was again followed—12 invited speakers discussed the whys, hows, and what's of their current research, and contributed posters from about one-third of the attendees provided foundations for extensive discussions in the afternoon and into the night. Generous support from a variety of corporate and organization sponsors (including, of

PRESIDENT'S MESSAGE

It is a pleasure, on assuming the presidency of the Coblentz Society, to be able to report that our Society is in sound financial shape and that it continues to play an expanding role in serving the spectroscopic community. For this we owe thanks to past officers of the Society, including especially the immediate past president, Bruce Chase, and to the Board and committee members who are willing to contribute their time to helping manage the Society's affairs.

The President's annual report to Society members is made in the spring at the Pittsburgh Conference, but meanwhile I would like to bring you up to date on some of our activities.

The Coblentz Award was presented at the Ohio State Symposium last June to Alan Campion of the University of Texas, for his work on Raman spectroscopy of adsorbed molecules. At the Detroit FACSS meeting in October, Carl Lineberger of JILA and the University of Colorado received the Bomem-Michelson Award for his studies of negative ions using high-resolution techniques. Carl spoke at a Coblentz-sponsored session arranged by Bill Harris, which included related papers by Pat Jones, Steve Leone, and Jack Simons. This year's Williams-Wright Award will go to Darwin L. Wood of Bell Labs for his work on infrared optical fibers, and Chris Brown has arranged the award symposium for PittCon. We also presented 24 Student Awards consisting of copies of the Desk Book and a year's membership in the Society. I congratulate all these winners and encourage members to submit nominations for these awards, and for the Lipincott Award, to the appropriate committee chairs or to me.

The Bomem-Michelson Award Symposium at the FACSS Conference in Detroit. Featured (from left to right) are Dr. Henry Buijs (award presentation, Bomem Inc.), Dr. Pat Jones (speaker, Ohio State Univ.), Prof. Carl Lineberger (awardee, JILA at Univ. of Colorado), Dr. William Harris (Symposium Chairman, NSF), Dr. Steve Leone (speaker, Univ. of Colorado), and Dr. Jack Simons (speaker, Univ. of Utah).
course, the Coblentz Society, which sponsors one of the speakers from afar) allowed for attendees to enjoy a “lavish” banquet (by summer camp standards) and to sample many of the fine wines that are gaining international renown for the vineyards in the area. In addition, this support enables WSA to sponsor six graduate student fellowships for the conference, which are awarded on the basis of distance of travel and submission of a poster.

As an illustration of the diversity of the program, which was organized this year by Robert Shelby, IBM Almaden Research Center, San Jose, a brief description of the speakers and subjects follows. Space does not permit detailed discussion of these presentations, but anyone who wants to know more should be able to contact the individual presenters. Fourier transform spectroscopic experiments of Raman scattering in the near-infrared were discussed by John Rabolt of IBM Almaden. Graham Fleming (Department of Chemistry, University of Chicago) illustrated how spectroscopy was used to study the dynamics of polar solvation. Femtosecond time-resolved spectroscopy of molecular liquids is an active area of research for Keith Neilson and associates (Chemistry Department, Massachusetts Institute of Technology), and Warren Warren (Chemistry Department, Princeton University) described some of the effects of pulse shaping in laser spectroscopy. The fundamental spectroscopy of atoms in strong resonant fields was discussed by Tom Mossberg (Physics Department, University of Oregon). Some of the techniques and applications of surface Raman spectroscopy were presented by Richard van Duyne of Northwestern University, and Alan Burns of Sandia National Laboratory in Albuquerque illustrated how electron impact desorption is used in studies of laser spectroscopy. About 60 posters were put up for discussion before the banquet; then, after dinner, Steve Chu (Physics Department, Stanford University) discussed how laser trapping and manipulation is used to probe neutral atoms and particles. The Coblentz Society speaker, Takanori Oka (Department of Chemistry, University of Chicago), presented data exploring the infrared spectroscopy of carbo-ions; Rob Whetten (Chemistry Department, University of California, Los Angeles) described laser spectroscopic studies of small metal clusters; and Larry Ziegler (Chemistry Department, Northeastern University) discussed resonance hyper-Raman scattering in the gas phase. Finally, Peter Bernath (Department of Chemistry, University of Arizona) summarized his group's research using laser and Fourier transform spectroscopies to study transient species ranging from diatomics to organometallics.

The next Western Spectroscopy Association meeting will again be held at Asilomar, at the end of January 1989. Participation of all Coblentz Society members is encouraged, and interested spectroscopists should contact me for more information, when it becomes available. The success of the meeting is dependent on participation, and as anyone who has attended the conference will confirm, it is an excellent opportunity to meet with old and new friends.

**Factors Affecting IRS 5 Contact Efficiency**

- **A Good Contact**
  - Pressure
  - Soft Plastic Sample

- **B Poor Contact**
  - Air Pockets
  - Fabric Sample

Factors affecting Internal Reflectance Spectra (IRS) are discussed in IR-103, *Principles of Infrared Internal Reflectance Spectroscopy*. SA- VANT's latest slide/tape or videotape training program. This is the third in a series of IR programs reviewed and endorsed by the Coblentz Society. For more information on this and other SA- VANT products call 1-800-4SAVANT.

**The Center for Process Analytical Chemistry:**

**Building a New Generation**

In 1983, a group of analytical chemists, chemical engineers, and others at the University of Washington responded to the growing demand for a systems approach to industrial process analysis and control. Traditionally, a rift had existed between the work of university researchers and the problems associated with the process environment. In order to close this knowledge gap, the Center for Process Analytical Chemistry was formed. The Center, usually designated CPAC (see-pac), aims at discovering and developing new analytical methodologies for use on-line as integral parts of automated chemical processes.

Today, CPAC remains dedicated to advancing the state of the art in a new discipline: process analytical chemistry. The field of process analytical chemistry is a response to the idea that better analytical tools and methods are crucial to the process engineer—these tools and methods give the engineer better control over the quality of his or her product, the efficiency of his or her process line, and safety of his or her plant. Consequently, research at CPAC focuses upon three primary areas: sensors and instrumentation; multivariate data analysis, including spectral pattern recognition; and process optimization, control, and intelligence. Much of the Center's research aims at developing new types of sensors: sensors that not only provide chemical information about the components of a system but also—when integrated with sophisticated data processing and intelligence capabilities—direct the optimization and control of a real-time process.

CPAC embodies a uniquely synergistic approach: faculty from the Departments of Chemistry, Chemical Engineering, Electrical Engineering, Physics, and Statistics...
at the University of Washington join together to address some of the key obstacles facing the chemical industry. Visiting scientists from other institutions and from sponsor organizations lend their expertise and backgrounds to the CPAC enterprise. Currently, the Center draws support from 32 organizations within the chemical industry. These sponsors vary from chemical production companies like Dow and DuPont, to instrument manufacturers like Foxboro and Bran + Lubbe (Technicon), to national laboratories like Battelle PNL and Los Alamos.

A new breed of graduate student is being trained through CPAC research—a student keenly aware of the problems facing the process environment. In an effort to encourage interested graduate students, CPAC has established the Hirschfeld/CPAC Fellowship, a two-year stipend awarded each year to an outstanding student of process analytical chemistry. The fellowship winner gains the opportunity to work in an interdisciplinary environment remarkable for its collaboration between industry and university. In addition, the student may attend conferences and visit sponsoring companies as part of his or her study.

The Hirschfeld/CPAC Fellowship is a tribute to the late Tomas Hirschfeld, scientist at Lawrence Livermore National Laboratory, Affiliate Professor to the University of Washington, and researcher for the Center for Process Analytical Chemistry. From CPAC’s inception, Hirschfeld played an important role—Hirschfeld’s pioneering work in remote sensing via fiber optics led CPAC’s Directors James B. Callis and Bruce R. Kowalski to invite him to lend his expertise to the Center. Over the next two and a half years, the Uruguay-born scientist began to devote all of his time to process analytical chemistry. Hirschfeld made significant contributions to fiber optic probes and near-infrared spectroscopy; more importantly, he provided an inexhaustible source of advice, experience, and enthusiasm. Hirschfeld’s skill as a scientist and his ability to motivate others was remarkable; Callis said of him, “Many of us at CPAC regarded Tomas as one of the greatest analytical chemists of all time. . . . I never failed to come away from a discussion with Tomas filled with enthusiasm and optimism.”

Although Tomas Hirschfeld is no longer with us, his spirit continues through the Fellowship. Hirschfeld’s wife, Judith, and other family members have been major contributors to the Tomas Hirschfeld Endowment Fund, which underwrites much of the expense. The Fellowship is a fitting tribute to a great scientist and engineer, for it ensures a new generation of innovative, practical research. CPAC is proud to advance this mission.

SCOTT HOLTER AND BRUCE R. KOWALSKI
CPAC
University of Washington, BG-10
Seattle, Washington 98195

COLLECTION OF HIGH-QUALITY DIGITAL INFRARED SPECTRA

Most collections of digital infrared reference spectra either have been digitized from analog grating spectra or are copy-protected FT-IR spectra which have been “deresolved” to a suitable format for rapid spectral searching. The original spectra or interferograms are rarely, if ever, accessible in digital form. Many high-quality FT-IR reference spectra have been measured in numerous laboratories around the world. Some of these are, of course, proprietary, but many are not. Chemists at the University of California, Riverside, are preparing to act as a clearinghouse for high-quality digital infrared reference spectra. The collection of these spectra will become available to all contributors at a nominal cost, designed to cover the expense of reproduction, documentation, and distribution. A grant from the U.S. Environmental Protection Agency is supporting the early costs of this project. The collection is under the supervision of Professors Peter R. Griffiths and Charles L. Wilkins.

Spectra of compounds in any phase and measured by any sampling technique will be accepted, provided that they are accompanied by information on sample purity, sample preparation technique, and spectral data acquisition parameters. Short programs will be provided to all contributors, giving a menu for entering this information in the header.

Spectra can be accepted from FT-IR spectrometers made by the following manufacturers on the media indicated:

- **Analex:** double-density floppy disk;
- **Digilab:** Model 3200 data systems—floppy disk; Nova data systems—8-track magnetic tape or top-loading hard disk;
- **Mattson:** streaming magnetic tape; floppy disk;
- **Nicolet:** SX data system—floppy disk or Hawk disk; 7199 data system—8-track magnetic tape or top-loading hard disk;
- **Perkin-Elmer:** 7500 data system—floppy disk.

Programs are also being written to permit spectra to be transferred by telephone through a Modem link. Any FT-IR spectroscopist who is willing to contribute...
at least ten high-quality digital infrared reference spectra to this program should contact:

Professor Peter R. Griffiths
Department of Chemistry
University of California
Riverside, California 92521-0403
U.S.A.

WE NEED YOU:
HELP PARTICIPATE IN DEVELOPMENT OF AN EVALUATED COLLECTION OF DIGITIZED SPECTRA

Our Society has encouraged wide availability of high-quality infrared reference spectra for over 30 years. This has been done through a member-driven program of spectrum collection, evaluation, and publication and through Board-sponsored standards, which have become accepted world-wide.

Our goal is to encourage an abundance of the highest practical quality spectra to fill the diverse needs of analytical and research laboratories, and to make these spectra widely available at the lowest possible cost. It would be great if our past efforts were to be rewarded with our goal’s being fully achieved!

Completion of this task is not compatible with the nature of reference data. There are always more compounds which need to be covered in new product areas and for new research fields. Instrument changes provide us with the opportunity for improved spectra—and also with a new set of ways to obtain distorted data.

Your help is needed. Start making copies of digitized reference spectra to contribute to the program. One spectrum is a good start! Five to a hundred spectra would be a tremendous contribution. It will save us time if you can process them into the universal format of JCAMP-DX, but we will also gladly accept them on disks from any spectrometer. All compounds are needed in all sample states. Send them directly to Clara D. Craver, 761 West Kirkham Ave., Glendale, CA 91205. If you need more information call (314)-962-6704.

The goal is to provide a more effective use of molecular spectroscopy. That is a worthy goal for researchers in laboratories in universities, government, and industry, and for IR spectrometer manufacturers. Aren’t you included in one of those categories?

COBLENTZ SOCIETY STUDENT AWARD

The Coblentz Society is pleased to announce its Student Awards for 1987. These awards are presented yearly to outstanding students of molecular spectroscopy and consist of a copy of the Deskbook of Infrared Spectra and a year’s membership in the Society. The awardees for 1987 are:

Don O. Henderson, Fisk University Physics Dept. (Prof. E. Silberman)
Joyce G. Laquindanum, University of the Philippines Department of Chemistry (Prof. P. B. Sautaria)
Shari Tidrick, Case Western Reserve University School of Engineering (Prof. Jack L. Koenig)
Donna Geoghan, SUNY Farmingdale Department of Chemistry (Prof. Yeshwant K. Purandare, Ph.D., M.D.)

Stephen L. Pentoney, Jr., University of California, Riverside Department of Chemistry (Prof. Peter R. Griffiths)
Christopher J. Dinsmore, Bowdoin College Department of Chemistry (Prof. Dana W. Mayo)
You-Zhung Hsieh, University of Michigan Department of Chemistry (Prof. Michael D. Morris)
Jane E. Weier, University of California, Berkeley Department of Chemistry (Prof. Herbert L. Strauss)
Kevin Burgess, Muskingum College Department of Chemistry (Prof. William J. Wallace)
Kenneth L. Morand, Rose Hullman Institute of Technology Department of Chemistry (Prof. Frank A. Guthrie)
Philip Mckittrick, Miami University Department of Chemistry (Prof. J. E. Katon)
Ramer Beck, Oregon State University Department of Chemistry (Prof. Joe Nibler)
Leland Mayne, University of Oregon Department of Chemistry (Prof. Bruce Hudson)
Roger C. Kenton, Mississippi State University Department of Chemistry (Prof. Victor F. Kalaskinsky)
Kris A. Hock, University of Toledo Department of Chemistry (Prof. Gordon A. Parker)
Christian Weigel, Technische Universitat Wien Department of Chemistry (Prof. Dr. R. Kellner)
Xiao-Yuan Li, Princeton University Department of Chemistry (Prof. Thomas G. Spiro)
Kenneth D. Beer, University of Pittsburgh Department of Chemistry (Prof. Robin L. Garrell)
Meg Martin Thompson, Duke University Department of Chemistry (Prof. Richard A. Palmer)
Colleen A. McCoy, University of Georgia Department of Chemistry (Prof. James A. de Haseth)
Ellen V. Tripodi, University of Georgia Department of Chemistry (Prof. James A. de Haseth)
Andrew Vennos, Towson State University Department of Chemistry (Nordi"f W. G. Debye)
Tracy Hamilton, University of Arkansas Department of Chemistry (Prof. David L. Monts)

REQUEST FOR NOMINATIONS

The Coblentz Society requests nominations for the prestigious awards it supports:

1989 Coblentz Award. The Coblentz Award is presented annually to an outstanding young spectroscopist under the age of 36. (The candidate must be under the age of 36 on January 1 of the year of the award.) The award carries with it a $1000 prize, plus a travel allowance. Nominations, which should include a detailed description of the nominee’s accomplishments, a curriculum vitae, and as many supporting letters as possible, must be submitted to the award chairman [Dr. Joel Harris, Dept. of Chemistry, University of Utah, Salt Lake City, UT 84112, Ph: # (801)581-3585] on or before August 1, 1988.

1989 The Williams-Wright Award. This award is presented annually at the Pittsburgh Conference to an industrial spectroscopist who has made significant contributions to vibrational spectroscopy while working in industry. The work may include infrared and/or Raman spectroscopy and instrumental development, as well as
theory and applications of vibrational spectroscopy. No restrictions are placed on the selection of the awardee because of age, sex, or nationality, but the awardee must be still working at the time the award is presented (government labs are not considered industry in this definition). The nominating document should clearly state the significance of the contribution made by the nominee, i.e., the introduction of novel methods, techniques or theories; innovative work in the field of vibrational spectroscopy; significant improvement on existing methods, theory, or techniques; or important impact on the field of vibrational spectroscopy arising from the volume of contributions in a specific area. The nomination should include a current vitae on the nominee and highlight any publications and talks. Seconding letters to the nomination are useful, but not necessary. Files on nominees will be kept active for three years, after which the candidate must either be renominated with an updated file, or the file will be closed. Like the Coblentz Award, the prize includes a $1000 cash prize, plus a travel allowance to the Pittsburgh Conference. Nominations should be sent to the Chairman of the Williams-Wright Award Selection Committee [Dr. Victor Kalasinsky, Dept. of Chemistry, Mississippi State Univ., Mississippi State, MS 39762, Ph: (601)325-3586] on or before 1 July, 1988.

1989 Bomem-Michelson Award. Bomem Inc., 625, rue Marais, Vanier, Quebec, Canada, a manufacturer of high-performance Fourier Transform infrared systems, sponsors an award to honor scientists who have advanced the technique of vibrational, molecular, Raman, or electronic spectroscopy. The Bomem-Michelson Award, consisting of a medal and a $2500 honorarium, is dedicated to the memory of Professor A. E. Michelson, developer of the Michelson interferometer. The recipient must be actively working in the academic, industrial, government, or private sector and be between the ages of 37 and 50. In order to ensure that the Bomem-Michelson Award is based on an independent evaluation of a candidate's performance, the selection will be made by a committee chosen by the Coblentz Society. A nominating letter and seconding letters should be sent to: Dr. William C. Harris, Chemistry Division, Room 340, National Science Foundation, Washington, D.C. 20250. The Candidate's C.V. should be included, as well as specific research efforts which make the candidate eligible for this award. Nominations will close 1 May, 1988.

1989 Ellis R. Lippincott Medal. The purpose of the Ellis R. Lippincott Medal is to honor his memory by the recognition of significant contributions and notable achievements in the field of vibrational spectroscopy. The medal is sponsored jointly by the Coblentz Society, the Optical Society of America, and the Society for Applied Spectroscopy. It is awarded annually at an appropriate scientific meeting. Recipients of the medal must have made significant contributions to vibrational spectroscopy as judged by their influence on other scientists. Because innovation was a hallmark of the work of Ellis R. Lippincott, this quality in the contributions of candidates will be carefully appraised. The contributions may be theoretical or experimental or both, and may have been made in the course of applied as well as basic research. No restriction is placed on the citizenship or national origin of candidates. A candidate need not be a member of any of the sponsoring societies. The award will not be made posthumously unless an awardee should die after the procedure of selection has been completed. Nominations should include the name and affiliation of the nominee and sufficient background information to justify the nomination. A nominator is expected to believe strongly enough in the quality of the work of his or her candidate to be able to provide the evidence for that belief. No restriction is placed on who may nominate, and all nominations received by the committee prior to 1 October in any given year will be considered for the award to be presented in the fall of the following year. Nominations should be submitted to: Dr. William Blass, Dept. of Physics and Astronomy, University of Tennessee, Knoxville, TN 37996, Ph. (615)974-7846. Deadline is 1 October 1988.

HONORARY MEMBERS

The Coblentz Society has selected Bryce Crawford and Foil Miller to receive honorary membership, due to their outstanding contributions to the field of spectroscopy. They will each be presented with a plaque at the Coblentz Society general business meeting prior to the Williams-Wright Award Symposium at the Pittsburgh Conference in New Orleans.

VISIT OUR MEMBERSHIP BOOTH AT NEW ORLEANS PITTSBURGH CONFERENCE

This is a good place to meet your friends and discuss what's new both in spectroscopy and in the city. It's a good place for nonmembers to make our acquaintance and join up.

You'll be able to try SPECTRASEARCH on the Coblentz data base on a PC and look over our reference books. Don't forget to bring some floppies of your own spectra to contribute to the new Coblentz Society digitized spectral collection. IT'S YOUR SOCIETY—YOUR PARTICIPATION IS NEEDED.

SOCIETY ANNOUNCEMENTS

MEMBERSHIP: Anyone wishing to join the Society may do so by sending $5.00 to Dr. James A. de Haseth, Coblentz Society Membership Chairman, Department of Chemistry, University of Georgia, Athens, GA 30607.

BOARD MEETING: The Coblentz Society Board will hold its semi-annual meeting in the last week in February at the Pittsburgh Conference in New Orleans. Any article of business that you wish the Board members to consider needs to be sent in writing to Dr. Rod McDowell, Coblentz Society President, Mail Stop J567, Los Alamos National Lab., Los Alamos, NM 87544, prior to the conference.

WINE AND CHEESE: The Coblentz Society will sponsor the Williams-Wright Award Symposium on Tuesday afternoon at the Pittsburgh Conference, followed by a wine and cheese reception (open to all conferees). Consult your program for time and location.

BEER: The Coblentz Society will present the Coblentz Award Monday morning at the Ohio State Molecular Spectroscopy Symposium to be held in Columbus, Ohio, 13-17 June, 1988. The Award lecture will follow the
presentation. The Society will also sponsor a beer blast the following Tuesday evening for all conferees.

BOARD MEMBERS

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OFFICERS

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CLOSING DATES FOR SPACE:
15th of 2nd preceding month. Cancellations due one week after closing.

GENERAL ADVERTISING RATES:
(Effective January 1987 for camera-ready ads.)

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EARNED RATES:
Based upon accumulated space during 12-month period. Upon request, parent company and subsidiaries are combined for accounting of earned rate. (Product Information News section listings do not apply to earned rates.)

COLOR RATES:
Standard color (AAAA red, blue, green, yellow, orange) per page $300.00
Matched color rate per page 525.00
3-color rate per page* 675.00
4-color rate per page* 675.00

BLEED RATE:
No charge.

AGENCY COMMISSION:
15% to recognized agencies. Color charges, and positioning charges are commissionable. Insert charges are also commissionable (excluding backup charges). All extra charges are noncommissionable.

PAYMENT AND CASH DISCOUNTS:
2% on net, after agency commission, if paid within 14 days of invoice date. Credit accounts are strictly net and must be settled within 30 days. If an account is overdue, the publisher reserves the right to charge interest at the rate of 1½% per month for each month for which an account is overdue.

EXTRA CHARGES:
Typesetting is available at additional cost for ads which are not camera ready.

INSERTS:
2-page inserts: 2 times earned black and white rate, plus 10%.
4-page inserts: 4 times earned black and white rate, plus 10%.
Back-up rates per page: ½ earned black and white page rate plus 10%.
Larger units, gate-folds, tip-ins, die cuts: Rates upon request.
Special handling charges, etc.: For unusual handling, rates upon request.

SPECIAL POSITIONING:
Rates upon request for unusual positioning.

CLOSING DATES—OFFSET MATERIAL, SET COPY, INSERTS:
Camera ready complete offset material, patches, and color proofs: 15th of 2nd preceding month for all issues. Publication set copy/ads to be made up (with proofs): One month before closing date for space (15th of 3rd preceding month).

Inserts: Materials should be received by 15th of preceding month. Insertion order should be placed 15th of 2nd preceding month.

"What's New" News Ads: 75 days preceding month of publication for copy and photos.

ADVERTISING PUBLICATION OFFICE TO SEND ALL ADVERTISING:
APPLIED SPECTROSCOPY (MONTH & ISSUE)
% Allen Press, Inc.
1041 New Hampshire—P.O. Box 368
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(913-843-1234)