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Computers and Spectroscopy in the 1960s

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The use of computers in spectroscopy began almost as soon as there were any computers. During World War II there was an unsuccessful effort to use analog computers to process infrared and Raman measurements in the U.S. synthetic rubber program. The first successful use that I know of was in the Spectrochemical Analysis Section of the National Bureau of Standards, at a time when

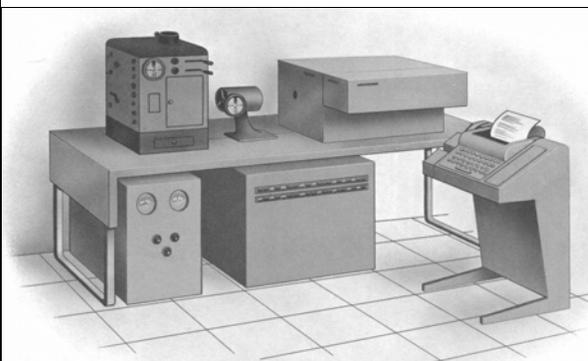


Fig. 1. Sketch of an early design concept of a spectrometer with television tube detector. See text for details

major research organizations built their own computers. The NBS program did extensive statistical calculations on data from emission spectrochemical analyses, to establish the homogeneity of solid metal Standard Reference Materials. The program was still in use during the years I was at NBS, 1957 to 1969, having been rewritten each time a new computer was installed at NBS.

I started to use computers in the early 1960s. This is my recollection of the part I took in those years in expanding the uses of computers in emission spectrochemical analysis. Though it emphasizes my own

experiences, it is not meant to claim exclusive credit for the results. Others were active at the same time, and computer use was growing similarly in atomic and molecular spectroscopy.

Getting My Feet Wet

In the early 1960s, I was doing what turned out to be my final research on the dc plasma jet. The task was to map the temperature distribution in the plasma, based on the intensities of a set of iron lines that had accurately-known transition probabilities. An image of the discharge plasma was rotated 90° by a set of mirrors and focused on the slit of a stigmatic spectrograph, so that the intensities of the lines could be measured photographically at fixed positions across the arc. The measured intensities were converted into intensities along the radius of the arc by an algorithm called the Abel inversion (1). I was able to get, from another group at NBS, a program for the Abel inversion, so I did not have to do the involved calculation manually. But all of the other calculations were done by a combination of graphic and numeric methods, from measurements on the photographed spectra to plotting the intensities at a chosen radius; from which the visually estimated slope of a straight line through the data points gave the plasma temperature at that position.

During this project, Stan Rasberry and I heard of a new kind of computer service. (Rasberry, then a young physicist starting his career, later became a Director of NBS/NIST.) A group at Dartmouth College, headed by Professors Kemeny and Kurtz, had developed a time-sharing computer system and the BASIC programming language. A few groups at NBS had teletype terminals in their laboratories that were connected to the Dartmouth system through phone lines. General Electric was setting up a clone of that system in Arizona, and Rasberry and I were able to get a terminal in the Spectrochemical Analysis Section. For the time being, there was no charge for using the

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computer, but the government-leased phone lines were too noisy for data transmission, so we had to use commercial phone lines at \$40 per hour.

I had not yet used computers other than for the Abel inversion, but the BASIC language looked simple enough, so I decided to write a program for one step of the temperature measurements: converting the relative intensities of the iron lines into a temperature at a point in the discharge. I had been doing it by plotting a function of the line intensities vs. excitation energies and drawing a straight line through the data points; the slope of the line was proportional to the temperature. By the afternoon of the first day on the time-sharing computer, I had learned to use the system, written a program, and processed some sets of data that I had previously analyzed graphically. The results from the computer analysis agreed well with the graphical results, but with a striking difference. The new method gave far better agreement between independent sets of data. That got me much more interested in using computers.

Forty years later, it may be hard for a reader to understand my sudden interest. All I could do on the time sharing system was to run programs in a simple programming language, provided that the program and data fit into 30 kilobytes of memory. Each user got a few seconds of CPU time, and then waited until other users had their turn, but the system was I/O limited anyway. Data and programs were uploaded from a paper tape reader that was part of the teletype terminal, and results were returned to the terminal at 10 characters per second. Each subscriber had a small amount of storage space in the computer center for programs. The output was in upper case typewriter characters spaced evenly at eight per inch on yellow paper, with ink that tended to fade. One could make a low-resolution graph with those characters, with careful programming.

The limitations were unimportant compared to the advantages. One didn't have to take a deck of punch cards to a computer center, then return hours later for the results. Instead, one typed the data into a paper tape at a teletype in his own lab, dialed up the computer, loaded the program and data, and got printed results in minutes. Even the programming was made easier, partly because of the simplicity of the Basic language (the later version on PCs became much more complex as it became more capable), and partly because debugging the program took less time, by virtue of the fast response from the system. It was a practical way to automate small calculation tasks. And, on my first use of the system, I got better-quality results, and it took less time and effort, even considering the time to write a program.

Automating Some Routine Tasks

Bourdon Scribner did not then share my notion that computers would become very important in emission spectrochemical analysis. And, after all, he had much more experience with computer applications than I did, and I had no real evidence that I was right. So, as a demonstration, Rasberry and I set out to automate two computations that were done routinely in the Spectrochemical Analysis Section, and, indeed, in numerous laboratories else-

where: photographic photometry and conversion of intensity ratios to analyte concentrations. It also was a way to learn more about computers.

We wrote a pair of programs (2) to calibrate photographic emulsions and to convert microphotometer readings to relative intensities. The algorithms were modeled on the familiar graphical methods. No new principles were devised and tested, nor did the equipment and methods for making the measurements change. The programs did include tests for errors; for example, if the microphotometer used to measure line blackening was out of focus, it could be seen in the output data. In the first days of their use, the programs even detected one person's unexpected error in the measurement procedure.

There were principally three ways that we read plates. When background was insignificant, only the transmittance of the line center was read. When background was significant, the transmittance next to a line was also measured. In a stepped exposure, the background could be read in the same step as the one in which the line was measured, or it could be read in a darker step. After the programs were debugged, other staff were shown how to use them. One staff member told me that the program was not working properly. Looking into it, I saw that she had followed her usual procedure of reading the background in a lighter step than the one in which she measured the line blackening. It made no sense to me to read the background that way, and I had incidentally built into the program the assumption that background would always be read in the same step as the line or in a darker step. I probably would have never detected her error if it were not for the program.

This program soon came to be used routinely. We needed to replace an old microphotometer, so we ordered a new one with a custom digital readout that printed the data and punched a paper tape for input to the time-sharing computer. It was probably the first photometer of its kind, and a second manufacturer soon brought one onto the market.

Writing a program to create an analytical curve was more difficult. It was not possible to directly program the details of the graphical methods that relied on human judgment. Many of our analyses were of unusual materials. For these, calibration was done with standards that were more or less like the expected compositions of the samples. When the data were plotted, data points that were deemed not to fit with the rest were ignored when the analytical curve was drawn. The program would have to decide which calibration data to reject. Except for samples of a kind we were accustomed to analyzing, we did not know in advance whether the analytical curve would be linear, or would be curved at the high-concentration or low-concentration end. The program would have to select an equation that best fit the data.

Two procedures were developed, one for a time-sharing system and the other for a mainframe computer (3). The strength of the time-sharing system was its interactive capacity, so the human operator's experience and judgment could be used. The limitation of the time sharing system was the read out on a teletype ma-

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chine, which was slow and could not display high-resolution plots. The mainframe computer was not interactive, but it was better able to do more complex calculations, and could print somewhat more detailed graphs. The desktop computer on which I'm writing, though it is five years old and thus close to being obsolete, outstrips the best capabilities of both of the computers that Rasberry and I had available in the 1960s.

The two procedures had key features in common. Diverse shapes of analytical curves were represented by polynomial functions. Decisions were made on the basis of the statistical fit of the polynomial, and a "what-if" procedure that tested whether a standard should be rejected. The interactive program first fit polynomial equations, starting with the first degree and going up to a degree determined by the number of standards. The output was a simple list of the index of determination and the standard error of concentration for each polynomial, and the operator was prompted to decide from these data which degree of polynomial to use. The computer output then showed a measure of how closely the data point for each standard fit to the calibration curve, and the operator could then edit the calibration data to remove any standard from the calibration set. The curve-fitting procedure was repeated and, if the results were now deemed to be acceptable, the data for the samples was processed.

The mainframe program did more extensive calculations, involving polynomials up to a degree equal to half the number of standards (rounded down for an odd number of standards), in each case testing for improvements if each of the standards is rejected singly. The human judgment was replaced by a statistic that resembled a standard deviation, with *ad hoc* decision levels based on our experience with several sets of atomic emission and x-ray fluorescence analytical data from our own laboratory, as well as analytical data culled from the literature. The program then gave a line-printer plot of the data from the standards and the chosen analytical curve, and the human interaction was only to decide whether or not to accept the computer choice. (I eventually consulted a statistician at NBS; for one thing, any publication would be reviewed within NBS by a statistician. He told me that there was little agreement on what statistical methods were valid with the small number of standards we used, that the procedure we devised was not obviously defective, so he would not object to it.)

Both programs worked well, except with truly poor calibration data, and those cases could be recognized from the output of the programs. I recognized that we now had an idea of the uncertainty of the calibration curve for each analysis, so I incorporated that information in the estimated uncertainty of the analysis. The first reaction was a question from Bourdon Scribner, "When did our analyses get worse?" After I explained that our analyses were as good as ever, but that our previous estimates of uncertainty were too small, Scribner accepted the larger error estimates. The other reaction was more subtle. Not infrequently, the same samples were analyzed by different methods within the NBS Division of Analytical Chemistry, and at times the results differed by more than the combined estimated uncertainties of the methods. These cases became fewer after we began using the

new estimate of analytical uncertainty.

We weren't the only ones who were writing programs to fit analytical curves. At PittCon one year, most of the papers in one session were on this topic. One was by a programmer who did not seem to know much about spectroscopy, and I couldn't understand why he fit the curve the way he did. I asked him to send me his data to test on my program. When I plotted his data, I saw the problem he had designed his algorithm to solve. The low-concentration end of the analytical curve had a slope of zero! Half of the data points in the set were for concentrations below the detection limit of the analytical method. His program returned a concentration for samples with readings in that range, but it was only GIGO (i.e., Garbage In, Garbage Out).

In time, Rasberry and I had written a number of programs for routine laboratory procedures, and other labs were requesting copies of the programs and instructions for their use. We decided to collect the programs and instructions in an NBS publication (4). This time the internal review process included computer centerstaff who objected that the programs weren't optimized, meaning that they weren't fine-tuned to run as efficiently as possible on the computer. I replied that I was less concerned with computer efficiency than with my efficiency, and that I thought it would be wasteful of my time to do more work on those programs. Neither side convinced the other, and the compromise was that we could have an NBS publication about the programs, but the program listings were to be in an unofficial document.

A Dream is Born

Trying to decide on a direction for future uses of computers, I kept an eye on what others were doing. A project of special interest was directed by Armin Heltz (5) at the U.S. Geological Survey in Washington, to automate spectrographic analyses of minerals. Spectra were recorded on twenty-inch-long photographic plates. The developed plates were put in a custom-made scanner that recorded blackenings at closely-spaced points over the full spectrum for each sample in digital form on magnetic tape. The reel of tape was loaded on a computer that was programmed to select the data for the analytical and internal standard lines, convert the readings to intensity ratios, and convert the ratios to element concentrations. (The equipment continued to be used for several years, beyond the 1970s, as I recall.)

The USGS system was calibrated specifically for minerals. Could it be used for an even wider range of samples? That seemed to be a likely research topic, an idea reinforced by what I saw Kurt Heinrich's x-ray group in the Spectrochemical Analysis Section doing with computers to extract semiquantitative analytical data from electron probe instruments when there were no standards. They applied what was known about the physics of x-ray production to make concentration estimates from the instrument's measurements. The corresponding processes in atomic emission spectroscopy were also known. The spectra contained data that could be analyzed to measure the plasma temperature and electron density during each analysis. The data could be used to account for the effects of the sample on these excitation

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parameters. Analysts would not be as dependent on standards close in composition to the samples.

I doubted that this approach would work well with photographic measurements. Only photoelectric measurements could give data precise enough. How could one capture the whole UV/Vis spectrum photoelectrically?

It was my habit to browse the astronomy journals at the NBS library. Astronomers need to record spectra under the most difficult conditions, so they must be innovative in developing instruments and methods. In one journal, I saw a photograph of the planet Venus as a white disk against a black sky. What was special about this photo is that it was taken in mid-afternoon, with a vidicon tube in a TV camera. That suggested that some TV cameras have the ability to measure a small intensity difference at a high intensity level, and they might even be able to measure spectra.

But the photocathode of a typical vidicon was circular, with a diameter of about an inch. Could one make a wide, rectangular vidicon? Could some optical system reshape a spectrum into many short strips, and place the strips one above the other? The answer to that question came when I saw the Spectrametrics echelle spectrometer at PittCon. (The instrument later became a Beckman product.) It dispersed light by a prism and an echelle grating, displaying the UV/Vis spectrum as a series of strips in a two-dimensional display sized to fit Polaroid film. Combining that with a TV camera, and adding a computer for data readout, would give the spectrometer of my dreams. It was obvious!

In my inexperience, I neglected to think through the details of building the instrument. Instead, I tried to convince Scribner, and through him Wayne Meinke, the head of the Analytical Chemistry Division of NBS, to let me start the project. I see in retrospect that I should first have developed a plan, schedule, and budget. Not surprisingly, I got no encouragement. But others must have recognized the possibility when they saw the Spectrametrics spectrometer at PittCon. How might I find them?

My plan was to let out some hints, in talks and publications, which would be recognized by persons who had themselves come up with the idea, but that would not lead others to it. Part of the plan was a paper in *Spectrochimica Acta* (6) that discussed possibilities for using large amounts of data from emission spectra. The plan worked, even before the paper was published. Tomas Hirschfeld, at Block Engineering, was thinking along exactly the same lines as I was, and he recognized what I had in mind. He was busy on other projects, so the company contacted me and, after a visit to their plant in Cambridge, offered me the leadership if a project to build the spectrometer. Block had a subsidiary, Dunn Instruments, in the Washington, DC suburbs, where I could set up shop, so I would not even have to move my family. I grabbed the chance.

Progress was slow at first. It is hard to put together a capable team on short notice, and my inexperience as a product development leader didn't help. Block Engineering's strength was the

excellent technical staff in Cambridge, but they were busy on the FTS-14 FTIR, and could give me little help.

Part of my time was spent putting together some marketing material. We went public with the project at the SAS National Meeting in Anaheim in the Fall of 1969. Figure 1 is a sketch of what the instrument would look like, taken from the brochure that was distributed at Block's exhibit booth. (The rest of the brochure can be seen at the Newsletter area of the SAS Web site: <http://www.s-a-s.org>.) We held back the technical details, and even the proposed name of the instrument – TVS – because it would give more of a hint than we wanted that a TV camera would be part of it. (We weren't the only ones who had the same idea. In the course of doing a patent search, a paper in an little-known publication turned up that mentioned the idea of combining a TV camera with an echelle spectrometer.) What we did reveal is some performance parameters: it would measure up to 2048 wavelengths (a limit set by the rate at which the computer could control the camera and process the data); the setup of wavelengths would be changed in seconds by reading data from a digital tape, making the spectrometer exceptionally flexible; and control of the instrument and data collection would be by a computer that could also be programmed to process the data. The brochure also discussed what the benefits would be from measuring many wavelengths, taken from my *Spectrochimica Acta* paper.

That was enough to generate interest, and also speculation about how a spectrometer could read so many wavelengths at once. I later saw a memo from Dick Brehm, head of engineering at Jarrell-Ash. Brehm and I were Fassel's students at the same time at Iowa State, where his thesis project was to build an emission spectrometer that scanned the whole spectrum rapidly and repeatedly across an exit slit and photomultiplier tube by a moving mirror, averaging the readings on selected lines. The instrument didn't work well because it spent too little time measuring each line to give a satisfactory signal-to-noise ratio. Brehm's memo correctly pointed out that a rapid scanning instrument wouldn't work well, but it was wrong in guessing that we would do it that way.

More technical details were revealed at PittCon in 1970. Figure 2 has two diagrams from that talk. This paper gave considerable technical detail, even the specific TV camera tube we would use. It was a SEC (Secondary Electron Conduction) vidicon from General Electric. It had a sapphire window instead of glass, allowing for a wide wavelength range, and – more importantly – it integrated just as well as does a photographic emulsion. Some details were held back as patent applications were filed. One (U.S. 4,335,336) was on a digitally-controlled TV camera, which would enable the computer to selectively read out only parts of the image. A second (U.S. 3,728,576) showed how the selective-read capability could extend the dynamic range; the weaker image points would allowed to integrate longer between readings. We talked to EMR Photoelectric about building the first-ever digitally-controlled TV camera; they liked the idea so well that, when we had to stop the project, they announced the camera as a product in 1971. Their brochure even talked about using the camera for selective integration, without mentioning

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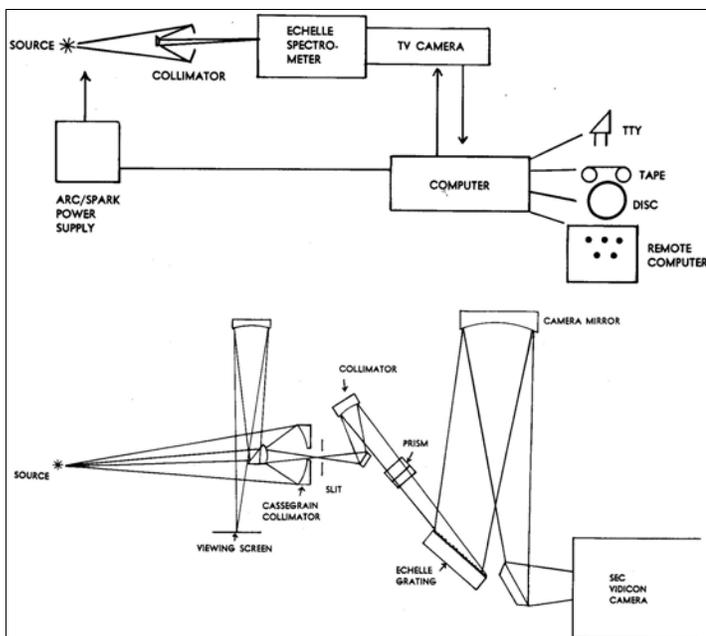


Fig. 2. Sketch of system modules (top) and optical diagrams (bottom). From the talk at PittCon 1970.

where the idea came from.

Meanwhile, we were disclosing more details to some potential buyers, under a confidential agreement. One scientist quickly estimated how many publications he could get by being an early user of the instrument, divided that number into the price, and decided that the cost per publication was good. Another was a group at Bell Labs, headed by Dar L. Wood. They were planning to build a multi-channel spectrometer based on rapid scanning, much like Brehm's. It didn't take long to convince them of the advantage of reading all of the wavelengths simultaneously.

By Summer, we had completed the design, and were ready to start assembling components to build the prototype. Meanwhile, things weren't going well financially at Block Engineering. The FTS-14 IR spectrometer had the misfortune to come to the market during a deep recession. There were many who wanted one, but not enough had the funds. I did what I could to help to sell that instrument, as well as working on the TVS. In one case, I brokered a deal to reduce the price of the FTS-14 for a customer who had not quite enough in his budget. He bought the spectrometer without the minimum 4K of core memory, worth \$4000. Block loaned him the memory for up to a year, enough time for him to raise the money for the memory.

To save money, Block closed the location in Maryland where I worked, so I found myself commuting to Cambridge each Monday, and back home on Friday. The commute wasn't made easier by the realization that most of those on the plane Monday mornings and Friday afternoons were the same people, commuters like me. But working in Cambridge, close to Block's technical staff, helped to speed up the project. A big bonus was working with Tomas Hirschfeld almost every day; it was an education

in itself. I thought I was good at putting together bits of information from diverse fields and applying them to the problem at hand, but Tomas showed me how to do it better. I've never met anyone who did it as well.

By Fall, finances were even tighter. The TVS project had to be shelved indefinitely. Block offered to keep me on, working on one or more of the classified projects they did for the NASA and the U.S. military. I would have to move my family to the Boston area, and I was not exactly overjoyed about doing mostly classified work. In addition, there could be no guarantee that finances wouldn't get even worse, and my job might not last. I decided to look for work elsewhere, though it meant giving up on what I thought would be the major success of my scientific career. While I was looking, I worked part-time for Block, helping to write research proposals. In a while I found a job at Technicon, working on medical laboratory instruments.

That is almost the end of my tale, but not of the spectrometer. Dar Wood liked the idea so well that he built the spectrometer at Bell Labs (7); I hope that story will be told soon by one who was closer to it than I. Other spectrometers with TV detectors were built in the 1970s, and one reached the market. It was designed by a team at the Geological Survey of Sweden (8,9) and marketed by Spectroscandia AB of Finland and Analytica AB of Sweden, apparently with little success. The design was similar to the one from Block, but it used an image dissector tube instead of a SEC vidicon. The image dissector inherently read one image point at a time, so the spectrometer was in effect a step-wise scanning spectrometer.

Eventually, emission spectrometers came onto the market with much the same design as the TVS. They use semiconductor sensors instead of TV vidicons, and Bonner Denton deserves credit for the excellent research he has done on these sensors for spectroscopy. The computers in these spectrometers are, of course, orders of magnitude more powerful than the minicomputer we planned to use in 1970. But the overall design is the same. Unfortunately, not enough has been done yet to apply the rich information that these spectrometers can give. ■

- (1) <http://www.lle.rochester.edu/pub/review/v66/v66-abel.pdf>
- (2) M. Margoshes and S. D. Rasberry, *Spectrochim. Acta* **23B**, 497-513 (1969)
- (3) M. Margoshes and S. D. Rasberry, *Anal. Chem.* **41**, 1163-72 (1969)
- (4) S. D. Rasberry, M. Margoshes, and B. F. Scribner, *National Bureau of Standards Technical Note No. 407*, February 1968
- (5) A. W. Heltz, F. G. Walthall, and S. Behrman, *Appl. Spectry.* **23B**, 508 (1969)
- (6) M. Margoshes, *Spectrochim. Acta* **25B**, 113-22 (1970)
- (7) D. L. Wood, A. B. Dargis, and D. L. Nash, *Applied Spectroscopy*, **29**, 310-15 (1975)
- (8) A. Danielsson and P. Lindblom, *Physica Scripta* **5**, 227-31 (1972)
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Minutes

SAS GOVERNING BOARD MEETING

TUESDAY, OCTOBER 15, 2002

WASHINGTON ROOM - WESTIN HOTEL - PROVIDENCE, RHODE ISLAND

I. Call To Order President Rachael Barbour
 President Rachael Barbour called the meeting to order at 8:13 PM.

II. Roll Call Secretary Jon Carnahan
 President (VEC) Rachael Barbour
 President-Elect (VEC) Laurence Nafie
 Past-President (VEC) Vasilis Gregoriou
 Treasurer (VEC) Deborah Bradshaw
 Journal Editor-in-Chief (EC) Joel Harris
 Journal Editor Paul Farnsworth
 Secretary (VEC) Jon Carnahan
 Web Editor (EC) Stephen Bialkowski
 Newsletter Editor (EC) Marvin Margoshes
 Parliamentarian (EC) Augustus W. Fountain III
 Member Education (EC) Steve Barnett
 Student Representative Paige Eagan
 Executive Director Bonnie Saylor
 Society Office Assistant Barbara Stull
 Administrative Affairs Associate Victor Hutcherson
 Allen Press Advertising Representatives
 Manager - Gigi Gallinger-Dennis
 Marketing/Management Director - Theresa Pickel
 2004 President Elect Robert Michel
 VEC - Denotes voting Executive Committee Member
 EC - Denotes non-voting Executive Committee Member

3 year Governing Board Members Steve Barnett
 John Chalmers
 Kathryn Lee
 Cynthia Mahan
 David Moore

2 year Governing Board Members Timothy Keiderling (represented by Rina Dukor)
 Arthur Mateos (not in attendance)
 Don Pivonka
 Brian Smith
 Slav Stepanovich

1 year Governing Board Members Brian Butcher
 Peter Griffiths
 Jill Scott
 Doug Schrader
 Eileen Skelly-Frame

Local Section Representatives Sheila Rodman - New England
 Eileen Skelly-Frame- New York
 Paul Farnsworth - Intermountain
 John Jackovitz - Pittsburgh

There is a quorum.

III. Introductions President Rachael Barbour

IV. Meeting Rules of Order Parliamentarian Way Fountain

V. Approval of Minutes from the October 9, 2001 Governing Board Committee
 Approval was moved by Moore and seconded by Jackovitz. The Minutes were approved unanimously.

VI. Reports

A. President Report Attached
 President Rachael Barbour. The Society is doing well and remains strong. The journal continues to be of high quality. The national office is doing an excellent job. Robert Michel was elected as the 2004 SAS President.

B. Secretary Report Attached
 Secretary Jon Carnahan . The Minutes of the previous meeting constitute the Secretary's report.

C. Treasurer Report Attached
 Treasurer Deborah Bradshaw. The 2003 budget is projected to be a "break even" budget with no surplus or deficit. For 2002, a slight deficit is projected. Investment income has dropped. Journal expenses have been watched closely and judicious use of these funds has helped the financial status of SAS.

D. Executive Director Report Attached
 Executive Director Bonnie Saylor. Membership is down by about 100 compared to this time last year. A new student initiative has been started by Paige Eagan. Our first electronic election took place in 2002 and went well.

E. Journal Editor Report Attached
 Journal Editor-in-Chief Joel Harris. The mailing dates for the journal have been progressively moved earlier. The last 2 issues were mailed out the 10th and 11th days of the month. Rebecca Airmet has done a nice job. Catchword now allows us to hot-link on references. The new Focal Point book on compact disk is due out soon. There are some changes in editorship as noted in the report.

F. Newsletter Editor Report Attached
 Newsletter Editor Marvin Margoshes. The new issue of the newsletter is available at the SAS booth. Margoshes is always looking for new arti-

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cles. Technical and local sections should submit their activities to the Newsletter for Web postings.

G. Membership Education Coordinator Report Attached
Membership Education Coordinator Steven Barnett. Alternative avenues for membership education include the preservation of lectures. PowerPoint presentations with audio are being developed for web access. While some initial expenses are expected, it is anticipated that it may be possible to produce Web-based lectures for less than \$100 each. 2002 FACSS Workshop attendance is not as great as would be expected. Those problems should be helped by enhanced coordination with FACSS next year. Proctor & Gamble scientist Diane Parry is putting together a course on careers in spectroscopy. Discussion ensued regarding the workshops in terms of topics and financial considerations.

H. Web Editor Report Attached
Web Editor Stephen Bialkowski. Bialkowski has recently assumed these duties from Pete Poston. A new Web page format is in the offing. The Meggers Award paper, information about the technical sections, student activities and an employment clearing house will go on-line. Corporate sponsor advertisements will be maintained on front page.

Reports were filed with the Secretary.

VII. National SAS Committee Reports

A. Awards No Report
Awards Committee Chair Richard Nyquist.

B. Constitution and Bylaws Report Attached
Constitution and Bylaws Committee Chair Nafie. Revisions involved the Constitution and By-Laws Committee, the Membership Committee, the Membership Education Committee, and the Tour Speaker's Committee. Lee moved and Frame seconded that the report be accepted. After and during discussion by the Board, several minor changes from the originally submitted report were suggested. These are highlighted below.

Dukor made friendly amendments that the modified verbiages read:
Page 1 - last paragraph in Article XIV, Section 6 - Recommendations for these awards shall be included in the report from the Awards Committee for presentation to the Executive Committee at the spring meeting and followed by a vote of the Governing Board.

Page 1 - header paragraph of Section 7 - The committee shall consist of a total of three (3) members. The Past President, or his/her designee, shall serve as chair of the committee for his/her term as Past President. The President-Elect is also a member of this committee. There shall be no Chair-Elect. The other member of this committee serves for one year and is appointed by the President.

Page 3 - header paragraph in Section [15] 14 - The committee shall consist of a total of three (3) members. Each member is appointed for a three (3) year term culminating in his/her year as coordinator. This committee shall:

The friendly amendments to the constitution and the report were accepted.

C. Local Section Affairs Report Attached
Local Section Affairs Committee Chair Sara Freeman. The most significant note is that the Rocky Mountain Section has reactivated itself and has petitioned for reinstatement.

D. Membership No Report
Membership Committee Chair Ed Pankau.

E. Nominating No Report
Nominating Committee Chair Rina Dukor.

F. Publications Report Attached
Publications Committee Chair Mark Braiman. Journal Editor Joel Harris was reviewed in 2002 and reappointed.

G. Publicity No Report
Publicity Committee Chair John Reffner.

H. Tour Speaker Report Attached
Tour Speaker Committee Chair Rebecca Dittmar. 2003 tour speakers include Charles Deak, Peter Griffiths, George Havrilla, Isao Noda, Charles Ross and Jill Scott.

I. Meggers Award No Report
Meggers Award Committee Chair Robin Garrell.

J. Strock Award Report Attached
Strock Award Committee Chair Mehmed Mehicic. Julian Tyson was the selection for the 2002 Lester Strock Award.

K. Lippincott Award No Report
Lippincott Committee Chair Iona Black.

L. Tellers Report Attached
Tellers Committee Chair Kristine Patterson. The 2002 electronic elections went well.

Reports were filed with the Secretary.

VIII. Delegate Reports

A. FACSS Report Attached
Nafie discussed the proposal to reorganize composition of the FACSS Governing Board to more accurately reflect upon FACSS attendance by the various society members. Additionally, sites for future meetings were discussed. At the last FACSS Governing Board meeting, the SAS objection to Quebec as the 2005 site for the FACSS meeting was outvoted. Potential 2006 FACSS sites were discussed. During the SAS Executive Committee meeting of Sunday, October 13, the Executive Committee voted that it did not want FACSS to be in Puerto Rico. Concern was expressed in terms of travel costs, possible effects on general attendance, and the difficulty of student attendance.

B. Chemical Heritage Foundation Report Attached
Chemical Heritage Foundation Chair Marvin Margoshes. Nafie attended the Othmer Gold Medal Award ceremony in Philadelphia.

Reports were filed with the secretary.

IX. Unfinished Business

A. Budget
Butcher moved Moore seconded that the budget be accepted. The motion passed.

B. Technical Sections
Dukor encouraged people to volunteer to head up technical sections.

VIII. New Business

A. Rocky Mountain Section
The Rocky Mountain Section has petitioned for reinstatement. Moore moved and Mahan seconded that the Rocky Mountain section be reinstated. The motion passed.

B. Student Representative Presentation
Eagan reported on progress to make students more active in the society. A focus has been to get students to attend FACSS. Electronic mail has been a major mode of communication. Another major thrust has been to work to develop the student services available on the web-site. Room-mate matching has been done and will be worked on for PittCon. In an effort to accommodate students, student fees for short courses were reduced by 40%. A student ice cream social at FACSS was attended by 7 students. A Monday dinner for SAS student members at FACSS was attended by 33 people. Dues for international students are now at \$20 for on-line-only access to the journal. We should work to promote the student awards. Another initiative might involve making a career related student symposium at next year's FACSS. A survey might be developed to obtain a better "feel" for student issues.

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C. Internationalization

Chalmers discussed current directions of internationalization. He pushed for action amongst the involved individuals.

D. FACSS

Barnett noted student accommodation and governance representation as being problems with FACSS. Barnett moved and Scott seconded that the SAS Executive Committee should consider alternate venues for the 2006 SAS national meeting if the FACSS Governing Board votes for San Juan as the site. The motion passed 12-6 with 3 abstentions.

E. Governing Board

For service to the Society, thanks were expressed to the outgoing Governing Board Members as well as Fountain and Gregoriou.

IX G. Date and Time of Next Meeting

8:00 PM, Tuesday, October 21, 2003 Fort Lauderdale, Florida.

IX. Adjourn at 11:19 PM.

President's Report October 13, 2002

Overall it has been another good year for the Society. It has been a year of change (as usual!) with the addition of the technical societies and focus on student initiatives as well as a time of strengthening those areas that already functioned well, including the web page and the newsletter. Membership has continued to decline, albeit at a slower rate; however, it is too early to tell what effect the changes mentioned above, as well as the internationalization initiatives, may have on membership.

As I have said before, I am inclined to think that we need to focus our attention on a few of the areas that we have already identified as key to our survival and use these areas to grow the membership. These areas are:

- Technical Sections
- Local Sections
- Student Initiative
- Membership Education
- Internationalization

The Journal is not mentioned because it is already considered to be the most valuable, if not only, benefit of membership in the Society. It would be a mistake to minimize the importance of the Journal, or to lessen any efforts in continuing to produce and improve the quality of the Journal. Nevertheless, in the capable hands of Joel Harris, Paul Farnsworth and their team, the Journal is the one area about which I'm not worried.

Technical sections are here – but there is still a lot of work to be done. Negotiations continue with the Coblenz Society to represent the vibrational spectroscopy community as a technical section. It is my hope that we can come to some agreement at the FACSS meeting so that we can move forward. It is important that we don't let the area of vibrational spectroscopy just hang for very much longer.

Not much has been said about how to build up the local sections, but I believe they will always be a vital part of the Society. Local sections allow face-to-face networking in a way that is unlikely to occur in any other way. Obviously, this is not always possible, but in those areas where it is, we need to make sure that it happens.

One local section that shows a lot of promise is the soon-to-be European Section. This section may be one of the keys to bringing the international community into full membership of the Society. Tony Davies, Rina Dukor, John Chalmers and others continue to work on truly making the Society international. We need to continue and to enhance these efforts if we want to succeed in this area.

Paige Eagan has developed a full student initiative that is an excellent start to bringing more students into the Society. This area is very exciting. At this FACSS meeting, Paige has implemented a number of her ideas. I look forward to her report on the progress in this area.

Changes have been occurring in the area of membership education, both in terms of our collaboration with FACSS, and by virtue of having a new chairman in the person of Steve Barnett. Steve brings a great deal of enthusiasm to this role. Continuing education of our members is an area where we are in a good position to offer a variety of programs. In addition, the Web page is a key area for success.

The office continues to be a real member benefit – working to make sure that all of the above and much more occurs everyday, for every member of the Society. Thanks to Bonnie Saylor and her staff of Victor Hutcherson and Barbara Stull for representing us to the world.

I would like to welcome the new officers and delegates to the governing board: Our 2003 President-Elect Bob Michel and Governing Board Delegates: Timothy Keiderling, Arthur Mateos, Don Pivonka, Brian Smith, and Slav Stepanovich. Also, Local Section Governing Board Delegates: Douglas Shrader (Chicago), Eileen Skelly Frame (New York), Peter Griffiths (Snake River), Jill Scott (Snake River) and David Butcher (Peidmont).

I would like to thank everyone for their hard word this year. I look forward to your continued efforts and to a bright future for the Society.

Rachael Barbour
SAS President

Treasurer's Report

Once again, Bonnie Saylor has done a great job in putting together the financial picture for SAS. Many thanks to her!!!

Due to the economic environment in the past year, the projected end of year revenue falls behind the 2002 budget in a few areas. Some of the areas of concern include the following:

1. Membership is projected to be down by about 8% (\$14,000.00) by the end of the year. This decrease is reflected in the proposed budget for 2003 by a projected decrease of about 11.5%.
2. Journal income is projected to be down by 2% by the end of 2002. The proposed budget for 2003 shows a decrease of about 2.5% as compared to 2002.
3. Investment revenue for the 2002 budget was projected at \$30,000.00; by July 10, of this year, we had realized \$4466.70. An optimistic projected revenue by the end of the year is \$20,000.00. The proposed budget for 2003 for investment revenue is also optimistic for an economic turnaround at \$30,000.00.
4. Educational programs were projected to bring in \$6000.00 in 2002, but a mid-year revision has this at \$500.00. The 2003 proposed budget again projects \$6000.00.

Submitted by: Deborah Bradshaw
Treasurer

**Addendum to Treasurer's Report
October 2002**

Despite a continual drop in members and subscribers over the years, SAS has continued to maintain a fairly healthy financial picture. Since 1996 the revenues after expenses have been as follows:

1996	\$35,789
1997	\$1,695
1998	(\$35,152)
1999	\$83,799
2000	\$41,736
2001	\$93,223

The only bad year was 1998 which was the year that income fell far below estimates. It was the year we experimented with paid subscriptions to the online edition of the journal which fell short and also the year in which the lab guide was to have been published. We incurred expenses but there

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2003 Budget

	2002 Budget	2002 as of September 30	Percent Used	Projections Till Year End	Total Inc/Exp Projected	2003 Proposed Budget
REVENUES						
Education Programs	\$6,000.00	\$0.00	0.00%	\$500.00	\$500.00	\$6,000.00
Membership Dir Adv	\$0.00	\$0.00	0.00%	\$0.00	\$0.00	\$0.00
Focal Point Book	\$500.00	\$1,524.00	304.80%	\$100.00	\$1,624.00	\$1,000.00
Member Dues	\$175,000.00	\$161,220.00	92.13%	\$1,000.00	\$162,220.00	\$155,000.00
Journal Income	\$590,500.00	\$525,528.91	89.00%	\$55,000.00	\$580,528.91	\$585,000.00
Chapter Income	\$1,000.00	\$420.00	42.00%	\$100.00	\$520.00	\$1,000.00
General Contributions	\$3,000.00	\$45.00	1.50%	\$3,000.00	\$3,045.00	\$3,000.00
Investment Revenue	\$30,000.00	\$6,776.70	22.59%	\$6,000.00	\$12,776.70	\$30,000.00
Misc. Income	\$9,000.00	\$9,550.24	0.00%	\$0.00	\$9,550.24	\$10,000.00
<i>Total Revenue</i>	\$815,000.00	\$705,064.85	86.51%	\$65,700.00	\$770,764.85	\$791,000.00
EXPENSES						
Salaries	\$114,000.00	\$82,403.80	72.28%	\$30,000.00	\$112,403.80	\$119,000.00
Payroll Taxes	\$15,400.00	\$6,374.49	41.39%	\$3,000.00	\$9,374.49	\$10,700.00
Personnel Benefits	\$3,000.00	\$2,866.42	95.55%	\$1,000.00	\$3,866.42	\$3,000.00
Executive Committee	\$25,000.00	\$12,941.09	51.76%	\$12,000.00	\$24,941.09	\$25,000.00
Governing Board	\$3,000.00	\$0.00	0.00%	\$3,000.00	\$3,000.00	\$3,000.00
Membership Committee	\$200.00	\$0.00	0.00%	\$0.00	\$0.00	\$200.00
Other Committees	\$700.00	\$818.61	116.94%	\$400.00	\$1,218.61	\$1,200.00
Journal	\$481,500.00	\$267,199.76	55.49%	\$190,000.00	\$457,199.76	\$466,200.00
Newsletter	\$5,000.00	\$2,174.44	43.49%	\$2,200.00	\$4,374.44	\$5,000.00
Lab Guide	\$0.00	\$0.00	0.00%	\$0.00	\$0.00	\$0.00
Internet Services	\$3,000.00	\$952.40	31.75%	\$500.00	\$1,452.40	\$2,000.00
Member Services	\$11,000.00	\$6,233.45	56.67%	\$200.00	\$6,433.45	\$7,000.00
Member Education	\$6,000.00	\$0.00	0.00%	\$5,000.00	\$5,000.00	\$6,000.00
Awards	\$18,000.00	\$3,029.39	16.83%	\$15,000.00	\$18,029.39	\$18,000.00
Sections	\$27,000.00	\$17,792.20	65.90%	\$9,000.00	\$26,792.20	\$27,000.00
Conferences	\$10,000.00	\$5,893.30	58.93%	\$2,000.00	\$7,893.30	\$8,000.00
Member Acquisition/Ret	\$10,500.00	\$15,980.16	152.19%	\$0.00	\$15,980.16	\$12,000.00
Society Office	\$72,000.00	\$51,906.68	72.09%	\$20,000.00	\$71,906.68	\$69,200.00
Financing Expenses	\$4,500.00	\$2,802.38	62.28%	\$1,500.00	\$4,302.38	\$4,500.00
Depreciation Expenses	\$4,000.00	\$948.64	23.72%	\$3,100.00	\$4,048.64	\$4,000.00
<i>Total Expenses:</i>	\$813,800.00	\$480,317.21	59.02%	\$297,900.00	\$778,217.21	\$791,000.00
NET ORDINARY INCOME	\$1,200.00	\$224,747.64	18728.97%	(\$232,200.00)	(\$7,452.36)	\$0.00
OTHER INCOME/EXPENSE						
SUSPENDED TRANS	\$0.00	\$0.00	0.00%	\$0.00	\$0.00	\$0.00
CHAPTER DIST ADD BACK	(\$12,500.00)	\$0.00	0.00%	(\$12,500.00)	(\$12,500.00)	(\$12,500.00)
<i>TOTAL OTHER EXPENSES</i>	(\$12,500.00)	\$0.00	0.00%	(\$12,500.00)	(\$12,500.00)	(\$12,500.00)
NET OTHER INCOME	\$12,500.00	\$0.00	0.00%	\$0.00	\$0.00	\$12,500.00
NET INCOME	\$13,700.00	\$224,747.64	1640.49%	(\$232,200.00)	(\$7,452.36)	\$12,500.00

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was no income generated for that project.

We are projecting a small loss for this year primarily due to poor investment performance and lower subscriber number, but hope that this will turn around and the picture will be better in the final analysis and for 2003.

[Note: The budget was amended to remove the deficit after this addendum was written. *Newsletter Editor*]

**Executive Director's Report
October 2002**

Data

Membership

2002 to date: 2281
This time last year: 2391

Membership Breakdown USA 1908 International 373
Academic Non-Student: 485 Student 219 Non-Academic 1577

Total New Members for 2002 299 Total Student Members 219
This Time Last Year 354 This Time Last Year 159

Total Not Renewed for 2002: 456
Total Not Renewed Last Year: 453

2002 Registered for Online Access 385
2001 Registered for Online Access 289

Subscriptions

2002 To Date: 943
Last Year This Time: 976

Subscriber Breakdown USA 682 International 261

Total Not Renewed for 2002: 117 Total New Subscribers for 2002: 50
This Time Last Year: 120 This Time Last Year: 71

Members and Subscribers

Renewal notices for members and subscribers have all been mailed. We are offering a discount for early bird renewals. We have been trying very hard to get back non-renewed members and subscribers. We have offered three email/fax comeback campaigns and have asked the membership committee to make personal phone calls to members to try and get them back. Unfortunately, the committee did not come through. The office picked up and sent out emails to all non-renewed members to find out why they did not renew. We did not hear back from many, but those that did respond said the same thing that we always hear (not in field anymore, company won't pay, etc.)

As for subscribers, we tried something new this year and sent out emails to our current members at institutions that have not renewed their subscription to try to get them to talk to their librarian. We received a few comments back most of which said the library had been forced to make cuts.

Marketing

We have completed several mail marketing campaigns this year including mailings to non-member authors, EAS 2001, PITTCON 2002, *Applied Spectroscopy* Authors, Winter Plasma 2002, FACSS 2001, Science Direct Mailing List Rental, American Institute of Chemists members, and Coblenz Society members. Additionally, we had a presence at PITTCON and ICORS. We also will be at EAS and Winter Plasma.

To give you an idea of the numbers we get from various promotions, the following is a breakdown for 2000, 2001 and 2002 of what we have gotten so far (Please note that within the Secure Server and WWW are also renewals):

Corporate Sponsors

We currently have 20 corporate sponsors which is three less than we had last year. We lost six sponsors that we had last year and gained three

For 2000		For 2001		For 2002	
Promo Code	Count	Promo Code	Count	Promo Code	Count
½ Year	13	½ Year	69	½ year	25
A2LA	1	Brochure	20	Coblentz	2
ARG	5	Come Back 01	3	Corp Spons Comp	26
Authors 00	2	Corp Spons Comp	29	Corp Spons Emp	2
Brochure	9	Corp Spons Comp	2	Free Rec (needy)	30
Chicago STD	21	Corp Spons Emp	2	MGM	11
Christmas 2000	5	FACSS	51	Paige Eagan	1
Coblentz 00	4	Laser 01	11	PITTCON	28
Come Back 00	5	MGM	14	Science Direct	13
Corp Spons Comp	9	PITTCON	31	Secure Server	279
EAS 00	12	Secure Server	121	Student Poster	6
FACSS	42	SPECMAG 01	19	Student Award	4
MGM	11	WWW	96	Winter Plasma	11
PITTCON	30			AIC	1
Winter Plasma	2				
Short Course	9				
WWW	26				

new ones. Most of those we lost cited cutbacks as the reason for their discontinuance and some hoped to come back next year.

Finances

The budget has been prepared and will be presented by Debbie Bradshaw.

Local and Technical Sections

All is well with our local sections. We still have a few holdouts on the chapter vs. affiliation issue which has now been going on for almost three years. These sections include Delaware Valley, Houston, Niagara Frontier, and Reading. We have just about exhausted all manner of arm twisting and will be asking the president to call these sections to discuss the importance of compliance with our requests. Technical sections are officially on the dues renewal notices as a choice and should be up and running next year.

Election

We were pleased with the smoothness of the electronic election despite

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the fact that the number of folks voting went a down slightly. We received mostly compliments on being able to vote this way. There were a few folks who registered complaints, but nothing earth shattering. Now that we have all the kinks worked out I think that next year should be even a better experience than this one.

Other

We stuffed and mailed the student resume books, wine and cheese invites, election ballot material, final member and subscriber renewal notices, 2002 member and subscriber renewal notices, corporate sponsor promotion mailings, author mailings, and all other member marketing mailings. Once again, a special thank you goes to Volunteer Wayne Stull, Barb's husband, for his assistance with stuffing many of these mailings.

Report to SAS Governing Board and Executive Committee Joel M. Harris, Journal Editor September 2, 2002

Applied Spectroscopy has run smoothly since our last meeting. Last year, we published 6 accelerated papers, 210 regular articles, 9 spectroscopy technique papers, 15 Notes, 6 Focal-Point and 3 Focus-on-Careers articles. Our page count was 1762 pages in the research section and 408 in the A-pages. This is a slight decrease from the previous year, when we published 1910 pages in the research section (including a special collection on 2D-FTIR) and 420 A-pages. Our current lead time from manuscript acceptance until publication is running about 4.0 months. Accelerated papers appear within 2.5 months. We are advancing our copy editing, cover generation, advertising cutoff date, and production schedules earlier so that we mail the journal within the *first week* of the month of publication. We are ahead of schedule in copy editing and proof generation, and expect to meet this goal by the end of the year.

The return/rejection rate for *Applied Spectroscopy* remains competitive with other top quality journals, and averaged ~26% last year. The production costs for the journal are staying within budget thanks to continued aggressive management of manuscript quality, length, and color page costs. Rebecca Airmen, our new Copy and Production Editor, has worked hard to reduce the number of changes that need to be made on Galley Proofs, since each of these cost \$3 to be processed by Allen Press. Since she began copy editing, Rebecca has lowered our corrections from 500 - 600 per issue to less than 200 (the September number was 160 including author changes), saving the *Journal* over \$1,000 per issue. Replacing a figure at proof stage costs as much as \$40, and figure replacements are down from 12 per issue to only 3 or 4 per issue.

The quality and impact of *Applied Spectroscopy* continue to be strong as reflected in the citation statistics for articles that we publish. Quoting data from SCI's Journal Citation Reports for the most recent years available, *Applied Spectroscopy* has averaged a Citation Impact Factor of 1.916 for the past 3 years, 1999 through 2001. This factor is the number of times that articles published in the past 3 years were cited during the year in question. The Citation Impact Factors from the last three surveys have ranked us #1 in the world for journals in the "Instruments and Instrumentation" Subject Category. The articles in *Applied Spectroscopy* have immediate impact as reflected in Citation Reports' Immediacy Index which averaged 0.28 for the past three years. This index indicates that 28% of the articles in the journal are cited during the same year in which they are published. Despite strong impact on current research, papers published in this journal do not lose influence over time. The citation half life of the journal is currently 6.7 years meaning that scientists continue referring to our papers for many years following their publication.

Thanks to the efforts of the Meggers Committee chair, Robin Garrell, and her committee, the Meggers Award balloting was completed in time to allow the 2001 award paper, "Picosecond Time-Resolved Raman Spectroscopy of Solids: Capabilities and Limitations for Fluorescence Rejection and the Influence of Diffuse Reflectance", Neil Everall, Thomas Hahn, Pavel Matousek, Anthony W. Parker, and Michael Towrie, *Appl. Spectrosc.* 55 1701-1708 (2001), to be featured at an award symposium this fall at FACSS.

With the help of our web-edition host, Catchword, *Applied Spectroscopy* has joined CrossRef, the major source for electronic reference linking. The Society for Applied Spectroscopy joins the publishers of more than 4,780 journals that currently participate, including the ACS, AIP, APS, IEEE, RSC, and SPIE and most major commercial publishers, to cross-link their references electronically. Citations to *Applied Spectroscopy* in electronic editions of these journals are now linked to our own web content; from these links, readers can access abstracts for free, and full articles by subscription or pay-per-view. Citations in our own web edition to other journals are now linked to their respective web editions. This service should extend our impact and readership, and further increase the value of our web edition.

Four years have passed since publication of our first Focal Point book, which covered 1994 to 1997. It would be appropriate to discuss the publication of a 2nd volume to cover the next four or five years. Our first book represented a lesson in producing "other publications" for the Society. We printed 2000 copies in full color for a total cost of \$24,746. We sold 744 copies and have given others away as incentives for joining the Society; the sales recouped about \$15,370 of our original investment. A possible alternative publication format for a 2nd volume would be a CD containing PDF files. These files are already available through Catchword for the years in question plus 1997. Other articles from the *Journal* could be included such as the Focus on Careers series, Meggers Award papers, spectroscopy retrospectives from *The SAS Spectrum*, or whatever would seem appropriate. We would have lots of room for articles; we could put the entire content of two years of the journal onto a single CD. Some editorial work would be needed (Table of Contents, Index, Introduction). These would be inexpensive to produce (about \$1.50/each in runs as small as 500; \$1.00/each in runs of 2000). The cost of mailing would also be small, ~\$0.60/each. This proposal will be brought before the Publication Committee at its next meeting in Providence. An Editor would need to be appointed to collect and organize the material. A list of all of the Focal Point articles published in *Applied Spectroscopy* is attached.

Finally, Sandy O'Neil stepped down last fall from her post as Production and Composition Editor of *Applied Spectroscopy* following 18 years of faithful service to the journal and the Society. An editorial tribute to her career and service was published in the December issue, written by past and current editors who have served under Sandy's leadership. Other changes in editorial appointments will occur effective January, 2003. Tom Vickers is retiring as Book Review Editor after 7 years of service, and Alex Scheeline has agreed to take over this responsibility. Vahid Majidi is stepping down as one of our Focal Point Editors after serving the journal for 6 years. Ben Smith has accepted appointment as a new Focal Point Editor; he and Kathy Rowlen will guide the choice of feature articles for the A-pages.

APPLIED SPECTROSCOPY FOCAL POINT ARTICLES -- 1994 to 2002

1994

Super-Resolution Imaging Spectroscopy, by T. D. Harris, R. D. Grober, J. K. Trautman, and E. Betzig, 48 (1)
Optical Tomography for Three-Dimensional Spectroscopy, by David H. Burns, 48 (5)
A New Generation of Raman Instrumentation, by Bruce Chase, 48 (7)

1995

Modern Molecular Fluorescence Spectroscopy, by Frank Bright, 49 (1)
Capsule-Based Microwave Digestion, by Guy Legere and Eric D. Salin, 49 (3)
NMR Applied to Materials Analysis, by Tom Apple, 49 (6)
Glow Discharge Atomic Spectroscopy, by Jose A. C. Broekaert, 49 (7)
Laser Ablation, by Richard E. Russo, 49 (9)
ICP Emission Spectrometers: 1995 Analytical Figures of Merit, by Jean-Michel Mermet and E. Poussel, 49 (10)
Chemical Systems Under Indirect Observation: Latent Properties and Chemometrics, by Steven D. Brown, 49 (12)

1996

Biological and Medical Applications of Near-Infrared Spectrometry, by Robert J. Dempsey, Darron G. Davis, Rogert G. Buice, Jr., and Robert A. Lodder, 50 (2)

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Vibrational Optical Activity, by Laurence A. Nafie, 50 (5)
 Single Molecule Fluorescence Analysis in Solution, by Richard A. Keller, W. Patrick Ambrose, Peter M. Goodwin, James H. Jett, John C. Martin, and Ming Wu, 50 (7)
 Raman Spectrometry with Fiber-Optic Sampling, by Ian R. Lewis and Peter R. Griffiths, 50 (10)
 Magnetic Resonance: An Account of Some Key Discoveries and Their Consequences, by Edwin D. Becker, 50 (11)

1997

Time-of-Flight Mass Spectrometry for Elemental Analysis, by Patrick P. Mahoney, Steven J. Ray, and Gary M. Hieftje, 51 (1)
 Investigating the Fate of Individual Sample Droplets in Inductively Coupled Plasmas, by John W. Olesik, 51 (5)
 Elemental Speciation and Coupled Techniques, by Ryszard Lobinski, 51 (7)
 Solid State Array Detectors for Analytical Spectrometry, by James M. Harnly and Robert E. Fields, 51 (9)
 Electrothermal Vaporization and Characterization of the Graphite Surface at Elevated Temperatures, by Vahid Majidi, James A. Holcombe, Kurt G. Vandervoort, David J. Butcher, and J. David Robertson, 51 (11)

1998

Process Analytical Chemistry for Spectroscopists, by D. Christian Hassell and Elizabeth M. Bowman, 52 (1)
 Infrared Spectroscopic Imaging: From Planetary to Cellular Systems, by Pina Colarusso, Linda H. Kidder, Ira W. Levin, James C. Fraser, John F. Arens, & E. Neil Everall, 52 (3)
 Lasers Based on Optical Parametric Devices: Wavelength Tunability Empowers Laser-Based Techniques in the UV, Visible, and Near-IR, by Jack X. Zhou, Xiandeng Hou, Karl X. Yang, Suh-Jen Jane Tsai, and Robert G. Michel, 52 (5)
 Application of X-ray Absorption Fine Structure Spectroscopy to Materials and Environmental Science, by Steven D. Conradson, 52 (7)
 Grating Light Reflection Spectroscopy, by Anatol M. Brodsky, Lloyd W. Burgess, and Sean A. Smith, 52 (9)
 The Science of a Revolutionary Chemist and Spectroscopist: Velmer A. Fassel, by Akbar Montaser, 52 (11)

1999

Electrospray Ionization Fourier Transform Mass Spectrometry of Macromolecules: The First Decade, by Sarah A. Lorenz, E. Peter Maziarz III, and Troy D. Wood, 53 (1)
 Using Intrinsic Fluorescence to Investigate Proteins Entrapped in Sol-Gel Derived Materials, by John D. Brennan, 53 (3)
 Infrared Spectroscopy of Cells and Tissues: Shining Light onto a Novel Subject, by Max Diem, Susie Boydston-White, and Luis Chiriboga, 53 (4)
 An Introduction to Diffraction. Part I - the Near Field, by Fred E. Lytle, 53 (6)
 An Introduction to Diffraction. Part II - the Far Field, by Fred E. Lytle, 53 (7)
 Ion Mobility Spectrometry: Arriving On-Site and Moving Beyond a Low Profile, by Jörg Ingo Baumbach and Gary A. Eiceman, 53 (9)
 NMR Spectroscopy with Spectral Editing for the Analysis of Complex Mixtures, by Ann M. Dixon and Cynthia K. Larive, 53 (11)

2000

Electrically Switchable Bragg Gratings from Liquid Crystal/Polymer Composites, by R. T. Pogue, R. L. Sutherland, M. G. Schmitt, L. V. Natarajan, S. A. Siwecki, V.P. Tondiglia, and T. J. Bunning, 54 (1)
 Guidelines for Applying Chemometrics to Spectra: Feasibility and Error Propagation, by Rocco Di Foggio, 54 (3)
 Factors Affecting the Performance of Bench-Top Raman Spectrometers Part I: Instrumental Effects, by Bryan T. Bowie, D. Bruce Chase, and Peter R. Griffiths, 54 (5)
 Factors Affecting the Performance of Bench-Top Raman Spectrometers Part II: Effect of Sample, by Bryan T. Bowie, D. Bruce Chase, and Peter R. Griffiths, 54 (6)
 Generalized Two-Dimensional Correlation Spectroscopy, by I. Noda, A. E. Dowrey, C. Marcott, Y. Ozaki, and G. M. Story, 54 (7)
 Detection of Biological Agents: Looking for Bugs in All the Wrong Places, by Laura A. Vanderberg, 54 (11)

2001

New Tools for Surface Second Harmonic Generation, by Garth J. Simpson, 55 (1)
 Time-Resolved and Short Pulse Laser Spectroscopies, by G. J. Blanchard, 55 (3)
 Laser-Induced Breakdown Spectroscopy in Art and Archaeology, by Demetrios Anglos, 55 (6)
 Probing Molecular Structure at Liquid Surfaces with Vibrational Sum Frequency Spectroscopy, by M. R. Watry, M. G. Brown, and G. L. Richmond, 55 (10)
 Principles and Applications of Solvatochromism, by Shalini Nigam and Sarah C. Rutan, 55 (11)

2002

Quantum Dots: A Primer, by Catherine J. Murphy and Jeffery L. Coffey, 56 (1)
 Brilliant Optical Properties of Nanometric Noble Metal Spheres, Rods, and Aperture Arrays, by Peter C. Andersen and Kathy L. Rowlen, 56 (5)
 Analytical Applications of Volatile Metal Derivatives, by Ralph E. Sturgeon and Zoltán Mester, 56 (8)
 Optical Trapping: A Versatile Technique for Biomanipulation, by Chris Kuyper and Daniel Chiu, 56 (11)
 Quantitative Analysis Using Raman Spectrometry, by Mike Pelletier, in final revision.

Newsletter Editor's Report

The quality of the printing in the paper edition of The SAS Spectrum was improved, as expected, in the first issue for which the copy was sent to Allen Press as a .pdf file. The photos, in particular, came out better. The SAS logo on the front page did not look very good in that issue. It is the same graphic I had been using, but the better print resolution brought out the fact that its resolution is low. I've switched to a logo image that looks better on my screen.

The procedure also saves time, plus postage and printing costs. When a draft is ready, I send it to the SAS office as a compressed .pdf file attached to e-mail, for proofreading by Bonnie Saylor. She invariably finds typos and other errors that I missed after what I thought was careful checking. After correction, I prepare a high-resolution .pdf file, and send it by ftp to Allen Press. The whole process takes 2 to 3 days, and there is no out-of-pocket expense. In previous years, camera-ready copy often had to be sent by overnight mail to meet a deadline. Allen Press is still asking for hard copy, but I suggest that they print it out from the .pdf file. Yes, the file may have an error, but the hard copy might also.

In past years, the SAS newsletter carried reports on the activities of the local sections, but that practice has died out. Now each member will decide whether to continue to belong to a Local Section or a Topical Section (or perhaps more than one). The competition will encourage the development of activities that will make SAS membership more worthwhile. It also gives extra reason for all Sections to use the newsletter to let all members know what they are doing. It may take more pages per issue, but the newsletter normally spends less than its budget.

I'm changing some figures that are monochrome in the print issue to color for the online .pdf file of that issue. It takes some time because the graphics need to be high resolution for the printer, but lower resolution in the .pdf file that is posted online, or that file will be very large. Perhaps some day we'll be able to afford color in the print issue, and large bandwidth internet connections will make file size a non-issue.

Marvin Margoshes
 August 19, 2002

Web Editor's Report for September 2002

I have taken the lead in attempting to keep the Society for Applied Spectroscopy web running and up-to-date since Pete Poston asked that I take over these tasks for him this summer. I have moved some files on the server into different folders to help organize. I have checked external and internal links. Fixed some problems with the secure server, in particular the

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on-line reviewer form, updated the conferences and meetings, Applied Spectroscopy titles and abstracts, employment opportunities, and the sponsoring corporations lists and presentation pages.

There seems to be some problems with the secure server applications. Our certificate is apparently expired. I do not know who originally requested the security certificate and from where it was obtained. I cannot fix this problem.

I have also noticed some issues with regards to the server speed. The current Web pages can be very slow to load. This is due primarily to the extensive use of frames and linked graphics (buttons). These Web elements may need to be refreshed each time the user's browser attempts to read the page again.

I have been experimenting with a new Web design. This new design can be viewed on the SAS Web site, but with the private (unlinked) address of <http://www.s-a-s.org/newdesign/index.htm>. Granted, the background is rather dark, but web pages are faster loading and do not use as much graphics.

Another problem is that I do not know what type of server the Web site is being hosted on. I use MS FrontPage to do Web maintenance and need to install or have installed the latest FrontPage server extensions. I can get the server extensions from the Microsoft support site but need to know what type of computer and operating system the server uses.

Perhaps because of this being a new project, I have logged 33 hours toward working solutions since taking over this job on August 1, 2002, although I have spent about twice that on the various projects.

Stephen Bialkowski

PROPOSED BYLAWS CHANGES FALL 2002

[Newsletter Editor's note: This report list the Committee's proposed amendments See the Minutes for the amendments adopted by the Governing Board. Deletions are marked by underline, and additions by **bold italic**.]

ARTICLE XIV - COMMITTEES

SECTION 6. AWARDS COMMITTEE. This committee shall consist of a total of three (3) members. The chair-elect is appointed for a two (2) year term (as chair-elect and chair). There is no past-chair. The other member of this committee serves for one year. This committee shall:

(a) evaluate persons for Honorary Membership who have made exceptional contributions to spectroscopy and recommend them first to the Executive Committee and then to the Governing Board in accordance with Article IV, Section 2 of the Constitution.

(b) evaluate persons for the Distinguished Service Award who have made exceptional contributions to the Society for Applied Spectroscopy and recommend them first to the Executive Committee and then to the Governing Board in accordance with Article XVI, Section 5 of the Bylaws.

Recommendations for these awards shall be included in the report from the Awards Committee for presentation to the Governing Board Executive Committee at the spring meeting.

SECTION 7. CONSTITUTION AND BYLAWS COMMITTEE. This committee shall consist of a total of five (5) three (3) members. The President-Elect Past President, or his/her designee, shall serve as the chair of the committee for his/her term as President-Elect Past President. There shall be no chair-elect. The Past-President is also a member of this committee. The other three (3) members each serve a term of three (3) years of this committee serve for one year and are appointed by the President. This committee shall:

(a) consider and report, at least annually, on all matters relating to the Constitution and Bylaws of the Society.

(b) approve the Constitution and Bylaws of Local Sections after review to insure that they are consistent and in harmony with the Society Constitution and Bylaws.

(c) recommend first to the Executive Committee and then to the Governing Board any amendments to the Constitution or the Bylaws of the Society that seem advisable.

SECTION 8. LOCAL AND TECHNICAL SECTION AFFAIRS COMMITTEE. This committee shall consist of a total of five (5) members. The chair-elect is appointed for a three (3) year term (as chair-elect, chair, and past-chair). Each year one other member is appointed for a two (2) year term. This committee shall:

(a) study and make recommendations concerning problems affecting Local Section activities.

(b) receive and review petitions for new Local and Technical Sections and shall submit its findings and recommendations first to the Executive Committee and then to the Governing Board for action.

(c) select the Local Section that has contributed the most toward accomplishing the objectives of the Society during the preceding year of the Society in accordance with Article XV, Section 2 of the Bylaws. The winning section shall receive the Poehlman Award.

(d) administer the Graduate Student Award, in accordance with Article XV, Section 6 of the Bylaws and select the awardee from candidates recommended by the Local Sections.

(e) administer the Undergraduate Award in Applied Spectroscopy in accordance with Article XV, Section 7 of the Bylaws. The undergraduate awardees are selected by the Local Sections.

(f) Will coordinate the nomination and election of the five (5) Local Section Members to the Governing Board.

SECTION 9. MEMBERSHIP COMMITTEE. This committee shall consist of a total of five (5) three (3) members. The chair-elect is appointed for a three (3) two (2) year term (as chair-elect, **and** chair, **and** past-chair). There is no past chair. Each year one other member is appointed for a two (2) year term. This committee shall:

(a) promote the enlistment of new Regular Members, Sponsoring Members, and Student Members.

(b) coordinate the activities of the Local Section Membership Committees.

SECTION 10. MEMBERSHIP EDUCATION COMMITTEE. This committee shall consist of a total of four (4) members. The Membership Education Coordinator shall be the committee chair. There is no chair-elect or past-chair. Each year one other member is appointed for a three (3) year term. This committee shall:

(a) be responsible for programs of continuing education, training, and professional development in spectroscopy, excepting those which are the responsibility of the Editor-in-Chief of the Journal.

(b) review applications for the position of Membership Education Coordinator, when this position needs to be filled, and forward recommendations first to the Executive Committee and then to the Governing Board for approval.

RENUMBER SECTIONS TO FOLLOW BASED ON DELETION OF SECTION 10

SECTION 11.10. NOMINATION COMMITTEE. The term of office of the Nomination Committee begins on March 1. This committee shall consist of six (6) members according to the following qualifications:

(a) The chair of the committee shall be the Second Past President of the Society.

(b) The President and President-Elect shall each select two members to

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this committee to each serve one-year terms.

(c) The Nomination Committee shall submit the names of all nominated At-Large Governing Board members and at least two (2) nominees for each office to be filled to the Secretary not later than December 1 of each year. Additional nominations for any elective office of the Society may be made by a petition signed by at least forty (40) Regular Members and received by the Secretary not later than December 31. Nominees by petition shall meet the other qualifications of the nominees as established in the Bylaws. The only report from the Nomination Committee is to the Executive Committee at the spring meeting.

SECTION 12 11. PUBLICATIONS COMMITTEE. This committee shall consist of a total of five (5) members. The chair-elect is appointed for six (6) year term (as chair-elect for two terms, chair for two terms, and past-chair for two terms). Each year one other member is appointed for a two (2) year term. This committee shall:

(a) serve in an advisory capacity to the Editor-in-Chief of the Journal, the Newsletter Editor, and the Executive Administrator regarding *Applied Spectroscopy*, the Newsletter, and other publications undertaken by the Society.

(b) review applications for the position of Editor-in-Chief of the Journal and Newsletter Editor, when these positions need to be filled, and forward recommendations first to the Executive Committee and then to the Governing Board for approval.

SECTION 13 12. PUBLICITY COMMITTEE. This committee shall consist of a total of five (5) members. The chair-elect is appointed for a three (3) year term (as chair-elect, chair, and past-chair). Each year one other member is appointed for a two (2) year term. This committee shall assist the Executive Administrator in making known the activities and objectives of the Society through the appropriate channels and assisting Local Sections in these matters as requested.

SECTION 14 13. TELLERS COMMITTEE. This committee shall consist of a total of three (3) members. The chair and other two (2) members are appointed for a one (1) year term. There shall be no chair-elect or past-chair. The members should live in close proximity to facilitate counting. This committee shall:

(a) tally the votes cast in the election of Officers, At-Large Governing Board members, and on any proposed amendment to the Constitution, or any resolution voted upon by the eligible members.

(b) report the results to the President of the Society.

SECTION 15 14. TOUR SPEAKERS COMMITTEE. This committee shall consist of a total of five (5) three (3) members. The chair-elect Each member is appointed for a three (3) year term (as chair-elect, chair, and past-chair) leading up to their year as coordinator. This committee shall:

(a) select speakers for the Tour Speakers Program.

(b) submit its selections to the Executive Administrator by September 1 for the following year's spring Tour Program and may advise and assist him/her in coordinating the tour.

Report of the Local Section Affairs Committee August 22, 2002

Committee members: Mark Heitz, James Julian, Dave Lankin, Sue Evans Norris, Sefik Suzer.

In April, the Local Section Affairs Committee unanimously voted to reinstate the Rocky Mountain section. This recommendation will now go before the Governing Board for a final vote for reinstatement.

Nominations for the Local Section Delegates for 2002/2003 were sent out in July. Six candidates ran for the five seats. The newly elected delegates

are: Douglas Shrader (Chicago), Eileen Skelly Frame (New York), Peter Griffiths (Snake River), Jill Scott (Snake River) and David Butcher (Peidmont).

The Committee selected the winners of the Graduate Student Award and the Poehlman Award, which will be presented at the FACSS meeting in October 2002.

Fourteen candidates submitted their nomination information for the Graduate Student Award. This year, the Committee selected Jan Kubela from The University of Illinois at Chicago who worked with Prof. Timothy A. Keiderling. Jan's research was in the area of optical spectroscopy applied to problems in structural biology. Of particular interest in Jan's research was the structure of proteins and their secondary structure. He also studied peptide folding problems. Jan used several advanced techniques such as RAMAN, FTIR, CD, ¹³C labeling for vibrational and CD studies. The eligible candidates that were not selected this year are urged to resubmit their work for consideration for next year's Award. Our congratulations go out to Jan for a job well done!

The New England section won the Poehlman Award, which is awarded to the section that contributed the most toward accomplishing the objectives of the Society. This section fell on hard times in the late 90's and was in danger of going inactive. With the help of a few strong supporters, they have elected a new group of enthusiastic officers, had well attended meetings, updated their Chapter By-Laws and Constitution and established good relationships with several of the local instrument companies. Congratulations to New England for being an inspiration to all of the sections!

Sara M. Freeman

Report from the Publications Committee Aug. 25, 2002

Journal Editorship -- The most important task of the Committee this past year has been in making a recommendation on the editorship of Applied Spectroscopy. The Society's Bylaws require a vote of the Governing Board, after recommendation by the Publications and Executive Committees, in order to re-appoint an Editor beyond this term. The Publications Committee voted unanimously to recommend that Joel Harris be reappointed to another 3-year term, in view of the outstanding job he has done.

Committee members cited his good business sense; his careful watch over the Journal's budget; and his good ideas for increasing subscriptions and journal impact, including his efforts to increase the biomedical impact of the journal, which may soon convince PubMed to include it in its coverage.

Web Edition -- The Committee expressed a continued interest in development of a preprint server. As of February 2002, technical difficulties still prevented implementation, but progress is expected this year. Growth in usage of the online edition continues, but no longer quite exponentially as in earlier years. There was some discussion over the evident (but very infrequent) abuse of member access to the online edition, with one member's "individual" access exceeding all but the largest US libraries. We encouraged Pete Poston in his proposal to follow the example of the American Institute of Physics in including download information on each page of Acrobat files downloaded from the online site. It might also help for the Society to broadcast more widely and vigorously to its members the reasons why it is unfair for them to grant non-members any significant amount of free access to the Web edition.

Some concern was expressed over the flat or declining trend in Applied Spectroscopy ad revenues. The increased usage of the electronic edition appears to be reducing the attractiveness of the print version to advertisers, without providing an alternative source of advertising revenue. Only 1 out of 15 corporate sponsors contacted about the possibility of purchasing a banner ad on the web edition responded positively. No good solution to this problem was identified--suggestions, anyone?

Other publications: One of the activities proposed was the publication of a

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Focal Point book or, better still, a CD-ROM. The latter could include the entire .pdf content of Applied Spectroscopy back to 1997, without requiring any significant editorial effort. The general idea was endorsed by the committee. Options were discussed, of either selling the CD-ROM at a low cost, and/or making it available as a free membership benefit. Further discussion of the financial feasibility of these options will be an agenda item for our Fall 2002 meeting.

Attendance at Spring 2002 Meeting: Mark Braiman, Michael Morris, Nancy Miller-Ihli. Ex-officio: Larry Nafie, Pete Poston, Marvin Margoshes, Joel Harris (attended only part of the meeting), Bonnie Saylor, Martha Chapin. Other members: Marc Porter, Monike Jenko, Paul Farnsworth (ex officio), Rachael Barbour (ex officio).

Mark S. Braiman

2002 Tour Speaker Program Report

Chapter	Speaker	Affiliation
New York	Lei Geng	University of Iowa
Mid-Michigan	Dan Higgins	Kansas State University
Northern California	Dan Higgins	Kansas State University
Southern California	Dan Higgins	Kansas State University
Chicago	Richard Newmark	3M Company (retired)
Delaware Valley	Richard Newmark	3M Company (retired)
Reading	Brian Smith	Spectros Associates
Cleveland	Andy Sommer	Miami University of Ohio
Minnesota	Andy Sommer	Miami University of Ohio
Ohio Valley	Steve Soper	Louisiana State University
New England	Steve Soper	Louisiana State University
Arizona	Steve Soper	Louisiana State University
Baltimore-Washington	Susan Plunkett	Phillip Morris USA
Detroit	Susan Plunkett	Phillip Morris USA

The fol-

lowing sections and speakers participated in this years Tour Speaker program:

The chapters that participated seemed to be very happy to have the opportunity. Many were hoping to have the schedule out sooner, but I did not plan and execute well enough to have that happen. For future Tour Speaker committee chairs I would recommend skipping the initial "polling" process where we ask chapters who they would like as a speaker. You typically get a minimal amount of response and it is probably only useful if you are having trouble putting together a list of speakers on your own.

The other difficulty is once chapters choose to participate and provide their top 3 choices, it is very difficult to put together a schedule that keeps speakers geographically close while meeting the desires of the chapters (giving them the speakers they want in the time frame they want). It would be nice to have a better idea which aspect is most important.

All in all, I think this program is still an important part of what SAS offers in local chapters. I was happy to serve in this position and wish I could have been more organized and disciplined so all events could have been better planned.

Respectfully submitted,
Becky Dittmar

SAS 2003 Tour Speaker Committee Report

The SAS 2003 Tour Speaker Committee has been preparing for the 2003 Tour Speaker Program. In preparation for this program, the following tasks have been accomplished or outlined for accomplishment:

1. The Tour Speaker Committee Members submitted recommendations for Tour Speaker Candidates to the 2003 Program Coordinator.
2. A request for additional recommendations for Tour Speaker Candidates was sent to individuals at the SAS local sections.
3. Candidates who were recommended either by the committee or by a local section have been contacted by the 2003 Program Coordinator to confirm interest in possibly serving as a 2003 Tour Speaker.
4. As of this writing, the following individuals have agreed to serve as 2003 Tour Speakers if requested by an SAS local section:

"Forensic Chemistry in the Private Sector"
Charles K. Deak
C.K. Deak Technical Services, Inc.
29844 Wagner
Warren, MI 48093
Phone: (810) 751 - 0718
FAX: (810) 751 - 8716
E-Mail: Ckdeak@aol.com

"Ultra-Rapid Scanning FT-IR Spectroscopy: Theory and Applications"
"Open-path Atmospheric Monitoring by FT-IR"
"Surface-Enhanced Infrared Spectroscopy"
Peter Griffiths
Professor of Analytical and Environmental Chemistry
University of Idaho
Renfrow Hall
Moscow, ID 83844-2343
Phone: 208-885-5807
Fax: 208-885-6173
pgriff@uidaho.edu

"Adventures in Materials Characterization Using Micro X-ray Fluorescence"
George J. Havrilla
Los Alamos National Laboratory
MS G 740
Los Alamos, NM 87544
phone: 505-667-9627
fax: 505-665-4737
email: havrilla@lanl.gov

Isao Noda, Ph.D., D.Sc.
Research Fellow
New Platform Technologies Division
Corporate R&D
The Procter and Gamble Company 8611 Beckett Road West Chester, OH 45069, USA
Tel: +1-513-634-8949.Fax: +1-513-634-9342
E-mail: noda.i@pg.com

Charles W. Ross III, Ph.D.
Research Fellow
Merck Research Laboratories
Department of Medicinal Chemistry
Merck & Co. Inc.
Sumneytown Pike
P.O. Box 4, WP14-1, Room 1700
West Point, PA 19486
Voice: 215-652-6557
FAX: 215-993-0273
charles_w_ross@merck.com

Jill R. Scott, Ph.D.

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Mass Spectrometry & Surface Analysis

INEEL
MS 2208
2525 N. Fremont Ave.
Idaho Falls, ID 83415
Office: (208) 526-0429
Lab: (208) 526-9765
Fax: (208) 526-8541
e-mail: scotjr@inel.gov

Weihong Tan
Professor Analytical Chemistry
University of Florida

5. In addition to those candidates listed above, inquiries have been made to several other individuals and the 2003 Program Coordinator is awaiting their response.

6. After the Tour Speaker Candidate list is finalized, a list of potential speakers and their tentative presentation titles will be sent to the SAS local sections. The goal is to send this information to the local sections by early September.

7. After Tour Speakers are selected by the local sections, the Tour Speaker program for 2003 will be finalized.

Respectfully Submitted by,
Patrick A. Limbach
2003 Tour Speaker Program Coordinator

**Lester Strock Committee Report
Fall 2002**

Our selection for 2002 is:
Julian Tyson, Ph.D.
Department of Chemistry
University of Massachusetts
Amherst, MA 01003

2002 Tellers Committee Report

The 2002 Tellers Committee met at noon on August 9, 2002 in Adelphi, Maryland. The members attending were Kristine Patterson (Chair), Larry Pollack, and Kathryn S. Kalasinsky. The paper ballot envelopes were opened and all ballots were counted separately by each member. The results are as follows:

Number of votes cast for President----- 420
Winner Robert Michel

Results of votes cast for Governing Board Delegates
Michael Epstein (declined due to a new commitment)
replaced by Timothy Keiderling
Arthur Mateos
Don Pivonka
Brian Smith
Slav Stepanovich

**FACSS Report
Fall 2002**

The FACSS Governing Board Meeting was held at Pittcon2002 in New Orleans on Wednesday, March 20, 2002 at the Morial Convention Center. Larry Nafie, President-Elect and Vasilis Gregoriou, Past-President were the SAS delegates. The meeting opened with a number of reports.

Bob Michel reported on the new FACSS website. He was heartily congratulated on a job well done.

Rachel Barbour, current SAS President, presented a report from the Ad Hoc Committee on the Evaluation of the Governance and Representation Structure Within the FACSS Organization. In essence, the committee rec-

ommends a change from the current representation of 17 voting members on the Governing Board which is 3 voting members from the Executive Committee, the Program and General Chairs of the current year, and 2 delegates from each of the six member organizations. The new proposal changes the delegate distribution among the six organizations. Each organization is get one delegate and then the other six are divided according to attendance at the most recent FACSS meeting according units of 17% of the total attendance using a formula for how to achieve the most fair allocation. Two other issues were recommended. Delegates should vote as instructed by their parent organization and affiliate organizations, if they become a reality, could send delegates to the Governing Board meeting, but only as non-voting delegates.

Paul Bourassa gave the treasurer's report. FACSS lost money on the meeting in Detroit, held shortly after the September 11 crises, but FACSS remains in a healthy financial state.

David Laude gave the report of the Budget Committee that consists largely of providing budget allocations for upcoming FACSS meetings.

Scott George gave an Exhibits Report on efforts to obtain commitments from companies for booth space at upcoming FACSS meetings. Strategies on how to optimize this process were discussed.

Mike Carrabba gave both the Long Range Committee Report and the Conference Report. Future sites of FACSS meetings beyond those currently committed were discussed. Currently FACSS is scheduled for Providence, R.I. in 2002, Ft. Lauderdale, FL in 2003, Portland, OR in 2004, and Quebec City, Quebec, Canada in 2005. Future sites under consideration are: Anaheim, CA, Orlando, FL, and San Juan, Puerto Rico. The San Diego, CA, Town and Country Convention Center site was rejected as having an insufficient number of rooms.

Conference Reports were given for:
FACSS 2002 in Providence by Bob Michel, General Chair and Mark Hayes, Program Chair.
FACSS 2003 in Ft. Lauderdale by Rina Dukor, General Chair and Jim Rydzak, Program Chair.

A FACSS Office Report was given and the date for the next Governing Board Meeting was set for Thursday, October 17 at FACSS in Providence.

Respectfully submitted,
Larry Nafie, SAS President-Elect

**Report of the Representative to the
Chemical Heritage Foundation**

The Foundation moved the presentation of the its Othmer Gold Medal award from New York to its headquarters in Philadelphia for the first time this year. I had attended all of the previous award sessions in New York, for the always interesting talks, good companions at the luncheon table, and good food. I was not able to attend this year, for the first time. The Foundation suggested that Presidents-Elect in particular should attend, and Larry Nafie represented SAS there.

We can make suggestions for the new PittCon Heritage Award. Anyone who would like to make a nomination should send it to me with supporting information. I will circulate it to the SAS Executive Committee, who will decide whether SAS should support the nomination.

The instruments and document collection from the Perkin Elmer museum in Germany are now the property of CHF. They are being unpacked individually for cataloging.

Construction is still going on at CHF's new building, so the site is not open for tours. However, some tours are possible by advance arrangement. There are often meetings at CHF that are open to the public, free or for a small admission charge, such as the Brown Bag Luncheons. Check the CHF Web site (<http://www.chemheritage.org>) for upcoming events.

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THE SAS GOLD MEDAL



The SAS Gold Medal of the New York Section was awarded to Joel Harris by A. (Way) Fountain, on November 19, 2002, at the Eastern Analytical Symposium.

The Award Symposium was on Spectroscopy of Small Domains, chaired by Fountain. The speakers were Harris, F. V. Bright, University of Buffalo; M. Wirth, University of Delaware; K. Rowlen, University of Colorado; and P. Bohn, University of Illinois.



(Continued from page 16)

Marvin Margoshes
August 19, 2002

Addendum by President Nafie:

SAS President-Elect Larry Nafie attended the Othmer Gold Medal Award Ceremony and Reception at the new headquarters of the Chemical Heritage Foundation in downtown Philadelphia, Pennsylvania on Friday, June 28, 2002. He attended with SAS Past-President Rina Dukor who received an invitation as a result of her previous attendance at this meeting. The new headquarters building is very impressive. It includes a large lecture hall that also doubles as a dining area on the first floor with exhibits, publications and artwork distributed elsewhere among the four floors of this beautiful new facility.

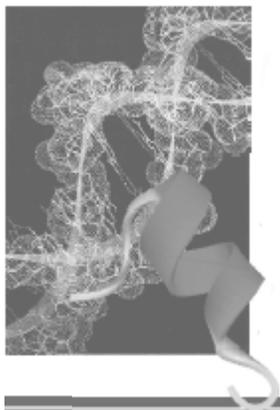
The annual meeting this year had five formal purposes. The first was to honor Robert S. Langer of the Massachusetts Institute of Technology as the Othmer Gold Medal Winner for 2002. His award lecture on tissue engineering was extremely impressive and drew many fascinating questions from the audience.

The second was to dedicate the lecture hall, named the Glenn Edgar and Barbara Ulliyot Meeting Hall, where the Othmer Lecture and the luncheon before that were held. Glenn Ulliyot, a key figure in the founding of the Chemical Heritage Foundation and the development of the Du Pont Chemical Company, passed away last year and was honored in a speech with photographs by his wife.

Third was the dedication of the Eleuthere Irene du Pont Gallery, and the fourth was the launch of the Roy Eddleman Research Museum, tours of both of which were available after the award address. On display in the museum are some of the oldest commercial UV-visible and IR spectrometers, and information about their early uses and applications. Each attendee received a copy of the publication *Transmutations: Alchemy in Art, -- Selected Works from the Eddleman and Fisher Collections at the Chemical Heritage Foundation* that contains color pictures of many of the artworks on display.

The fifth was to Celebrate the 20th Anniversary of the Chemical Heritage Foundation. Following the tours, there was a lavish reception including shrimp, salmon, black caviar, crackers, breads, cheeses and champagne.

The Chemical Heritage Foundation is a most impressive facility located in the heart of the historical section of downtown Philadelphia. It is well worth the time to visit this impressive headquarters, and perhaps buy an interesting book about the history or current state of chemistry today. ■



Genomics, Proteomics, Disease Diagnostics...

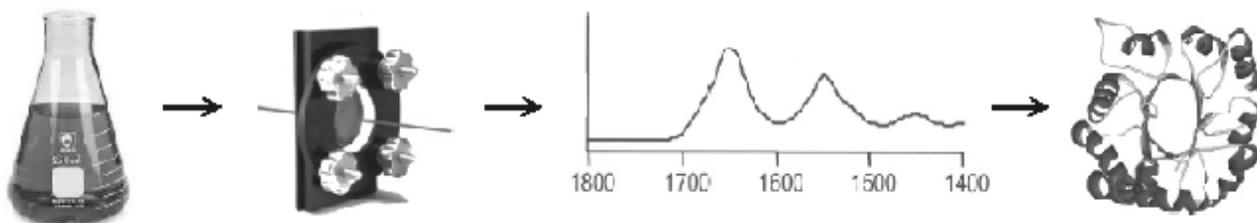
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The Society for Applied Spectroscopy is proud to present

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Brian Smith, Ph.D • Spectros Associates.



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Three of the Meggers Award winners: Neil Everall, Pavel Matousek, Michael Towrie. The other awardees, Thomas Hahn and Anthony Parker, were not present.

SAS award photos,
continued from page 20

Julian Tyson, winner of
the Lester Strock Award



Representatives of the New England Section
accepted the Wm. J. Poehlman Award



Student Award
presented to Jan
Kubelka by
President Barbour
and
President-Elect
Larry Nafie

SAS Seeks Governing Board Delegates

Have you always wanted to have a say in how your professional Society runs? If so, the Society for Applied Spectroscopy wants you to be a delegate to its Governing Board. SAS is seeking qualified individuals who are interested in being delegates to the Society's Governing Board meeting in Ft. Lauderdale, Florida in October 2003 and at subsequent meetings which are held in conjunction with the Federation of Analytical Chemistry and Spectroscopy Societies (FACSS) meetings. If elected to the position, you will be required to vote on Society business at the meeting. A travel honorarium of \$200 per meeting served will be given to those who are elected.

Qualifications include being a regular member (students are not eligible) in good standing of SAS and having an interest in the well-being of the Society. All applications will reviewed by the SAS Nominating Committee for eligibility. International members are encouraged to apply. Qualified candidates will be voted on by the membership at-large in July 2003. **Five delegates will be elected to serve for a total of two years. You MUST be able to attend both Governing Board Meetings (2003-2004).**

If you are interested in serving your professional society in this way, please submit your name, any relevant qualifications you feel would help the membership at-large determine whether you would be a good delegate, and the answers to the following question: **What are the challenges facing SAS and how can we meet these challenges?** Please limit your answer to 500 words.

Photos from FACSS 2002

Past Secretary Alex Scheeline, and Secretary Jon Carnahan



Paul Bourassa and Dave Trimble

and MORE from the awards reception ...

Honorary Membership was awarded to Alan G. Marshall. The plaque was presented by SAS President Rachael Barbour



Doug Shrader received the Distinguished Service Award from President Barbour



please turn to page 19 for more award reception photos