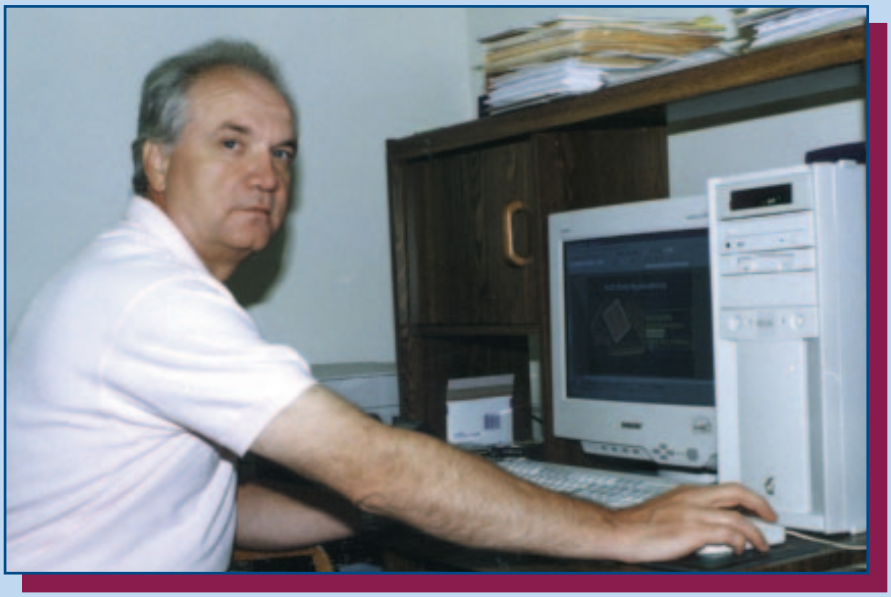
An Interview With AESF's Technical Director



In 1994, AESF hired Frank Altmayer, CEF, president, Scientific Control Laboratories, Inc., Chicago, IL, as its technical director. Four years later, he is steeped in the job of oversight of AESF's educational programs. We felt this might be a good time to find out where AESF is headed in the short and long term. The following interview may answer those questions and provide a bit of insight into what is involved with the production of our programs.

Q. Can you provide a brief background on yourself for our readers?

A. I was born in a small village in Austria and spent the first eight years of my life there. My family members were WWII refugees. We emigrated to the U.S. in 1956 and settled in Chicago. I can still speak second-grade-level German. My working career began at Scientific Control Labs after graduating from Lane Technical High School (coincidentally, the same school attended by the AESF Executive Director Ted Witt, CEF, although we did not know each other then). I worked my way up from washing the laboratory glassware the first three weeks of July, 1966, to eventually buying the company in 1986. Along the way, I obtained a BS in chemical engineering and an MS in metallurgy, but my real education came at the side of the former owner of Scientific Control—Simon P. Gary, CEF, a past president of the AESF, and a recognized expert in the metal finishing industry.

I joined the Society in 1970, and have served in every office of the Chicago Branch, including a 14-year stretch as secretary-treasurer. I have served as a chair of a committee or board of AESF on the national level since 1981. I have been an instructor for AESF courses since 1984, and prior to that taught an electroplating class to seniors in the Metallurgy Department of Illinois Institute of Technology (IIT). I have written a monthly column in *P&SF* for a little more than 10 years.

Q. What made you interested in becoming the AESF Technical Director?

A. Having taught AESF courses, I felt that I could contribute to the creation of additional training programs, and that I could modernize the existing courses, so that the students would benefit from course materials that were better illustrated and more frequently updated. Basically, it comes down to my love for teaching and producing training programs.

Q. What are some of your accomplishments over the past four years?

A. First, it should be clarified that any accomplishments I might relate were made with a lot of help from a large number of people, both within my company and within AESF Headquarters. Within my company, Tim Denhof, CEF; Jeff Zak; Joelie Hill, CEF; Joanne Kiepura and Adrienne Oblasny assist me in production work. Within AESF Headquarters, Dick Baker, CEF-SE; Penny Harney; Anne Gaither and Lisa Day provide a significant amount of support. I especially rely on Lisa, who is the graphics expert at Headquarters.

An immeasurable amount of assistance also comes from various AESF committees, especially the OSHA Committee, chaired by Vicki Sherwood. Several AESF instructors/technical specialists also contribute a significant amount of expertise as well—Dick Baker, CEF-SE; Harry Litsch, CEF-SE; Art Parker, CEF and Fred Clay, CEF-SE, to name a few.

Over the past four years, AESF has produced additional training courses in the following areas:

- Hard Chromium Plating
- Wastewater Treatment
- Pollution Prevention
- Pollution Prevention (Spanish)
- OSHA Safety & Compliance
- Light Metals Finishing
- Regulatory Compliance
- Industrial Cleaning

We have opened a training center in Alsip, IL, which provides OSHA required training, and gives us a "fixed" location for training courses.

We also have expanded our in-house training capabilities. We are no longer bound by what is on the shelf. If a company needs customized training on any metal finishing subject, we can produce the course materials and provide the instructor at its facility, at a reasonable cost and in short order. In-house training is more effective because the students see their own equipment and processes as part of the program.

In addition to training courses, we held a major seminar on the Chromium MACT standard shortly after it was finalized, and have developed the ability

to address a regulatory issue with quick information to the membership.

We also have produced the following educational/training products:

- "Safety Coordinators Manual," produced in cooperation with Rogers Corporation
- "Measuring Surface Tension," a video-based training program
- "Plating for Beginners," a self-training CD-ROM-based program
- "Hard Chromium Plating," a self-training CD-ROM-based program

I am particularly excited about the CD-ROM training programs, because they allow us to provide education and training to industry personnel who cannot readily attend our "live" training courses. They are the next best thing to being there.

Q. You have changed the way AESF courses are presented. Why?

A. At the time I became technical director, AESF offered three training courses— Introduction to Electroplating & Surface Finishing, Electroplating & Surface Finishing, and Electroplating & Surface Finishing for Electronic Applications. All three training programs are and have been highly successful. Credit should be given to the late Dr. Don Swalheim, CEF; Dick Baker, CEF-SE and Harry Litsch, CEF-SE, for their efforts in producing these.

Our production methods for course materials and presentations had always consisted of stapled booklets and 35mm slides. These served well for many years, but had the drawback of being difficult and expensive to update. We have now converted these courses to "electronic" format. The student materials are in loose-leaf format and are printed from computer files with full-color reproduction of all course illustrations. (The figure shows a comparison of old and new course materials.) Instructors utilize computers and computer projectors to make their presentations. Instead of slides, the computer files can be updated almost instantaneously. The computerized presentations will allow us to incorporate digitized video in the next year. This will essentially take the student into the finishing shop as part of the training program.

Q. Has the transition to computerized training gone smoothly?

A. About as smoothly as I had expected. We had to scan thousands of pages of text and slides, and make several levels of corrections. The learning curve was steep, but we feel that most of our problems are behind us, and that our course materials are the very best available in the industry. Our instructors were exceptionally helpful and willing to learn how to operate the new equipment.

Q. What are your biggest challenges?

A. Getting things done, with the limited amount of time available. We also have a shortage of qualified instructors, especially the newer courses.

Q. How are AESF instructors "certified"?

A. An instructor candidate goes through a two-stage certification proc-


Slide 29

This slide illustrates the surface hardness enhancement due to hard chromium plating. The diamond shaped indentations were made perpendicular to the surfaces with a microhardness tester. The lower, larger indentations are on an unplated stainless steel surface and the upper, smaller ones on the chromium plated (1 mil thick) surface. The loads used were, left to right, 25 grams and 200 grams, respectively. The surface hardness (due to the chromium plate increased from a hardness of 300 VPN to over 800 VPN. VPN is the designation of a Vickers indentor. The other widely used microhardness indentor is the Knoop indentor. Some microhardness instruments provide for the use of either type interchangeably.

For details on both types and for more information on hardness testing, see the Illustrated Lecture, "Testing and Evaluation of Deposits".

Slide 30

A grinding check of adhesion of the chromium deposit. A well-adherent deposit will not show any flaking where the grinding wheel breaks through the chromium to the basis metal. This is an excellent yet simple test.

Slide 9

There are many types and styles of filters that are used in the surface finishing industry. Shown is a typical cartridge filter. "Depth" cartridges employ spiral wound fibers that create solids holding cavities and therefore hold a higher amount of solids than surface filtration cartridges. Filtration media is available in numerous materials of construction, with polypropylene being the most common. Filter cartridges are available in pore sizes from 1-100 microns. Typically, 2-3 cartridges are used per 100 gallons of solution (see appendix).

Cartridge filters are probably the most popular choice for simplicity and ease of maintenance, but may pose a waste disposal problem. The finer the cartridge pore size, the smaller the solids holding capacity. For example, a cartridge having a 20 micron pore size will generally hold about 7 ounces of dry solids before cartridge replacement is necessary; however a cartridge with about 5 micron retention will hold only around 1 -2 ounces of particulate before replacement.

Cartridge disposal may involve shredding of the cartridge and inclusion with other hazardous waste, or drum packaging and disposal as a hazardous waste. Cartridge systems utilizing re-usable/cleanable cartridges are available, to reduce this waste generation.

Original AESF course materials (above left) have been updated and converted to "electronic" format with full-color illustrations.

ess. First, the candidate must pass an "audition" before a review committee that consists of currently certified instructors. Successful stage-one candidates then present two lectures as guest instructors at an AESF course. The students at that course are asked to rate the instructor for knowledge ability, as well as ability to teach. Candidates who are highly rated by the students are deemed "certified." All certified instructors must then maintain an average student rating of 8 (out of a possible 10) to remain certified. We believe this process ensures that our course instructors have both the knowledge and teaching skills to provide our students with the best training available. The proof is in the ratings given to our courses and the comments provided by our students, which are highly favorable.

Q. What does the near future have in store for AESF's educational programs?

A. We have an ambitious schedule designed to add four more training programs each year for the next two years. We also plan to expand our CD-ROM-based training offering. In the next year, we will add courses in:

- Electroless Deposition of Metals
- Zinc Plating
- Hull Cell & Solution Testing
- Bright & Functional Nickel Plating

Over the next two years, we will also produce CD-ROMs on zinc plating and bright/functional nickel plating, in addition to four more training courses that have not yet been finalized. We do intend to produce an Advanced Electroplating Course that will allow an advanced certification (CEF ^{2}). Possible additional subjects include:

- Shop Design
- Alternative Finishing Methods (PVD, CVD, flame spray, etc.)
- Powder Coating
- Plating for Jewelry Applications
- Polishing/Buffing & Associated Operations
- High-speed Deposition

If readers have suggestions for additional training programs, or wish to add support to one of these subjects over the others, I would urge them to contact me through AESF Headquarters.

I also intend to overhaul our home study program.

Q. What about the long-range future?

A. I am particularly excited about a joint venture with the University of Central Florida (UCF), which is building a material sciences laboratory in the Central Florida Research Park—right across the street from AESF Headquarters in Orlando. The University is interested in offering college credit courses related to metal finishing. Our long-term goal is to develop a degree program with UCF.

Q. One final question, Frank: When do you sleep?

A. Sleep? What's that? *P&SF*