

American Electro-Platers' Society

*Paul
Crest
AP 1962*

TWELFTH :: ANNUAL
CONVENTION

MILWAUKEE, WIS. JUNE 30—JULY 1, 2, 3, 1924

HEADQUARTERS
PFISTER HOTEL



CHAS. H. PROCTOR
Founder of the Society

Official Programme

==== American ====
Electro-Platers' Society

Twelfth National Convention
June 30—July 1, 2, 3, 1924



HEADQUARTERS
PFISTER HOTEL

Milwaukee :: Wis.

Greeting

MILWAUKEE Branch A. E. S. extends a cordial invitation to you, for this, the Twelfth Annual Convention of the American Electro-Platers' Society.

The committee has made every effort to make your visit in our city a pleasant one that will cause you to look back on the good time you had while our guest.

Registration fee is \$6.00 each for ladies and gentlemen. Credentials, badges and tickets for the use of our guests will be distributed at the time of registration.

An information bureau on the main floor of the hotel will have lists of all Milwaukee Branch members and place of employment.

Parking spaces and garages within a reasonable distance from the hotel will also be listed, also road guides and other information? ? ?

One of our members will be in charge during the entire convention.

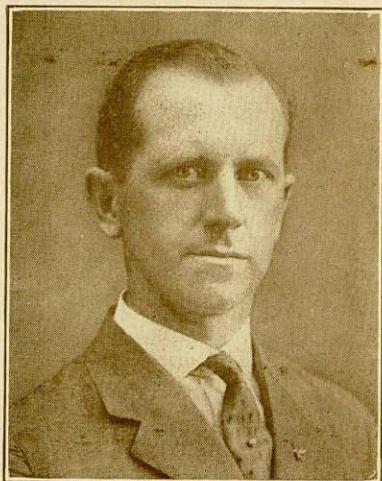
When in need of information—ask **JACK**.

The social program includes a day at the famous Waukesha Beach on Pewaukee Lake. A fine fish dinner, steamer trip, bathing, baseball, and many other amusements.

Special program for the visiting ladies—we must have them at every convention.

Examine program carefully and pass it on to others who might be interested.

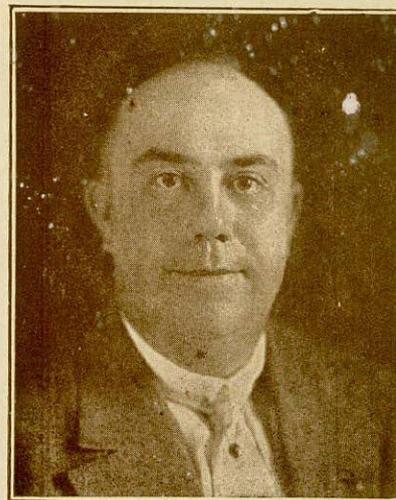
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Greetings:---

O our many friends of the A. E. S., we extend our greetings and take this opportunity of expressing our thanks and appreciation for your past patronage and courtesy. It is our earnest desire to continue to serve you for many years to come and we shall spare no effort to do this in a faithful and efficient manner.

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CONVENTION COMMITTEES



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Robert Stenernagel, Secy-Treas.
Dan Wittig

Educational Program

Dan Wittig
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Advertising in Program
Robert Stenernagel
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Entertainment Waukesha Beach
Paul Krause
Platers Exhibits
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Garages and Parking

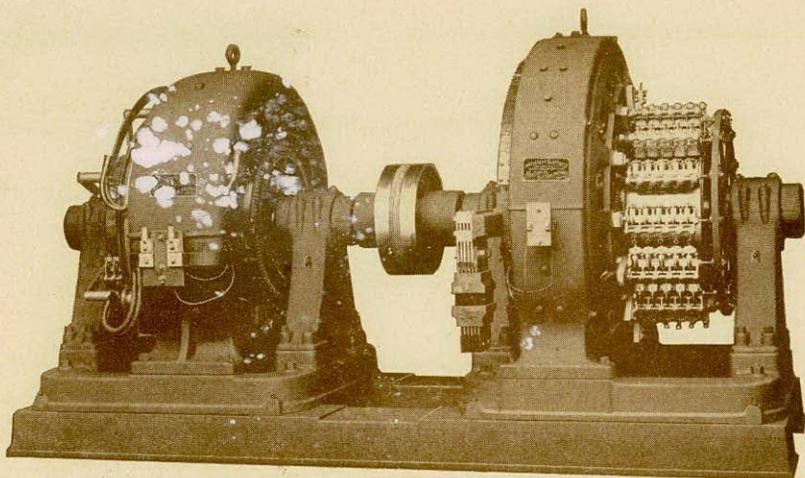
Gustav Gehrke



Reception Committee

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THE above cut indicates one of our 6000 Ampere Motor Generator Sets. The generator is the commutating pole type, capacity 6000 amperes; voltage delivery when set at any point between 4 and 8 volts will be straight line or a constant voltage for all changes of load in amperes without readjusting the field rheostat; will deliver practically a constant voltage at the plating tank, allowing the ampere flow in proportion to the surface that is exposed in the electrolyte up to the full capacity in amperes of the generator.

We are building these machines in sizes from 200 amperes up to 10,000 amperes in the single motor-generator sets, and from 400 up to 20,000 amperes in the double sets that can be used for 3-wire, delivering three distinct voltages when set at any point between 4 and 16 volts.

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Indianapolis	Toledo
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Waukegan Chemical Company

“VALUES THAT ENDURE”

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GENERAL PROGRAM

Monday, June 30th

MORNING

9:00 A. M. Registration, main floor Hotel Pfister.

All members and guests are requested to register as early as possible and obtain official badge and convention tickets. Informal gathering to renew acquaintance.

10:30 A. M. Meeting of the Executive Board in the secretary's quarters.

1:00 P. M. Meeting of the Credentials Committee in the secretary's quarters.

AFTERNOON

2:00 P. M. Convention called to order by Ray M. Goodsell, President Milwaukee Branch.

Address of Welcome by John Niven, City Attorney of Milwaukee.

Address by Frank Cleveland, Association of Commerce.

Address—Future Possibilities of the A. E. S., by Chas. H. Proctor of New York, founder of the Society.

Address by the Supreme Past President, Walter J. Allen of Grand Rapids, Mich.

Response for the Society by John E. Sterling, President of the A. E. S., of New York.

Formal opening for business and seating of delegates.

Minutes of the last regular meeting, reports of the officers. Appointing of committees by the president and presentation and reading of all resolutions and amendments, and submission to Law Committee for their recommendations at the final business meeting.

Delegates and alternates are requested to occupy the 69 seats assigned to them in the front rows.

Delegates are requested to attend sessions promptly.

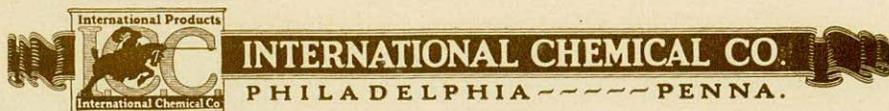


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EVENING, JUNE 30th

8:00 P. M. Meeting will be called to order by President John E. Sterling, who will read his annual address.

Paper—Progressive Production Methods as Applied to Finishing Departments, by C. Van Derau, Supervisor Finishing Department, Westinghouse Electric Products Co., Mansfield, Ohio.

Paper—The Nickel Plating of Zinc Die Castings, by R. L. Shepard and B. E. Miller, Detroit, Mich.

Paper—The Manufacture of Varnish and Enamels and the Method of Application, by H. G. Kittredge, Kay & Ess Paint Co., Dayton, Ohio.

Paper—Finishing of Statuary Bronze on Steel, by A. Rickson, Grand Rapids, Mich.



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Tuesday, July 1st

MORNING

- 8:30 A. M. Business session.
- 10:30 A. M. Board cars at Hotel Pfister for trip to Waukesha Beach. Convention pictures will be taken immediately upon arrival. Please do not delay taking of picture by wandering away, we want everyone in it. Geo. S. Carney, Official Photographer.

NOON

- 12:30 P. M. Fish Dinner—Fountain Dining Room.
Steamboat ride on Lake Pewaukee, Bathing, Fishing, Dancing and Amusements.
- Ball Game—
Western Champions, Rudy J. Hazucha, Captain.
Eastern Champions, T. A. Trumbour, Captain.
- 5:30 P. M. Cars leave Waukesha Beach, arriving at Hotel Pfister at 7 o'clock.

EVENING

- 8:30 P. M. Paper—The Plater Executive, by Francis Shepard, Milwaukee, Wis.
- Paper—Do Pure Zinc Anodes Pay? by Oliver W. Storey, Burgess Laboratories, Madison, Wis.
- Paper—Calculating Resistance by the Fall of Potential Method, by F. Horath, St. Louis, Mo.
- Paper—Formulae-Plater, by Pat. Sheehan, Cutler-Hammer Co., Milwaukee, Wis.



Badger Bumpers

Equip your car with Badger Bumpers—both front and rear. Correctly designed and beautiful in appearance. Finished in either lustrous nickel plate or baked black enamel.

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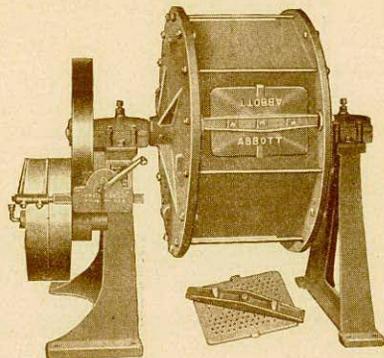
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Wednesday, July 2nd

MORNING

8:30 A. M. Visiting of Industrial Plants and Shops—

Badger Mfg. Corp., 156 Clinton St., Bumper Bars.

Clum Mfg. Co., 421 National Ave., Auto Ignition Switches.

Gemco Mfg. Co., 742 So. Pierce St., Bumper Bars.

Milwaukee Brass Mfg. Co., 251 Lapham St., Plumbing Goods.

Cutler-Hammer Mfg. Co., 12th and St. Paul Ave., Electric Controlling Devices.

S. K. Williams Co., 850 32nd St., General Job Plating.

AFTERNOON

2:00 P. M. Report of the work of the Bureau of Standards by Dr. Wm. Blum, Washington, D. C.

Paper—Use of a Distribution Box for Better Plating, by B. F. Lewis, Detroit, Mich.

Paper—Brass Plating of Antimonial Lead, by Jos. San Pietro, New York.

Paper—Co-operation a Factor of Production, by Walter J. Allen, Kieler Brass Works, Grand Rapids, Mich.

EVENING

8:00 P. M. Paper—Uniform Nickel Deposits, by E. W. Heil, Coleman Lamp Co., Wichita, Kan.

Paper—A Comparison of Copper Anodes in Cyanide Solution, by Walter Fraine, National Cash Register Co., Dayton, Ohio.

Paper—Magnesium Sulphate in Nickel Solutions, by F. Menninges, St. Louis, Mo.

A number of very interesting papers have been received too late for notation in program. These papers will, of course, be given every courtesy, and wherever possible will be read and discussed; however, any that are not read at convention will be published in the "Monthly Review" following convention.

Delegates Are Requested to Attend Sessions Promptly.



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Thursday, July 3rd

MORNING

- 8:30 A. M. Roll call and final business session.
Report of committees and their findings.
Election of officers. Selecting of convention city for 1925.

ADJOURNING AT NOON.

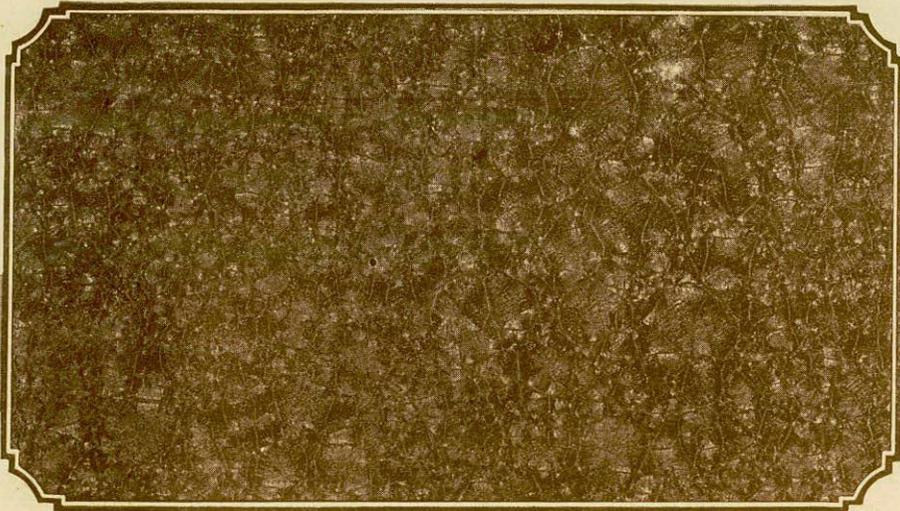
AFTERNOON

- 1:30 P. M. Tour of city and places of interest, returning not later than 5:00 P. M.

EVENING

- 6:30 P. M. Fern Room, Hotel Pfister.
Banquet, followed by installation of newly elected officers, introduction of new officers.
Awarding of Prizes by Retiring President.
Entertainment and Dancing.

Delegates Are Requested to Attend Sessions Promptly.



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MILWAUKEE, WISCONSIN

LADIES' PROGRAM

Monday, June 30th

MORNING

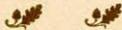
9:30 A. M. Reception, Registration, Main Floor Hotel Pfister. Distribution of Badges and Tickets for all events. Meeting on Mezzanine floor to renew old acquaintance.

AFTERNOON

2:30 P. M. Informal reception, shopping tour; visit to principal stores and Plankinton Arcade.

EVENING

8:00 P. M. Theater Party at Wisconsin—Dancing, Wisconsin Roof Garden.



Tuesday, July 1st

MORNING

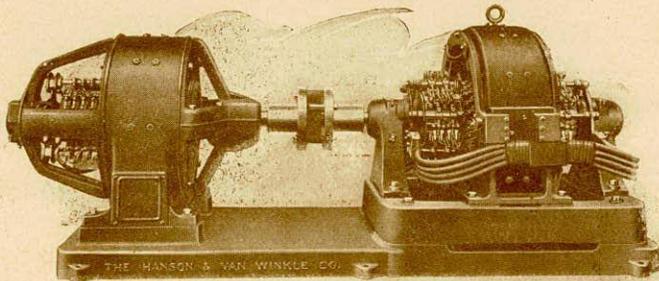
10:30 A. M. Special cars or busses to Waukesha Beach. Convention pictures taken immediately on arrival. Please do not delay taking of picture by wandering away; we want everyone in it. George C. Carney, Photographer.

12:30 P. M. Fish dinner in Fountain Dining Room. Steamboat ride on Lake Pewaukee. Water sports, bathing, dancing, amusements.

5:30 P. M. Cars or busses leave for return trip, arriving at Hotel Pfister at 7 o'clock.

EVENING FREE

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Inter Pole Generators and Motor Generator Sets

OUR use of Interpoles is not due to the fact that we cannot build Non-Interpole Dynamos that will not spark but it is because we can build a better Dynamo with Interpoles than anyone can build without Interpoles taking into account efficiency, temperature rise, overload capacity and cost of maintenance. We produced the first Compound Wound Generator—*We now have the Interpole Generator—think it over.*

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Wednesday, July 2nd

MORNING

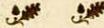
10:30 A. M. Visit to Public Museum and Gridley's Dairy. Luncheon and Cards.

AFTERNOON

3:30 P. M. Cars or Busses for drive to parks.

EVENING

7:00 P. M. Boat trip to Racine, and return by special cars.



Thursday, July 3rd

MORNING

9:00 A. M. Visit to Industrial Plants—Phoenix Knitting Works, Johnston Candy Co., or others.

AFTERNOON

1:00 P. M. Luncheon at Surf Hotel.

EVENING

6:30 P. M. Banquet—Fern Room, Hotel Pfister.
Reception to newly elected officers.
Installation of officers.
Awarding of prizes by Retiring President.
Entertainment and Dancing.

Welcome to Milwaukee

The Home of
THE CUTLER-HAMMER MFG. CO.

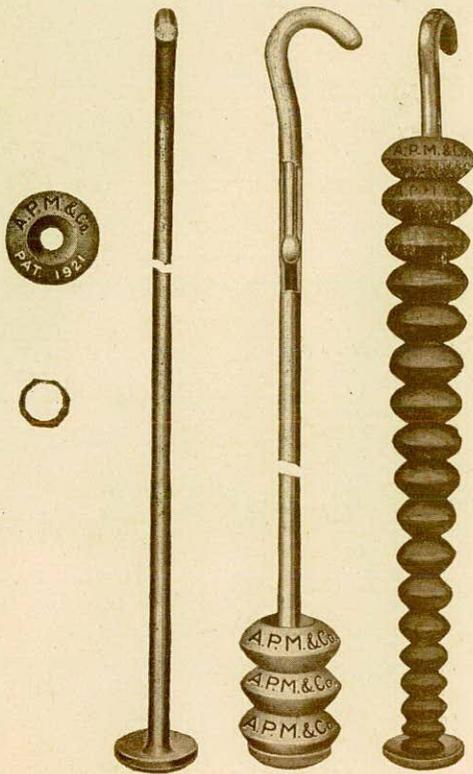
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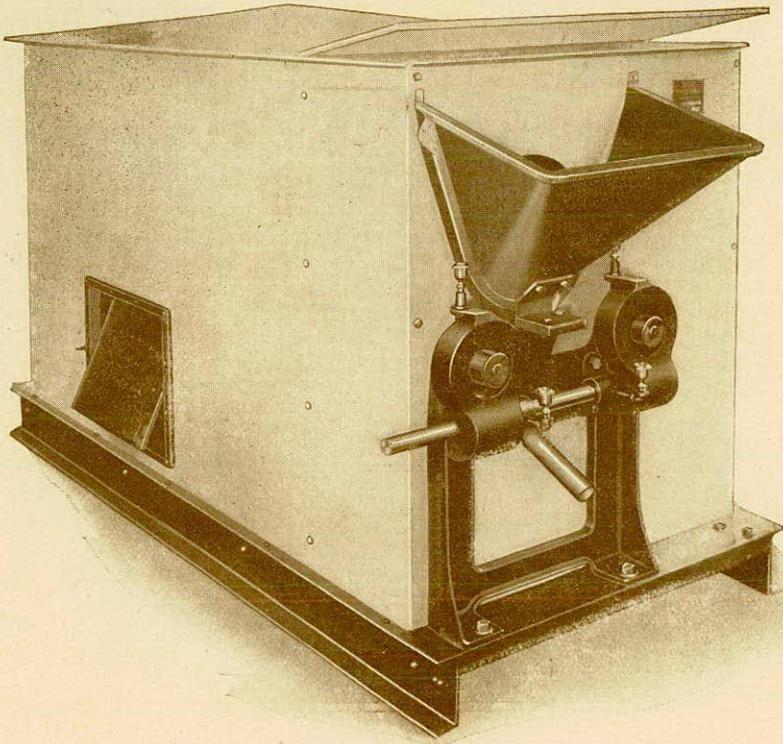
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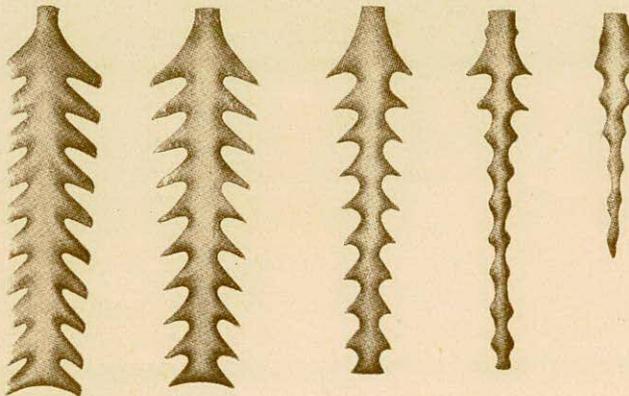
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Better Corrosion.
Better Deposit.

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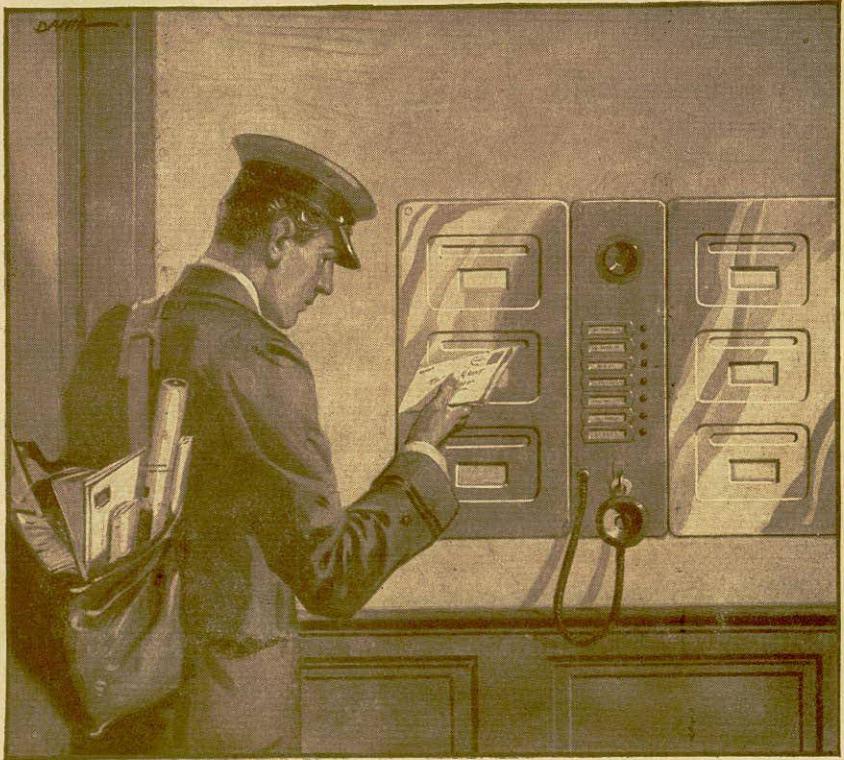
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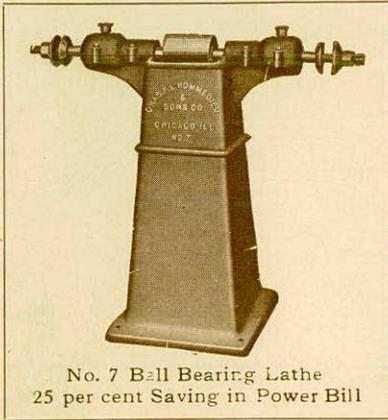
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**American Electro-Platers Society
Convention**

June 30, July 1, 2, 3, 1924.

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The Benefit of over 60 years of experience in the design and construction of automatic machinery for the production of the common articles of wire or ribbon metal, is what "Baird" customers derive.

Also remember that "BAIRD" is the largest manufacturer of all kinds of Tumbling Barrels used in the finishing of such articles.

Put all such of your problems up to Baird.

THE BAIRD MACHINE CO.
BRIDGEPORT, CONN.

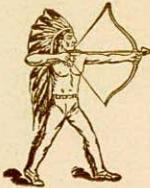
What Do You Use?

 HIS question when applied to the cleaning of metal or metal parts for future treatment, fitting or repair; deserves more consideration than it usually receives, for service alone determines the value of a metal cleaner.

The logical solution of a thorough investigation of these problems is the use of

Wyandotte Metal Cleaner

A cleaner which being developed as a result of practical and scientific study of metal cleaning requirements has long since passed the experimental period.



It is also true that in the use of Wyandotte Metal Cleaner you have a service rather than an operation, for an ever increasing demand proves that its efficiency, dependability and economy is working a revolution in metal cleaning results.

Wyandotte Metal Cleaner not only simplifies metal cleaning operations but it also produces "chemically clean" work on a production basis at a minimum cost.

This cleaner is guaranteed to be and do all we claim for it and the trial will cost you nothing.

Order from your supply
:: house or write us ::

THE J. B. FORD COMPANY, Sole Mnfrs.
Wyandotte, Michigan

Q If you have any Polishing and Buffing problems in your factory, or are not getting a satisfactory finish on your goods, call at our booth at this Convention and tell one of our Engineers, or write us and we will be glad to help you.

Divine Brothers Co.
UTICA, NEW YORK

Compliments of
Milwaukee Branch
Milwaukee, Wis.

Free Consulting Service on Cleaning Problems

IT ISN'T the purpose of any one of the over 70 Oakite Service Men who may call on you, to tell you how to run your job. He takes it for granted that you know the plating game as thoroughly as he knows the business of cleaning. But cleaning and plating are so interlocked, that the best platers in the country frequently find themselves troubled by poor plating results because of some unrecognized weakness in the cleaning work.

This is where the Oakite Service Man can help you. His knowledge of proper cleaning methods and the cleaning materials that lend themselves to best results, is not based alone on his individual experience, no matter how considerable this may have been, but he has the experience of all the other Service Men to draw upon, as well as the best technical assistance of chemical engineers that can be brought to bear.

It is because the Oakite Service Man is so well equipped to make suggestions and recommendations in connection with the cleaning of work that is to be plated, that so many shops have been able to get better plating results. Where there have been many rejects, there are now but few, and in many instances none at all. Peeling, blistering and spotting have been successfully eliminated. Frequently the number of rinses have been reduced, and in most cases time has been saved in the whole operations of cleaning and plating, which of course means a saving in labor.

You face no obligation in talking to an Oakite Service Man about your own particular kind of work. It is within the scope of Oakite Service Men to help platers get best possible results. May we help you? A postcard request will bring an Oakite Service Man promptly.

They are always on the job when you want them.

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Emery Glue that is
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191 N. Main Street
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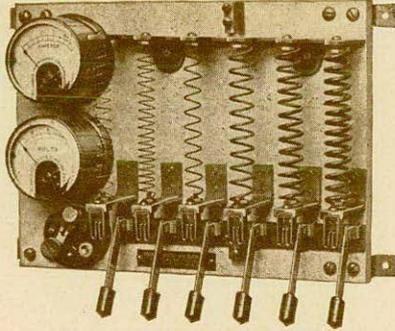
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Crown Rheostats and Maximus Generators

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B.G. PRODUCTION PLATING PLANTS

Below we list a few of the items we carry in stock for
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Anodes—Nickel, Copper, Zinc, Etc.	Wheels—Canvas, Felt, Etc.
Bufs and Compositions	Lathes—Ball Bearing
Plating and Tumbling Barrels	Turkish Emery
Acids and Acids Pumps	Glue and Glue Heaters
All Chemicals Used in Plating	Tanks—Wood and Steel

The only complete stock in the midwest.

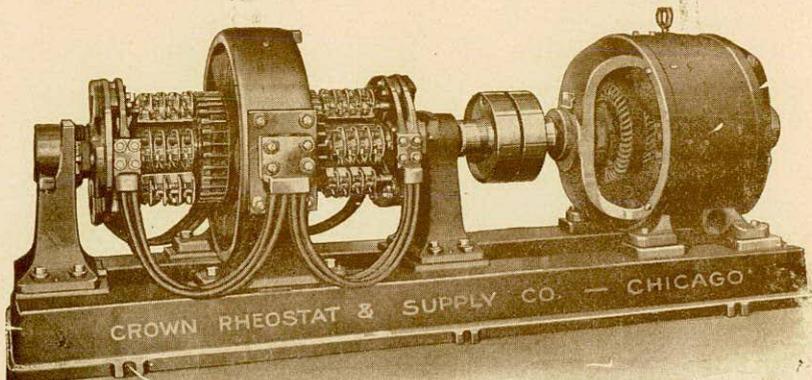
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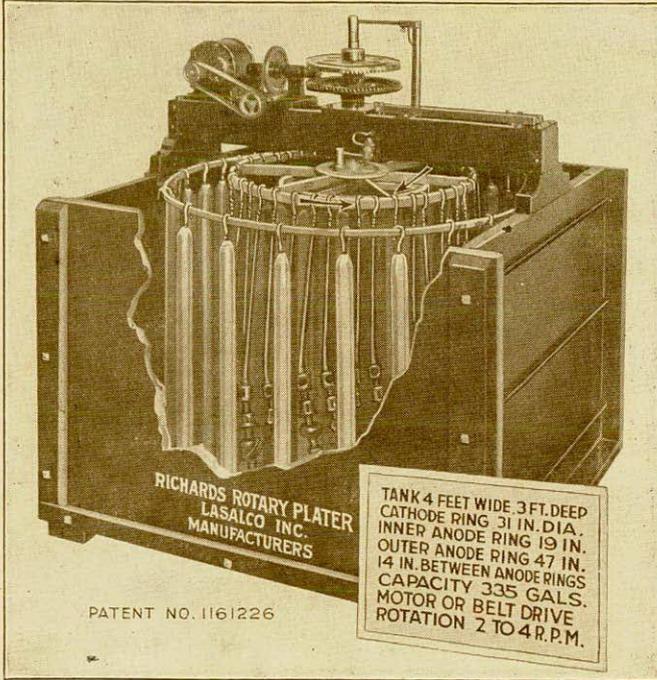
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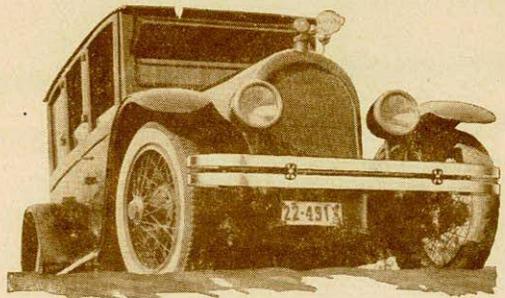
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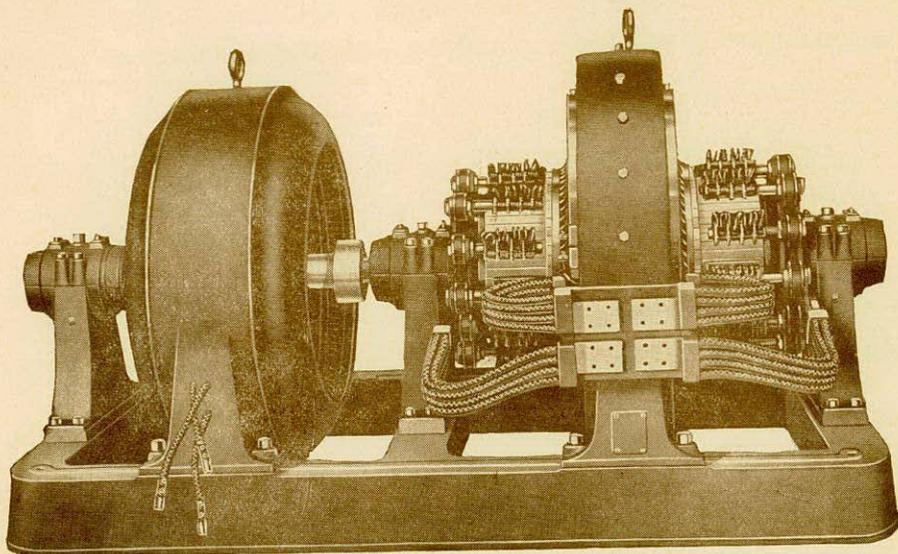
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Look it over, compare it with others. Let us show
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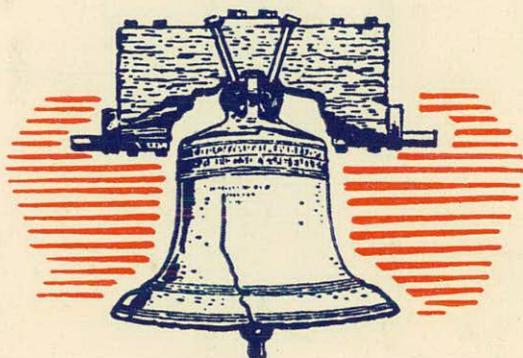
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Press of
PETER J. RIES
Milwaukee, Wis.

"Liquid Sulphur"

Wilfred S. McKeon, Pres.
Greensburg, Pa.

PROGRAM



FORTIETH ANNUAL



CONVENTION

JUNE 15-18, 1953

PHILADELPHIA, PA.

CONVENTION HEADQUARTERS
THE BENJAMIN FRANKLIN

Fellow Members and Guests:

YOU have come to the Philadelphia Convention from far and near at considerable expense and sacrifice of time.

Your decision was based, in many cases, on experience with past memorable conventions in which you were rewarded by increasing your technical knowledge from the papers and discussions, by meeting old friends and making new ones and by enjoying yourself in the many social functions, all characterized by relaxation and congeniality.

To meet these objectives, your Philadelphia Convention Committee has worked over a period of many months planning and arranging the activities given in this program.

Many people will participate and help us in carrying out the many features planned. These include the authors and chairmen of the Educational Sessions, A. E. S. officials, volunteers from the Philadelphia, Allentown-Reading and Lancaster Branches and many others.

We hope that you too will actively participate in the various activities and make this Convention your own. We hope your stay will be both profitable and enjoyable.

We are here to serve you. Call on us frequently and freely.

Welcome to the Philadelphia Convention and to Philadelphia, the birthplace of our Country and "The Workshop of the World".

Philadelphia Convention Committee

Samuel Heiman

General Chairman

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1952-1953



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Secretary and
Program



William H. Trusdell
Sergeant-at-Arms

CONDENSED PROGRAM

Eastern Daylight Saving Time Used Throughout This Program

CONVENTION REGISTRATION

CONVENTION REGISTRATION is on the Mezzanine Floor.

Sunday, June 14.....	1:00 P. M.— 3:00 P. M.
Monday, June 15.....	3:00 A. M.— 5:00 P. M.
Tuesday, June 16.....	3:00 A. M.— 4:00 P. M.
Wednesday, June 17.....	3:00 A. M.—12:00 Noon
Thursday, June 18.....	3:00 A. M.—12:00 Noon

The registration fee of \$15.00 provides each registrant with a book of tickets for the various events. Table reservations for the Banquet on Thursday, June 18, should be made in advance at the Banquet Reservation Desk on the Mezzanine Floor, starting Wednesday, June 17, at 9:00 A.M. All events will be held in The Benjamin Franklin Hotel, unless otherwise noted. Ladies' Program on Page 10.

SUNDAY, JUNE 14, 1953

10:00 A. M.

EXECUTIVE BOARD MEETING in the Executive Secretary's suite.

2:00 P. M.

METAL FINISHING SUPPLIERS' ASSOCIATION, INC., BOARD OF DIRECTORS' MEETING, Benjamin Franklin Hotel.

8:30 P. M.

INFORMAL PARTY FOR CONVENTION EARLYBIRDS, Betsy Ross Room.

MONDAY, JUNE 15, 1953

10:00 A. M.

OPENING SESSION AND BUSINESS MEETING, Crystal Ballroom.

12:00 Noon

METAL FINISHING SUPPLIERS' ASSOCIATION, INC., LUNCHEON, Betsy Ross Room.

12:30 P. M.

SPEAKERS' LUNCHEON, Coffee Shop, Benjamin Franklin Hotel.

2:00 P. M.

FIRST EDUCATIONAL SESSION, Crystal Ballroom. Admission by badge.

9:00 P. M.

INTERNATIONAL FELLOWSHIP CLUB OPEN HOUSE, Crystal Ballroom. Sponsored by the Metal Finishing Suppliers' Association, Inc. Refreshments—Dancing. Buffet Supper served at 10:30 o'clock. Admission by ticket.

TUESDAY, JUNE 16, 1953

8:00 A. M.

SPEAKERS' BREAKFAST, Coffee Shop,
Benjamin Franklin Hotel.

9:00 A.M.

SECOND EDUCATIONAL SESSION, Crystal
Ballroom. Admission by badge.

12:30 P. M.

BRANCH SECRETARIES' LUNCHEON,
Room 206.

1:00 P.M.

INTERNATIONAL FELLOWSHIP CLUB AN-
NUAL GOLF TOURNAMENT, Merion Golf
Club, Ardmore.

2:00 P. M.

THIRD EDUCATIONAL SESSION, Crystal
Ballroom. Admission by badge.

8:00 P. M.

QUESTION AND ANSWER SESSION, Crys-
tal Ballroom. Admission by badge.

WEDNESDAY, JUNE 17, 1953

8:00 A. M.

SPEAKERS' BREAKFAST, Coffee Shop,
Benjamin Franklin Hotel.

9:00 A. M.

FOURTH EDUCATIONAL SESSION, Crystal
Ballroom. Admission by badge.

NATIONAL FEDERATION OF METAL FIN-
ISHERS, ANNUAL MEETING, Franklin
Room.

1:00 P. M.

OUTING ON THE DELAWARE RIVER.
STEAMER "DELAWARE BELLE" leaves
from Chestnut Street wharf at 1 o'clock.
Catered luncheon will be served aboard
steamer. Buses will start leaving hotel

at Noon for wharf. Steamer will return
about 6 o'clock. Admission by ticket.

2:00 P.M.

RESEARCH COMMITTEE MEETING aboard
"DELAWARE BELLE".

7:30 P. M.

JOB PLATERS' DINNER, sponsored by
the National Association of Metal Fin-
ishers, Inc., Room 206.

8:30 P. M.

Film: "Corrosion in Action", courtesy of
International Nickel Company, Poor
Richard Room. Running time of film
—approximately 1½ hours.

THURSDAY, JUNE 18, 1953

7:45 A. M.

RESEARCH COMMITTEE BREAKFAST,
Room 206.

9:00 A. M.

RESEARCH EDUCATIONAL SESSION, Crys-
tal Ballroom. Admission by badge.

12:00 Noon

NATIONAL FEDERATION OF METAL FIN-
ISHERS, BOARD OF DIRECTORS' LUNCHE-
ON AND MEETING, Room 210.

2:00 P. M.

FINAL BUSINESS SESSION, AMERICAN
ELECTROPLATERS' SOCIETY, Crystal
Ballroom.

7:00 P. M.

ANNUAL BANQUET, Crystal Ballroom.
Admission only by reservation ticket.
In order to be served, your registration
book ticket must be exchanged for a
special banquet ticket bearing a table
reservation. Ticket exchange starts Wed-
nesday, 9:00 A.M. at Banquet Reserva-
tion Desk. Excellent food, top-notch en-
tertainment, prize awards and dancing.

PROGRAM OF SESSIONS

MONDAY, JUNE 15, 1953

10:00 A. M.

OPENING SESSION, Benjamin Franklin Hotel, Crystal Ballroom. Delegates will register at door before entering to eliminate roll call.

OPENING OF CONVENTION, Dr. Samuel Heiman, Convention Chairman, presiding.

Invocation by the Reverend Frank C. Mesle, Oneida, N. Y.

Greetings from the Philadelphia Branch by Mr. Edwin F. Ottens.

Introduction of A.E.S. Officers.

"Tomorrow's Challenge in the Delaware Valley" by Mr. J. Harry La Brum, President, Philadelphia Chamber of Commerce.

"Electroplating in Australia" by Dr. William Blum.

BUSINESS MEETING OF THE SUPREME SOCIETY. Mr. Franklyn J. MacStoker, A. E. S. President, presiding.

2:00 P. M.

FIRST EDUCATIONAL SESSION, Crystal Ballroom.

Chairman: Mr. Raymond F. Vines, Lancaster Branch.

"Bright Gold Plating" by Mr. Edwin C. Rinker, Sel-Rex Precious Metals, Inc., Belleville, N. J.

"Statistical Quality Control—A New Tool for the Electroplater" by Mr. Ezra A. Blount, Products Finishing, Cincinnati, Ohio.

"A Corrosion Study of Various Chromium-Plated Electrodeposits" by Dr. Henry Brown and Mr. Edwin W. Hoover, The Udylyte Corporation, Detroit, Mich.

"Iron Plating from an Alkaline Bath" by Dr. Henry B. Linford, Columbia University, Mr. Edward F. Foley and Dr. Walter R. Meyer, Enthone, Inc., New Haven, Conn.

TUESDAY, JUNE 16, 1953

9:00 A. M.

SECOND EDUCATIONAL SESSION, Crystal Ballroom.

Chairman: Dr. R. M. Wick, Allentown-Reading Branch.

"Black Chromium-Base Electroplating" by Dr. Martin Quaely, Westinghouse Electric Corporation, Bloomfield, N. J.

"Crack-Free Chromium—A New Process" by Mr. R. Dow and Dr. J. E. Stareck, United Chromium, Inc., Detroit, Mich.

"Cost Determination in the Industrial Chromium Plating Job Shop" by Mr. W. F. Walton and Mr. P. B. Lonsbury, Walton and Lonsbury, Attleboro, Mass.

"Stability of Ion-Exchange Resins Toward Chromic Acid Plating Solutions" by Mr. C. Frederick Paulson, Permutit Company, New York, N. Y.

2:00 P. M.

THIRD EDUCATIONAL SESSION.

Chairman: Mr. George Schore, New York Branch.

"A Study of Cyanide Decomposition" by Dr. E. J. Serfass, Dr. Ralph F. Muraca, Lehigh University, and Dr. Walter R. Meyer, Enthone, Inc., New Haven, Conn.

"An Evaluation of Carbonate Removal Methods" by Mr. R. Scott Modjeska, Scientific Control Laboratories, Chicago, Ill.

"A Further Study on the Effect of Abrasive Metal Polishing on the Character of Nickel Plate" by Mr. Walter L. Pinner, Houdaille-Hershey Corporation, Detroit, Mich.

"Plating on Molybdenum" by Mr. A. Korbela, Editor, PLATING, Newark, N.J.

8:00 P. M.

QUESTION AND ANSWER SESSION, Crystal Ballroom.

Moderator: Dr. Abner Brenner, Baltimore-Washington Branch.

Panel: Authors of Educational Session papers.

WEDNESDAY, JUNE 17, 1953

9:00 A. M.

FOURTH EDUCATIONAL SESSION.

Chairman: Mr. E. R. Bowerman, Newark Branch.

"An Electronic Thickness Gage" by Mr. Jean Garcia-Rivera and Dr. Abner Brenner, National Bureau of Standards, Washington, D. C.

Muse Copy
"The Thickness of Electrodeposits by the Anodic Solution Method" by Mr. C. F. Waite, King-Seeley Corporation, Ann Arbor, Mich.

"Testing Organic Finishes and Interpretation of Results" by Mr. C. O.

Hutchinson, The Glidden Company, Chicago, Ill.

8:30 P. M.

Film: "Corrosion in Action".

Commentator: Dr. Thomas P. May, International Nickel Company. Poor Richard Room.

THURSDAY, JUNE 18, 1953

9:00 A. M.

FIFTH EDUCATIONAL SESSION—A.E.S. RESEARCH, Crystal Ballroom.

"The A. E. S. Research Program" by Dr. Donald Price, Oakite Products, Inc., New York, N. Y., Research Committee Chairman.

"The Analysis of Electroplating Solutions for Major Constituents" (Project No. 2) by Dr. E. J. Serfass, Lehigh University, Bethlehem, Pa.

"The Effect and Removal of Chromium from Nickel Plating Solutions" (Project No. 5) by Dr. D. T. Ewing, Mr. J. K. Werner, Mr. A. A. Brouwer and Mr. C. J. Owen, Michigan State College, East Lansing, Mich.

"A Metallographic Study of Some Steels Used for Nickel Plating" (Project No. 14) by Dr. A. E. R. Westman, Toronto, Canada.

"A Progress Report on the Development of a New Accelerated Corrosion Test" (Project No. 15) by Mr. Walter L. Pinner, Houdaille-Hershey Corporation, Detroit, Mich.

2:00 P. M.

FINAL BUSINESS SESSION. Crystal Ballroom.

Presiding Officer: Mr. Franklyn J. MacStoker, A.E.S. President.

Welcome, Ladies!

IT HAS been twenty-one long years since we have had the pleasure of welcoming our old A. E. S. friends to Philadelphia, and we are very happy that in the intervening years we have acquired so many new ones.

In all sincerity, we have anticipated these four days as much as we hope you have and have truly enjoyed planning for your entertainment and comfort.

Philadelphia enshrines and treasures its historic past, but the city is proud of the progressiveness that made it the birth-place of the republic and the city of brotherly love. We are justly proud to have all of you here to enjoy all it offers to visitors. Our main objective is that you will remember these few days and be pleased that you came.

Again a most hearty and sincere welcome to the Philadelphia Convention!

The Ladies' Committee

Mary J. Robson

Chairman

The Ladies Committee

Left to right, standing: Mrs. I. W. Marcovitch, S. Heiman, W. A. Reynolds, G. M. Long, F. Fulforth, E. F. Ottens. Front row: Mrs. C. E. Boerckel, A. G. Snow, D. R. Robson (Chairman), E. R. Lanahan, A.H. Pope



LADIES' PROGRAM

LADIES' COMMITTEE HEADQUARTERS—INDEPENDENCE ROOM

SUNDAY, JUNE 14, 1953

8:30 P. M.

INFORMAL PARTY FOR CONVENTION
EARLYBIRDS, Betsy Ross Room.

MONDAY, JUNE 15, 1953

10:00 A. M.

OPENING SESSION, Crystal Ballroom.
The ladies are invited to attend with
the men and hear a good keynote
speaker talk on a non-technical subject.

2:00-4:00 P. M.

TEA at the Wanamaker Store Audi-
torium, 13th and Chestnut Streets.
Talk by Mrs. Reba Miller, "*Getting To
Know Your Neighbors*" (illustrated with
dolls of all nations). Admission by
ticket.

9:00 P. M.

INTERNATIONAL FELLOWSHIP CLUB
OPEN HOUSE, Crystal Ballroom. Spon-
sored by the Metal Finishing Suppliers'
Association, Inc. Refreshments—Danc-
ing. Buffet Supper served at 10:30
o'clock. Admission by ticket.

TUESDAY, JUNE 16, 1953

11:00 A. M.

AUNT ELLA SOCIETY LUNCHEON, spon-
sored by Oakite Products, Inc.
Host: Mr. Dave Clarin.
Buses leave hotel at 11 o'clock for
Drexelbrook Inn, where luncheon will
be served at 12:15. Immediately after
lunch, the party will proceed by bus to

Longwood Gardens, returning to the
hotel by about 6 o'clock. Admission
by ticket.

WEDNESDAY, JUNE 17, 1953

1:00 P. M.

OUTING on the Delaware River. Steamer
"Delaware Belle" leaves from Chestnut
Street wharf at 1 o'clock.

Catered luncheon will be served aboard
steamer.

PLATO PARTY on board.

Hostess: Mrs. Joan T. Wiarda.

Buses will start leaving hotel at Noon
for wharf. Will return about 6 o'clock.
Admission by ticket.

THURSDAY, JUNE 18, 1953

9:30 A. M.

HOTEL BREAKFAST in the Garden Ter-
race, followed by a two-hour sightseeing
trip through historic Philadelphia.
Sponsored by Lea Manufacturing Com-
pany. Featured at the Breakfast will
be the popular LADIES' EDUCATIONAL
SESSION. Subject: "*What Every Wom-
an Should Know*" by Mr. R. Crane of
Lea. Admission by ticket.

7:00 P. M.

ANNUAL BANQUET, Crystal Ballroom.
Admission only by reservation ticket.
In order to be served, your registra-
tion book ticket must be exchanged for
a special banquet ticket bearing a table
reservation. Ticket exchange starts
Wednesday, 9:00 A. M. at Banquet
Reservation Desk. Excellent food, top-
notch entertainment, prize awards and
dancing.

ABSTRACTS OF CONVENTION PAPERS

MONDAY, 2 P. M. SESSION

BRIGHT GOLD PLATING, *by Edwin C. Rinker*

This paper presents the industrial requirements and applications for bright gold plating. Principles, bath composition and plate distribution are discussed. Bright and conventional electrodeposits are compared with respect to corrosion resistance, abrasion resistance, smoothness and hardness.

STATISTICAL QUALITY CONTROL—A NEW TOOL FOR THE ELECTROPLATER, *by Ezra Blount*

The principles of statistical quality control are finding increasing acceptance in the electroplating industry. The author discusses applications with respect to the variables controlled and plating plants employing such control methods. It is shown that a reduction in number of rejects as well as savings in metal can be accomplished.

A CORROSION STUDY OF VARIOUS CHROMIUM-PLATED ELECTRODEPOSITS, *by Henry Brown and E. W. Hoover*

Results are presented for outdoor (industrial atmosphere) exposure, salt-spray and humidity tests on electrodeposits as foils and when plated on steel, nickel, copper, nickel-cobalt, nickel-iron, white brass with and without a final chromium plate and then are compared and discussed in terms of inherent and induced porosity.

IRON PLATING FROM AN ALKALINE BATH, *by Edward F. Foley, Jr., Henry B. Linford and Walter R. Meyer*

An alkaline iron electroplating solution is described. The composition of the solu-



R. F. Vines
Session Chairman



E. C. Rinker



E. A. Blount



H. Brown



E. W. Hoover

tion is given and the effect of varying the concentration of the constituents and the temperature on the cathode efficiency and operating characteristics are shown.

TUESDAY, 9 A.M. SESSION

BLACK CHROMIUM-BASE ELECTROPLATING, by *Marlin F. Quaely*

Black chromium finishes, which have good adhesion, can be easily applied and can be heated in high vacuums to 500° C are required in industry. Three baths which yield deposits to meet these conditions are described in detail with regard to composition and operating conditions.

CRACK-FREE CHROMIUM—A NEW PROCESS, by *R. Dow and J. E. Stareck*

A process for producing crack-free chromium electrodeposits is described. The plating characteristics of the process and the results of outdoor exposure and salt-spray corrosion tests on steel plated by the process, with and without undercoatings, are reported. Other physical properties are reviewed and illustrated.

COST DETERMINATION IN THE INDUSTRIAL CHROMIUM PLATING JOB SHOP, by *W. F. Walton and P. B. Lonsbury*

The authors describe a method of price determination successfully used in an industrial chromium plating job shop. This method, based on a plating tank-hour charge, has variations to adapt it to the special conditions encountered in depositing heavy chromium coatings. The method described is adaptable to small or large operations.

STABILITY OF ION EXCHANGE RESINS TOWARD CHROMIC ACID PLATING SOLUTIONS, by *C. Frederick Paulson*

A new cation exchange resin which is resistant to 40 per cent chromic acid solutions is reported in contrast to earlier resins which were unstable above 10 per cent



H. B. Linford



E. F. Foley



W. R. Meyer



R. M. Wick
Session Chairman



M. Quaely

chromic acid. A description of an ion exchange unit for service with concentrated chromic acid solutions is given and operating data are presented. The stability of anion exchangers is also discussed.

TUESDAY, 2 P. M. SESSION

A STUDY OF CYANIDE DECOMPOSITION, by *E. J. Serfass, R. F. Muraca and Walter R. Meyer*

This paper evaluates the factors responsible for the loss of cyanide from cyanide plating solutions and presents methods of minimizing these losses. The formation of carbonate, cyanate, ammonia and formate are discussed.

AN EVALUATION OF CARBONATE REMOVAL METHODS, by *R. Scott Modjeska*

This paper presents a study of "freezing-out" and precipitation methods for the removal of carbonate from copper, silver, zinc, cadmium and brass cyanide plating baths. Evaluation of the method is based upon the type of deposit obtained after treatment and the difficulty of the treatment.

A FURTHER STUDY ON THE EFFECT OF ABRASIVE METAL POLISHING ON THE CHARACTER OF NICKEL PLATE, by *Walter L. Pinner*

By means of photomicrographs, the character of steel surfaces created by various abrasive polishing procedures is shown and the effect of such surfaces on the quality of electrodeposited nickel is discussed with respect to smoothness, buffability and corrosion resistance. The beneficial effect of certain electrochemical treatments with respect to the removal of fragmented particles prior to plating is discussed.

PLATING ON MOLYBDENUM, by *A. Korbelak*

A thin protective metal coating is required over molybdenum because of its poor



R. Dow



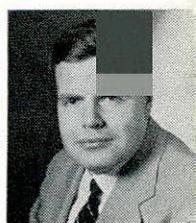
J. E. Stareck



W. F. Walton



P. B. Lonsbury



C. F. Paulson

oxidation resistance at elevated temperatures. Various methods used for the production of adherent electrodeposits over molybdenum are described. Industrial applications of electroplated molybdenum are mentioned.

WEDNESDAY, 9 A.M. SESSION

AN ELECTRONIC THICKNESS GAGE, *by Jean Garcia-Rivera and Abner Brenner*

An electronic thickness gage based upon the skin effect is described. This method is applicable to a large variety of coatings on basis metals if the coating and basis metal differ in conductivity, e. g., silver on brass or lead on copper. The measurements are non-destructive.

THICKNESS OF ELECTRODEPOSITS BY THE ANODIC SOLUTION METHOD,
by C. F. Waite

This paper describes the difficulty experienced using the hydrochloric acid drop test for chromium over copper. It also details a test unit which was developed for thickness measurements based on the principle of electrolytic solution or stripping of a definite area of plate by known amount of current. This method gives results accurate to plus or minus five per cent. Other applications of the method are discussed.

TESTING ORGANIC FINISHES AND INTERPRETATION OF RESULTS, *by Carroll O. Hutchinson*

The author describes over sixty properties of organic finishing materials used as a basis of evaluating these coatings. He also lists standard test procedures for most of these properties, together with essential control conditions and typical values for some industrial products on which these tests are used. He presents a bibliography of valuable references on testing of organic finishes and interpretation of results. This paper should be a very valuable reference to those who have responsibility for organic finishes in addition to electroplated coatings.

THURSDAY, 9 A.M. SESSION

THE A. E. S. RESEARCH PROGRAM, *by Donald M. Price*

The Chairman of the Research Committee summarizes the accomplishments of the



G. Schore
Session Chairman

E. J. Serfass

R. F. Muraca

R. S. Modjeska

W. L. Pinner

Research Committee during the past few years and stresses the value of research to the electroplating industry. Some of the problems facing the Research Committee are discussed.

THE ANALYSIS OF ELECTROPLATING SOLUTIONS FOR MAJOR CONSTITUENTS, *by Earl J. Serfass*

As a part of A. E. S. Research Project No. 2 dealing with the analytical methods for the determination of trace constituents in plating baths, and trace constituents in industrial finishing wastes, a program involving the study of analytical methods for major constituents in plating baths has been completed. Methods for the analysis of the major constituents of common nickel plating baths have been evaluated. These methods include procedures for the determination of nickel, boric acid, sulfate, chloride, etc. Methods for the determination, and cost per determination have been made on all of the methods.

Evaluation of the presently available methods for major constituents have been made with a view towards presenting the plater with simple, rapid, yet precise procedures for the control of nickel and copper plating baths.

THE EFFECT AND REMOVAL OF CHROMIUM FROM NICKEL PLATING SOLUTIONS, *by D. T. Ewing, J. K. Werner, A. A. Brouwer, and C. J. Owen*

This paper is one of a series on the effects of impurities and the purification of solutions for the electrodeposition of nickel. The effects of chromium as an impurity have been investigated and data are presented which indicate the accompanying changes in such physical properties of the electrolytic nickel as adhesion, ductility and hardness. The effect of chromium on covering power and salt spray corrosion resistance, is also reported.

The rate of removal of chromium from nickel plating solutions is reported for reduction followed by precipitation and the differing effects of trivalent and hexavalent chromium are pointed out.

A METALLOGRAPHIC STUDY OF SOME STEELS USED FOR NICKEL PLATING, *by A. E. R. Westman*

A review is presented of the various types of steel-killed, semi-killed and rimming



A. Korbela



E. R. Bowerman
Session Chairman



A. Brenner



C. F. Waite

which may be encountered by the electro-plater in his work.

The micro-structures of a number of steels used in the industry and chosen more or less at random as subjects for examination are shown and discussed.

The results of a study of surface finishes having different Profilometer readings are given. In this study 5° taper sections of the polished and etched surfaces were examined and photographed at various magnifications and under various conditions of illumination. In this way the structure of the steel immediately below the polished surfaces is brought out clearly. The characteristics of this structure in various samples are dealt with and interesting information regarding the effects of different modes of surface preparation is presented.

A PROGRESS REPORT ON THE DEVELOPMENT OF A NEW ACCELERATED CORROSION TEST, *by Waller Pinner*

Based on the report of the Advisory Committee on Accelerated Corrosion Tests, a program is described including plans for the fabrication, service exposure and accelerated corrosion testing of plated parts. Numerous accelerated test methods are described, which will be preliminarily examined for correlation with service exposure results. The objective of the project is to develop an accelerated corrosion test which will correlate with outdoor performance.



C. O. Hutchinson



D. Price



D. T. Ewing



J. K. Werner



A. A. Brouwer



C. J. Owen



A. E. R. Westman

PLATED WARE EXHIBITS

LAFAYETTE ROOM

AS IN previous conventions, an exhibit of Plated Ware is featured. Branches and individual members have expended considerable time and effort to provide educational displays of various plating methods and techniques.

Prizes to individual members and Branches will be awarded for the best displays. A visit to the Plated Ware Exhibits will be well worthwhile.

Branch Exhibits Committee

Edwin J. Ottens

Chairman

PLANT VISITATIONS

ARRANGEMENTS have been made for visits to the following plants: RCA-Victor, Philco Corporation, Ternstedt Division of General Motors Corporation, Snyder Manufacturing Company, and Triangle Publications.

Registrants desiring to visit other plants in this area should consult a member of the Plant Visitations Committee who will assist in securing permission and arranging transportation.

Plant Visitations Committee

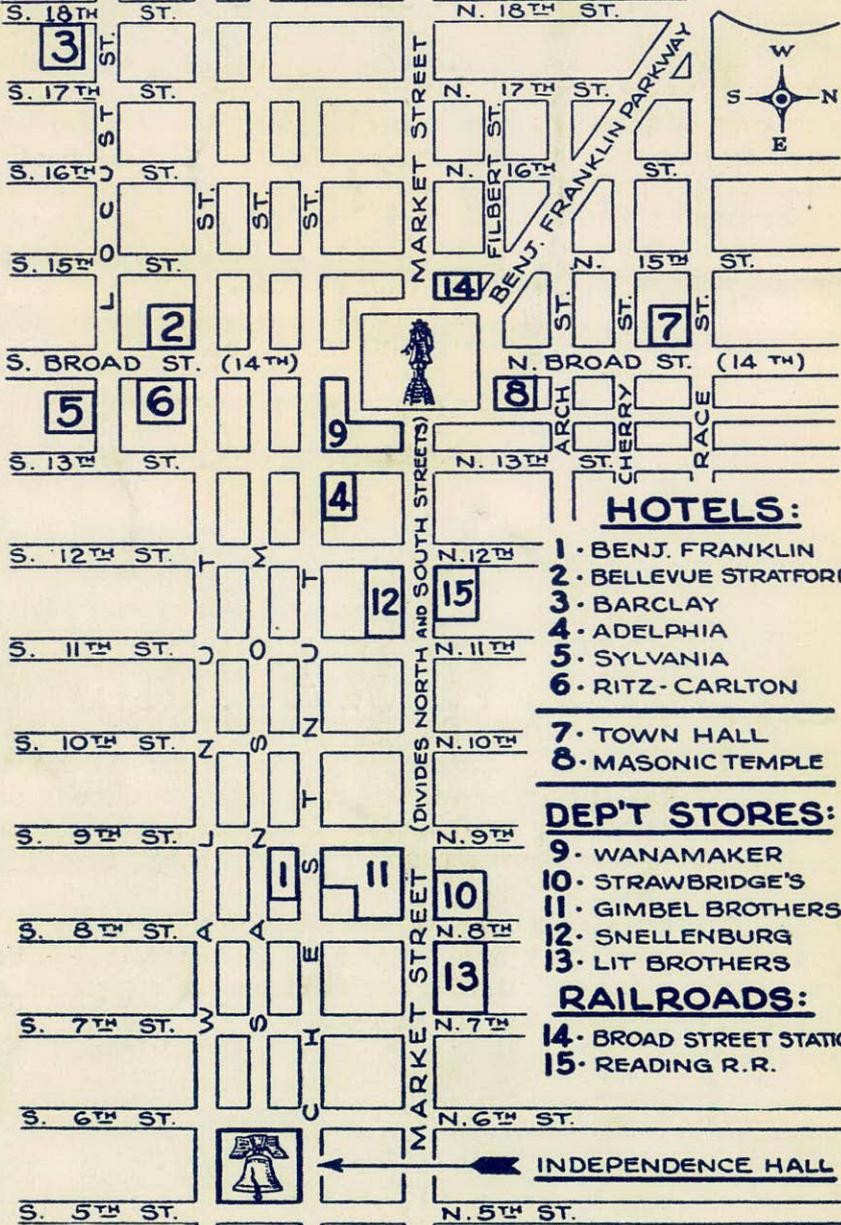
Albert Hirsch

Chairman

RITTENHOUSE SQUARE

CENTER OF PHILADELPHIA

LOGAN CIRCLE



HOTELS:

- 1 • BENJ. FRANKLIN
 - 2 • BELLEVUE STRATFORD
 - 3 • BARCLAY
 - 4 • ADELPHIA
 - 5 • SYLVANIA
 - 6 • RITZ - CARLTON
-
- 7 • TOWN HALL
 - 8 • MASONIC TEMPLE

DEPT'S STORES:

- 9 • WANAMAKER
- 10 • STRAWBRIDGE'S
- 11 • GIMBEL BROTHERS
- 12 • SNELLENBURG
- 13 • LIT BROTHERS

RAILROADS:

- 14 • BROAD STREET STATION
- 15 • READING R.R.



INDEPENDENCE HALL



39^{th.} ★ ANNUAL
CONVENTION
AND 3rd. INDUSTRIAL
FINISHING EXPOSITION

JUNE 16-19, 1952
CHICAGO, ILLINOIS

CONVENTION HEADQUARTERS
CONRAD HILTON HOTEL



INDUSTRIAL FINISHING EXPOSITION
INTERNATIONAL AMPHITHEATRE

Welcome!

to the American Electroplaters' Society's 39th Annual Convention and to the Third Industrial Finishing Exposition. You will be busy. A full program has been arranged, designed to make your Convention stay technically valuable and socially pleasant. Your participation, ladies and gentlemen, we believe, is all that is needed to insure success.

We are proud of our Conventions. Always the high spot in a year, they serve, more than any other A.E.S. function, to knit together our scattered Branches to form the National Society. Our dual purpose, the improvement and dissemination of knowledge, and development of a co-operative spirit of friendship and mutual assistance among our members, is truly fulfilled during Convention Week.

Conventions have contributed greatly to our growth from a small beginning in 1909 to our present position as one of the influential technical societies in the country. Our membership list, which includes the names of nearly all of the important people in the electroplating industry, is more than 5,500 strong. We have 39 Branches in the United States, from New York to Los Angeles, four in Canada and three in far-off Australia.

Measured in dollars, the American Electroplaters' Society is not small. With a black ink balance, it normally takes more than \$150,000.00 a year to run our national office, our magazine, and our research committee. Measured in terms of talent and other support freely given, we are rich indeed.

We are glad you are here. May the homeward journey find you refreshed and stimulated.

A handwritten signature in cursive script, reading "Cleve Wilson". The signature is written in dark ink on a light-colored background.

Dear Guests:

IT IS the hope of the various committees who participated in this Convention that everyone will avail himself of the many opportunities presented here for his pleasure and instruction. To this end a calendar of daily special events has been prepared—and is outlined in the following pages.

If anyone wants company on his daily rounds, the Reception Committee will assist him in looking up an old friend, or meeting a new one—we hope many of both.

The better half (the Ladies' Division) will be making convention history in that their committee has planned new activities, starting with the selection of a queen, and then on to a gala program. (See calendar index.)

Especially do we want everyone, including the women, to attend the Industrial Finishing Exposition because of the new methods, new materials, and new equipment which will be on display. For example, there will be a plating demonstration operated by the Chicago Electro-Platers' Institute which will consist of barrel plating, chromium plating, and two well-known white brass processings. Free take-home samples.

Come look, listen, learn—and have LOTS of fun.

Sincerely yours,

Clyde Kelly

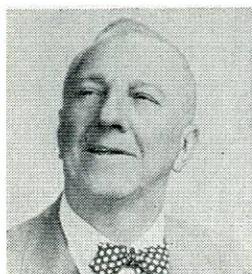
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39th Annual Convention Committee

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1951-1952



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Executive Advisor to
Convention Committee



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G. P. Swift
Second Vice-President



R. A. Schaefer
Third Vice-President



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D. G. Foulke
Executive Secretary

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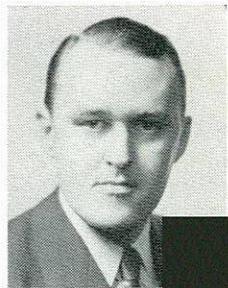
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Detroit Branch



William Geissman
Rockford Branch



Ralph Wysong
St. Joseph Valley
Branch



K. Petrosius
Program

CONDENSED PROGRAM

Central Daylight Saving Time—Used Throughout

In anticipation of those who will arrive in Chicago on Sunday, and, to accommodate local members and wives who may wish to register early, the registration desk will be open from 3:00 p. m. until 8:00 p. m., Sunday, June 15. The Hospitality Committee will be waiting there to greet and assist you.

Though Educational Sessions will be held in the Stock Yard Inn, and the 3rd Industrial Finishing Exposition will be in the International Amphitheatre, General Headquarters for the Convention will be the Conrad Hilton Hotel, 8th and Michigan.

Transportation by buses, at regular intervals, has been arranged. Early each day buses will begin leaving the Conrad Hilton Hotel. They will arrive at the International Amphitheatre and Stock Yard Inn approximately 25 minutes later. There they will unload and take on passengers for the return trip to the hotel. For those who prefer to drive their own cars to the Exposition and Educational Sessions, or wish transportation to other parts of the city, a map of the city marked with convenient routes is provided on the back cover of this book.

The Opening Session and all Social Affairs will be held in the headquarters hotel, the Conrad Hilton. All other meetings, unless otherwise stated, will be held at the Stock Yard Inn.

The registration fee of \$15.00 will provide each registrant with a book of tickets to the various technical and social events. A convention office located on the third floor of the Conrad Hilton Hotel will be open from 9:00 a. m. to 5:00 p. m. for the convenience of visitors.

SUNDAY, JUNE 15, 1952

10:00 A. M.

A. E. S. EXECUTIVE BOARD MEETING,
Conrad Hilton Hotel

1:00 P. M.

CHICAGO ELECTROPLATERS' INSTITUTE
BRUNCH, Conrad Hilton Hotel

2:00 P. M.

METAL FINISHING SUPPLIERS' ASSOCIATION, INC., Board of Directors' Meeting,
Conrad Hilton Hotel

3:00 P. M.

REGISTRATION, Conrad Hilton Hotel,
3rd Floor. \$15.00 per person.

MONDAY, JUNE 16, 1952

8:00 A. M.

REGISTRATION, Conrad Hilton Hotel, 3rd Floor, until 5:00 P. M.

10:00 A. M.

OPENING SESSION, Conrad Hilton Hotel, Grand Ballroom.

11:00 A. M.

BUSINESS MEETING, Conrad Hilton Hotel, Grand Ballroom.

12:00 Noon

EXPOSITION OPENS, International Amphitheatre. Hours 12:00 to 8:00 P. M. METAL FINISHING SUPPLIERS' ASSOCIATION, INC., LUNCHEON, Conrad Hilton Hotel.

12:30 P. M.

SPEAKERS' LUNCHEON, Stock Yard Inn, Little Gallery.

2:00 P. M.

FIRST EDUCATIONAL SESSION, Stock Yard Inn.

SECTION A

First Floor Ballroom

SECTION B

Saddle and Sirloin Club Ballroom

3:45 P. M.

STYLE SHOW AND TEA, Marshall Field & Company

8:30 P. M.

INTERNATIONAL FELLOWSHIP CLUB OPEN HOUSE, Grand Ballroom, Conrad Hilton Hotel

Auspices of the Metal Finishing Suppliers' Association, Inc.

A night of informal gaiety and good fellowship.

Refreshments—Music—Dancing.

Buffet served at 10:00 P. M.

Crowning of the Convention Queen, by A. P. Munning, President of M.F.S.A.

TUESDAY, JUNE 17, 1952

7:45 A. M.

SECRETARIES' BREAKFAST, Lipton Room, Stock Yards Inn.

FUND RAISERS' BREAKFAST, Founders Hall, Stock Yard Inn.

8:00 A. M.

SPEAKERS' BREAKFAST, Little Gallery, Stock Yard Inn.

9:00 A. M.

THIRD INDUSTRIAL FINISHING EXPOSITION, International Amphitheatre, open until 5:00 P. M.

REGISTRATION, 3rd Floor, Conrad Hilton Hotel, until 12:00 Noon. Exchange banquet ticket for reservation.

INTERNATIONAL FELLOWSHIP CLUB ANNUAL GOLF TOURNAMENT, Nordic Hills C. C., Itasca, Ill. Courtesy of Metal Finishing Suppliers' Association, Inc. See Bulletin Board.

SECOND EDUCATIONAL SESSION, Stock Yard Inn.

SECTION A

First Floor Ballroom.

SECTION B

Saddle and Sirloin Club Ballroom.

11:45 A. M.

AUNT ELLA SOCIETY GARDEN PARTY LUNCHEON, McKinlock Gardens, Art Institute.

12:30 P. M.

NATIONAL ASSOCIATION OF METAL FINISHERS, INC., LUNCHEON, Saddle and Sirloin Club.

2:30 P. M.

ART INSTITUTE VISIT, Fullerton Hall, Art Institute of Chicago. Evening Free.

WEDNESDAY, JUNE 18, 1952

8:00 A. M.

SPEAKERS' BREAKFAST, Stock Yard Inn, Little Gallery.

REGISTRATION until 12:00 Noon.

Banquet ticket should be exchanged for reservation.

9:00 A. M.

THIRD EDUCATIONAL SESSION, Stock Yard Inn, First Floor Ballroom.

10:00 A. M.

LADIES' PLATO PARTY, Conrad Hilton

Hotel, Grand Ballroom.

12:00 Noon

EXPOSITION open until 10:00 P. M.

12:30 P. M.

LADIES' LUNCHEON, Conrad Hilton Hotel, Boulevard Room.

4:00 P. M.

BALL GAME, EAST vs. WEST, Grant Park.

THURSDAY, JUNE 19, 1952

7:45 A. M.

RESEARCH BREAKFAST, Stock Yard Inn, Lipton Room.

9:00 A. M.

EXPOSITION open until 5:00 P. M.

RESEARCH EDUCATIONAL SESSION, Stock Yard Inn, First Floor Ballroom.

11:00 A. M.

LADIES' EDUCATIONAL SESSION AND LUNCHEON, Stock Yard Inn, Saddle and Sirloin Club.

2:00 P. M.

FINAL BUSINESS SESSION AMERICAN

ELECTROPLATERS' SOCIETY, Conrad Hilton Hotel, North Ballroom.

7:00 P. M.

ANNUAL BANQUET, Conrad Hilton Hotel, Grand Ballroom.

Your registration book must be exchanged for a reservation ticket for dinner. At the completion of serving dinner the tables will be removed from the floor and the chairs are to be set up for the entertainment on the stage at the east end of the Grand Ballroom.

Toastmaster: Clyde Kelly.

Awarding of prizes and introductions, followed by dancing.

PROGRAM OF SESSIONS

MONDAY, JUNE 16, 1952

8:00 A. M. to 5:00 P. M.

REGISTRATION, 3rd Floor, Conrad Hilton Hotel.

10:00 A. M.

OPENING SESSION, Conrad Hilton Hotel, Grand Ballroom. Open to both the men and their ladies.

10:01 A. M.

Invocation by the Reverend Frank Mesle, Oneida, N. Y.

10:05 A. M.

Greetings from the Chicago Branch by Raymond F. Ledford.

10:08 A. M.

Industrial Finishing Exhibition by Herberth Head.

10:11 A. M.

Introduction of Officers by Clyde Kelly.

10:15 A. M.

Keynote Address: "The Need for Stabilization in the Defense Economy", by Mr. Michael DiSalle, Toledo, Ohio.

10:45 A. M.

Drawing: For the Queen of the Convention and her two attendants.

11:00 A. M.

BUSINESS MEETING OF THE SUPREME SOCIETY AND PRESENTATION OF FIRST CARL E. HUESSNER AWARD, Grand Ballroom.

Delegates will register at door before entering session to eliminate roll call.

This meeting will be conducted on scheduled time to permit the luncheon hour and transportation time to the Stock Yards Inn for the afternoon educational sessions, which in turn must be scheduled accurately in separate rooms. The time element will be an important factor in all meetings. Please cooperate.

2:00 P. M.

FIRST EDUCATIONAL SESSION, Stock Yard Inn.

DUAL SESSIONS

Time schedule shown will be maintained.

SECTION A

First Floor Ballroom.

Chairman: R. Wysong, Studebaker Corporation, South Bend.

"Improved Plating and Anodizing with Decationized Chromic Acid Solutions", by Lloyd Gilbert, Rock Island Arsenal, Rock Island; Floyd Kahler and W. S. Morrison, Illinois Water Treatment Company, Rockford.

2:40 P. M.

"Engineering Aspects of Waste Prevention", by D. Milne, General Motors Corporation, Detroit.

3:20 P. M.

"Filtration—Theoretical and Practical", by Harold W. Faint, Industrial Filter & Pump Manufacturing Company, Chicago, and R. Scott Modjeska, Scientific Control Laboratories, Chicago.

2:00 P. M.

SECTION B

Saddle and Sirloin Club Ballroom.

Chairman: Vincent Mattacotti, Milwaukee Plating Company, Milwaukee.

"Some Experiences in Heavy Rhodium Plating", by H. J. Wiesner, Bendix Aviation Corporation, South Bend.

2:40 P. M.

Film: "A Visit to the Electroplating Projects Laboratories of Westinghouse",

by G. W. Jernstedt, Westinghouse Electric Corporation, East Pittsburgh.

3:20 P. M.

"An Explanation of Black Nickel Plating", by Walter R. Meyer, Enthone, Inc., New Haven; Earl J. Serfass and Ralph Muraca, Lehigh University, Bethlehem.

TUESDAY, JUNE 17, 1952

9:00 A. M.

SECOND EDUCATIONAL SESSION, Stock Yard Inn.

DUAL SESSION

SECTION A

First Floor Ballroom.

Chairman: Frank L. Clifton, General Motors Research Laboratories, Detroit.

"Plastics as Plating Room Engineering Materials", by D. Gardner Foulke, American Electroplaters' Society, Newark.

9:40 A. M.

"Materials of Construction for Plating Rooms", by Russel Harr, Western Electric Company, Chicago.

10:20 A. M.

"Materials of Construction for a Waste

Water Treatment System", by Fred Brune, Chrysler Corporation, Detroit.

9:00 A. M.

SECTION B

Saddle and Sirloin Club Ballroom.

Chairman: M. M. Beckwith, Harshaw Chemical Company, Cleveland.

"Vacuum Metallizing Today", by J. Gordon Seiter, F. J. Stokes Machine Company, Philadelphia

9:40 A. M.

"Current Distribution in Barrel Plating—A Statistical Study", by William Geissman and Robert Carlson, National Lock Company, Rockford.

10:20 A. M.

"White Brass Plating", by R. B. Saltonstall, The Udylite Corporation, Detroit.

WEDNESDAY, JUNE 18, 1952

9:00 A. M.

THIRD EDUCATIONAL SESSION, Stock Yard Inn, First Floor Ballroom.

Chairman: R. E. Pettit, Thrift Etching Corporation, Chicago.

"A Critical Review of Substitute Finishes", by Myron Ceresa, Westinghouse Electric Corporation, East Pittsburgh.

9:40 A. M.

"Hard Coatings on Aluminum", by F. Keller, Aluminum Corporation of America, New Kensington.

10:20 A. M.

"Instrumentation in the Plating Room", by Frank Savage, Graham, Crowley and Associates, Chicago.

THURSDAY, JUNE 19, 1952

9:00 A. M.

RESEARCH EDUCATIONAL SESSION, Stock Yard Inn, First Floor Ballroom.

Chairman: Walter L. Pinner, Houdaille-Hershey Corporation, Detroit.

"Benefits to the Plater of the A. E. S. Research Program", by Earl J. Serfass, Lehigh University, Bethlehem.

9:40 A. M.

"Practical Aspects of the Atomizer Test", by Henry B. Linford, Columbia University, New York.

10:20 A. M.

"Engineering and Economic Aspects of the Treatment of Cyanide Wastes", by Barnett F. Dodge, Yale University, New Haven

2:00 P. M.

FINAL BUSINESS SESSION, Conrad Hilton Hotel, North Ballroom.

Presiding Officer: Cleveland F. Nixon. Usual Order of Business.

RESEARCH COMMITTEE



D. Price
Chairman



W. Blum
Honorary Advisor



W. Pinner



C. Sample



G. Jernstedt



C. Kelly



R. F. Ledford



J. Teres



W. LaLande



B. C. Case

ABSTRACTS OF CONVENTION PAPERS

IMPROVED PLATING AND ANODIZING WITH DECATIONIZED CHROMIC ACID SOLUTIONS, by *Floyd Kahler, Lloyd Gilbert and W. S. Morrison*

The paper discusses the use of the cationic ion-exchange method of removing contaminating metal ions from hard chromium plating and anodizing solutions. Operating data obtained at Rock Island Arsenal are presented and the advantages gained in the plating and anodizing processes are reported.

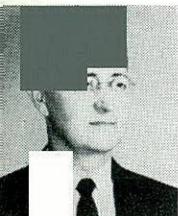
ENGINEERING ASPECTS OF WASTE PREVENTION, by *David Milne*

This paper outlines the trend from overall treatment of waste liquids to recovery and concentration of the metals and materials formerly wasted. The change in thinking on industrial waste control is emphasized and the practices and equipment developed to prevent waste of expensive solutions and eliminate or minimize waste treatment facilities is outlined. Examples are drawn from operating installations and present figures are presented showing the actual savings experienced.

FILTRATION—THEORETICAL AND PRACTICAL, by *Harold Faint and R. Scott Modjeska*

The first portion of this paper deals with the theoretical concepts of filtration, filter designs, filtration media, caking materials, and nature of extractables. This is followed by a discussion of materials of construction for specific applications which then leads to the practical use of specific types of filters for specific problems and trouble shooting in filtration systems.

R. WYSONG
Session Chairman



F. KAHLER



L. GILBERT



W. S. MORRISON



D. MILNE



SOME EXPERIENCES IN HEAVY RHODIUM PLATING, by *Harold J. Wiesner*

A short review of previous work on rhodium plating is given as well as the properties of rhodium. Studies of the effects of metal concentration, temperature, acidity, current density upon rate of deposition of two types of rhodium baths are presented. Effects of impurities and methods of purification are outlined. Methods of control of the bath constituents are discussed. Experience in operating rhodium baths over several months' time on a semi-production basis are related.

A VISIT TO THE ELECTROPLATING PROJECTS LABORATORIES OF WESTINGHOUSE, *dialogue and photography*, by *George W. Jernstedt*

This is a colored film with sound accompaniment on magnetic tape showing the type of construction of these laboratories, the various tank arrangements, and examples of the plating research carried out along with the facilities available.

AN EXPLANATION OF BLACK NICKEL PLATING, by *Earl J. Serfass, Ralph F. Muraca and Walter R. Meyer*

An explanation of the mechanism of black nickel electroplating is presented as well as of immersion blackening of zinc, iron and other metals in solutions containing thiocyanate and thiosulfate. Thermodynamic calculations are given to indicate that thiocyanate and thiosulfate ions are reduced to sulfide ions either electrically or by metal dissolution. The mechanism of the reaction and the reason for the use of zinc ions and ammonia are discussed.

PLASTICS AS PLATING ROOM ENGINEERING MATERIALS, by *D. Gardner Foulke*

The use of plastics in the plating room is discussed, with particular reference to new applications, and materials. The limitations of certain types of plastics and the precautions which should be taken with respect to their use are reviewed. Examples of the newer developments in this field will be shown.

H. FAINT



R. S. MODJESKA



V. MATTICOTTI
Session Chairman



H. J. WIESNER



G. W. JERNSTEDT



MATERIALS OF CONSTRUCTION FOR PLATING ROOMS, *by Russel Harr*

The materials of construction used for the floors and the drainage system are discussed. In the latter case the system is divided to provide for the segregation and batch treatment of water containing cyanides and water containing acid and alkali. Piping systems employed for the transfer of large amounts of acid, liquid caustic and de-ionized water are described. Exhaust duct construction is explained along with the steps taken to protect ducts and fans from corrosion. Tank materials are discussed.

MATERIALS OF CONSTRUCTION FOR WASTE WATER TREATMENT SYSTEM, *by Fred J. Brune*

The materials used in the construction of a plating waste water treatment system are described and the reason for the selection in each case is given. An evaluation of the materials after two years' operation is presented. The discussion covers sewer lines to the receiving sumps, transfer to reaction tanks and thence to secondary treatment and classification unit and finally to the point of discharge in a public stream.

VACUUM METALLIZING TODAY, *by J. Gordon Seiler*

The process of vacuum metallizing is defined and the applications for which the technique is useful are described. The metals that can be deposited by this method and the materials that can be coated are considered. A description of the operating procedures required, including *pre-* and *post-*treatments is presented.

CURRENT DISTRIBUTION IN BARREL PLATING—A STATISTICAL STUDY, *by William Geissman and Robert Carlson*

This paper is a progress report on a study being made of the variance of deposit thickness encountered in a given load coming from a plating barrel. Statistical methods are applied to the measurements obtained for each load and the principles involved in statistical methods are discussed.

E. J. SERFASS



R. F. MURACA



W. R. MEYER



F. CLIFTON
Session Chairman



D. G. FOULKE



WHITE BRASS PLATING, *by R. B. Saltonstall*

The author first presents a brief historical background of white brass plating, then discusses solution composition, operating data, equipment requirements, and the effect of variables on the composition of the alloy deposit. Characteristics of the deposit, solution control, preliminary coatings, available corrosion data and uses are also discussed.

A CRITICAL REVIEW OF SUBSTITUTE FINISHES, *by Myron Ceresa*

A critical review is presented of the metallic finishes available during the present period of shortages. The difficulties that have been encountered with substitute finishes are discussed and examples are given of items plated with such finishes. Base metal preparation, plate thickness and post-treatment of the plated surface are discussed. Solutions to some of the production problems arising from finish changes are reviewed.

HARD COATING ON ALUMINUM, *by F. Keller*

The characteristics of newly developed hard coatings on aluminum are presented. The mechanism by which these coatings are formed on different alloys and the relationship between thickness and the hardness of the coatings are discussed. The processes in present use are described.

SPECIAL INSTRUMENTATION IN THE PLATING ROOM, *by Frank Savage*

The details of automatic pH control and electronic devices for the control of solution level are described. The use of conductivity measuring instruments to indicate boiler feed-water contamination is discussed as well as unusual instrument uses for ordinary plating operations.

R. HARR



F. BRUNE



M. M. BECKWITH
Session Chairman



J. G. SEITER



W. GEISSMAN



THE BENEFITS TO THE PLATER OF THE A. E. S. RESEARCH PROGRAM, by
Earl J. Serfass

The summary of the progress and accomplishments of the A. E. S. Research Committee during the past year is presented. Practical developments of use to the average plater are stressed.

PRACTICAL ASPECTS OF THE ATOMIZER TEST, by *Henry B. Linford*

The atomizer test, a new degreasing evaluation method developed in A. E. S. Research Project No. 12, is discussed from the standpoint of plating shop usefulness. Practical applications of the atomizer test which are discussed include: First, the test may be used to check the effectiveness of an operating cleaner on a control basis; second, the test is useful as a check in new cleaner formulations in comparison with those being used in the shop; third, the atomizer test provides a means of evaluating the removal of new oils, the use of which may be contemplated prior to the finishing operation.

ENGINEERING AND ECONOMIC ASPECTS OF THE TREATMENT OF CYANIDE WASTE, by *Barnett F. Dodge*

The various processes studied by A. E. S. Project No. 10 are reviewed and practical data on cost, equipment, and operating hints are presented with regard to the treatment of cyanide wastes.

R. CARLSON



R. B. SALTONSTALL



R. PETTIT
Session Chairman



M. CERESA



F. KELLER



F. SAVAGE



W. L. PINNER
Session Chairman



H. B. LINFORD



B. F. DODGE



A Lady Quotes . . .

WIVES enjoy going to clubs, especially if the latter are men's organizations. They like to invade man's domain. Husbands and wives should purposely cultivate the habit of sharing their recreation together. That is a mark of true emotional adulthood".

This year the women will take a prominent part in the opening session of the A.E.S. Convention, for here they will choose the **QUEEN** of the Convention. Many exciting and attractive ideas (perhaps for future reference) will spring up around the selection and entertainment of their Queen. Will you be present? Are you over 16 years of age? Then the Lucky Lady may be you!!

Ladies' Headquarters will be the North Assembly Room, on the third floor of the Conrad Hilton Hotel. During your leisure hours use it as a meeting place, or use it to relax in comfort, play cards or visit with your friends. Use it as informally as you wish. Information, messages and notices will be posted on a convenient bulletin board. At all times one of the ladies' committee will be there to assist you with arrangements for the various broadcasts, ball games, beaches, boats, breakfasts, bonnets, barbecues, bars, beverages, bargains, etc., that have been requested.

Arrangements have been made for the ladies to be taken care of at all times when their husbands are busy with necessary convention affairs.

A very warm and courteous invitation is extended to you by the Ladies' Committee.

Mrs. Marion Longfield
Chairman

LADIES' PROGRAM

HEADQUARTERS— North Assembly Room, Conrad Hilton Hotel, Third Floor

SUNDAY, JUNE 15, 1952

3:00 P. M.

REGISTRATION, Conrad Hilton Hotel, Third Floor.

MONDAY, JULY 16, 1952

8:00 A. M.

REGISTRATION, Conrad Hilton Hotel,
Third Floor.

10:00 A. M.

OPENING SESSION, Conrad Hilton Ho-
tel, Grand Ballroom.

Ladies will join the men. Before the close a drawing for the Queen of the Convention will be held. Three tickets will be drawn, the first for the Queen, and the following two for her attendants. These ladies must be present at time of drawing and must be over 16 years of age.

Left to Right, Standing: Miss Irene Donnelly, Miss Mary Loftus, Mrs. Harold Faint Mrs. Marion Longfield, Mrs. Orville Kocour, Mrs. Paul Glab. Seated: Mrs. Elmer Olson, Mrs. Edward Slanek, Mrs. Edward Slack, Mrs. Raymond Ledford, Mrs. Cyril Kocour. On the Committee, but not shown, Mrs. Harold Wiesner



3:10 P. M.

Transportation to Marshall Field & Company, 8th Street Entrance, Conrad Hilton Hotel.

3:45 P. M.

TEA AND STYLE SHOW conducted by Field's Eminent Stylist, Marshall Field & Company, Narcissus Room.
Hostesses: Mrs. Raymond Ledford,

Mrs. Harold Faint, Mrs. E. F. Stack, Mrs. William Geissman.

8:30 P. M.

INTERNATIONAL FELLOWSHIP CLUB OPEN HOUSE PARTY, Conrad Hilton Hotel, Grand Ballroom. Auspices of Metal Finishing Suppliers' Association, Inc. Music, dancing, buffet supper. Crowning of the Convention Queen by Mr. A. P. Munning.

TUESDAY, JUNE 17, 1952

11:45 A. M.

AUNT ELLA SOCIETY GARDEN PARTY LUNCHEON, Art Institute of Chicago, McKinlock Gardens.
Auspices of Oakite Products, Inc.
Host: David X. Clarin (Aunt Ella).

INGS, AND OTHER ART OBJECTS. Art Institute of Chicago, Fullerton Hall.
Hostesses: Mrs. Raymond Ledford, Mrs. Paul Glab, Mrs. Elmer Olson, Mrs. Ralph Wysong.

Following the talk the ladies are free to roam the galleries.

Please remind your friends and husband to make Banquet Table Reservations.

2:30 P. M.

TALK ON EXHIBITS OF CHINA. PAINT-

WEDNESDAY, JUNE 18, 1952

10:00 A. M.

PLATO PARTY, Conrad Hilton Hotel, Grand Ballroom. Prizes and lots of fun.
Hostess: Mrs. Joan T. Wiarda.

Room, Conrad Hilton Hotel

2:00 P. M.

MONOLOGUE by Sulie Harand, well known impressionist.
Hostesses: Mrs. Orville Kocour, Mrs. Cyril Kocour, Mrs. Harold J. Wiesner, Mrs. Edward Stanek, Mrs. Edward F. Stack.

12:30 P. M.

LUNCHEON in the famous Boulevard



Mrs. WYSONG



Mrs. GEISSMAN

THURSDAY, JUNE 19, 1952

9:30 A. M.

Transportation to EXPOSITION, EDUCATIONAL SESSION AND LUNCHEON. 8th Street Entrance, Conrad Hilton Hotel.

10:00 A. M.

VISIT THIRD INDUSTRIAL FINISHING EXPOSITION, International Amphitheatre.

11:00 A. M.

EDUCATIONAL SESSION AND LUNCHEON, Stock Yard Inn, Saddle and Sirloin Club Room.

"How Detergents Take the Rubbing out of Scrubbing". Mr. Gerald A. Lux, of Oakite Products, Inc., will present a nontechnical, informal talk on the various types of detergents, illustrating the more technical points with a few demonstrations.

Hostesses: Mrs. Paul Glab, Miss Mary Loftus, Mrs. Elmer Olson, Mrs. Edward Stanek, Mrs. Ralph Wysong, Miss Irene Donnelly.

CLOSING OF THE LADIES' PROGRAM.

Good-bye to the Queen. Hello to Mrs. Mary F. Robson, Chairman of the Ladies' Committee for the 1953 Convention to be held in Philadelphia.

7:00 P. M.

ANNUAL BANQUET AND BALL, Conrad Hilton Hotel, Grand Ballroom.

A night of fun, good food and fine entertainment. Drawing for prizes.

Farewell, good friends, both old and new.

We've been so glad to welcome you

So sorry now to say good-bye,

But, we'll see you in Philly by and by.

PLATED WARE EXHIBITS

INTERNATIONAL AMPHITHEATRE

AT YOUR Convention this year, exhibits of Plated Ware submitted by Branches and Individual Members of the A.E.S. are being displayed in 14 booths at the Industrial Finishing Exposition. These are the only exhibits to be shown at this 39th Convention.

In addition to the competition between the Branches for the honor of having a prize-winning display, opportunity is also being given to the Individual Members to present exhibits for other prizes. An impartial committee composed of representatives from three different Branches will have the unenviable task of selecting the three best Branch Exhibits and the best Individual Member Exhibit.

A visit to the Plated Ware Exhibits will be worth while for everyone in attendance and will be a tribute to those Branches and Individual Members cooperating in the Exhibit.

Harry Hansen

Chairman, Branch Exhibits Committee

PLANT VISITATIONS

NEGOTIATIONS have been under way for visiting some of our Nation's finest plating departments of manufacturers and job shops.

Complete details for these trips will be available for you throughout the Convention Week at the Registration Desk on the third floor of the Conrad Hilton Hotel.

You are invited to check on the availability, schedules, and transportation upon your arrival.

W. O. Zinn

Chairman, Plant Visitations Committee

VISIT THE 3RD INDUSTRIAL FINISHING EXPOSITION

THE Industrial Finishing Exposition of 1952 is displaying to Exposition attendees the greatest array of finishing services and products ever assembled under one roof.

Out at Chicago's International Amphitheatre more than 100 new products will make their first public appearance. Equipment valued at approximately \$2,500,000 will be on display.

One of the highlights of this year's Exposition is the inclusion of the many educational exhibits. Several representative groups are providing exhibits explaining the many important phases of the industrial finishing field.

The Chicago Electro-Platers Institute, an association of custom plating establishments, is showing various types of plating on metal objects. Samples of this work are being given to Exposition attendees as educational souvenirs. Contrasting operations found in normal plating room practices will be shown at the CEPI exhibit. Automatic handling of decorative coating is being shown in a complete plating room line, while another line is demonstrating the operation of a protective plating line. Panel displays showing a variety of finishes completes the exhibit.

Technical personnel of CEPI member firms are manning the Exhibit, and are to provide answers to technical questions.

The A.E.S. Research Committee is featuring an exhibit showing the technical projects that the Society has undertaken and is currently working upon in American universities and industrial plants. The A.E.S. has attracted widespread acclaim for its research activities which are attempting to solve many of industry's most difficult problems.

Members of the A.E.S. Research Committee will be in attendance to answer questions and to explain procedures used in the projects.

Although the Society is holding its 39th Annual Convention at the Conrad Hilton Hotel, the technical sessions are being held at the famed Stock Yard Inn, adjacent to the Amphitheatre.

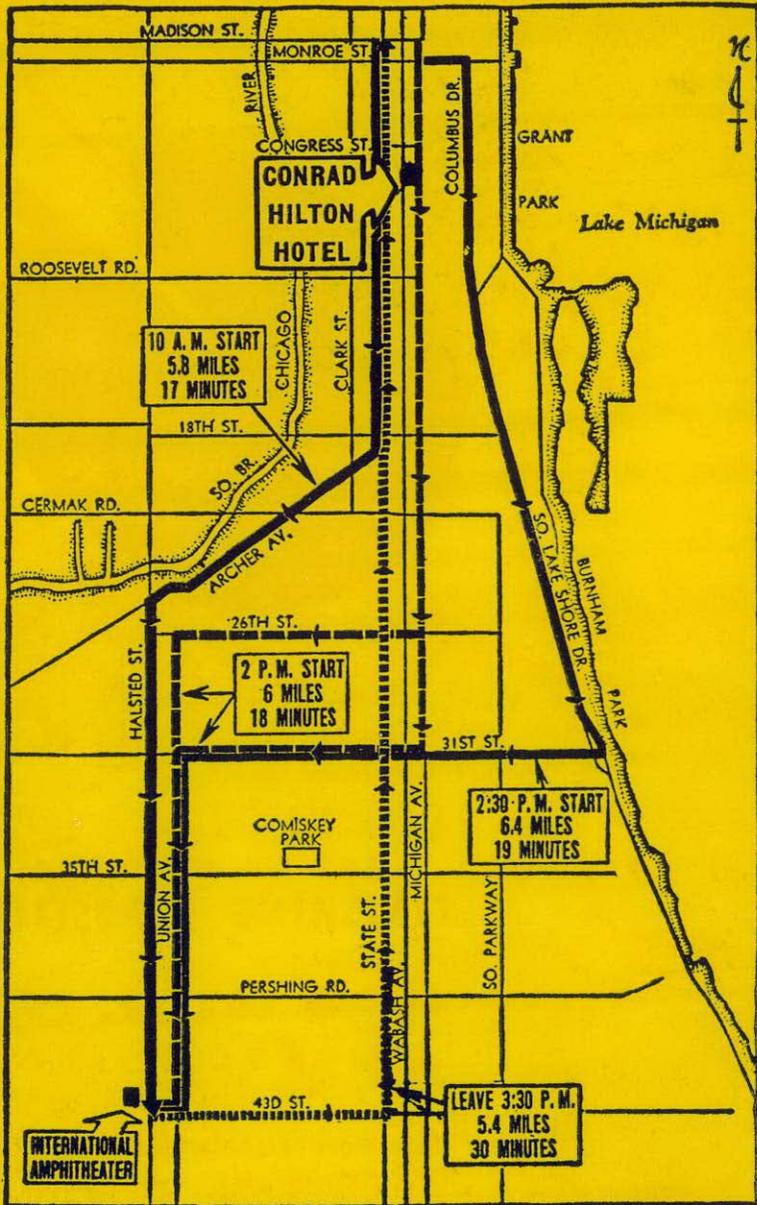
To bring to Chicago's attention the importance of the Industrial Finishing Exposition and the A.E.S. 39th Annual Convention, Mayor Martin H. Kennelly has proclaimed the week of June 15 to 21 as "INDUSTRIAL FINISHING WEEK IN CHICAGO" and has urged that all industrial firms as well as all of Chicago's citizens take advantage of the educational benefits to be found at the twin events.

MEMO

MEMO

MEMO

*Reprinted from the June, 1952, issue of PLATING, published
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Newark 2, N. J.*



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38th ANNUAL CONVENTION

AMERICAN
ELECTROPLATERS' SOCIETY

JULY 30TH, 31ST, AUGUST 1ST, 2ND, 1951

STATLER HOTEL • BUFFALO

*Host Branch
Buffalo, N. Y.*



SYLVANIA



1930



JOSEPH MRUK
MAYOR

CITY OF BUFFALO
OFFICE OF THE MAYOR

-: P R O C L A M A T I O N :-

WHEREAS, the general happiness, comfort, and satisfaction of our citizens depend on attractive and durable products which help to promote more leisure time, more enjoyment of that leisure time, and a higher standard of living; and

WHEREAS, many of our citizens are gainfully employed by local metalworking and metal-finishing industries which produce and market these products for the nation's benefit; and

WHEREAS, this community wishes to pay tribute to the importance of these activities to the growth and future accomplishments of its constituents,

NOW, THEREFORE, I, JOSEPH MRUK, Mayor of the City of Buffalo, do hereby designate July 30th, 1951, as official opening date of METAL FINISHING AND ELECTROPLATING WEEK coinciding with the opening day of the 38th annual convention of the American Electroplaters' Society in Buffalo, New York, sponsored by the Buffalo Branch of the American Electroplaters' Society, and call upon all departments of the city, its business and commercial organizations, civic clubs, and our citizens generally to take an active part in promoting the aims and objectives of this progressive and scientific program.



Joseph Mruk
Mayor

38th ANNUAL CONVENTION



AMERICAN ELECTROPLATERS' SOCIETY

JULY 30TH, 31ST, AUGUST 1ST, 2ND, 1951
STATLER HOTEL • BUFFALO

Host Branch
Buffalo, N. Y.



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Supreme President



Cleveland F. Nixon
1st Vice-President



Franklyn J. MacStoker
2nd Vice-President



Dr. George P. Swift
3rd Vice-President



Arthur W. Logozzo
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Dr. A. K. Graham
Executive Secretary

38TH CONVENTION COMMITTEE
AND BRANCH OFFICERS



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President*



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38TH CONVENTION COMMITTEE



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Joseph Ruff
Picnic



Dr. C. J. Wernlund
Educational



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Transportation



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Hotel Reservations



Joan Wiarda
Publicity



• NEW DEVELOPMENT FORMULA #38-B

PURPOSE:

To make you deterioration-resistant and improve your appearance.

FORMULA:

You + 1500 other conventioners + Buffalo + Hotel Statler. No rainwater is required, nor will any be supplied (we hope!). To make up this formula, just pack your grips and shuffle off to Buffalo. Mix well for best results.

OPERATING CONDITIONS:

Temperature: 85-90°F.

Time: 4 days -- July 30-August 2.

Density: 1500 Conventioners, slightly charged (with enthusiasm, that is!)

The steps involved in making this formula work are:

1—Opening session

2—Fellowship luncheon

3—Technical sessions

4—International Fellowship Club Open House Party

5—Technical session special for ladies—Sightseeing trips

6—Picnic and Outing (we hope to eliminate rinsing at this point)

7—Golf tournament and East-West championship softball game

8—Annual meeting and banquet

This latest formula should prove to be even more successful than our previous formula No. 30, first tried out in 1943, and is guaranteed to give you a perfect finish, one that will be long-lasting and pleasantly remembered. The old-timers will agree that it is the best formula derived to date, and all new-comers will find it hard to duplicate. This exclusive formula was developed by the Buffalo Branch, but is not patented—anyone can use it! This is one time when drag-out is fun!

"You will find that attendance

Will be worth while

Even your competitors

Will greet you with a smile!"

Bert Kirchhoff,
General Chairman



SUNDAY
JULY 29, 1951

Welcome to BUFFALO

4:00 P.M. Registration until 8:00 P.M.

MEZZANINE Hospitality Committee on hand to assist you.
LOUNGE

The Registration Fee of \$15.00 will entitle each man to a book of tickets to be used for admission to the Technical Sessions and Social Activities listed in this program.

All Times shown are Eastern Daylight Saving

All Meetings and activities, unless otherwise noted, will be held at the Statler Hotel, Convention Headquarters.

Banquet Table Reservations, must be made no later than Wednesday, August 1, 11:00 A.M., First Come—First Scheduled.

The Buffalo Committee has tried to prepare a program for your education and pleasure. The five Technical Sessions have been prepared by capable men under the Supervision and Guidance of the Editorial Board. The Social Program should prove most relaxing, yet not tiring. We hope, you will see and hear what you like—and like what you see and hear.

THANK YOU

President, W. J. Neill

Past President, A. W. Logozzo

Vice Presidents

C. F. Nixon

F. J. MacStoker

Dr. G. P. Swift

for your help and assistance

MONDAY

JULY 30, 1951



8:00 A.M. REGISTRATION ALL DAY
MEZZANINE
LOUNGE

9:30 A.M. OPENING SESSION
GRAND INVOCATION—The Reverend Frank C. Mesle.
BALLROOM

WELCOME TO BUFFALO—Joseph Mruk, Mayor
GREETINGS FROM THE BUFFALO BRANCH
—Bert Kirchhoff, President and General Chairman

KEYNOTE ADDRESS

“ELECTRODEPOSITION RESEARCHES AT
THE NATIONAL BUREAU OF STANDARDS”—
Dr. William Blum, National Bureau of Standards.

12:00 NOON EDUCATIONAL COMMITTEE LUNCHEON
TERRACE ROOM

12:15 P.M. INTERNATIONAL FELLOWSHIP CLUB, 27th
EMPIRE STATE ANNUAL LUNCHEON—For Equipment and Sup-
ROOM ply Manufacturers, Distributors and their represen-
tatives only.

2:00 P.M. 1ST TECHNICAL SESSION — “ENGINEERING
GRAND ASPECTS OF ELECTROPLATING”—Chairman,
BALLROOM G. W. Jernstedt, Westinghouse Electric Corporation.

“Rinsing for Electroplating,” by R. J. Rominski and
F. L. Clifton, General Motors Research Laboratories

“Practical Application of Diaphragm Tanks in the
Electroplating Industry,” by Ezra A. Blount,
Products Finishing Magazine, Cincinnati, Ohio

“Methods of Heating and Temperature Control of
Plating Solutions”, by W. E. Stadel and C. Civan,
George L. Nankervis Company, Detroit, Mich.

“Advantages of Simplicity in the Electroplating of
Automobile Bumpers,” by Donald Schantz, Michigan
Bumper Corporation, Grand Rapids, Mich.

8:30 P.M. THE NIGHT OF FOOD, FROLIC AND FUN—
GRAND The contribution of our GENEROUS ALLIES—The
BALLROOM International Fellowship—Music—Dancing—Buffet
served at 10:00 P.M.



TUESDAY

JULY 31, 1951

- 7:45 A.M. EDUCATIONAL COMMITTEE BREAKFAST
CAFE ROUGE
- 9:00 A.M. REGISTRATION—
MEZZANINE BANQUET TABLE RESERVATIONS
LOUNGE
- 9:00 A.M. 2ND TECHNICAL SESSION — “PREPARATION
NIAGARA ROOM AND PLATING OF ZINC BASE DIE CAST-
INGS”—Chairman, Dr. R. B. Saltonstall, The Udy-
lite Corporation, Detroit, Mich.
“The Shortest Way,” a movie, courtesy Doehler-
Jarvis Corporation
“Requirements of Die Castings For Plating,” by
G. J. Beckwith, Metallon Products, Inc., Los Angeles,
Calif.
“Mechanical Finishing of Die Castings Prior to
Plating,” by M. R. Caldwell, Doehler-Jarvis Cor-
poration, Grand Rapids, Mich.
“Chemical and Electrochemical Preparation of Die
Castings for Plating,” by Earl Arnold, L. H. Butcher
Company, Los Angeles, Calif.
“Electroplating Zinc Base Die Castings,” by C. G.
Borlet, United Chromium, Inc., Detroit, Mich.
- 12:00 NOON BRANCH SECRETARIES’ LUNCHEON MEET-
BUFFALO ROOM ING—Courtesy Buffalo Branch
- 12:00 NOON EDUCATIONAL COMMITTEE LUNCHEON
TERRACE ROOM
- 3:00 P.M. 3RD TECHNICAL SESSION — “OPEN FORUM
GRAND ON SUBSTITUTE FINISHES FOR ELECTRO-
BALLROOM PLATING”—Chairman, Dr. Walter R. Meyer,
Enthone, Inc.
“Phosphate Coatings,” by Alfred Douty, American
Chemical Paint Company, Ambler, Pa.
“Chromate Treatments,” by Charles W. Ostrander,
Allied Research Products, Inc., Baltimore, Ohio
“Black Oxide Coatings,” by Dr. Walter Meyer,
Enthone, Inc., New Haven, Conn.
“Clear and Pigmented Organic Coatings,” by Donald
R. Meserve, United Chromium, Inc., Carteret, N. J.
“Rust Preventive Oils and Waxes,” by A. W.
Ackerman, F. E. Anderson Oil Co., Portland, Conn.
- 7:00 P.M. NATIONAL ASS’N OF METAL FINISHERS, INC.
BUFFALO ROOM Dinner Meeting

WEDNESDAY

AUGUST 1, 1951



7:45 A.M. EDUCATIONAL COMMITTEE BREAKFAST
CAFE ROUGE

9:00 A.M. REGISTRATION—
MEZZANINE BANQUET TABLE RESERVATIONS must be
LOUNGE made by 11:00 A.M.

9:00 A.M. 4TH TECHNICAL SESSION—
GRAND "SOME PRACTICAL ASPECTS OF PLATING
BALLROOM ROOM CONTROL"—Chairman, John Acheson,
Canadian Hanson Van Winkle Co., Ltd., Toronto,
Can.

"The Evaluation of Quality of Electrodeposits," by
Carl Durbin, Chrysler Corporation, Detroit, Mich.

"Operating Control for Optimum Plating Charac-
teristics," by R. O. Hull and J. B. Winters, R. O.
Hull Company, Inc., Rocky River, Ohio

"Some Practical Considerations of Current Distribu-
tion," by Dr. R. A. Schaefer and Harry Pochapsky,
Cleveland Graphite Bronze Company, Cleveland, O.

"Nickel Plating with Insoluble Anodes," by Dr. W.
A. Wesley, D. S. Carr and E. J. Roehl, The
International Nickel Company, Bayonne, N. J.

9:00 A.M. INTERNATIONAL FELLOWSHIP CLUB, GOLF
ORCHARD PARK TOURNAMENT, Orchard Park Country Club,
COUNTRY CLUB Orchard Park, N. Y. Bus Transportation available—

11:30 A.M. NATIONAL ASS'N OF METAL FINISHERS, INC.
PARLOR A Board of Directors Meeting
MEZZANINE FLOOR

12:15 P.M. LUNCHEON—ANNUAL PICNIC—BALL GAME
EAST vs WEST—Buses will leave Delaware Avenue
door—Hotel Statler for trip to Automobile Club,
Clarence, N. Y.

"SCIENTIFIC PROGRESS BEHIND THE UR-
ANIUM CURTAIN"—by the visitor from Slop-
povia," Daniel Grey.

EVENING FREE



THURSDAY

AUGUST 2, 1951

7:45 A.M. COMBINED BREAKFAST, RESEARCH AND
BUFFALO ROOM EDUCATIONAL COMMITTEES

9:00 A.M. 5TH TECHNICAL SESSION—"REPORT on A.E.S.
NIAGARA ROOM RESEARCH PROGRAM"—Chairman, Guy Cole,
General Motors Corp., Ternstedt Division

"A new Degreasing Evaluation Test—The Atomizer
Test," by Dr. Henry B. Linford, Columbia Univer-
sity, New York City

"How the Plating Industry Will Benefit from
Research on Metal Cleaning," by E. T. Candee,
Lea Manufacturing Company, Waterbury, Conn.

"Highlights of the A.E.S. Research Program," by
Dr. Donald Price, Oakite Products, Inc., New York
City

2:00 P.M. FINAL BUSINESS MEETING — AMERICAN
NIAGARA ROOM ELECTROPLATERS' SOCIETY

7:00 P.M. ANNUAL BANQUET—ROAST BEEF—GOOD
GRAND MUSIC—DANCING
BALLROOM Drawing for Hanson-Van Winkle-Munning Co., gifts.
Drawing for Barcalounger, Barcalo Mfg. Co.

*In retrospect may you remember the 38th
Annual Convention as inspiring, instruc-
tive and enjoyable.*

Cordially,

THE BUFFALO COMMITTEE



ABSTRACTS WILL BE FOUND ON PAGES 21-28.

POLLUTION ABATEMENT FOR PLATERS

How to reduce pollution—as well as save money and materials—is the theme of the manual of good-housekeeping principles prepared by the Metal-Finishing Industry Action Committee of the Ohio River Commission. This manual is being distributed by the Commission to plating establishments interested in reducing waste discharged. Requests for copies should be addressed to Edward J. Cleary, executive director and chief engineer, Ohio River Valley Water Sanitation Commission, 414 Walnut Street, Cincinnati 2, Ohio.



NOTES

BUFFALO 1951 COMMITTEES

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Chairman
Charles Fotheringham
Dr. A. A. Janis
Dr. D. A. Swalheim

PICNIC

Jos. Ruff
Chairman
Harold Day
Ben Fortin
Dr. A. A. Janis
James Money Penny
Frank Rudolph

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Leon Nowak
Chairman
Robert N. Burford
Russ Fricano
Ray Lawicki
Don Rice

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Chairman
Roland E. Campbell
Russ Fricano
Stanley Shurman

REGISTRATION

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Chairman
Simon Bush
T. J. Cuerton
Russell Fricano
Don Rice

BANQUET

James Money Penny
Chairman
Harold Day
Robert Potter
Jos. Ruff



Our Generous Sponsors

The Manufacturers and Distributors of Plating, Processing and Polishing Equipment and Supplies, moved by interests and aims closely interlocked with ours have generously aided in supporting our A. E. S. activities.

This interest in our program for the "Advancement of the Science of Electroplating" is received with sincere appreciation and thanks to the Companies listed here.

ACME MFG. CO., 1645 Howard St., Detroit 16, Mich.
ADVANCE POLISHING WHEELS CO., 844 W. 49th Pl., Chicago 9, Ill.
AGATE LACQUER MFG. CO., INC., 11-13 43rd Road, Long Island City 1, N. Y.
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FREDERICK GUMM CHEMICAL CO., INC., 538 Forest St., Kearny, N. J.
HANSON-VAN WINKLE-MUNNING CO., Matawan, N. J.
HARSHAW CHEMICAL CO., 1945 East 97th St., Cleveland 6, Ohio
JACOB HAY COMPANY, 4010 W. Parker Ave., Chicago 29, Ill.
J. HOLLAND & SONS, INC., 276 S. 9th St., Brooklyn 11, N. Y.
INDUSTRIAL FILTER & PUMP MFG. CO., 5906 Ogden Avenue, Chicago 50, Ill.
JAMESTOWN ELECTRO PLATING WORKS, Jamestown, N. Y.
KEYSTONE CHROMIUM CORP., 1095 Niagara, Buffalo, New York

PROCESSING & POLISHING EQUIPMENT & SUPPLIES



- KOCOUR CO., 4802 S. St. Louis Ave., Chicago 32, Ill.
KRAFT CHEMICAL CO., 917 W. 18th St., Chicago 8, Ill.
HOWARD J. LACKEY, JR., 383 Brannan St., San Francisco, Cal.
LASALCO, INC., 2818 LaSalle St., St. Louis, Mo.
THE LEA MFG. CO., Waterbury, Conn.
CHAS. F. L'HOMMEDIEU & SONS, 4521 Ogden Ave., Chicago, Ill.
MAAS AND WALDSTEIN CO., 438 Riverside Ave., Newark 4, New Jersey
MACDERMID, INC., Box 671, Waterbury, Conn.
W. D. MACDERMID CHEMICAL CO., Box 1041, Bristol, Conn.
MAGNUSON PRODUCTS CO., 50 Court St., Brooklyn, N. Y.
THE MANDERSHEID CO., 810 W. Fulton St., Chicago 7, Ill.
MARLETTE PLATING CO., INC., 200 Cornwall Ave., Buffalo, New York
THE MATCHLESS METAL POLISH CO., 840 W. 49th Pl., Chicago 9, Ill.
McGEAN CHEMICAL COMPANY, 101 Prospect Ave., N.W., Cleveland 15, Ohio
MICHIGAN BUFF CO., 3503 Gaylord Ave., Detroit 12, Mich.
J. C. MILLER COMPANY, 631 Chestnut St., S.W. Grand Rapids 3, Mich.
THE MITCHELL-BRADFORD CHEMICAL CO., 2446 C Main St., Bridgeport, Connecticut
MOORE BUSINESS FORMS, 330 University A., Toronto, Ont.
MUNNING & MUNNING, INC., 202 Emmett St., Newark 5, N. J.
GEORGE L. NANKERVIS CO., 19255 W. Davison Ave., Detroit 23, Mich.
NATIONAL FINISHING CORP., 216 Niagara St., Buffalo, New York
NATIONAL SHERARDIZING & MACH. CO., 858 Windsor St., Hartford 1, Connecticut
NELSON CHEMICALS CORP., 12345 Schaefer Highway, Detroit 27, Mich.
OAKITE PRODUCTS INC., 22 Thames St., New York 6, N. Y.
F. D. PACE CO., 69-73 Scribner Ave., Grand Rapids, Mich.
PLATERS SUPPLY CO., 849 Mass. Ave., Indianapolis, Ind.
PLATING SERVICE CO., 4014 W. Parker Ave., Chicago 29, Ill.
POL-O-PLATE PRODUCTS, 2000 W. 14th St., Cleveland 13, Ohio
POLYKOTE, INC., 446 Genesee St., Buffalo 4, New York
PROMAT DIV., POOR & CO., 851 S. Market St., Waukegan, Ill.
RAPID ELECTRIC CO., 2881 Middletown Rd., Bronx 61, N. Y.
DONALD RICE, 235 W. Delavan Ave., Buffalo 13, N. Y.
ROTO-FINISH CO., 3706 Milham Rd., Kalamazoo, Mich.
THE SCHAFFNER MFG. CO., Schaffner Bldg., Emsworth, Pittsburgh, Pa.
J. J. SIEFEN CO., 5657 Lauderdale St., Detroit 9, Mich.
SPEED PLATING WORKS, 157 Ellicott, Buffalo, New York
STANDARD PLTG., RACK CO., 1925 N. Paulina St., Chicago 22, Ill.
STAR PLATING WORKS, INC., 98 Broadway, Buffalo, New York
STERLING SILVER PLATING WORKS, INC., 519 Ellicott, Buffalo, New York
FREDERIC B. STEVENS, INC., 1800-18th St., Detroit 16, Michigan
GEORGE A. STUTZ MFG. CO., 1641 Carroll Avenue, Chicago 12, Ill.
SULPHUR PRODUCTS CO., INC., Box 75, Greensburg, Pa.
TRIPP PLATING WORKS, INC., 346 Ellicott, Buffalo, New York
THE UDYLITE CORP., 1651 E. Grand Blvd., Detroit 11, Mich.
UTILITY PLATERS, INC., 352 Niagara, Buffalo, New York
VICK PLATING CO., 135 Dart, Buffalo, New York
WAGNER BROS., INC., 481 Midland Ave., Detroit 3, Mich.
WESTERN N. Y. METAL FINISHING ASSN., Buffalo, New York
WHITFIELD CHEMICAL CO., Box 3956, Detroit, Mich.
WYANDOTTE CHEMICALS CORP., Biddle Ave., Wyandotte, Mich.



NOTES

NOTES



ROOM NUMBERS



The Buffalo Ladies Have Tried to Prepare the Prize Winning Recipe for "The Busiest and Gayest Convention"

INGREDIENTS

- Monday Noon*— The Get Acquainted and Renew Acquaintance Luncheon, to be held in the Statler's beautiful Niagara Room
- Monday Evening*— The night of Frolic, Food and Fun in the Grand Ball Room, made possible by the International Fellowship Club
- Tuesday Morning*— Bus trip to Niagara Falls (in case this was overlooked on your honeymoon), then on to the General Brock in Canada for the traditional Aunt Ella Society Luncheon, sponsored by the Oakite Products, Inc. The evening is free, so that you and your husband can compare notes to date.
- Wednesday*— Off to the beautiful Automobile Club in Clarence, N. Y., for the annual picnic—luncheon, games, prizes and surprises
- Thursday*— Our first Technical Session, to be held at 11 A.M., at the Empire State Room. Dr. Saltonstall of the Udylite Corp. will divulge many many "Platers' Secrets", after which the Udylite Corporation will be our Host at a luncheon
- Icing*— The Annual Banquet, held in the Grand Ball Room on Thursday evening. Lots of food, dancing and fun, but NO SPEECHES.

MRS. ANTHONY NIGRO,
Chairlady

GIFTS FOR THE LADIES

- You will find tickets in your registration book
- Souvenir—Detroit Chemical Specialties Company,
Detroit, Mich.
- “ —Schaffner Mfg. Co., Inc., Pittsburgh, Pa.
- “ —J. J. Siefen Company, Detroit, Michigan.
- “ —Wyandotte Chemicals Corp., Wyandotte,
Michigan.
- Playing Cards—The Traditional Gift of Green
Electric Co., New York

LADIES PROGRAM



PARLOR G ON MEZZANINE FLOOR WILL BE LADIES' HEADQUARTERS JULY 29TH-AUGUST 2ND

MONDAY, JULY 30th, 1951

8:00 A.M. REGISTRATION ALL DAY
MEZZANINE
LOUNGE

12:00 NOON GET ACQUAINTED AND RENEW ACQUAINTANCE LUNCHEON
NIAGARA ROOM

8:30 P.M. THE NIGHT OF FOOD, FROLIC AND FUN—
GRAND The contribution of our GENEROUS ALLIES—The
BALLROOM International Fellowship Club—Music—Dancing—
Buffet served at 10:00 P.M.

TUESDAY, JULY 31st, 1951

10:00 A.M. TRIP TO NIAGARA FALLS—ON TO CANADA
(Please Bring identification to prove citizenship)



Dave X. Clarin

AUNT ELLA SOCIETY LUNCHEON — GENERAL BROCK HOTEL, NIAGARA FALLS, CANADA—Sponsored by Oakite Products, Inc. Dave X. Clarin, host, leading and only man

Please remind friend husband to make Banquet Table Reservations

WEDNESDAY, AUGUST 1st, 1951

12:15 P.M. LUNCHEON—ANNUAL PICNIC—PRIZES AND SURPRISES. BUSES will leave Delaware Avenue Door—Hotel Statler for trip to Automobile Club, Clarence, N. Y.



THURSDAY, AUGUST 2nd, 1951

11:00 A.M.
EMPIRE STATE
ROOM

TECHNICAL SESSION FOR THE LADIES—Dr. R. B. Saltonstall, The Udylite Corp., will divulge a number of PLATERS' SECRETS—FOR LADIES ONLY



Dr. R. B. Saltonstall

7:00 P.M.
GRAND
BALLROOM

ANNUAL BANQUET—GOOD FOOD—GOOD MUSIC—DANCING
Drawing for Barcalounger, Barcalo Mfg. Co.
Drawing for Hanson-Van Winkle-Munning Co., Gifts

RECEPTION COMMITTEE



Left to right: Mrs. H. A. Fudeman, Mrs. Joan Wiarda, Mrs. Bert Kirchhoff, Mrs. Frank Nowakowski, Mrs. Roland Campbell, Mrs. William Hart, Mrs. James Moneyppenny, Mrs. Anthony Nigro, Mrs. Ben Fortin, Mrs. Robert Potter, Mrs. Leon Nowak, Mrs. Stan Shurman, Mrs. C. J. Wernlund.



KEYNOTE ADDRESS

Electrodeposition Researches at the
National Bureau of Standards

By DR. W. BLUM

*National Bureau of Standards,
Washington, D. C.*



Dr. Wm. Blum

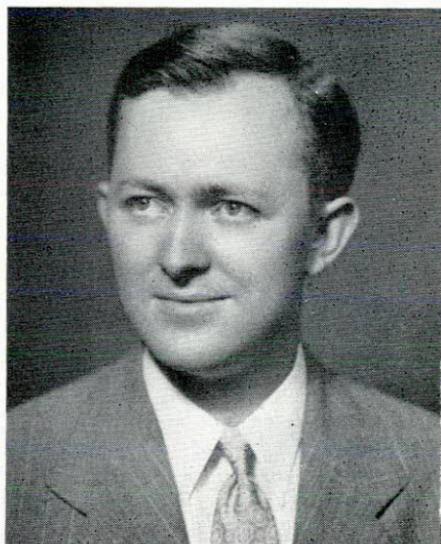
An informal review of the electroplating researches at the National Bureau of Standards since 1913, including current researches and specific illustrations of results and their relation to the electroplating industry.

» «

FIRST TECHNICAL SESSION

“Engineering Aspects of
Electroplating”

Chairman, G. W. JERNSTEDT
Westinghouse Electric Corp.



George W. Jernstedt
Chairman, Monday Afternoon Session



ABSTRACTS



R. J. Rominski

Rinsing for Electroplating

By R. J. ROMINSKI
and F. L. CLIFTON

General Motors Research

Need for more study and control of rinsing; available types of rinses and advantages of each; effect of harmful water impurities and methods for their removal. Importance of proper rinsing.



F. L. Clifton

Practical Application of Diaphragm Tanks in the Electroplating Industry

By EZRA A. BLOUNT

Products Finishing Magazine

Description of the three general types of diaphragm-tank installations, and bright-nickel solutions, and their engineering features; listing of necessary accessory equipment; survey of diaphragm materials; showing of how the plater with a 5-gal. tank may enjoy the advantages of the equipment just as easily as the plater with a 50,000-gal. tank.



Ezra A. Blount



W. E. Stadel

Methods of Heating and Temperature Control of Plating Solutions

By W. E. STADEL & C. CIVAN
George L. Nankervis Co., Detroit, Mich.

Choice between internal heating coils and external heat exchangers; factors in the design of heat exchangers, including selection of materials; types of temperature-control means and their applications.



C. Civan

Advantages of Simplicity in the Electroplating of Automobile Bumpers

By DONALD H. SCHANTZ

Michigan Bumper Co., Grand Rapids, Mich.

Detailed description of a plating sequence in commercial use for finishing automobile bumpers without the use of copper and cyanides; advantages — extreme simplicity, low cost, excellent adhesion of deposit; replating of chromium rejects without buffing; use of alternating current for electrocleaning.



Donald H. Schantz



**SECOND EDUCATIONAL
SESSION**

**“Preparation and Plating of
Zinc Base Die Castings”**

DR. R. B. SALTONSTALL
Chairman,
The Udylite Corp.



Dr. R. B. Saltonstall
Chairman, Tuesday Morning Session



G. J. Beckwith

**Requirements for Die Castings
for Plating**

By GLENWOOD J. BECKWITH
Metallon Products, Inc., Los Angeles, Calif.

Design of articles for efficient polishing and plating; design of dies for high output and good surface characteristics; types of die-casting machines and their operation; composition of die-casting alloys and its effects.

**Mechanical Finishing of Zinc Base
Die Castings Prior to Plating**

By MAURICE R. CALDWELL
*Jarvis Division, Doehler-Jarvis Corp.,
Grand Rapids, Mich.*

Reasons for having to polish and buff diecastings prior to plating, including information about density and thickness of the “skin” of normal castings; methods of preparation of the surface demonstrated by slides, with explanations of how the equipment is operated and comparisons of the method.



Maurice R. Caldwell



ABSTRACTS



Earl W. Arnold

Chemical and Electrochemical Preparation of Die Castings for Electroplating

By EARL W. ARNOLD

L. H. Butcher Co., Los Angeles, Calif.

Adhesion and appearance of electroplated coatings depends on removal of objectionable films without formation of harmful reaction products; precleaning in organic solvents, emulsion cleaners, alkaline soak cleaners; electrolytic cleaning and its control; types and choice of acid dips.

Electroplating Zinc Base Die Castings

By CHESTER G. BORLET

United Chromium, Inc., Detroit, Mich.

Factors affecting electrodeposition as they pertain to successful operation of any plating system employed in the finishing of zinc-base die castings to a well-defined set of specifications; composition, current density, filtration, agitation.



C. G. Borlet



Dr. Walter R. Meyer
Chairman, Tuesday Afternoon Session

THIRD TECHNICAL SESSION

"Open Forum on Substitute Finishes for Electroplating"

Chairman,

DR. WALTER R. MEYER

Enthone, Inc.

ABSTRACTS



Alfred Douty

OPEN FORUM ON SUBSTITUTE FINISHES FOR ELECTROPLATING Phosphate Coatings

By ALFRED DOUTY

*American Chemical Paint Co.,
Ambler, Pa.*



Chas. W. Ostrander

Chromate Treatment

By CHARLES W. OSTRANDER

*Allied Research Products, Inc.,
Baltimore, Md.*

Black Oxide Coatings

By WALTER R. MEYER

Enthone, Inc., New Haven, Conn.



Donald W. Meserve

Clear and Pigmented Organic Coatings

By DONALD W. MESERVE

*Organic Coatings Div.,
United Chromium, Inc.,
Carteret, N. J.*



A. W. Ackerman

Rust Preventive Oils and Waxes

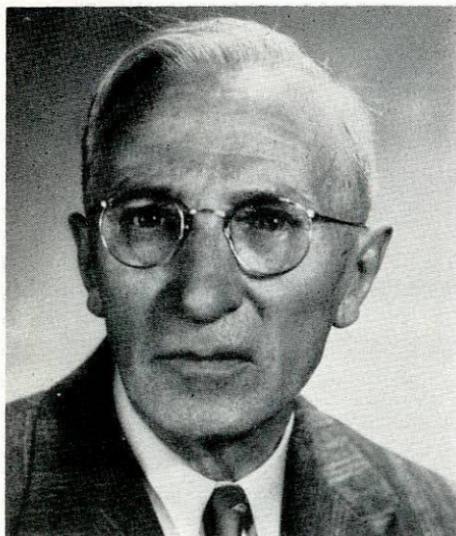
By A. W. ACKERMAN

*F. E. Anderson Oil Co.,
Portland, Conn.*

These short introductory talks will list available processes and materials, and will classify them according to their applicability as substitutes for electroplating processes on civilian goods. Tabular data will be distributed to the audience.



ABSTRACTS



John M. Acheson
Chairman, Wednesday Morning Session

FOURTH TECHNICAL SESSION

"Some Practical Aspects of Plating Room Control"

Chairman, JOHN ACHESON
Canadian Hanson-Van Winkle Co., Ltd.

The Evaluation of Quality of Electrodeposits

By CARL DURBIN

Chrysler Corp., Detroit, Mich.

A discussion of some of the properties of an electro-deposited coating which contributes to its quality; laboratory methods of evaluation of these properties for nickel-chromium coating, including rapid tests that can be used in the production plating shop; presentation of limited data showing correlation with results of atmospheric exposure.



Carl Durbin

Operating Control for Optimum Plating Characteristics

By R. O. HULL and

J. B. WINTERS

R. O. Hull & Co., Rocky River, O.

Principles and practice of the technique of controlling plating baths for uniform deposit quality and continuous production; plating bath standards, and analytical and physical controls for each type of bath with time cycles for keeping the baths within prescribed limits for good operation; the daily "foreman check" for anticipation of trouble before it can interfere with production; differences between plants with continuous production and job or contract shops with variable production with respect to types of baths and control methods.



R. O. Hull



J. B. Winters



Some Practical Considerations of Current Distribution

RALPH A. SCHAEFER and
HARRY POCHAPSKY

Cleveland Graphite Bronze Co., Cleveland, O.

The importance of minimum and maximum thickness and the spread between the two; improvement of quality by application of known concepts of current distribution, some of which are not recognized as having a bearing on the problem, especially when metal distribution is a secondary factor; effect of organic and inorganic addition agents on the physical, chemical and electrical factors which make up "throwing power."



Dr. R. A. Schaefer

Nickel Plating with Insoluble Anodes

By DR. W. A. WESLEY

DR. D. S. CARR and E. J. ROEHL

*The International Nickel Co.,
Bayonne, N. J.*



Dr. W. A. Wesley

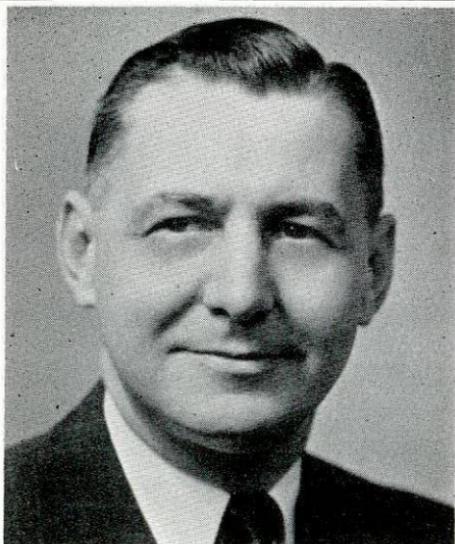


Dr. D. S. Carr



E. J. Roehl

Advantages of an insoluble anode process for nickel plating of metal strip and wire, rolls and inside of tubes and for nickel electroforming of screens; an electrolytic regenerating process for replenishing, cheaply and with good control, the nickel content of a chloride-free nickel plating solution, in which the electrolyte is circulated continuously through the plating cell, a regenerating cell and a filter; characteristics of the process, which makes use of periodic reversal of the current in the regenerating cell; the mechanism which makes this effective.



Guy M. Cole
Chairman, Thursday Morning Session

FIFTH TECHNICAL SESSION

“Report on A.E.S. Research Program”

Chairman, GUY COLE
General Motors Corp., Ternstedt Div.

**A New Degreasing Evaluation Test —
The Atomizer Test**

By DR. HENRY B. LINFORD
Columbia University, New York City

Dependence on the receding contact angle of currently used degreasing-evaluation tests, namely, the common water-break test and *Springs* spray-pattern test which allows quantitative estimations of waterbreak; bridging of small oily and greasy areas in the common water-break test, in which the panel is flooded with an excess of water; absence of these limitations in a newly developed atomizer test in which water is sprayed against a previously dried panel; higher sensitivity of the new test, in which clean areas show a continuous film of water, heavily soiled areas show very fine droplets of water, and lightly soiled areas show large water droplets, than of the spray-pattern (water-break), the fluorescent-dye, the copper-replacement or the ferrocyanide tests, shown by extensive testing.



Dr. H. B. Linford

**How the Plating Industry Will Benefit
from Research on Metal Cleaning**

By E. T. CANDEE
Lea Mfg. Co., Waterbury, Conn.

Abstract nature of much research work, making it difficult for management to justify the expense; detailed discussion of how A.E.S. Project No. 12 was laid out and is being conducted. benefits that will accrue to the industry.

Highlights of the A.E.S. Research Program
By DR. DONALD PRICE
Oakite Products, Inc., New York City

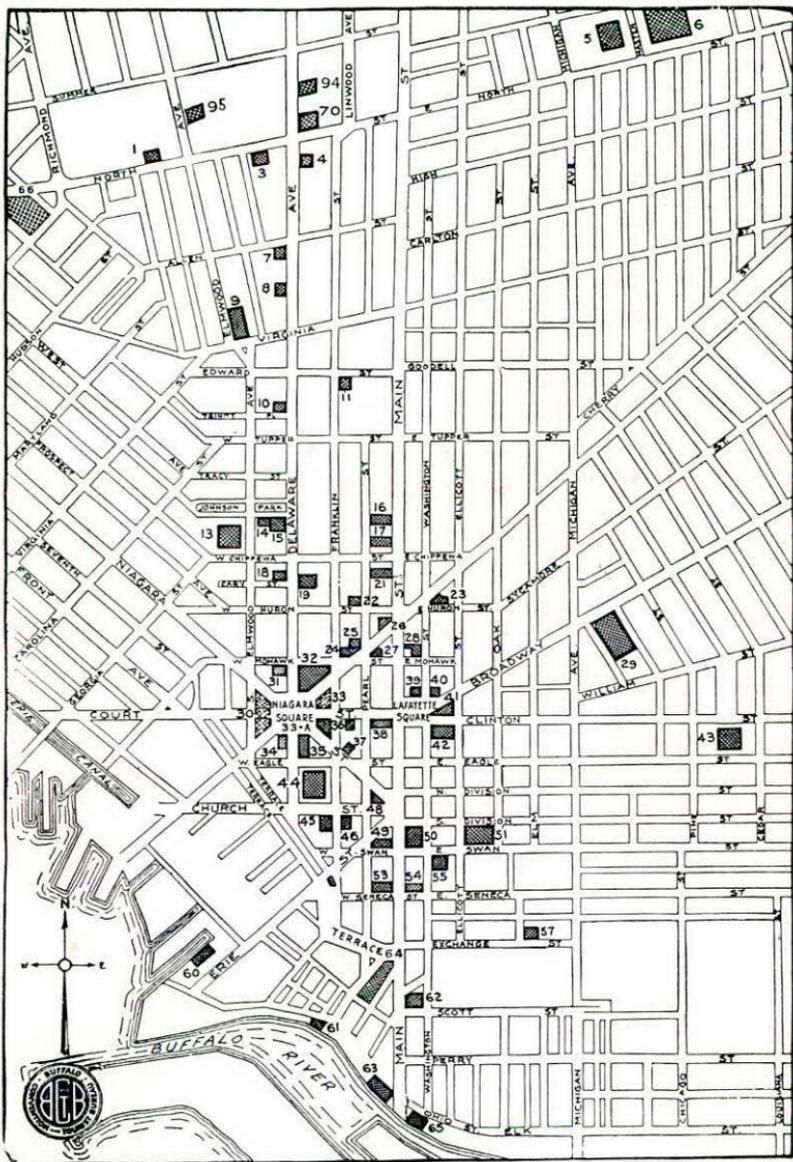
Summary of the progress and accomplishments of the past year.



Dr. E. T. Candee



Dr. Donald Price





George L. Nankervis
President

A GAIN this year the social aspect of the Annual A.E.S. Convention will be highlighted by the several affairs sponsored by the International Fellowship Club. The generous support of the metal finishing industry's manufacturers and distributors will be in special evidence at the Open House Party and the annual I.F.C. Golf Tournament, but their support of A.E.S. activities in many unseen ways helps make every annual convention a success.



A. P. Munning
1st Vice-Pres.



Al Braun
2nd Vice-Pres.



Chas. Berry
3rd Vice-Pres.



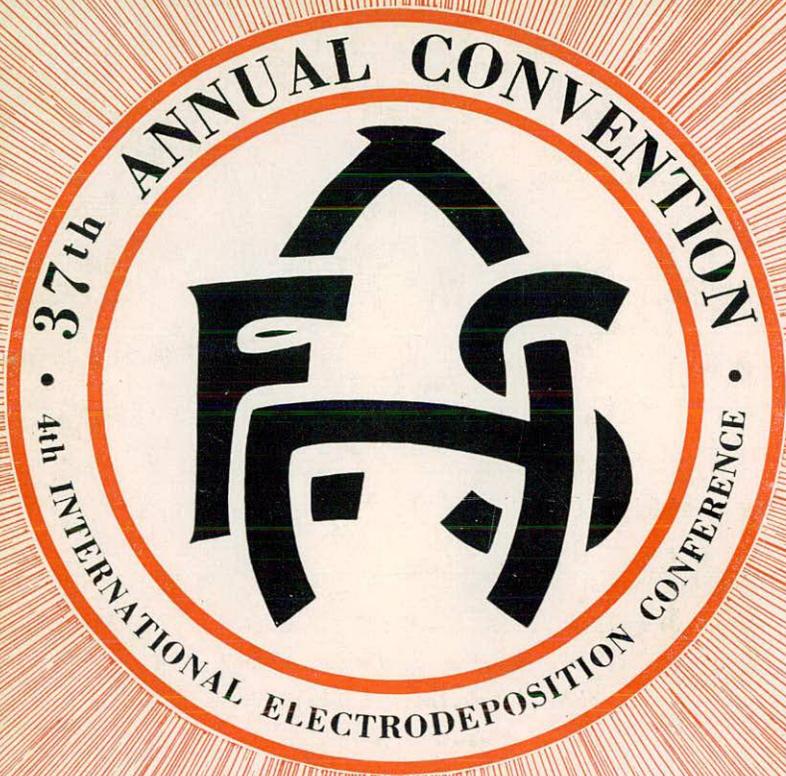
Tom Trumbour
Permanent Sec'y



Rudy Hazucha
Past Pres.



Al Clem
Golf Chairman



June 12-15, 1950

Hotel Statler, Boston, Mass.

Boston Branch, Host

*Reprinted from the June, 1950 issue of
PLATING, published by the American
Electroplaters' Society, Inc., Jenkintown, Pa.*

A. E. S. OFFICERS 1949-1950



Arthur W. Logozzo
President



William J. Neill
First Vice-President



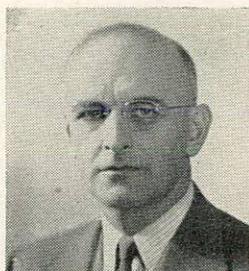
Cleveland F. Nixon
Second Vice-President



Franklyn J. MacStoker
Third Vice-President



Samuel S. Johnston
Past President



Dr. A. Kenneth Graham
Executive Secretary

BOSTON IS GLAD TO SEE YOU

PLANNING this 1950 meeting of ours, your Boston hosts have tried to serve three purposes. They are different, each from the other; but, united in balanced harmony, they have made other conventions memorable, and we hope and expect they will do the same for us.

The central purpose is professional. The Editorial Board has set up a superb EDUCATION program . . . we hope to provide a background and atmosphere worthy of its excellence.

Second . . . in three long centuries there have grown up in this town some unique institutions—historical, cultural and gastronomical. From among these we have for your PLEASURE sought items native to our hills and our history, the products of our salty tides and saltier traditions, hoping you will take home on your palates and in your memories some flavors uniquely Boston.

But we well know too that you come here answering the calls of FRIENDSHIP. Our best service is to open our city for the renewal of the old warm associations and the discovery of new congenial spirits . . . of whatever sort. For thus are forged the bands that hold the A. E. S. together.

Pray with us for sunny skies . . . bear with us in our deficiencies . . . and call on us frequently and freely when we can in any way prove to you how glad we are you have come.

BOSTON BRANCH

Manson Glover, General Chairman
Convention Committee

BOSTON CONVENTION COMMITTEE AND BRANCH OFFICERS



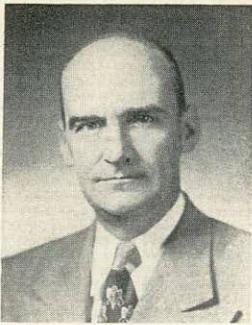
Manson Glover
General Chairman
Librarian
Glover Coating Company



Dr. George P. Swift
General Co-Chairman
Secretary-Treasurer
Consultant, Metal Finishing



Louis V. Gagnon
President
Gillette Safety Razor Company



Arthur W. Collins
Publicity Chairman
M. E. Baker Company



Leonard A. Chesworth
Education Chairman
United-Carr Fastener Corporation



Harold Narcus
Branch Exhibits Chairman
Second Vice-President
Electrochemical Industries



Richard I. Furbush
Plant Visitations Chairman
Member Massachusetts Senate
Adams Engineering Company



Ann Baker Love
Ladies Chairman
M. E. Baker Company



Kenneth R. Corson
Banquet Chairman
Apley N. Austin Company



Edmund S. Jevly
Entertainment Chairman
First Vice-President
Frederick Gumm Chemical Company



Joseph T. Sullivan
Outing Chairman
MacDermid, Inc.



Rudolph L. Helgeson
Hotel Chairman
Sparkler Manufacturing Company



Walter L. Larsson
Hotel Reservations Chairman
Wyandotte Chemicals Corporation



James H. Anderson
Registration Chairman
Member, Board of Managers
Reece Corporation



Louis J. Love
Finance Chairman
M. E. Baker Company



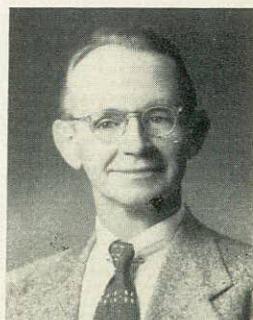
Stanley S. Knight
Program Chairman
Continental Screw Company



Salvatore J. Belissimo
Sergeant-at-Arms
Gillette Safety Razor Company



Andrew W. Garrett
Honorary Member, A. E. S.
Member, Board of Managers
Gillette Safety Razor Company



William B. Harvey
Member, Board of Managers
Standard Thermometer, Inc.

GENERAL PROGRAM

Eastern Daylight Saving Time Used Throughout
Abstracts of papers listed below are found on pages 10-15

SUNDAY, JUNE 11, 1950

4:00 P. M. to 8:00 P. M.

REGISTRATION, Mezzanine, Hotel Statler. The Registration Fee of \$10.00

entitles registrant to a book of tickets admitting to certain Convention functions and activities listed in this program.

MONDAY, JUNE 12, 1950

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

9:30 A. M. to 12:00 Noon

OPENING SESSION, Georgian Room, Hotel Statler.

Invocation: The Reverend Frank C. Mesle, Rochester Branch.

Welcome to Boston: The Honorable John B. Hynes, Mayor of Boston.

Welcome to Electrodepositors' Technical Society: Arthur W. Logozzo, President, A. E. S.

Testimonial to Founder Members: Dr. George P. Swift, Secretary, Boston Branch.

Greetings from Boston Branch: Louis V. Gagnon, President.

Address: Daniel Gray, Chief Chemist, Oneida, Ltd.

First Business Session: Arthur W. Logozzo, President, A. E. S., presiding.

9:30 A. M. to 2:00 P. M.

NATIONAL ASSOCIATION OF METAL FINISHERS, Board of Directors Meeting and Luncheon, Parlor F, Hotel Statler.

12:00 Noon

EDUCATION COMMITTEE LUNCHEON, Terrace Room, Hotel Statler.

12:15 P. M.

INTERNATIONAL FELLOWSHIP CLUB, 26th Annual Luncheon, Ball Room Foyer, Hotel Statler. For suppliers and their representatives only.

2:00 P. M. to 4:30 P. M.

FIRST EDUCATIONAL SESSION, Georgian Room, Hotel Statler.

General Subjects

Chairman: Mr. Leonard E. Weeg, National Lock Company, Rockford, Ill.

1. "The Self-regulating High Speed Chromium Plating Bath", by Dr. J. E. Stareck, A. Mahlstedt, and F. Passal, United Chromium, Inc., Detroit, Mich.
2. "The Nodule Method of Measuring Adhesion of Electrodeposited Coatings", by Dr. A. Brenner and V. D. Morgan, National Bureau of Standards, Washington, D. C.
3. "Advances in Electrodeposition in the Graphic Arts", by E. I. Peters, Pontiac Engraving & Electrotype Company, Chicago, Ill.
4. "High Speed Nickel Plating of Curved Stereotypes", by K. L. Koessler and R. R. Sloan, Buffalo, N. Y.
5. "Electroplating and Metal Finishing Developments in Germany, 1940-1950", by Dr. R. Springer, Spezialwerk fuer Galvanotechnik Leipzig, Leipzig, Germany.

8:30 P. M. to 1:00 A. M.

OPEN HOUSE, Imperial Ball Room Suite, Hotel Statler. Auspices of the International Fellowship Club.

Music — Dancing — Buffet served at 10:00 P. M.

A ticket to this event is included in the Convention book.

TUESDAY, JUNE 13, 1950

7:45 A. M.

EDUCATION COMMITTEE BREAKFAST, Cafe Rouge, Hotel Statler.

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

9:00 A. M. to 11:30 A. M.

SECOND EDUCATIONAL SESSION, Georgian Room, Hotel Statler.

Smoothing and Leveling of Electrodeposits, Part I

Co-Chairmen: Mr. Myron B. Diggin, Hanson-Van Winkle-Munning Company, Matawan, N. J., and Dr. George P. Swift, Consultant, Wattertown, Mass.

1. "Measurement of Surface Smoothness", by Dr. H. J. Kellner, Lea Manufacturing Company, Waterbury, Conn.
2. "The Measurement of Surface Roughness with the Interference Microscope," by A. G. Strang and F. Ogburn, National Bureau of Standards, Washington, D. C.
3. "Smoothing by Chemical and Electrochemical Polishing", by Dr. C. L. Faust, Battelle Memorial Institute, Columbus, Ohio.
4. "Leveling with PR Current Plating", by George W. Jernstedt, Westinghouse Electric Corporation, East Pittsburgh, Pa.
5. "Some Observations of the Microthrowing Power of Plating Solutions", by C. E. Reinhard, New Jersey Zinc Company, Palmerton, Pa.

12:00 Noon

ELECTRODEPOSITORS' TECHNICAL SOCIETY LUNCHEON, Salle Moderne, Hotel Statler.

NATIONAL ASSOCIATION OF METAL FINISHERS, Job Platers' Luncheon, Parlor C, Hotel Statler.

EDUCATION COMMITTEE LUNCHEON, Terrace Room, Hotel Statler.

2:00 P. M. to 4:30 P. M.

THIRD EDUCATIONAL SESSION, Georgian Room, Hotel Statler.

Smoothing and Leveling of Electrodeposits, Part II

Co-Chairmen: Mr. Myron B. Diggin, Hanson-Van Winkle-Munning Company, Matawan, N. J., and Dr. George P. Swift, Consultant, Wattertown, Mass.

5. "Leveling in Cobalt-Nickel Plating Solutions", by Dr. L. Weisberg, Consultant, New York City.
6. "Surface Contour and Leveling", by A. H. DuRose, W. P. Karash and Dr. K. S. Willson, The Harshaw Chemical Company, Cleveland, Ohio.
7. *General Discussion of Leveling*

8:00 P. M.

ELECTROPLATERS' NIGHT AT THE BOSTON POPS, Symphony Hall, Huntington Avenue.

A ticket in the Convention book may be exchanged for a ticket to this event at the Registration desk any time Tuesday between 10:30 A. M. and 7:00 P. M.

WEDNESDAY, JUNE 14, 1950

7:45 A. M.

BRANCH SECRETARIES' BREAKFAST, Parlor C, Hotel Statler.

EDUCATION COMMITTEE BREAKFAST, Cafe Rouge, Hotel Statler.

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

9:00 A. M. to 11:30 A. M.

FOURTH EDUCATIONAL SESSION, Geor-

gian Room, Hotel Statler.

Mechanical Finishing

Chairman: Mr. Walter L. Pinner, Hou-daille-Hershey Corporation, Detroit, Mich.

1. "*Metal Finishing by Abrasive Tumbling*", by H. M. Goldman, Enthone, Inc., New Haven, Conn.
2. "*Abrasive Belt Polishing*", by E. E. Oathout, Behr-Manning Corporation, Troy, N. Y.
3. "*Flat Polished Phosphate Coated Steel Reduces Polishing Cost*", by H. J. McVey and V. M. Darsey, Parker Rust Proof Company, Detroit, Mich.
4. "*Water Base Buffing Liquid*", by E. T. Candee and S. L. Doughty, Jr., The Lea Manufacturing Company, Waterbury, Conn.

12:00 Noon

INTERNATIONAL FELLOWSHIP CLUB GOLF TOURNAMENT, Tedesco Country Club, Swampscott, Mass.

Chairman: Mr. Joseph J. Duffy, Jr., Pennsylvania Salt Manufacturing Company, Philadelphia, Pa.

Prizes will be awarded; all handicap groups have a chance to win.

Bring your clubs and shoes!

Buses leave Statler from Columbus Avenue door; arrange your transportation with the Committee.

Adjournment to Clambake after the play.

1:30 P. M. to 6:30 P. M.

OUTING AND CLAMBAKE, Thomson Club, Nahant Beach, Nahant, Mass. Buses leave Statler from Columbus Avenue door.

Softball game: East (Champions) vs. West.

Clambake at 5:00 P. M.

Wear your outing clothes!

A ticket to this event is included in the Convention book.

2:00 P. M. to 4:00 P. M.

RESEARCH COMMITTEE MEETING, Parlor D, Hotel Statler.

6:00 P. M.

RESEARCH COMMITTEE DINNER, Parlor D, Hotel Statler.

THURSDAY, JUNE 15, 1950

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

COMBINED BREAKFAST, RESEARCH AND EDUCATION COMMITTEES, Parlor C, Hotel Statler.

9:00 A. M. to 11:30 A. M.

FIFTH EDUCATIONAL SESSION, Georgian Room, Hotel Statler.

Research Reports

Chairman: Mr. B. C. Case, Hanson-Van Winkle-Munning Company, Detroit, Mich.

1. "*The Reporting and Use of Research Data*", by G. M. Cole, Ternstedt Division, General Motors Corporation, Detroit, Mich.
2. "*Why Pay for Porosity Research?*"

by Dr. W. A. Wesley, The International Nickel Company, Bayonne, N. J.

3. "*Use of Radioactive Isotopes for Determination of Current Distribution*", by Dr. John Kronsbein, Evansville College, Evansville, Ind.

2:00 P. M.

FINAL BUSINESS SESSION, Georgian Room, Hotel Statler.

7:00 P. M. to 1:00 A. M.

ANNUAL BANQUET, Imperial Ball Room Suite, Hotel Statler.

Dinner — Golf Prizes — Awards — Entertainment — Music — Dancing.

A ticket to this event is included in the Convention book.

Abstracts of Convention Papers

THE SELF-REGULATING HIGH SPEED CHROMIUM PLATING BATH, *by J. E. Stareck, H. Mahlstedt and F. Passal.*

The operating characteristics of a new chromium plating solution are compared with those of the conventional chromic acid-sulfate solution. The principle of automatic regulation of the catalyst content is discussed. Graphs, data, photomicrographs, profilometer records, and photographs serve to compare the following characteristics of the two solutions and the deposits produced in them over a wide range of plating conditions: current efficiencies and plating speeds; scratch hardness, microscopic appearance, and smoothness of deposits; and coverage of nickel plated production pieces. The effect of these characteristics in commercial production is shown.

METHOD OF MEASURING THE ADHESION OF ELECTRODEPOSITED COATINGS, *by Abner Brenner and Virginia Dare Morgan.*

A method of measuring the adhesion of electrodeposited coatings of commercial thicknesses has been developed. It involves the electroforming on the surface of the coating of a mushroom-shaped projection, or nodule, of cobalt which serves as a grip for detaching the coating. The nodule is detached with a simple device, consisting of a chuck and a strong spring, and the force of detachment, or adhesion, is measured in pounds per square inch. In practically all cases the coating is detached with the nodule. The electroformed nodule is about 1/16 inch in diameter and about 1/32 inch high. Three to four hours are required for the formation of the nodule, and the complete test on a specimen can be made during one workday. The method is probably useful for laboratory examination of specimens, but not as a rapid outline method for plant control.

ADVANCES IN ELECTRODEPOSITION IN THE GRAPHIC ARTS, *by E. J. Peters.*

Various graphic arts are defined, and the role of electroplating is given for each. A number of technological advances are then described, including chromium plating and nickel plating (in the nickel chloride-acetate bath) of stereotypes; use of the cobalt-

L. E. WEEG, *Chairman, First Session*; J. E. STARECK, H. MAHLSTEDT, F. PASSAL, A. BRENNER.



nickel solution in electrotyping; tin plating of electrotype shells; use of the copper fluoborate bath in electrotyping and rotogravure-cylinder plating; iron deposition in electrotyping and manufacture of engraving plates; and zinc plating of deep-etch offset lithographic plates.

HIGH SPEED NICKEL PLATING OF CURVED STEREOTYPES, by *Kenneth L. Koessler and Robert R. Sloan.*

A report is presented on the applicability of a nickel fluoborate solution, containing about 7.5 oz/gal nickel and 2 oz/gal free boric acid, to the plating of stereotypes. A 700-gallon tank was run in production for 60 days. During this time one-half of the stereotype plating was carried out in the fluoborate bath, and at the end a complete change to fluoborate was made because of ease of control, high plating speed (0.0005 inch in 7.5 minutes), economy of heating, high anode and cathode efficiencies, stability of pH, cleanliness and absence of odor in operation, low power and chemical cost, substantial absence and ease of control of pitting. Details of the preparatory cycle are given.

ELECTROPLATING AND METAL FINISHING DEVELOPMENTS IN GERMANY, 1940-1950, by *Richard Springer.*

The paper covers the war time and the time after the war. It describes developments in cleaning and pickling; deposition of nickel, chromium, zinc, silver, gold, and iron; oxidation of aluminum, magnesium, iron, and alloys of these metals; phosphatizing; methods of examining coatings; and in other fields.

MEASUREMENT OF SURFACE SMOOTHNESS, by *H. L. Kellner.*

This introductory paper is written to eliminate duplication of description of measuring techniques in the papers that follow. The methods described include: (1) microscopic methods (a) for surface examination by perpendicular viewing with oblique lighting parallel to and perpendicular to scratches, and by oblique viewing with lighting perpendicular to surface, and (b) for examination of cut edge mounted in plastic, ground, polished, and etched by usual metallographic procedure, either perpendicularly or at an angle to the surface; (2) tracer methods by the Brush Analyzer and the Profilometer, and comparison of results obtained; and (3) the replica method, both comparison of replicas with Fax Film equipment and evaluation of replicas by Herschman apparatus.

V. D. MORGAN, E. I. PETERS, R. SPRINGER, M. B. DIGGIN and G. P. SWIFT,
Co-Chairmen, Second and Third Sessions



MEASUREMENT OF SURFACE ROUGHNESS WITH THE INTERFERENCE MICROSCOPE, by *Arthur G. Strang and Fielding Ogburn.*

The Zeiss interference microscope which combines into one instrument the microscope and the interferometer can be used to study and measure the smoothness of electrodeposited surfaces. With this instrument, the height and depth of surface imperfections, such as fine scratches or microscopic nodules and pits, can be measured over the range of 2-30 microinches. The surface can be inspected with a magnification of 664X and can be scanned as with a microscope. Photographic records can be made of small areas about 0.009 inch in diameter. No special preparation of the surface being examined is required.

LEVELING AND SMOOTHING BY ELECTROPOLISHING AND CHEMICAL POLISHING, by *C. L. Faust.*

Data are supplied on the microroughness as revealed by Profilometer, Brush Surface Analyzer, and reflectivity measurements, as well as microscopic examination, before and after electropolishing and chemical polishing of steel, brass, and aluminum base metals and before and after chemical and electrobuffing of nickel plate. The value of these treatments in providing adhesion of electrodeposits is also shown.

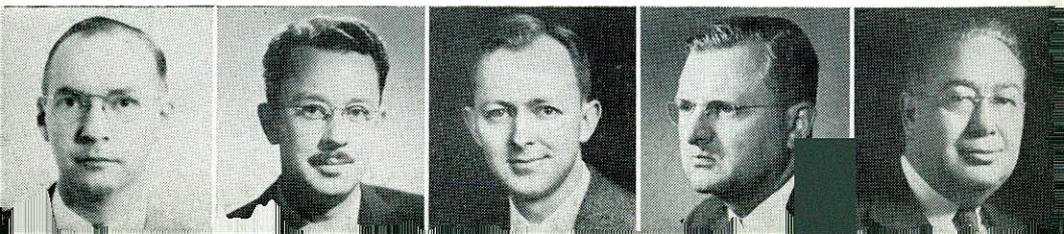
LEVELING WITH PR CURRENT PLATING, by *G. W. Jernstedt.*

Mechanical, chemical, and electrochemical methods of leveling are reviewed. The fundamental factors affecting leveling with PR plating, such as PR cycle, current density, thickness of deposit, agitation, solution composition, addition agent, and contamination, are described. Particular consideration is given to the elimination of buffing in the appliance and automotive fields by polishing the base metal in the flat and by providing increased leveling in the plating bath. The effect of leveling with the PR process on orange peel resulting from drawing operations is set forth. The leveling possible with heavy deposits, such as the 0.040 inch thick stamper employed in the record industry, is also described.

SOME OBSERVATIONS OF THE MICROTHROWING POWER OF PLATING SOLUTIONS, by *C. E. Reinhard.*

In an earlier study of plated metal-powder compacts it was found that the deposits extended into surface and subsurface voids, sometimes into labyrinths several thousandths of an inch deep. There appeared to be marked differences in the extent

H. L. KELLNER, C. L. FAUST, G. W. JERNSTEDT, C. E. REINHARD, L. WEISBERG.



to which this occurred with different plating solutions. Illustrations of these deposits are shown. A series of tests is then described which was performed in an attempt to establish the factors controlling microthrowing power by means of systematic variations of plating conditions in several nickel solutions. Specimens with specially prepared grooves of a size corresponding to some of the surface voids in compacts were used. A complete explanation has not been derived, but the effects of several variables are shown. Photomicrographs of deposits made on the standardized grooves are presented. They include copper, nickel, zinc, and chromium coatings on brass and a few of these deposits on copper, steel, and silver basis metals.

LEVELING IN COBALT-NICKEL PLATING SOLUTIONS, by *Louis Weisberg*.

Composition and operating details of cobalt-nickel plating solutions with leveling properties are described. Bright or semibright deposits with substantially the same degree of leveling may be obtained. Good leveling is favored by high temperature, vigorous agitation, and high metal content. Nickel chloride over about eight ounces per gallon is detrimental, as are also various metallic and organic impurities and ammonium compounds. Formic acid accounts for the main leveling effect. Formaldehyde is used to obtain brightness but does not affect leveling. Physical properties and corrosion resistance are substantially the same as those of cobalt-nickel deposits from solutions in general use.

SURFACE CONTOUR AND LEVELING, by *A. H. Du Rose, W. P. Karash and K. S. Willson*.

Methods and meaning of measurements used in the tests reported in this paper are briefly reviewed. Leveling due to inherent properties of a bath is treated, with consideration of mathematical and geometric approaches, including atomic-force characteristics. Relationship between thickness of the deposit and leveling for various solutions is discussed. Results are given to demonstrate methods for evaluating the relative contribution of "flowing" and "cutting off" of metal in the buffing process. The effect of surface texture and hardness on ease of buffing is discussed briefly. The lack of fundamental information is pointed out.

METAL FINISHING BY ABRASIVE TUMBLING, by *Hubert M. Goldman*.

Theoretical and practical information is presented on tumbling techniques involving the use of abrasives where actual cutting down of metallic surfaces is desired.

A. H. DURÖSE, W. P. KARASH, K. S. WILLSON; W. L. PINNER,
Chairman, Fourth Session; H. M. GOLDMAN



Production and experimental operations are specifically described. Theoretical aspects noted have been carefully checked as to practicability. Burnishing practices are not included unless they automatically accompany truly abrasive operations. Data are presented on the use of artificial and natural abrasives as media and on nonabrasive media which do not fall within the realm of burnishing materials. A study of tumbling equipment is also included.

ABRASIVE BELT POLISHING, *by E. E. Oathout.*

Factors in the choice of equipment, heads, and belts are discussed. Case histories are presented which give details of the procedure used and the advantages gained in lower cost and higher rates of production.

FLAT POLISHED PHOSPHATE COATED STEEL REDUCES POLISHING COST, *by H. J. McVey and V. M. Darsey.*

Automatic polishing of steel in the flat followed by phosphate coating and lubrication to protect the surface during the forming operation has sufficient economic advantages over polishing of formed articles that a part of the automobile industry has turned to this method for bumpers and other parts. The steps in this procedure, including the cleaning prior to phosphating, are discussed, and the advantages are presented.

WATER BASE BUFFING LIQUID, *by E. T. Candee and S. L. Doughty, Jr.*

The history and present practice of buffing with bar compounds are presented, including their advantages and disadvantages. Data are given on characteristics of water-base buffing liquids, their application and economy and on types of equipment and their application. Information is included to help the manufacturer decide what type of compound to adopt for each product.

REPORTING AND USE OF RESEARCH DATA, *by G. M. Cole.*

It is important that the membership understand and make full use of reports emanating from A. E. S. research projects. The immediate usefulness of the reports

E. E. OATHOUT; H. J. MCV EY, V. M. DARSEY, E. T. CANDEE, S. L. DOUGHTY, JR.



on the research work as it progresses varies with the nature of the work. Some are complete and independent, such as an analytical procedure from Project No. 2. Another may be of immediate use although not independent of other reports, such as one from Project No. 5 on "The Effect and Removal of Copper from Nickel Plating Solutions". Others, such as those from Project No. 6, require study and interpretation before practical applications can be expected. In all instances the reader must determine how he can best use the information contained in the research reports.

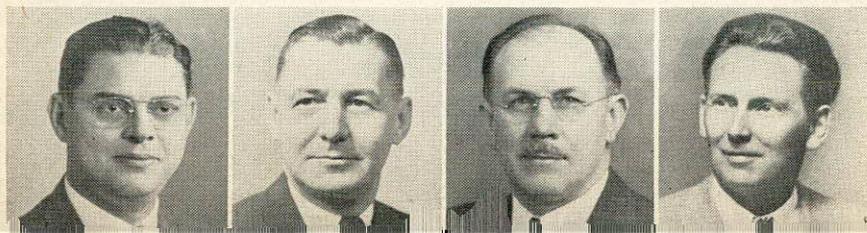
WHY PAY FOR POROSITY RESEARCH? by *W. A. Wesley.*

In spite of the fact that over 100 laboratories in the United States are doing experimental work in electrodeposition there is an urgent need for fundamental research in this field. The reason is that an industry cannot continue to advance through applied technical research and development when the supply of new scientific knowledge dwindles. This seems to have been the situation with regard to porosity research. The significance to the plating industry of the work on porosity sponsored by the A. E. S. is brought out by discussion of its seven important new contributions to fundamental knowledge of the nature of porosity. Eight specific clues, or ideas, emanating from reports by Project No. 6 are already stimulating new technical research on the protective value of electrodeposits.

USE OF RADIOACTIVE ISOTOPES FOR THE DETERMINATION OF CURRENT AND METAL DISTRIBUTION IN ELECTRODEPOSITION, by *John Kronsbein.*

A known fraction of radioactive copper 64 is introduced into a copper sulfate solution, from which copper is deposited upon a cathode at a known average current density. The cathode is then cut into strips, and the amount of codeposited radioactive copper is determined by means of a Geiger Counter. The distribution of radioactive, and therefore also of stable, copper on the cathode can thus be established within very close limits. Extremely thin deposits may be deposited and yet satisfactory distribution determinations made. The method is especially suitable for ascertaining primary current distribution on an electrode. Another method to illustrate primary metal distribution by means of radioactive isotopes is to proceed as above with the application of part radioactive and part stable copper in known proportions and then to use the radio autographic technique of photographing the disintegrating copper atoms. At those parts of the cathode where most copper is deposited there will be most disintegrations and consequently the photographic film will be most blackened. These techniques are described in detail, and sources of errors are pointed out.

B. C. CASE, *Chairman, Fifth Session*; G. M. COLE; W. A. WESLEY; J. KRONSBEIN



GREETINGS, LADIES!

IT IS with a great deal of pleasure that we again welcome you, Ladies, to Boston. It was nine years ago that we gathered here. Long remembered is the good fellowship that prevailed!

Knowing that your time is limited and that Boston is rich in tradition, we have arranged a program that will cover some of the more important attractions of our fair city.

One of the outstanding events which proved so successful in the 1941 National Convention was the "Pops Concert" by the Boston Symphony Orchestra. This year, by popular demand, the men will enjoy the concert as well as the women.

A novel item on this year's program is the educational session on Electroplating prepared especially for us, which will also include a demonstration of plating. The two-fold purpose of this session is to acquaint us girls with the work the men are doing and to show us what to look for when we buy plated items.

Once again there is a tour of Historic Boston, with a generous stop-over at the Botanical Museum of Harvard University, where you will see the world-famous collection of flowers fashioned in glass. Nowhere else in the world will be found such a wonderful collection.

The other events that have been planned for your enjoyment will be found in the official program. We urge you to take special note of date, time, and meeting place or starting point, so that the program will go along smoothly and disappointments will be few.

While the official program will keep you quite busy, you will still have free moments to be on your own for such things as shopping, a visit to the hairdresser, and time to look up your long-lost relatives, or friends that you met at previous conventions.

If you have any special problems, do not hesitate to get in touch with me or anyone on my committee. We are anxious to meet you and to help make your stay pleasant. Enjoy yourself in Boston!

Your LADIES' COMMITTEE,
Ann Baker Love, Chairman

LADIES' PROGRAM

Eastern Daylight Saving Time Used Throughout

SUNDAY, JUNE 11, 1950

4:00 P. M. to 8:00 P. M.

REGISTRATION, Mezzanine, HOTEL Statler. The Registration Fee of \$10.00

entitles registrant to a book of tickets admitting to certain Convention functions and activities listed in this program.

MONDAY, JUNE 12, 1950

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

12:30 P. M. to 1:30 P. M.

Parlor C, Hotel Statler.
Ladies will meet for an informal "get-acquainted" gathering before leaving for the tour of Boston.

1:00 P. M. to 5:00 P. M.

SIGHT-SEEING TOUR, historic Boston,

Cambridge, Harvard University.
Buses leave Hotel Statler from Columbus Avenue door.

8:30 P. M. to 1:00 A. M.

OPEN HOUSE, Imperial Ball Room Suite, Hotel Statler. Auspices of the International Fellowship Club.
Music — Dancing — Buffet served at 10:00 P. M.
A ticket to this event is included in the Convention Book.

TUESDAY, JUNE 13, 1950

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

12:30 P. M.

GUIDED TOUR AND TEA, The Wayside Inn, Sudbury, Mass. Auspices of M. E. Baker Company.
Buses leave Hotel Statler from Columbus Avenue door.

Ticket to this event is included in the Convention book.

This is the good old Inn made famous by Longfellow's "Tales", carefully restored to its condition of the Longfellow period by Henry Ford. The little red schoolhouse in the neighborhood, the grist mill where corn meal is actually ground for sale, the whole vicinity are now a faithful representation of what

the Inn looked like at the time the famous poem, "Paul Revere's Ride", was written.

8:00 P. M.

ELECTROPLATERS' NIGHT AT THE BOS-

TON POPS, Symphony Hall, Huntington Avenue.

A ticket in the Convention book may be exchanged for a ticket to this event at the Registration Desk at any time Tuesday between 10:30 A. M. and 7:00 P. M.

WEDNESDAY, JUNE 14, 1950

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

10:00 A. M. to 11:30 A. M.

EDUCATIONAL SESSION AND PLATING DEMONSTRATION, Salle Moderne, Hotel Statler.

Chairman: Louis V. Gagnon, President, Boston Branch.

Principal Speaker: Myron B. Diggin, Hanson-Van Winkle-Munning Co., Matawan, N. J.

Movie: *Jewelry Plating*

Plating Demonstration: Henry Strow, MacDermid, Inc., Waterbury, Conn.

1:30 P. M. to 6:30 P. M.

OUTING AND CLAMBAKE, Thomson Club, Nahant Beach, Nahant, Mass.

Buses leave Hotel Statler from Columbus Avenue door.

International Fellowship Club's "Plato" Party, under the direction of Joan Trumbour Wiarda—with prizes!

Clambake at 5:00 P. M.

Wear your outing clothes!

A ticket to this event is included in the Convention book.

THURSDAY, JUNE 15, 1950

8:00 A. M.

REGISTRATION, Mezzanine, Hotel Statler.

12:30 P. M.

AUNT ELLA'S SOCIETY LUNCHEON PARTY, Vienna Room, Steuben Restaurant, 114 Boylston Street. Sponsored by Oakite Products, Inc., David X. Clarin, Secretary.

A ticket to this event is included in the Convention book.

7:00 P. M. to 1:00 A. M.

ANNUAL BANQUET, Imperial Ball Room Suite, Hotel Statler.

Dinner — Awards — Music — Entertainment—Dancing.

A ticket to this event is included in the Convention book.



PLATED WARE EXHIBITS

PARLOR A, HOTEL STATLER

AT YOUR Convention this year, exhibits of Plated Ware submitted by Branches and Individual Members of the A. E. S. are being displayed in Parlor A of the Hotel Statler. These are the only exhibits to be shown at this 37th Convention.

In addition to the competition between the Branches for the honor of having a prize-winning display, opportunity is also being given to the Individual Members to present exhibits for other prizes. An impartial committee composed of representatives from five different Branches will have the unenviable task of selecting the three best Branch Exhibits and the three best Individual Member Exhibits.

A visit to the Plated Ware Exhibits will be worth while for everyone in attendance at the Convention and will be a tribute to those Branches and Individual Members cooperating in the Exhibit.

TIME SCHEDULE FOR BRANCH EXHIBITS

Monday, June 12 12:00 Noon to 6:00 P. M.
Tuesday, June 13 9:00 A. M. to 6:00 P. M.
Wednesday, June 14 9:00 A. M. to 12:00 Noon

HAROLD NARCUS, *Chairman*
Branch Exhibits Committee

PLANT VISITATIONS

AN INTERESTING and elaborate Plant Visitations program is assured for the Annual Convention. This will include visiting the shops of manufacturers and job platers doing the most in the way of plating and anodizing.

In addition, arrangements are being made to visit shops in the Worcester and Attleboro areas for those who wish to stop on their way home from the Convention.

Complete details of these trips, including schedules and means of transportation, will be available throughout week at the Registration Desk of Convention Headquarters.

Check on this information as soon as you arrive!

RICHARD I. FURBUSH, *Chairman*

Plant Visitations Committee

AMERICAN ELECTROPLATERS' SOCIETY

PROGRAM

36th

ANNUAL CONVENTION

June 28 to July 1, 1949

Milwaukee, Wisconsin

MILWAUKEE BRANCH, HOST

Convention Headquarters, Hotel Schroeder



A. E. S. OFFICERS 1948-1949



SAMUEL S. JOHNSTON
President



ARTHUR W. LOGOZZO
First Vice-President



WILLIAM J. NEILL
Second Vice-President



C. F. NIXON
Third Vice-President



KENNETH M. HUSTON
Past President



A. KENNETH GRAHAM
Executive Secretary

WELCOME TO MILWAUKEE

At the opening of the 36th Annual Convention of the American Electroplaters' Society, the Milwaukee Branch will step into the very exacting role of attempting to outdo a superlative performance. I refer to the great Convention which was held in Milwaukee in 1938. Those who were fortunate enough to be here then will agree that it was a memorable occasion. Happily there are enough of the old timers left to guide those of the younger generation, and so all of us will be ready to entertain you again in the manner to which you have been accustomed. You will assure yourself of this by studying your program.

The committee has worked hard to supply all of the requisites for your enjoyment; its realization will be up to you. The educational program should be excellent since under the new Constitution the Editorial Board and our Educational Program Committee have cooperated to make this part of the Convention outstanding.

I want to thank all who have labored with the determination to make this Convention a success.

It is certainly a privilege to be able to work with the people of the Milwaukee Branch.

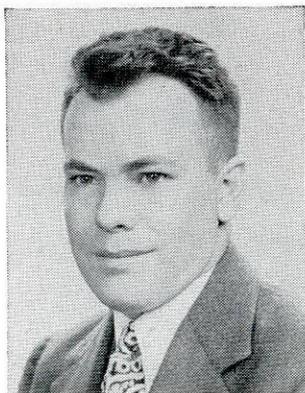
¶ We of Milwaukee are happy to have you with us **WELCOME** for the third time. May your stay be a profitable and joyous one.

WILLIAM C. GEISSMAN, General Chairman
Milwaukee Branch, Convention Committee



MILWAUKEE CONVENTION

COMMITTEES AND BRANCH OFFICERS



WILLIAM C. GEISSMAN
General Chairman

B. S. Chem. Eng., Marquette University.
Assistant Superintendent of Finishing,
National Lock Company, Rockford, Ill.



HENRY BORNITZKE
General Co-Chairman

Superintendent of Plating, Cutler-Ham-
mer, Inc.



THEODORE D. HARTSHORN
Program Chairman
President

B.S., Dartmouth College, 1921. Chemist,
Lindeman-Hoverson Company.



LESLIE DIVELEY
Educational Chairman
Librarian

University of Chicago. Finishing Engineer, Cutler-Hammer, Inc.

Committee: Fred L. Anderson, Vincent Mattacotti, Phil J. Ritzenthaler, Louis J. Schustic, Frank Strand, Charles W. Wheeler.



EUGENE C. BOSL
Branch Exhibits Chairman
Second Vice-President

B.A., Milwaukee State Teachers College, graduate work, University of Wisconsin. Sales Representative, Hanson-Van Winkle-Munning Company.

Committee: Porter Alvestad, Winchester Cook



R. F. MCGUIRE
Outing Chairman

B.S., University of Pennsylvania, 1923. Sales Engineer, Donald Sales and Manufacturing Company.

Committee: Si Bivins



RODNEY H. OLSEN
Banquet Chairman

General Foreman, Shephard Plating Company, Racine, Wis.

Committee: Walter Vogel, Co-Chairman; Robert J. Baltzell, Kenneth Olsen



VINCENT MATTACOTTI
Publicity Chairman

B.A., M.A., Wesleyan University. Vice-President, Milwaukee Plating Company.
Committee: L. J. Moyes



FRANK J. MARX
Registration Chairman

Plating Foreman, H. C. Miller Company.
Committee: Harry J. Krueger



JOHN A. DAVIS
Entertainment Chairman

President, Chromium, Inc.
Committee: William J. Lawrie



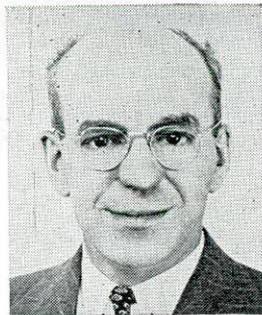
ROBERT J. STEUERNAGEL
Finance Chairman
Member, Board of Managers

Secretary-Treasurer, S. K. Williams Company.



GLEN A. SCHWEMER
Hotel Reservations Chairman

President, Electro Platers Company.



OMER N. DOYLE
Plant Visitations Chairman

Treasurer, Milwaukee Plating Company.



EVERETT N. ROBINSON
Hotel Chairman
First Vice-President

Sales Engineer, George A. Stutz Manu-
facturing Company, Chicago, Ill.
Committee: Arthur J. Noel



HARRY J. KRUEGER
Secretary-Treasurer

Plating Foreman, Allis-Chalmers Manu-
facturing Company.



FRED L. ANDERSON
Assistant Librarian

Plating Superintendent, Electro Platers
Company.



GORDON EINBERGER
Sergeant-at-Arms

United Chromium, Inc.



AXEL F. C. JOHNSON
Member, Board of Managers

President, A. B. Plating Company.



PHIL J. RITZENTHALER
Member, Board of Managers

Ch.E., University of Wisconsin. Presi-
dent, Plating Engineering Company.

GENERAL PROGRAM

Central Standard Time Used Throughout

Abstracts of papers listed below are found on pages 13-17

SUNDAY, JUNE 26, 1949

4:00 P. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.
The Registration Fee of \$10.00 entitles

registrant to a book of tickets which can be used for admission to certain Convention functions and activities as listed in this program.

MONDAY, JUNE 27, 1949

8:00 A. M.

REGISTRATION, Foyer 4th Floor, Hotel Schroeder.

25TH ANNUAL LUNCHEON. For suppliers and their representatives only. Empire Room, Hotel Schroeder.

9:30 A. M. to 12:00 Noon

OPENING SESSION, Crystal Ball Room, Hotel Schroeder.

Invocation by the Reverend Frank C. Mesle, Member of the Rochester Branch, A. E. S. President, 1927.

Welcome to Delegates, Members and Guests by William C. Geissman, General Convention Chairman, Milwaukee Branch President, 1945-1947.

Welcome to Milwaukee by the Mayor.

Greetings from Milwaukee Branch by T. D. Hartshorn, Milwaukee Branch President.

First Business Session. Samuel S. Johnston, A. E. S. President, presiding.

12:00 Noon

EDUCATIONAL COMMITTEE LUNCHEON, Parlor F, 4th Floor, Hotel Schroeder.

12:15 P. M.

INTERNATIONAL FELLOWSHIP CLUB'S

2:00 P. M. to 4:30 P. M.

FIRST EDUCATIONAL SESSION, Crystal Ball Room, Hotel Schroeder. Admission by registration badge only.

A Symposium on the *Business of Plating*

Chairman: Mr. Walter L. Pinner, Director of Research, Houdaille-Hershey Corporation, Detroit

1. "The Customer Looks at Plated Products", by Thor H. Westby and Robert E. Parkinson, Merchandise Testing and Development Laboratory, Sears, Roebuck and Company, Chicago
2. "Process Control in Electroplating", by R. E. Harr, Western Electric Company, Chicago
3. "The Job Plating Business", by Raymond M. Shock, Executive Secretary, National Association of Metal Finishers, Inc., Detroit
4. "Availability of Plating Materials". Short presentations of the outlook on availability of

"Alkalies, Including Silicates and Phosphates" by J. J. Duffy, Jr., Manager of Sales, Special Chemicals Division, Pennsylvania Salt Manufacturing Company, Philadelphia

"Cadmium" by L. K. Lindahl, President, The Udylyte Corporation, Detroit

"Chromic Acid and Chromates" by Henry Mahlstedt, Manager, Plating Division, United Chromium, Inc., New York City

"Cyanides" by Ed McGovern, Manager, Sodium Products Division, E. I. du Pont de Nemours & Company, Wilmington, Del.

"Lead" by Charles R. Ince, Manager, Metal Sales Department, St. Joseph Lead Company, New York City

"Nickel" by Clarence H. Sample, Nickel Sales Department, The International Nickel Company, New York City

"Tin" by Dr. B. W. Gonser, Manager, Tin Research Institute, Inc., Columbus, Ohio

"Zinc" by Ralph F. Burns, Metal Division, The New Jersey Zinc Sales Company, Chicago

8:30 P. M. to 1:00 A. M.

OPEN HOUSE, Crystal Ball Room, Hotel Schroeder, under the auspices of the International Fellowship Club.

Music — Dancing — Buffet served at 10:00 P. M.

A ticket to this event is included in the pass book furnished to each registrant.

TUESDAY, JUNE 28, 1949

7:45 A. M.

EDUCATIONAL COMMITTEE BREAKFAST, Parlor G, 4th Floor, Hotel Schroeder.

8.00 A. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

9:00 A. M. to 11:30 A. M.

SECOND EDUCATIONAL SESSION, Crystal Ball Room, Hotel Schroeder. Admission by registration badge only.

A Symposium on *Copper, Nickel and Chromium Plating*

Chairman: Mr. Frank K. Savage, Graham, rowley, and Associates, Chicago, Ill.

1. "*PR Cyanide Copper Plating*" by George W. Jernstedt, Manager of Electroplating Projects, Westinghouse Electric Corporation, E. Pittsburgh, Pa.
2. "*Electrodeposition of Nickel at High Current Densities*" by W. A. Wesley,

Assistant Director, and W. W. Sellers and E. J. Roehl*, Chemists, Research Laboratory, The International Nickel Company, Bayonne, N. J.

3. "*Factors That Influence Operating Characteristics of Chromium Baths*" by J. B. Winters, Research Chemist, and R. O. Hull, President, R. O. Hull & Company, Cleveland
4. "*Scratch Hardness and Abrasion Hardness of Electrodeposited Chromium*," by J. M. Hosdowich, Chief Chemist, United Chromium, Inc., New York City

9:30 A. M.

NATIONAL ASSOCIATION OF METAL FINISHERS. Meeting of Board of Directors, Parlor E, 4th Floor, Hotel Schroeder.

12:00 Noon

NATIONAL ASSOCIATION OF METAL

*Now Manager of Technical Development, The Thomas Steel Company, Warren, Ohio

FINISHERS. Board of Directors Luncheon. Club Rooms, 3rd Floor, Hotel Schroeder.

EDUCATIONAL COMMITTEE LUNCHEON. Parlor G, 4th Floor, Hotel Schroeder.

2:00 P. M. to 4:30 P. M.

THIRD EDUCATIONAL SESSION, Crystal Ball Room, Hotel Schroeder. Admission by registration badge only.

ROUND TABLE DISCUSSION on *Acid Dips in Cleaning Cycles* and other subjects

Chairman: Dr. William Blum, Assistant Chief, Chemistry Division, National Bureau of Standards, Washington, D. C.

Short introductions of main subject:

1. "*Acid Dips for Ferrous Metals*" by Ivan C. Hepfer, President, Furniture City Plating Company, Grand Rapids, Mich.

2. "*Prevention of Embrittlement of High-carbon Steel*", by Dr. Richard M. Wick, Bethlehem Steel Company, Bethlehem, Pa.

3. "*Acid Dips for Copper and Copper-Base Alloys*" by B. H. McGar, Assistant Director of Research, Chase Brass and Copper Company, Waterbury, Conn.

4. "*Acid Dips for Zinc-Base Metals*" by Dwight M. Overcash, Brown-Lipe-Chapin Division, General Motors Corporation, Elyria, Ohio

6:00 P. M.

NATIONAL ASSOCIATION OF METAL FINISHERS. Dinner and Business Meeting, Club Rooms, 3rd Floor, Hotel Schroeder.

6:00 P. M. to 11:00 P. M.

VISIT TO PABST BREWERY.

Free Beer — Kalter Aufschnitt — Gemuetlichkeit.

WEDNESDAY, JUNE 29, 1949

7:45 A. M.

BRANCH SECRETARIES BREAKFAST, Room to be announced, Hotel Schroeder. EDUCATIONAL COMMITTEE BREAKFAST, Parlor G, 4th Floor, Hotel Schroeder.

8:00 A. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

9:00 A. M. to 11:30 A. M.

FOURTH EDUCATIONAL SESSION, Crystal Ball Room, Hotel Schroeder. Admission by registration badge only.

A Symposium on *Plating and Other Treatments of Light Metals*

Chairman: Mr. K. Gustaf Soderberg, Editor, PLATING, Jenkintown, Pa.

1. "*Plating on Aluminum*" by Fred Keller, Chief, and Walter G. Zelle, Metallography Division, Aluminum Research Laboratories, Aluminum

Company of America, New Kensington, Pa.

2. "*Cleaning, Acid Treatment, and Chemical Brightening of Aluminum*" by Dr. Walter R. Meyer, President and Technical Director, and Steven H. Brown, Research Chemist, Enthone, Inc., New Haven, Conn.

3. "*Amorphous Phosphate Coatings for Protection of Aluminum Alloys and for Paint Adhesion*" by Alfred Douty, Chief Chemist, and F. Palin Spruance, Jr., American Chemical Paint Company, Ambler, Pa.

4. "*Electroplating on Magnesium and Its Alloys*" by Herbert K. De Long, Laboratory Development Division, Magnesium Laboratories, The Dow Chemical Company, Midland, Mich.

12:00 Noon

INTERNATIONAL FELLOWSHIP CLUB GOLF TOURNAMENT, North Shore Coun-

try Club. Joseph J. Duffy, Jr., Pennsylvania Salt Mfg. Co., Chairman. Transportation should be arranged through the Golf Committee.

Prizes will be awarded. All handicap groups have a chance to win. An informal luncheon will be served at the Club between 12:00 Noon and 1:30 P. M. Tee-off time is between 1:00 P. M. and 2:00 P. M. Bring your clubs and shoes.

12:15 P. M.

PICNIC AND OUTING, at Brown Deer Park. Buses leave Hotel Schroeder from 5th Street (East) entrance.

Hot Lunch—Barber Shop Quartet
Famous Blatz Legion Band

Luncheon—Music—Entertainment.

Wear your outing clothes.

A ticket to this event is included in the pass book furnished to each registrant.

2:00 P. M.

RESEARCH COMMITTEE MEETING, Parlor F, 4th Floor, Hotel Schroeder.

6:30 P. M.

RESEARCH COMMITTEE DINNER, Parlor G, 4th Floor, Hotel Schroeder.

7:00 P. M. to 11:00 P. M.

VISIT TO PABST BREWERY.

Free Beer — Kalter Aufschnitt — Gemuetlichkeit.

THURSDAY, JUNE 30, 1949

8:00 A. M.

A. E. S. RESEARCH AND EDUCATIONAL COMMITTEE BREAKFAST, Room to be announced, Hotel Schroeder. REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

9:00 A. M. to 11:30 A. M.

EDUCATIONAL SESSION on A. E. S. Research, Crystal Ball Room, Hotel Schroeder. Admission by registration badge only.

Chairman: Dr. Louis Weisberg, Consultant, New York City, and Research Committee Chairman

Introduction of the new Research Committee Chairman, Mr. W. M. Tucker, Eastman Kodak Company.

1. "*Distribution on Electrodeposited Metal on Some Simply Shaped Cathodes*", a contribution from A. E. S. Research Project No. 11, by Dr. John Kronsbein, Professor and Head of Engineering, and Lester C. Morton, Evansville College, Evansville, Ind.

2. "*Outstanding Problems of Porous Structure in Electrodeposits*", a contribution from A. E. S. Research Project No. 6, by Dr. N. Thon, Frick Chemical Laboratory, Princeton University, Princeton, N. J.

3. "*The Present Status of Plating Room Waste Disposal*", a contribution from A. E. S. Research Project No. 10, by Dr. Barnett F. Dodge, Professor of Chemical Engineering, Sterling Chemistry Laboratory, Yale University, New Haven, Conn., and Dr. Fred C. Gurnham, Professor of Chemical Engineering, Tufts College, Medford, Mass.

2:00 P. M.

FINAL BUSINESS SESSION, East Room, Schroeder, President Samuel S. Johnston presiding.

7:00 P. M. to 1:00 A. M.

ANNUAL BANQUET, Crystal Ball Room, Hotel Schroeder.

Dinner — Awards — Entertainment — Music—Dancing.

A ticket to this event is included in the pass book furnished to each registrant.

ABSTRACTS OF CONVENTION PAPERS

THE CUSTOMER LOOKS AT PLATED PRODUCTS, by *Thor H. Westby and R. E. Parkinson.*

A general discussion is offered of characteristics of plated products that the consumer desires, whether or not he has been getting what he wants, and what the plating industry and distributors of products can do to set sensible specifications and to control quality so as to meet these specifications.

PROCESS CONTROL IN ELECTROPLATING, by *R. E. Harr.*

This paper deals with (1) maintenance of solutions and equipment, including tests and additions to control major solution constituents, spectrographic and other tests for kind and amount of impurities, and rack design and maintenance; (2) inspection, including use of Magne-gage and sectioning to determine deposit thickness, relation of minimum to maximum deposit thickness, establishment of control limits for thickness and use of control charts in maintaining it within such limits, and finish allowances for threaded parts.

THE JOB PLATING SHOP BUSINESS, by *Raymond M. Shock.*

The role of the job shop in the industry, the present status of activity and profits in the job shop business, outlook for the future, and services rendered by job shop organizations are subjects of this paper.

AVAILABILITY OF PLATING MATERIALS, by *J. J. Duffy, Jr., L. K. Lindahl, Henry Mahlstedt, Ed. McGovern, C. R. Ince, C. H. Sample, Dr. B. W. Gonser and Ralph F. Burns.*

Background information, present situation, and future prospects will be discussed.

FACTORS THAT INFLUENCE OPERATING CHARACTERISTICS OF CHROMIUM BATHS, by *J. B. Winters and R. O. Hull.*

The paper deals with the wide variation in results obtained in chromium plating, particularly over nickel. Among the factors that influence the successful application of chromium over nickel are the kind of nickel—gray or bright—addition agents in bright or gray nickel, activation of nickel before chromium plating, passivity of nickel developed after plating either by use of improper transfer cycles or in the chromium bath itself, which is influenced by bath composition (sulfate ratio and strength) and temperature, and time of immersion in the chromium bath before current is applied. Activating dips before chromium are discussed, and mention is made of Hull-Cell control of chromium baths. By appropriate recognition of the factors that enter into chromium plating, consistently good operation can be assured.

PR CYANIDE COPPER PLATING, by *George W. Jernstedt.*

Conditions, including time cycles and ratios, solution composition, addition agents, etc., are given for the application of PR to cyanide copper plating. A description of the first inorganic high-speed cyanide solution is given. Examples of the smoothing possible with this process are shown. The method of obtaining various physical properties, especially hardnesses from 100 to 220 Vickers with excellent ductility, is explained. A description of commercial equipment as now available is given, and the operating characteristics of this equipment shown.

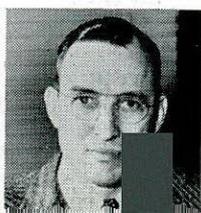
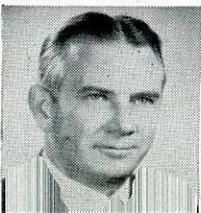
ELECTRODEPOSITION OF NICKEL AT HIGH CURRENT DENSITIES, by *W. A. Wesley, W. W. Sellers and E. J. Roehl.*

The theory of limiting current densities was applied to nickel deposition and led to the conclusion that it is theoretically possible to plate nickel at rates as high as 8500 asf. The practical limit would, therefore, be set not by electrochemical factors but by such engineering requirements as maintenance of an adequate rate of motion of the electrolyte versus the cathode surface, prevention of overheating of contacts, electrolyte and cathode, etc. In a controlled-flow apparatus sound nickel deposits were actually made at the rate of 0.001 inch in 16 seconds from the chloride bath, with high anode and cathode efficiencies. Such deposits proved to be less ductile than those made at normal rates but were of good protective value in porosity and atmosphere tests. Electrochemical data are presented which should be useful in designing equipment for high-speed nickel plating and even for increasing ordinary rates by providing uniform motion.

SCRATCH HARDNESS AND ABRASION HARDNESS OF ELECTRODEPOSITED CHROMIUM, by *J. M. Hosdowich.*

The scratch hardness of chromium electrodeposited under a wide range of conditions was determined by means of the Bierbaum microcharacter. The abrasion hardness of

Top, left to right: W. L. PINNER, Sessions Chairman, T. H. WESTBY, R. E. PARKINSON, R. E. HARR, R. M. SHOCK. Bottom: J. J. DUFFY, JR., L. K. LINDAHL, H. MAHLSTEDT, E. MCGOVERN, C. H. SAMPLE



the electrodeposited chromium was determined by means of an automatic machine in which a grinding wheel was intermittently brought in contact with the test piece. A conclusion of practical value to the chromium plater is that both the scratch hardness and the abrasion hardness of any chromium deposit can be accurately estimated from its appearance—regardless of the temperature and current density under which it was deposited.

ACID DIPS IN CLEANING CYCLES FOR FERROUS METALS, by *Ivan C. Hepfer*
(introduction to Round Table Discussion).

Important basis-metal and solution factors, especially those of a controversial nature, are presented.

PREVENTION OF EMBRITTLMENT OF HIGH-CARBON STEEL, by *Richard M. Wick*
(introduction to Round Table Discussion).

Treatment cycles for minimum embrittlement and for hydrogen removal are discussed.

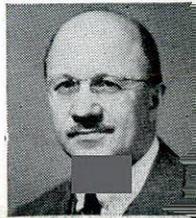
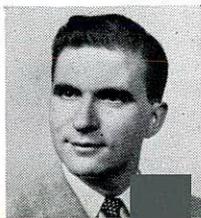
ACID DIPS IN CLEANING CYCLES FOR COPPER-BASE ALLOYS, by *B. H. McGar*.

Pickling, stain-removal, and bright-dipping methods are treated.

ACID DIPS IN CLEANING CYCLES FOR ZINC-BASE ALLOYS, by *Dwight M. Overcash*.

Brief literature survey is made and questionnaire data are given showing present practices in the field.

Top, left to right: B. W. GONSER, R. F. BURNS, F. K. SAVAGE, Sessions Chairman, G. W. JERNSTEDT, W. A. WESLEY. Bottom: W. W. SELLERS, E. J. ROEHL, J. B. WINTERS, R. O. HULL, J. M. HOSDOWICH



PLATING ON ALUMINUM, by Fred Keller and Walter G. Zelley.

The most commonly used process for preparing aluminum for plating, the alkaline zinc immersion process, will be discussed in detail, including effects of surface finishing, structure, and composition of the aluminum alloy. The beneficial effect of chromium over nickel in reducing corrosion of underlying aluminum will be demonstrated.

AMORPHOUS PHOSPHATE COATINGS FOR PROTECTION OF ALUMINUM ALLOYS AND FOR PAINT ADHESION, by Alfred Douty and F. Palin Spruance, Jr.

Details of a new process for treating aluminum alloys and characteristics of the new coatings are given. Data are presented on effects of treatment conditions on coating weight; resistance of painted and unpainted coatings, alone and in contact with dissimilar metal, to outdoor exposure and salt fog test; and adhesion of baked and air-dried paint systems.

CLEANING, ACID TREATMENT AND CHEMICAL BRIGHTENING OF ALUMINUM, by Walter R. Meyer and Steven H. Brown.

Pre-cleaning, alkaline cleaning, etching, and chemical polishing and brightening, of aluminum will be treated.

ELECTROPLATING MAGNESIUM AND ITS ALLOYS, by Herbert K. De Long.

This paper furnishes details of cleaning and pickling, final oxide removal and deposition of an adherent zinc film from a pyrophosphate-fluoride zinc dip, copper striking,

Top, left to right: W. BLUM, Sessions Chairman, I. C. HEPFER, R. M. WICK, B. H. MCGAR, D. M. OVERCASH. Bottom: K. G. SODERBERG, Sessions Chairman, F. KELLER, W. ZELLEY, W. R. MEYER, S. H. BROWN



plating (including barrel plating), as well as stripping methods. Data on outdoor, salt-spray and humidity exposure of silver and copper-nickel-chromium plated panels are also presented.

DISTRIBUTION OF ELECTRODEPOSITED METAL ON SOME SIMPLY SHAPED CATHODES, by *John Kronsbein and Lester C. Morton.*

Simple, nonmathematical language is used to describe the predictions from theoretical considerations as to how electrodeposited coatings are distributed over cathodes of simple shapes under specified ideal conditions, to discuss reasons for predictable and unpredictable deviations of this distribution as encountered under experimental conditions and in the plating shop, and to give some comparisons of theoretical and experimental results.

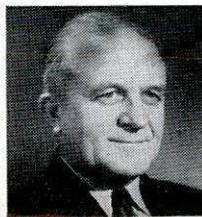
OUTSTANDING PROBLEMS OF POROUS STRUCTURE IN ELECTRODEPOSITS, by *N. Thon.*

The different types of porous structures found in electrodeposits and the factors associated with such structures are discussed. The nature of the metal, thickness of the deposit, conditions of plating, and condition of the surface on which the deposit is formed are considered. Measurements of permeability to air and other gases, permeability to cathodic hydrogen, hydrogen occlusion and adsorption, as well as electron diffraction studies of crystal structure are necessary steps in the attack on this problem.

THE PRESENT STATUS OF PLATING ROOM WASTE DISPOSAL, by *Barnett F. Dodge and C. Fred Gurnham.*

A number of plants for disposal of all kinds of plating waste will be shown in slides and described.

Top, left to right: A. DOUTY, F. P. SPRUANCE, JR., H. K. DE LONG, L. WEISBERG, Sessions Chairman, J. KRONSBEGIN. Bottom: L. C. MORTON, N. THON, B. F. DODGE, C. FRED GURNHAM



WELCOME TO THE LADIES

THE Milwaukee Branch of the American Electroplaters Society welcomes you to the 1949 Convention. The program that the Ladies' Committee has arranged should please you. It has been planned to allow you time to visit the many points of interest in and around Milwaukee.

The Outing will be held in Brown Deer Park, one of the largest and most beautiful in Wisconsin. The bus ride to the park will give you an opportunity to see Memorial Drive, along the shore of Lake Michigan. Milwaukee's Museum is very well worth visiting and is only three blocks from the Convention Headquarters in Hotel Schroeder. A beautiful flower conservatory is found in Mitchell Park, a short distance south of the downtown business district.

A member of the Ladies' Committee will be at the registration desk during each day of the Convention for your help and convenience.



HAZEL S. MCGUIRE, *Chairman,
Ladies' Committee*

Mrs. R. F. McGuire,

LADIES' PROGRAM

Central Standard Time Used Throughout

SUNDAY, JUNE 26, 1949

4:00 P. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

The Registration Fee of \$10.00 entitles registrant to a book of tickets which can

be used for admission to certain Convention functions and activities as listed in this program.

The Ladies' Committee will have available for free distribution one theater ticket for each registrant.

MONDAY, JUNE 27, 1949

8:00 A. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

2:30 P. M. to 4:00 P. M.

TEA will be served in the Empire Room of the Hotel Schroeder. This is an excellent opportunity to become acquainted.

8:30 P. M. to 1:00 A. M.

OPEN HOUSE, Crystal Ball Room, Hotel Schroeder, under the auspices of the International Fellowship Club.

Music — Dancing — Buffet served at 10:00 P. M.

A ticket to this event is included in the pass book furnished to each registrant.

TUESDAY, JUNE 28, 1949

8:00 A. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

sponsored by Oakite Products, Inc., D. X. Clarin, Secretary.

You will find the excellent luncheon and entertainment a real treat.

Forenoon

Open for personal activities.

1:00 P. M.

AUNT ELLA'S SOCIETY LUNCHEON PARTY, Empire Room, Hotel Schroeder,

8:00 P. M.

International Fellowship Club's "PLATO" Party, Crystal Ball Room, Hotel Schroeder, under the direction of Joan Trumbour Wiarda.

Prizes.



Ladies' Committee, left to right, front row: Mrs. Robert Steuernagel, Mrs. A. F. Johnson, Mrs. Glen Schwemer, Mrs. Rodney Olsen, and Mrs. T. D. Hartshorn. Back row: Mrs. William C. Geissman, Mrs. Vincent Maltacolti, Mrs. Leslie Diveley, Mrs. Henry Bornitzke, Mrs. Jack Geissman, and Mrs. R. F. McGuire, Chairman. Mrs. Phil Rütenthaler is also a member of the Committee

WEDNESDAY, JUNE 29, 1949

8:00 A. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

Forenoon

Open for personal activities.

12:15 P. M.

PICNIC and OUTING, at Brown Deer

Park. Buses leave Hotel Schroeder from 5th Street (East) entrance.

Luncheon—Music—Entertainment.

Wear your outing clothes.

A ticket to this event is included in the pass book furnished to each registrant.

7:00 P. M. to 11:00 P. M.

VISIT TO PABST BREWERY.

Free Beer — Kalter Aufschnitt — Gemuetlichkeit.

THURSDAY, JUNE 30, 1949

8:00 A. M.

REGISTRATION, Foyer, 4th Floor, Hotel Schroeder.

12:15 P. M.

LUNCHEON AND STYLE SHOW, Empire Room, Hotel Schroeder.

A ticket to this event is included in the pass book furnished to each registrant.

7:00 P. M. to 1:00 A. M.

ANNUAL BANQUET, Crystal Ball Room, Hotel Schroeder.

Dinner — Awards — Entertainment—Music—Dancing.

A ticket to this event is included in the pass book furnished to each registrant.

PLATED-WARE BRANCH EXHIBITS

EAST ROOM, HOTEL SCHROEDER

THIS year the exhibit spotlight is entirely on the products of the plater's skill. As the only exhibits at the 36th Annual Convention of the American Electroplaters' Society, the Branch Exhibits of Plated Ware have been given an outstanding display location in one of the attractively appointed banquet rooms of the Convention Headquarters Hotel, the Schroeder.

Again, as in the past several years, the Branches are competing for the honor of having a prize-winning exhibit. An impartial committee composed of representatives of five different Branches will have the unenviable task of selecting the three best exhibits.

A visit to the Branch Exhibits of Plated Ware will be well worth the while of everyone in attendance at the Convention and will be a tribute to those Branches cooperating in the Exhibit.

TIME SCHEDULE FOR BRANCH EXHIBITS

Monday, June 27 12:00 Noon to 6:00 P. M.
Tuesday, June 28 9:00 A. M. to 6:00 P. M.
Wednesday, June 29 9:00 A. M. to 12:00 Noon

EUGENE C. BOSL, *Chairman,*
Branch Exhibits Committee

PLANT VISITATIONS

THE following Milwaukee Plants have kindly consented to conduct plant tours for the convenience of the A. E. S. Convention delegates and visitors.

GLOBE UNION, INC.

Fabrication, finishing and assembly of roller skates will be viewed

NASH-KELVINATOR COMPANY, BODY DIVISION

The assembly line for Nash automobile bodies has been opened for inspection

GENERAL ELECTRIC COMPANY, X-RAY DIVISION

A general tour of the plant, in which X-Ray equipment is being manufactured

Delegates and visitors will have an opportunity to register for these visits during the Convention at Convention Headquarters.

OMER N. DOYLE, *Chairman,*

Plant Visitations Committee

GUIDE TO DOWNTOWN MILWAUKEE

Hotels

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Tower	10
Wisconsin	48

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Strand	28
Warner	49
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T. A. Chapman Company	76
Gimbel Brothers	56
J. C. Penney Company	32
Ed. Schuster & Company	6

Depots and Docks

Chicago, Milwaukee, St. Paul and Pacific Railroad Station	37
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Chicago, Milwaukee Steamship Line (324 N. Plankinton Avenue)	58
Chicago, North Shore and Milwaukee Railway Station	24
Chicago and North Western Railway Station	95
Grand Trunk Western Railway Car Ferry Docks (foot of E. Stewart Street)	59
Milwaukee Electric Lines	51
Chesapeake and Ohio Railway Car Ferry Docks (S. Kinnickinnic Avenue and Jones Island)	59
Union Bus Terminal	51
Milwaukee Union Bus Depot	23
Wisconsin and Michigan Steamship Company Clipper Line (601 E. Erie Street)	59

Other Points of Interest

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City Hall	65
Federal Building	77
Layton Art Gallery	79
Marquette University (Speech, Dental, Medicine, Gym)	4
Marquette University (Law, Business Administration, Arts and Sciences)	8
Milwaukee Art Institute	81
Milwaukee School of Engineering	72
Milwaukee Vocational School	20
Pabst Brewing Company	12
Post Office	77
Public Museum and Library	17
Public Service Building	51
University of Wisconsin in Milwaukee	21

SEE THE MAP ON NEXT PAGE →

AMERICAN ELECTROPLATERS' SOCIETY

PROGRAM

35th

ANNUAL CONVENTION

and

INDUSTRIAL FINISHING

EXPOSITION

June 28 to July 1, 1948
Atlantic City, New Jersey

NEWARK BRANCH, HOST

*Convention Headquarters: Ambassador Hotel
Exposition: Convention Hall*



OFFICIAL PROGRAM

35th

ANNUAL CONVENTION

and

INDUSTRIAL FINISHING

EXPOSITION

1947-1948 A. E. S. OFFICERS



KENNETH M. HUSTON
President



S. S. JOHNSTON
First Vice-President



ARTHUR W. LOGOZZO
Second Vice-President



WILLIAM J. NEILL
Third Vice-President



FRANK K. SAVAGE
Past President



A. KENNETH GRAHAM
Executive Secretary

EXECUTIVE OFFICES: BOX 168, JENKINTOWN, PA.

An Appreciation

Newark Branch extends a most cordial and ever hearty welcome to the members of the American Electroplaters' Society and their guests at the 35th Annual Convention in Atlantic City, New Jersey. This is the third time in the history of the Society that Newark Branch has had the honor to act as its host. The first time was in 1926, when the convention was held in Newark, New Jersey. The second time was in 1939 in Asbury Park, New Jersey, on the occasion of the Centenary of Electroplating when we welcomed the Second International Electrodeposition Conference. At this, the third time, Newark Branch cherishes the opportunity of offering Atlantic City hospitality to its many friends. The several committees have labored hard to plan a worthwhile program of interest to all. The Educational Sessions have been arranged to cover selected subjects of wide interest. The Industrial Finishing Exposition includes up-to-date equipment, processes and materials, the inspection of which will amply repay the investment of time and effort. The social activities are planned to provide good pleasant fellowship so that your Convention stay in Atlantic City, N. J., becomes an enjoyable and a memorable one. Sincere thanks and appreciation are due one and all who have contributed to make this 1948 Convention possible. It is a pleasure to have you with us again.

Horace H. Smith
General Chairman
Newark Branch Convention Committee

NEWARK BRANCH OFFICERS

1948-1949



Zachary Irenas
President

B.S., Columbia University. Superintendent of Metal Finishing, General Instrument Corporation, Elizabeth, N. J.



Robert S. Herwig
First Vice-President

Ch.E., Newark College of Engineering
Chief Engineer, Belco Industrial Equipment Division, Paterson, N. J.



Myron B. Diggin
Second Vice-President

B.S. 1926 and M.A. 1928, Wesleyan University. Technical Director, Hanson-Van Winkle-Munning Company, Matawan, N. J.



George Wagner
Secretary-Treasurer

Past President, American Electroplaters' Society, 1943. Owner, Hy-Grade Electroplating Company, Newark, N. J.



Frank England
Sergeant-at-Arms

B.S., Norwich University. Foreman Plater, Curtiss Propeller Division, Curtiss Wright Corporation, Caldwell, N. J.



Edwin R. Bowerman, Jr.
Librarian

B.S., University of Rochester, 1939; M.S. Stevens Institute, 1947. Engineering Research Department, Sylvania Electric Products, Inc, Bayside, N.Y.



Horace H. Smith
Chairman,
Board of Managers

Past President, American Electroplaters' Society, 1929 and 1930. President, Surety Electroplating Company, Newark, N. J.



Albert E. Howe
Assistant Librarian

B.S., Massachusetts State College. Finishing Engineer, Air Conditioning Division, General Electric Company, Bloomfield, N. J.



John L. De Vries
Member,
Board of Managers

B.S., Rutgers University, 1921. Sales Engineer, Oakite Products, Inc., New York City.



Samuel S. Frey
Recording Secretary

M.S., University of Chicago, 1931. Research Chemist, Oakite Products, Inc., New York City.



Howard Cobb
Member,
Board of Managers

Graduate, M. I. T., 1923. Engineer, Aircraft Radio Corporation, Boonton, N. J.

GENERAL PROGRAM

SUNDAY, JUNE 27, 1948

3:00 P. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

The registration fee of \$10.00 entitles registrant to a book of tickets that can be used for all functions and activities during the Convention. Registrants need not be members of the American

Electroplaters' Society.

Evening

National Association's of Metal Finishers Dinner and Business Meeting, Surf Room, Ambassador Hotel. Speaker, P. Nelson, Small Business Div., Dept. Commerce.

MONDAY, JUNE 28, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

9:30 A. M. to 12:00 Noon

OPENING SESSION, Convention Hall Ballroom on the Boardwalk, five minutes' walk from Hotel Ambassador.

Invocation by the Reverend Frank C. Mesle, Member of Rochester Branch, A. E. S. President, 1927.

Welcome to Delegates, Members and Guests by Horace H. Smith, General Convention Chairman, Charter Member of Newark Branch, A. E. S. President, 1929-1930, Honorary Member A. E. S.

Welcome to Atlantic City by the Mayor. *Greetings from Newark Branch* by Zachary Irenas, Newark Branch President.

First Business Session. Kenneth M. Huston, A. E. S. President, in the chair.

12:30 P. M.

INTERNATIONAL FELLOWSHIP CLUB'S ANNUAL LUNCHEON (for suppliers and their representatives only).

Following the luncheon there will be election of officers for the coming year and discussion of arrangements for the Open House.

2:00 P. M. to 4:30 P. M.

FIRST EDUCATIONAL SESSION, Convention Hall Ballroom, second floor. William Geissman, S. K. Williams Company, Milwaukee, Wis., presiding.

1. *Industrial Electropolishing*
Charles L. Faust, Battelle Memorial Institute
2. *Electropolishing Silver in Cyanide Solutions*
Daniel Gray, Oneida, Ltd.
3. *Diaphragm Tanks To Eliminate Roughness in Copper Plating*
R. H. McCahan and C. E. MacKinnon, E. I. du Pont de Nemours & Company
4. *Oxidation of Trivalent Chromium in Chromic Acid Plating Baths*
Robert Seegmiller and Vernon Lamb, National Bureau of Standards

Abstracts of these papers are found on page 14.

8:30 P. M.

OPEN HOUSE, Renaissance Ballroom, Hotel Ambassador.

Dancing—Buffet Lunch—Refreshments
Presentation of Special Awards

The Open House is held on the first night of the Convention to provide an opportunity for all registrants to become acquainted. It is sponsored by the International Fellowship Club, an

organization formed to create good will in the metal finishing industry. Membership in the Club consists of manufacturers, supply houses, and their representatives serving the metal finishing industry, and it is through their generosity that the Open House is made possible. A program including a list of contributors will be distributed. A ticket for this event is included in your registration booklet.

TUESDAY, JUNE 29, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

Abstracts of these papers are found on pages 14 and 15.

8:00 A. M.

BRANCH SECRETARIES' BREAKFAST, Room 125, Hotel Ambassador.

12:00 Noon

INTERNATIONAL FELLOWSHIP CLUB GOLF TOURNAMENT, Atlantic City Country Club, Northfield, N. J. Joseph J. Duffy, Jr., Pennsylvania Salt Manufacturing Company, Chairman.

Transportation should be arranged through the Golf Committee.

Attractive prizes will be awarded. All handicap groups have a chance to win. An informal luncheon will be served at the Club between 12:00 Noon and 1:30 P. M. Tee-off time is between 1:00 and 2:00 P. M. Bring your sticks and shoes; a limited number of rental sets will be available at the Club.

9:30 A. M.

SECOND EDUCATIONAL SESSION, Convention Hall Ballroom, second floor. Leonard Weeg, C. G. Conn, Ltd., Elkhart, Ind., presiding.

1. *Description, Design and Production Costs of Conveyorized Spray Finishing System*

E. Paul Schwartz, L. C. Smith-Corona Typewriter Corporation

2. *The Electroplater's Metals of the Future*

F. A. Lowenheim, Metal and Thermit Corporation

3. *The Importance of Acid Ratio in the Phosphatization of Steel*

Nelson F. Murphy and Michael A. Streicher, Department of Chemical Engineering, Virginia Polytechnic Institute

4. *Metal Cleaning—A Simple Test for a Clean Surface*

George B. Hogaboom, Consultant

Afternoon and Evening

It is suggested that this period be spent in a leisurely inspection of the Industrial Finishing Exposition.

AND

The Plated-Ware Exhibit showing the results of application of old and new methods, also in Convention Hall.

OR

For those who are strangers to Atlantic

City and the New Jersey shore, this afternoon will afford an opportunity to explore the city and surroundings. A booklet with description of Atlantic City will be furnished at the time of

registration for your convenience.

8:00 P. M.

RESEARCH COMMITTEE MEETING, Room 106, Hotel Ambassador.

WEDNESDAY, JUNE 30, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

9:30 A. M. to 12:00 Noon

THIRD EDUCATIONAL SESSION, Convention Hall Ballroom, second floor. George P. Swift, Consultant, Boston, Mass., presiding.

1. *A Circulating Electrolyte Cell for Strip Plating Evaluation*
R. A. Dimon, Carnegie-Illinois Steel Corporation
2. *Bright Barrel Plating of Nickel and Zinc*
Leonard A. Chesworth, United-Carr Fastener Corporation
3. *Plating Copper-Zinc Alloys*
A. Kenneth Graham, Graham, Crowley and Associates
4. *The Deposition of Metals on Plastics Employing Reduced Copper Films*
Harold Narcus, Electrochemical Industries, Inc.

Abstracts of these Papers are found on pages 15 and 16.

2:00 P. M. to 4:30 P. M.

FOURTH EDUCATIONAL SESSION, Convention Hall Ballroom, second floor. Howard Woodward, Sundmark Supply Company, Los Angeles, Calif., presiding.

1. *Judging the Quality of Plated Parts*
William M. Phillips and F. L. Clifton, General Motors Corp.
2. *Practical Methods of Cost Finding and Estimating on Metal Finishes*
Adolph Bregman, Consultant
3. *The Spiral Contractometer, a New Instrument of the Measurement of Stress in Electrodeposits*
Abner Brenner and Seymour Senderoff, Nat. Bureau of Standards
4. *Engineering Planning in the Plating Room*
S. M. Martin, United Chromium, Incorporated

Abstracts of these Papers are found on page 17.

8:00 P. M.

SPECIAL BUSINESS SESSION, Convention Hall Ballroom. President Kenneth M. Huston in the chair. Preliminary discussion of newly proposed Constitution and By-Laws.

THURSDAY, JULY 1, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

RESEARCH COMMITTEE BREAKFAST, Room 125, Hotel Ambassador.

9:30 A. M. to 12:00 Noon

FIFTH EDUCATIONAL SESSION—A. E. S. Research Reports, Convention Hall Ballroom, second floor. Louis Weisberg, Consultant, New York City, and

Chairman, Research Directing Committee, presiding.

1. *Project 5.—Some Effects of Copper as an Impurity in Nickel Plating Solutions and Its Effect on the Salt Spray Resistance of Nickel and Chromium Deposits on Steel*

D. T. Ewing and Robert Rominski

2. *Project 6.—Determination of the Porosity and Corrodibility of Electrolytic Metal Foils*

N. Thon and D. K. Kelemen

3. *Project 7.—The Effect of Internal Stress on Thickness Determination by the Jet Method*

Harold J. Read

4. *Project 9.—Physical Properties of Nickel Deposits*

Abner Brenner and Charles W. Jennings

2:00 P. M.

FINAL BUSINESS SESSION, Convention Hall Ballroom. President Kenneth M. Huston in the chair.

7:00 P. M. to 1:30 A. M.

ANNUAL BANQUET, Renaissance Ballroom, Hotel Ambassador.

Dinner—Community Singing—Awards Entertainment—Continuous Music for Dancing

TIME SCHEDULE FOR INDUSTRIAL FINISHING EXPOSITION

Monday, June 28—12:00 Noon to 10:00 P. M.

Tuesday, June 29—10:00 A. M. to 10:00 P. M.

Wednesday, June 30—10:00 A. M. to 10:00 P. M.

Thursday, July 1—10:00 A. M. to 5:00 P. M.

NEWARK BRANCH CONVENTION COMMITTEES

Horace H. Smith...GENERAL CHAIRMAN

John L. De Vries...CO-CHAIRMAN

Industrial Finishing Exposition

George WagnerCHAIRMAN

Howard L. Cobb...CO-CHAIRMAN

John L. De Vries

Carl Greiner

Albert E. Howe

John Lavery

A. P. Munning

Educational

Myron B. Diggin...CHAIRMAN

Robert Sizelove

Samuel Frey

Urban Mullin

Zachary Irenas

Branch Exhibits

Louis J. DonroeCHAIRMAN

Solomon Barr

Robert S. Herwig

Paul A. Oldam

Registration

John GummCHAIRMAN

John GummCHAIRMAN

Roland Doucette

William Grigat

Charles Muller

Program and Entertainment

Paul A. OldamCHAIRMAN

John Gumm

George Reuter

Banquet

George ReuterCHAIRMAN

Solomon Barr

William Grigat

Publicity

William F. Bruhns...CHAIRMAN

Solomon Barr

Robert S. Herwig

Charles Muller

CONVENTION COMMITTEE

CHAIRMEN

General



Horace H. Smith
General Chairman

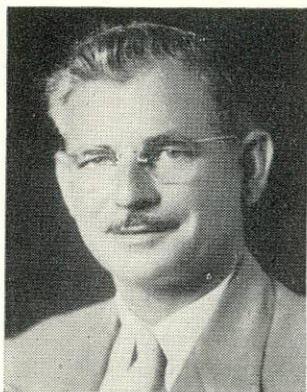
Charter Member and Past President, Newark Branch. Past President, American Electroplaters' Society, 1929 and 1930. Honorary Member, American Electroplaters' Society. Formerly with Tiffany and Company, Newark, N. J. President, Surety Electroplating Company, Newark, N. J.



John L. De Vries
Co-Chairman

B.S. Chem., Rutgers University, 1921. Sales Engineer, Oakite Products, Inc. Past President, Member, Board of Managers, Newark Branch.

Industrial Finishing Exposition



George Wagner
Chairman

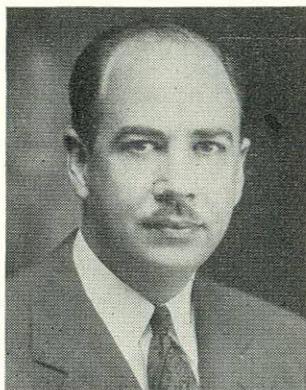
Past President, Newark Branch. Past President, American Electroplaters' Society, 1944. Owner, Hy-Grade Electroplating Company, which he started in 1918.



Howard Cobb
Co-Chairman

Graduate, M. I. T., 1923. Engineer
Past President, Newark Branch.

Educational



Myron B. Diggin
Chairman

B.S. 1926 and M.A. 1928, Wesleyan University. Since 1930 with Hanson-Van Winkle-Munning Company, now as Technical Director. A. E. S. Gold Medal, 1946.

Branch Exhibits



Louis J. Donroe
Chairman

Pre-med. studies at University of Richmond; Ind. Ch. Engr., Pratt Inst., 1929. Ch. Chemist, Royal Plating & Polishing Co. Past President, Newark Branch.

Banquet



George Reuter
Chairman

Attended Newark Technical School. Foreman, Plating Department, J. Wiss & Sons Company, Newark. Taught plating in Central High School and Essex County Vocational School.

Program-Entertainment



Paul A. Oldam
Chairman

Attended Newark Technical School and Pratt Institute of Technology. Head, Metal Finishing Department, Shiman Manufacturing Company, Newark.

Publicity



William F. Bruhns,
Chairman

Former President, Newark Branch. Vice-President and Secretary, Surety Electroplating Company, Newark.

Registration



John R. Gumm
Chairman

Attended Rutgers University. With Frederick Gumm Chemical Company, Kearny, N. J., for past twelve years.

ABSTRACTS OF CONVENTION PAPERS

INDUSTRIAL ELECTROPOLISHING. *Charles L. Faust and E. E. Graves, Battelle Memorial Institute.*

Factors which influence the decision to use or not to use electropolishing will be discussed. Commercial experience with electropolishing of steel, stainless steel, brass, aluminum, and possibly silver will be cited. Actual cost data will be presented on direct charges for chemicals, labor, electricity, racks, etc., which can be extrapolated to the electropolishing of nickel and copper in the form of either plate or solid metal. The relationship of electropolishing to mechanical finishing prior to electroplating will be of interest, both from the standpoint of cost and technical advantages.

ELECTROPOLISHING SILVER IN CYANIDE SOLUTIONS. *Daniel Gray, Oneida, Ltd.*

The primary object of this paper is to give a complete description of a practical method of electropolishing silver in cyanide solutions, including make-up of baths, operating conditions, and effects of chemical and electrical factors. In addition, this paper will present in simple, non-mathematical language a theory of the mechanism of electropolishing and a definition of what constitutes an ideal metal to be polished. Stress will be placed on the economic implications of the process and on the wide open field for further research.

DIAPHRAGM TANKS TO ELIMINATE ROUGHNESS IN COPPER PLATING. *R. H. McCahan and C. E. MacKinnon, E. I. du Pont de Nemours & Company.*

A new method will be described for eliminating roughness of cyanide copper electrodeposits, which comprises the use of a relatively impervious canvas diaphragm separating anode and cathode compartments, continuous high-efficiency filtration from anode section to cathode section, and elimination of exposed metal surfaces in contact with the cathode electrolyte. By this method, combined with adequate solution circulation or work movement, smooth heavy plates may be obtained rapidly. Full operating details will be given.

OXIDATION OF TRIVALENT CHROMIUM IN CHROMIC ACID PLATING BATHS. *Robert Seegmiller and Vernon Lamb, National Bureau of Standards.*

In those chromium plating operations in which the anode area is necessarily restricted, the concentration of trivalent chromium tends to increase to objectionable values. A study will be presented of the effects of such factors as the concentrations of hexavalent and trivalent chromium and sulfate, temperature and current density, upon the rates of reoxidation of trivalent chromium. From these results, favorable conditions for this reoxidation can be defined.

DESCRIPTION, DESIGN AND PRODUCTION COSTS OF CONVEYORIZED SPRAY FINISHING SYSTEM. *E. Paul Schwartz, L. C. Smith-Corona Typewriter Corporation.*

The conveyORIZED spray finishing system to be discussed consists of spray-bonderizing for steel, aluminum and zinc parts, followed by a gas fired dry-off oven, water wash booths, and a gas fired baking oven. Details, such as temperatures, speeds, and solutions, will be included in the paper, and drawings, photographs, and a model of the system will be shown.

The steps covered in the design of the system are (1) preliminary studies, (2) layout, (3) specification of equipment. Under preliminary studies, the importance of production planning, tabulation of existing data, and a thorough study of methods of racking and handling will be stressed. The layout methods are to be described, and some of the problems involved will be discussed. Under specification of equipment, details of construction and ideas incorporated in the design are to be described, also troubles which may develop. Changes which were required after installation will be pointed out. These should be of interest to the designer of new equipment.

Complete data will be made available regarding cost of chemicals and labor used for cleaning and bonderizing. Data will be presented in chart form comparing labor costs of handling and spraying using trucks with conveyORIZED handling.

THE ELECTROPLATERS' METALS OF THE FUTURE. *F. A. Lowenheim, Metal and Thermit Corporation.*

This paper is essentially a review of the work which has been reported on the electrodeposition of the "uncommon" metals. A rather thorough literature search has been made, and the salient features will be pointed out. More or less detail will be offered depending on the present state of the art. Thus the deposition of manganese, antimony and tungsten is to be considered in some detail, while such metals as tantalum and titanium, etc., will be mentioned only briefly.

The ground covered will be similar to that in Dubpernell's "Periodic Chart for Platers" (Proc. Am. Electroplaters' Soc., 1946), but the approach will be different, with more attention to actual details of the plating of the metals and less to an attempt to systematize the available information.

A CIRCULATING ELECTROLYTE CELL FOR STRIP PLATING EVALUATION. *R. A. Dimon, Carnegie-Illinois Steel Corporation.*

The paper describes in detail two types of a circulating electrolyte cell which has been used extensively by the author to correlate tests on small batches of electrolyte with commercial strip plating operations in which the strip being plated is being moved through the electrolyte at a high rate of speed. In the cell the electrolyte is pumped between the anode and cathode at a speed corresponding to the corresponding rate of strip travel. The means used to control rate of circulation, temperature and current will be dealt with.

A resistance melting unit is to be described in which the melting conditions used in commercial tin plating lines are being duplicated, as well as a reflectometer by which the lustre of the strips is measured.

To illustrate the use of the equipment, data are given on the effect of such variables as solution flow, electrolyte temperature, tin and glue contents in the acid tin electrolyte described by Pine.

THE IMPORTANCE OF ACID RATIO IN THE PHOSPHATIZATION OF STEEL.

Nelson F. Murphy and Michael A. Streicher, Department of Chemical Engineering, Virginia Polytechnic Institute.

A study will be presented of the effect of acid ratio, i. e., ratio of total to free acid contents, on the phosphatization of steel. It will be shown that the acid ratio may be accurately determined by using brom-phenol blue indicator in the free acid titration and phenolphthalein indicator in the total acid titration, and that the pH of the phosphatization solution is a function of the acid ratio in the concentration ranges studied.

Affected by the acid ratio are (1) the amount of sludge formed in the bath, (2) the formation of the hydrogen blanket on the piece during treatment, (3) the time required for formation of a satisfactory coating, (4) the quality of the coating, and (5) the loss or gain in weight of the treated piece. The change in weight during phosphatizing depends on the method of cleaning and the acid ratio.

METAL CLEANING—A SIMPLE TEST FOR A CLEAN SURFACE. *George B. Hogaboom, Consultant*

This paper will deal with the soils present on metals to be cleaned rather than with the cleaner itself, the effect of soils upon cleaners, and the best cleaners to be used with different soils. It is also intended to describe a simple test for surfaces that are both chemically and physically clean.

BRIGHT BARREL PLATING OF NICKEL AND ZINC. *Leonard A. Chesworth, United-Carr Fastener Corporation.*

This paper will include a description of a barrel plating production unit for the plating of bright nickel on small parts to controlled thicknesses of up to 0.00075 inch which are to be chromium plated. The operating conditions, control methods, and purification procedure being used on a production installation will be detailed.

The paper will also describe a bright zinc barrel plating production unit which includes continuous electrolytic purification and a mechanical refrigeration system.

PLATING COPPER-ZINC ALLOYS. *A. Kenneth Graham, Graham, Crowley and Associates, Inc.*

This paper is a report on the electrodeposition of copper-zinc alloys from cyanide plating baths taken from an extensive investigation over a period of twelve years. The author will review the results of published work on this subject and compare them with the results of his investigation.

The paper will describe the deposition of copper-rich copper-zinc alloys and cover the various bronze colors of interest in metal finishing. These alloys can now be plated at relatively high current densities with excellent control of the composition.

THE DEPOSITION OF METALS ON PLASTICS EMPLOYING REDUCED COPPER FILMS. *Harold Narcus, Electrochemical Industries, Incorporated.*

A new practical method will be described for plating on non-conductive materials, especially on synthetic resins, employing reduced copper films in lieu of the presently used silver films. The advantages of the copper films over the silver films will be discussed in detail with particular reference to the quality of the plated plastic product, to the elimination of ever-present hazards encountered in the use of the more popular silver film, and to the economical aspects.

The necessary techniques, solutions and equipment used in practice to produce strongly adherent and continuous copper films capable of receiving a good subsequent electrodeposit will be discussed.

JUDGING THE QUALITY OF PLATED PARTS. *William M. Phillips and F. L. Clifton, General Motors Corporation.*

In pursuit of means to determine what constitutes quality of plated parts for various uses, the authors have for many years inspected parts from all makes of automobiles in many locations in the United States and determined the thickness of plate on the same parts of General Motors cars. The results of these studies will be presented in chart form. Interesting data from special roof tests will also be presented.

A new method developed to indicate the combined effect of stress-strain and brittleness will be demonstrated. The authors believe it of sufficient importance for inclusion in plating specifications.

PRACTICAL METHODS OF COST FINDING AND ESTIMATING ON METAL FINISHES. *Adolph Bregman, Consultant.*

Cost finding and estimating are the most important elements of the job- or contract-electroplater's business. They are complicated by the fact that most job platers do not have sufficient staff to analyze closely every one of the many jobs that they take in. So many jobs are in small lots that a complete breakdown might cost more than actually doing the work. Also, with the wide variety of work constantly moving through the shop it is extremely difficult to segregate costs in the plating room. This paper will describe methods developed in practice among job platers in the New York district. In most cases the figures will be based upon cost of labor, but they also will include tank-hour and barrel-hour, with due allowance for the cost of special materials such as precious metals, expensive non-metallic coatings, etc.

THE SPIRAL CONTRACTOMETER, A NEW INSTRUMENT FOR THE MEASUREMENT OF STRESS IN ELECTRODEPOSITS. *Abner Brenner and Seymour Senderoff, National Bureau of Standards.*

In this paper will be described a new instrument for the measurement of stress in electrodeposits. The instrument is designed for use either in research or in routine testing. In the process of evaluating the instrument, measurements of stress in nickel plates and other deposits were made and will be discussed.

Formulas for the calculation of stress will be derived, and a detailed discussion of the various formulas previously suggested included. The formulas most frequently used are to be compared and correlated, and the limits of applicability of each given.

ENGINEERING PLANNING IN THE PLATING ROOM. *S. M. Martin, United Chromium, Incorporated.*

A general resume of engineering applied to layout and equipment in the plating room will be given, covering essential points to be considered when planning new plating room installations or revising or expanding existing facilities. Such items as layout, floor drains, tank ventilation, solution temperature control, equipment maintenance and safety will be discussed.

WELCOME TO THE LADIES

THE Ladies' Committee extends a warm welcome to you, our guests in Atlantic City this summer. We have prepared a program for your entertainment which will keep you occupied and interested and still afford you an opportunity to engage in your favorite pursuits in America's famous Bagdad-by-the-Sea.

Atlantic City is a year-round resort, but in early Summer it is, indeed, a vacationist's paradise. Its warm sunny days, comfortably cool evenings, invigorating and salty ocean breezes whet the appetite and are conducive to complete relaxation.

We hope that you will have tucked a pair of comfortable walking shoes into your traveling bag, because there are miles of excellent boardwalk, abounding in shops of the better kind, unusual displays of home furnishings, as well as bazaars. Those who over-extend themselves or wish to accelerate their sight-seeing will find the promenade replete with rolling chairs. Of course, if you plan to take a dip in the ocean or absorb the health-giving rays of the sun in a beach chair, you will want to use your bathing suit and a beach robe.

We, your hostesses, are eager that you enjoy your visit to our Convention City, and our plans have been made with this in view.

REGINA H. MUNNING, Chairlady

Ladies' Committee.

LADIES' COMMITTEE



Regina (Mrs. A. P.) Munning
Chairlady



Catherine (Mrs. H. H.) Smith
Co-Chairlady,



Jennie (Mrs. George) Wagner
Secretary

Committee: Connie (Mrs. William F.) Bruhns, Agnes (Mrs. Samuel S.) Frey, Peggy (Mrs. John R.) Gumm, Freida (Mrs. George) Klink, Alice (Mrs. William W.) McCord, Nina (Mrs. Charles Muller, Ruth (Mrs. Robert R.) Sizelove.

LADIES' PROGRAM

SUNDAY, JUNE 27, 1948

3:00 P. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

The Registration Fee of \$10.00 entitles

registrant to a book of tickets that can be used for all functions and activities during the Convention. Registrants need not be members of the American Electroplaters' Society.

MONDAY, JUNE 28, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

Ambassador. An excellent opportunity to become acquainted.

8:30 P. M.

OPEN HOUSE, Renaissance Ballroom, Hotel Ambassador. Under the auspices of the International Fellowship Club. Dancing—Buffet Lunch—Refreshments. All registrants are invited to attend.

3:00 P. M. to 5:00 P. M.

TEA will be served in the beautiful and spacious Upper Lounge of the Hotel

TUESDAY, JUNE 29, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

1:00 P. M.

AUNT ELLA'S SOCIETY LUNCHEON PARTY, Embassy Salon, Hotel Ambassador. Sponsored by Oakite Products, Inc. D. X. Clarin, Secretary.

Forenoon

Open for personal activities.

A grand affair, with an excellent meal and a surprise in the way of unusual entertainment.

Evening

The late afternoon and evening have advisedly been left open to allow

you to visit the Industrial Finishing Exposition and to look over the city with its many attractions.

WEDNESDAY, JUNE 30, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

All ladies attending this luncheon will be presented with a keepsake.

8:00 P. M.

"PLATO" PARTY, 22 Club Room, Hotel Ambassador. Sponsored by the International Fellowship Club. Under the direction of Joan Trumbour Wiarda.

Prizes

1:00 P. M.

LUNCHEON with music in the Trellis Room, Ritz-Carlton Hotel on the Boardwalk.

THURSDAY, JULY 1, 1948

8:00 A. M.

REGISTRATION, Upper Lounge, Hotel Ambassador.

ored any day during the Convention and which entitles you to all the facilities this interesting pier has to offer, including motion pictures, vaudeville,

Morning and Afternoon

The morning and afternoon of the final day of the Convention have not been scheduled in order that you may enjoy yourself as a carefree vacationist. If you have not already done so, we suggest that you visit the Steel Pier on the Boardwalk. You will find a ticket in your passbook which will be hon-

7:00 P. M. to 1:30 A. M.

water circus, dancing, name bands, exhibits, etc.

ANNUAL BANQUET, Renaissance Ballroom, Hotel Ambassador.

Dinner—Community Singing—Awards Entertainment—Continuous Music for Dancing



PLATED-WARE BRANCH EXHIBITS.

ONCE a year, the plater's handiwork is brought to public view in the form of a well-organized and clearly described exhibition of plated ware. All Branches of the Society compete for the honor of having been selected as the Branch with the best exhibit.

Here in Atlantic City, the Newark Branch, host to your Convention, has decided that the Branch Exhibits shall be displayed in a place of prominence as befits its importance. Therefore, we have selected Convention Hall, which also houses the Industrial Finishing Exposition, as the logical place.

A hearty and sincere greeting awaits every visitor whose curiosity is aroused. Having seen the industrial equipment and supplies required for metal finishing, he will find at the Branch Exhibits the ultimate result obtained.

The Committee for Branch Exhibits extends its warm thanks to all Branches whose cooperation is making this truly interesting Exhibit possible.

Louis J. Donroe, Chairman,
Plated-Ware Branch Exhibit.

INDUSTRIAL FINISHING EXPOSITION

Atlantic City, June 28th - July 1st

Complete Time Schedule on Page 9

OF THE two poles of the magnet, the Technical Sessions and the Industrial Finishing Exposition, which will attract the key figures of industry to the Convention of the American Electroplaters' Society this June, the Exposition will hold special interest.

Held in the Convention Hall in Atlantic City, the Exposition is outstanding and unique in that practically all of the displays are of comparable size, featuring the widest possible range of products, processes and equipment, many in operation, of a hundred and more suppliers in the cleaning, plating, lacquering, polishing, buffing, filtering, tumbling, and allied fields.

This is an exposition you cannot afford to miss. Purchasing agents, manufacturing executives, operating and processing engineers, plant supervisors, and technicians all concentrate here to be introduced to and to investigate developments which will make for better economy and quality. It is, indeed, a spectacle worthy of your time and interest.

George Wagner, Chairman,
Industrial Finishing Exposition Committee.

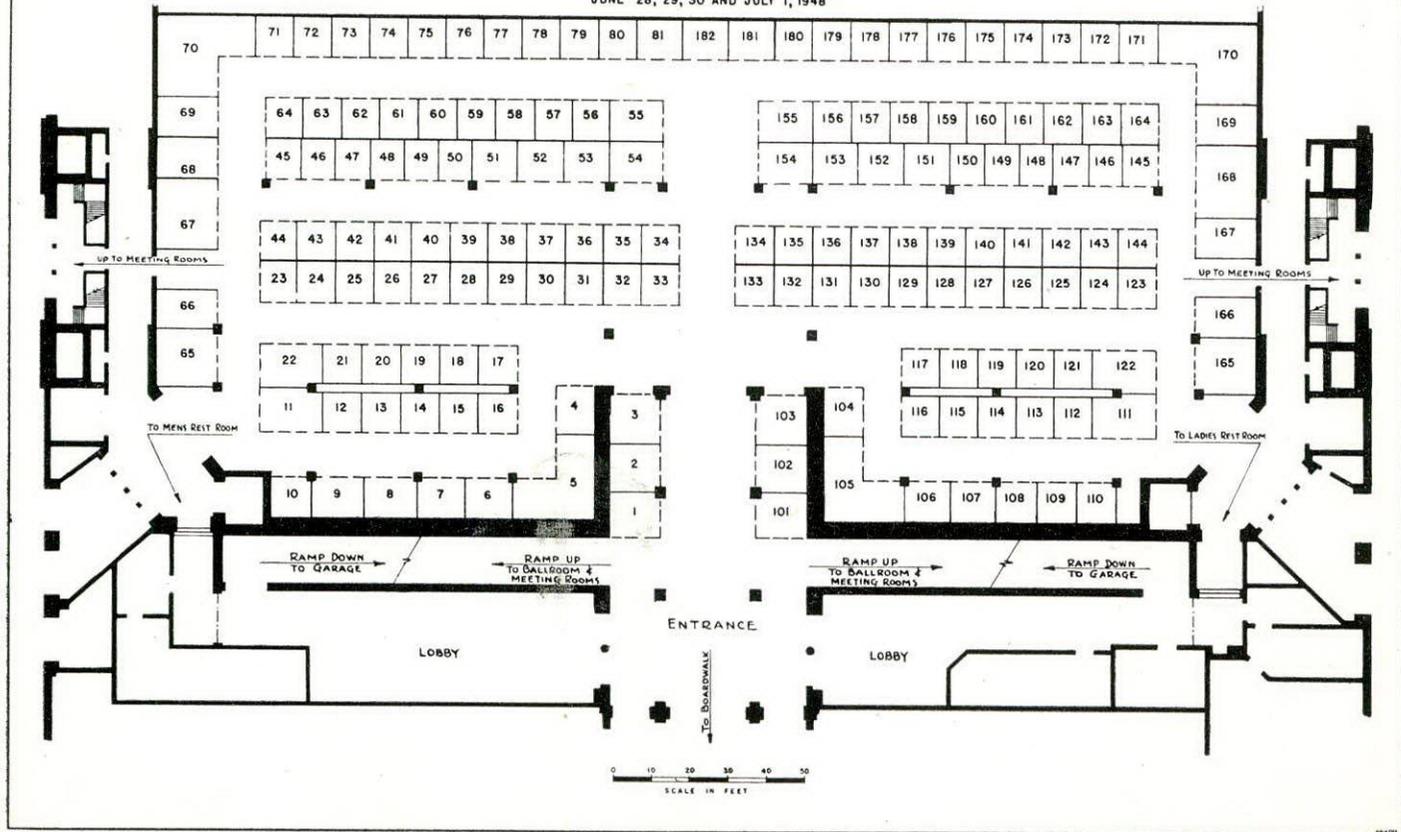


INDUSTRIAL FINISHING EXPOSITION

OF THE AMERICAN ELECTROPLATERS' SOCIETY

ATLANTIC CITY CONVENTION HALL

JUNE 28, 29, 30 AND JULY 1, 1948



24

FLOOR PLAN
(Time schedule on page 9)

Only

LIST OF EXHIBITORS

Acme Manufacturing Company, 1645 Howard Street, Detroit 16, Mich. Booths 52-54.

Exhibiting: Automatic polishing and buffing machinery.

In attendance: Glen A. Carlson, George R. Carlson.

A. E. S. Research Committee, 473 York Road, Jenkintown, Pa. Booths 19-20.

Allied Research Products, Inc., 4004 E. Monument Street, Baltimore 5, Md. Booth 131.

Exhibiting: Iridite.

In attendance: H. C. Irvin, President; A. L. Poe, District Sales Manager.

Almco, Division Queen Stove Works, Inc., 902-910 Marshall Avenue, Albert Lea, Minn. Booth 69.

Alpha Metals, Inc., 363 Hudson Avenue, Brooklyn 1, N. Y. Booth 16.

Exhibiting: Anodes.

In attendance: Harold Shonberg, President; Martin A. Boyle, Sales Manager.

Alsop Engineering Corporation, 306 Fine Street, Milldale, Conn. Booth 51.

Exhibiting: "Sealed-Disc" Filters for plating solutions and "Disc-Paks" Filters for water in operation; portable mixers and Speed-O-Plates.

In attendance: S. Alsop, Sr., President; S. Alsop, Jr., C. E. Crowley, and W. W. Freystedt, Vice-Presidents; J. J. O'Shea, Mixer Division.

American Buff Company, 2414 S. La Salle Street, Chicago 16, Ill. Booths 170-171.

Exhibiting: Buffs and polishing wheels, plating tanks and lathe in operation.

In attendance: Harry Pink, Service Engineer; Ernest Reichenberg, H. J. Sandstrom, and E. W. Hoyle, Sales Engineers.

American Chemical Paint Company, Ambler, Pa. Booth 106.

Exhibiting: "Alodine", corrosion-proofing and paint-bonding chemical for aluminum; "Duridine", cleaning and phosphate-coating chemical for sheet steel; "Granodine", zinc phosphate coating chemical for sheet steel; "Thermoil-Granodine", rust-proofing phosphate coating chemical for iron and steel; "Zinodine", corrosion-preventive and paint-bonding chemical for zinc and cadmium, "Rodine", pickling acid inhibitors.

In attendance: F. P. Spruance, Jr., Alfred Douty, Joseph Mazia, James Thirsk, R. O. Bailey, N. P. Gentieu, W. B. Boyer, F. P. Spruance.

American Instrument Company, Inc., 8020-8030 Georgia Avenue, Silver Spring, Md. Booth 17.

Exhibiting: Magne Gage, Composite-coating Magne Gage, electric tank heaters and controls, Coleman Universal Spectrophotometer, Filmeter, Macbeth Line-operated pH Meter.

In attendance: Louis R. Heiss, Salesman.

American Machinists & Solvents, 101 Park Ave., New York City, N. Y. Booth 14.

Exhibiting: Cleaning equipment.

Armond Convention Decorators, Albany and Atlantic Aves., Atlantic City, N. J. Booth 175.

Exhibiting: Convention exhibits and decorations.

Automotive Rubber Company, Inc.,
8601 Epworth Boulevard, Detroit 4,
Mich. Booth 154.

Exhibiting: Tanks, racks, diaphragm systems, anode containers, dipping baskets, utensils, material-handling screen, tank grids, pipe, air agitation systems, etc.

In attendance: R. L. Redmond, Sales Manager; F. D. Wressel, C. A. Petoskey, and W. C. Enright, Sales Engineers.

Bart-Messing Corporation, 45 Morgan Avenue, Brooklyn 6, N. Y. Booths 119-120.

Exhibiting: New selenium rectifiers for electroplating.

In attendance: Robert Corey and Benjamin Flug, Assistant Sales Managers; Edwin C. Rinker, New Jersey Regional Sales Manager; M. M. Messing, President; S. G. Bart, Secretary-Treasurer; E. R. Redlhammer, Chief Engineer.

Beacon Wiper Supply Company, 110-156 Marginal, Chelsea, Mass. Booth 15.

Exhibiting: Buffing wheels.

In attendance: Max Feinberg, President; A. N. Farnham, Vice-President.

Behr-Manning Corp., Troy, N. Y. Booths 155-156.

Exhibiting: Coated abrasive belts, contact wheels and idler backstands.

In attendance: M. I. Jackson and A. F. Lehnhardt, Divisional Sales Managers; K. T. Obeck, J. Durnam and H. Real, Products Engineers; H. J. Howe, Assistant Sales Promotion Manager

Belke Manufacturing Company, 947 N. Cicero Avenue, Chicago 51, Ill. Booths 38-39.

Exhibiting: Plating racks, equipment, and supplies.

In attendance: William E. Belke, President; Harvey J. Johnson, Vice-President; Edward O. Stanek and Raymond W. Kotz, Technical Representatives.

G. S. Blakeslee & Company, 1844 S. 52nd Avenue, Chicago 50, Ill. Booths 162-163.

Exhibiting: Metal parts washers, several solvent vapor degreasers in operation.

In attendance: R. B. Thompson, I. F. Snow and R. Kendall, Sales Engineers.

Buckingham Products Company, 14100 Fullerton Avenue, Detroit 27, Mich. Booths 179-180.

Exhibiting: Polishing and buffing compositions.

In attendance: R. M. Buckingham, President and General Manager; H. J. Patterson, Lex Winans and Joe Davis, Salesmen; L. M. Ring, District Sales Manager, Pittsburgh, Pa.

The Chemical Corporation, 54 Waltham Avenue, Springfield, Mass. Booth 116.

Exhibiting: Luster-on bright dip for zinc-plated surfaces, stripode addition agent for nickel stripping, Never-Sever Solder Flux for passivated zinc.

In attendance: K. P. Bellingier, Vice-President; B. H. Gardner, Advertising Manager; Leo Arsenault, Howard Hancock, William Lindsey.

Chromium Engineers, Inc., 2636 S. Michigan Avenue, Chicago 16, Ill. Booth 41.

Colonial Alloys Company, Technical Process Division, Ridge Avenue and Crawford Street, Philadelphia 29, Pa. Booth 145.

Co-Operative Industries, Inc., 100 Oakdale Road, Chester, N. J. Booth 151.

Commercial Filters Corporation, 18 W. 3rd Street, Boston 27, Mass. Booth 166.

Exhibiting: Fulflo filters of steel, stainless steel, and rubber-lined steel, with Honeycomb Filter Tubes for continuous filtration of individual acid or alkaline plating tanks at flow-rates up to 14,000 gallons per hour.

In attendance: E. W. Sherburne, Director of Field Sales; representatives of New

York Office and of the J. V. Calhoun Company, 349 Montgomery Avenue, Bala-Cynwyd, Pa.

Crown Rheostat & Supply Company, 3465 N. Kimball Avenue, Chicago 18, Ill. Booths 60-61.

Exhibiting: Plating equipment.

In attendance: C. E. Clindinin, G. E. Haenerfauth, and Fred P. Green.

Daniels Plating Barrel & Supply Company, 129 Oliver Street, Newark 5, N. J. Booth 104.

Darco Corporation, 60 E. 42nd Street, New York 17, N. Y. Booth 27.

Exhibiting: Red Label Darco S-51 for maintenance of purity of electroplating solutions.

In attendance: W. A. Helbig, Chemical Engineer.

Detrex Corporation, P. O. Box 501, Detroit 32, Mich. Booths 67-68.

Die Castings Magazine (The Technical Publishing Company), 1240 Ontario Street, Cleveland 13, Ohio. Booth 21. Exhibiting: Publications.

In attendance: Jerome R. Peskin, General Manager; David W. Veit, Editor.

Diversey Corporation, Metal Industries Department, 53 W. Jackson Boulevard, Chicago 4, Ill. Booths 30-31.

Exhibiting: Diversey 909 soak tank cleaner demonstrated.

In attendance: B. B. Button, Manager; D. F. Seymour, F. C. Wagner, W. Lalestin, L. C. Hesoun, C. G. Smith, R. L. Shannon, A. J. Wurster, L. J. Moyes, R. J. Stell.

Divine Brothers Company, 200 Seward Avenue, Utica 1, N. Y. Booths 25-26.

Exhibiting: Buffing and polishing wheels, machinery, and accessories.

In attendance: Robert L. Klaas, Vice-President; A. M. Brown, Commercial Manager; Charles J. Lamb, Assistant

Sales Manager; William C. Beddoe, Advertising Manager; A. C. Hitzelberger, T. R. Treadwell, H. W. Fish, L. E. Sullivan, R. A. Bantham, C. S. Johnson, J. Warren, H. J. Breithart, F. H. Thompson, Sales Personnel.

Duggan Masking Devices, 2030 W. Fort Street, Detroit 16, Mich. Booth 35.

Exhibiting: Plating racks, electroformed paint masks, stop-off masks.

In attendance: David Riseaman, President; Val Jones, Sales Manager.

Duluth Buff Company, 2420 S. La Salle Street, Chicago 16, Ill. Booth 141.

Exhibiting: Buffs and polishing wheels.

In attendance: Murray Paley and Morris Katz, Sales Engineers.

Electric Products Company, 1725 Clarkstone Road, Cleveland 12, Ohio. Booths 36-37.

Exhibiting: Motor-Generators for electroplating and other electrolytic processes.

In attendance: Gordon S. Berry, Vice-President and Sales Manager; Robert J. Peck, New York District Manager; C. L. Leaf, New York Office; Rober G. Redhead, Advertising Counsel.

Enthone, Inc., 442 Elm Street, New Haven 2, Conn. Booth 22.

Exhibiting: Processes for blackening metals, plating on aluminum, stripping enamels and cleaning of metals.

In attendance: Dr. Walter R. Meyer, President and Technical Director; J. F. Buckman, Vice-President; C. C. Helmle, Secretary; Hubert M. Goldman, Chemical Engineer; William Porter, Development Chemist; Joseph R. Eisele, Derick S. Hartshorn, Jr., A. H. Sanders, Austin Fletcher, Raymond Goral and John J. Lippoth, Sales Engineers.

Finishing Publications, Inc., 11 W. 42nd Street, New York 16, N. Y. Booth 29.

Exhibiting: Copies of Metal Finishing, Organic Finishing and books.

In attendance: P. H. Langdon, Assistant Publisher; T. A. Trumbour, Business Manager; J. I. Wiarda, Advertising Manager; Walter A. Raymond, Engineering Editor; F. C. Wehrman, Eastern Manager; J. E. Trumbour, News Editor.

Formax Manufacturing Corporation, 12934 Evergreen Road, Detroit 23 Mich. Booth 122.

Exhibiting: Buffing and polishing wheels and compounds, abrasive belt backstand idler units in operation, anode bags, spray guns and equipment for application of liquid buffing compounds in operation.

In attendance: H. J. McAleer, President; E. W. McAleer, Vice-President; E. D. McAleer, Sales Manager; J. J. McAleer, Secretary-Treasurer; R. B. Holmes, Lewis A. Feldenkris and G. A. Meyers, Sales Representatives; Stuart Rodgers, Sales Department.

Gardner Publications, Inc., 431 Main Street, Cincinnati 2, Ohio. Booths 42-43.

Exhibiting: Copies of Products Finishing.

General Chemical Division, Allied Chemical and Dye Corporation, 40 Rector Street, New York 6, N. Y. Booth 40.

Exhibiting: Industrial, laboratory and electroplating chemicals.

General Electric Company, 1285 Boston Avenue, Bridgeport, Conn. Booths 12-13.

Exhibiting: Rectifiers for electroplating.
In Attendance: N. A. Searles, R. V. Dawney, G. C. Ruckel, E. R. Broughel, D. M. Daley, R. D. Link, Tungar and Metallic Rectifier District Representatives; R. D. Amsden, Rectifier Division Engineer; I. A. Lee, Sales Manager, Special Rectifier Sales.

Walter C. Gold, Inc., 216 S. Front Street, Philadelphia 6, Pa. Booths 177-178.

W. Green Electric Company, Inc., 130 Cedar Street, New York 6, N. Y. Booth 62.

Exhibiting: Rectifiers.

In attendance: L. W. Reinken, Chief Engineer; E. I. Huppert, Jr., Sales Manager; James D. Trehy, Assistant Sales Manager.

Gumm, Frederick, Chemical Company, Inc., 538 Forest Street, Kearny, N. J. Booths 132-133.

Hammond Machinery Builders, Inc., 1600 Douglas Avenue, Kalamazoo, Mich. Booths 142-144.

Exhibiting: Rotary automatic polishing and buffing machines, polishing lathes, cylindrical finishing machines, abrasive belt backstands, abrasive belt grinder, polishers, all in operation.

In attendance: Lee Hammond, President; S. H. Miller, Sales Manager; H. J. Kingsbury, Chief Engineer; Ramsay Bell, Methods Engineer; M. Bass, Engineer.

Hanson-Van Winkle-Munning Company, Church Street, Matawan, N. J. Booth 5.

Exhibiting: Electroplating equipment and supplies.

In attendance: Edmund H. Hanlon, Equipment Sales Engineer, and Martvig J. Moll, Chief Conveyor Sales Engineer, in charge.

Harshaw Chemical Company, 1945 E. 97th St., Cleveland, Ohio. Booth 74.

Exhibiting: Plating processes and chemicals.

Haveg Corporation, Newark, Del. Booth 118.

Exhibiting: Plating and pickling tanks, fume hoods, fans, pipe, valves, fittings, and electrical insulating materials, made of non-corroding plastics.

In attendance: C. R. Runk, Sales Manager; J. W. Carrow, George B. Allen and H. B. Haney, District Sales Engineers.

R. O. Hull & Company, Inc., 1279 W. Third Street, Cleveland 13, Ohio. Booth 45.

Industrial Electroplating Company, Inc., 219 W. Vermont Street, Indianapolis 4, Ind. Booth 11.

Exhibiting: Niehaus fume separator and Niehaus dust separator.

In attendance: Carl Niehaus, President; William G. Niehaus, Vice-President.

Industrial Filter and Pump Manufacturing Company, 1621-1639 W. Carroll Avenue, Chicago 12, Ill. Booth 65.

Exhibiting: Demonstrator filter of lucite in operation, production filter, salt-fog test cabinet.

In attendance: Jack F. Brossart, Sales Manager; Harold W. Faint, Morton Van Loan and John R. Miller, Sales Representatives.

International Nickel Company, Inc., 67 Wall Street, New York 5, N. Y. Booths 79-81.

Exhibiting: "Seeing Is Deceiving," a fascinating modernistic display of startling optical illusions, is combined with an exhibit of tests and controls: meters, gauges, pH indicators, filters, and other testing instruments used in the laboratory and in the shop to assure quality workmanship.

In attendance: George Black, Publicity Section; Robert J. McKay, Walter H. Prine and Clarence H. Sample, Plating Section.

Iron Age, 100 E. 42nd Street, New York 17, N. Y. Booth 34.

Jackson Buff Corporation, 21-03 41st Avenue, Long Island City, N. J. Booths 102-103.

Kocour Company, 4800 St. Louis Avenue, Chicago 32, Ill. Booth 18.
Exhibiting: Testing equipment.

Lasalco, Inc., 2818-2838 La Salle Street, St. Louis 4, Mo. Booths 181-182.

Exhibiting: Daw Junior Full Automatic Plating Conveyor.

In attendance: B. G. Daw, President and Treasurer; H. J. Struckhoff, Vice-President and Sales Manager; A. G. Bignall, Sales Engineer.

Lea Manufacturing Company, 16 Cherry Avenue, Waterbury 86, Conn. Booths 32-33.

Exhibiting: Lea Compound, Learok, Ad-Lea-Sive, Mirror-Glo, Nickel-Glo, Lea-Clad Bright Cadmium Process, analytical sets, abrasive belts.

In attendance: R. S. Leather, President; R. P. Crane and E. W. Couch, Vice-Presidents; H. L. Kellner, Technical Director; E. T. Candee, Chief Chemist.

L'Hommedieu, Charles F. & Sons Company, 4521 Ogden Avenue, Chicago 23, Ill. Booth 55.

Exhibiting: Reliance Variable Speed Lathes, Reliance Plating Barrels, Reliance Rheostats, Reliance Buffs and Buffing Composition.

In Attendance: C. B. Little, Eastern Representative; John E. Brown, Sales Engineer.

Magnaflux Corporation, 5900 Northwest Highway, Chicago 31, Ill. Booth 126.

Magnus Chemical Company, Inc., South Avenue, Garwood, N. J. Booths 158-159.

Matchless Metal Polish Company, 840 W. 49th Place, Chicago 9, Ill. Booths 152-153.

Midwestern Manufacturing Co., 175 Fifth Avenue, New York, N. Y. Booth 172

Minnesota Mining and Manufacturing Company, 900 Fauquier Avenue, St. Paul, Minn. Booth 70.

Munning & Munning, Inc., 202 Emmett Street, Newark 5, N. J. Booths 63-64.

Exhibiting: Plating barrels, tumbling barrels, agitators, glue stands, buffing compounds.

In attendance: A. P. Munning and J. A. Munning, Vice-Presidents; W. W. McCord and R. T. Gore, Sales Engineers; W. J. Wilbur, Chief Engineer; B. M. Fletcher, Purchasing Agent.

Gripmaster Division, Nelson Chemi-

cals Corporation, 12345 Schaefer Highway, Detroit, Mich. Booth 149.

Exhibiting: Gripmaster polishing wheel cement.

In attendance: Morie Nelson, G. R. Smith, James Ritchie.

Oakite Products, Inc., 22 Thames Street, New York 6, N. Y. Booths 127-128.

In attendance: D. X. Clarin, J. J. Basch, John DeVries, Gerry Lux, J. J. Hayes, Martin Maher, H. P. Jacques, B. D. Clark, B. F. Fay, J. M. Hite, Edgar Wolff.

Optimus Equipment Company, Matawan, N. J. Booth 4.

Osborn Manufacturing Company, 5401 Hamilton Ave., Cleveland, Ohio. Booths 6-7.

Exhibiting: Brushes.

Panoco Division, Paper Novelty Manufacturing Company, 505 Carroll Street, Brooklyn 15, N. Y. Booth 121. Exhibiting: Die-cut masking tape.

In attendance: Millard Pretzfelder, Jr.

Pennsylvania Salt Manufacturing Co., Special Chemicals Division, 1000 Widener Building, Philadelphia 7, Pa. Booths 136-137.

Exhibiting: "Pensalt" metal cleaners, acid proof cements, corrosion resistant paints.

In attendance: J. J. Duffy, Jr., Manager of Sales; A. H. Clem, Field Sales Supervisor; V. A. Curll, Technical Supervisor; P. C. Staples and R. R. Perce, Product Supervisors; W. J. Hennessy, District Sales Manager; H. F. McIntyre, Philadelphia Representative; W. D. Wilson, Newark Representative.

Plating Magazine, 473 York Road, Jenkintown, Pa. Booth 66.

In attendance: A. R. Putnam, Advertising Manager.

Plating Products Company, 352 Mulberry Street, Newark 2, N. J. Booth 24.

Porter-Cable Machine Company, 1714 N. Salina Street, Syracuse 8, N. Y. Booths 129-130.

Rapid Electric Company, 2849 Middle-

town Rd., Bronx 61, N. Y. Booth 46. Exhibiting: Rectifiers.

Republic Industries, Inc., 1040 W. Fort Street, Detroit 26, Mich. Booth 49. Exhibiting: Buffing wheels.

In attendance: J. J. Marx, President; E. A. Wolf, Jr., Vice-President and Treasurer.

The Reynolds-Robson Supply Company, 2213-2221 W. Glenwood Avenue, Philadelphia 32, Pa. Booth 157.

In attendance: W. A. Reynolds and D. R. Robson, Partners; C. E. Boerckel and T. Morgan, Jr., Sales Engineers.

James H. Rhodes & Company, 157 W. Hubbard Street, Chicago 10, Ill. Booth 28.

Exhibiting: American-ground Italian powdered pumice stone, light-weight No. 718 lump pumice, felt, abrasives.

In attendance: John E. McCutchen, Vice-President in Charge of Production; A. N. Sudduth, Vice-President; Lincoln Kneebone, General Sales Manager; J. J. Marr, Assistant Sales Manager.

Ronci Machine Company, 2 Atlantic Boulevard, Centredale 11, R. I. Booth 140.

Sparkler Manufacturing Company, Lake Street, Mundelein, Ill. Booth 23.

Exhibiting: Rubber-lined plating equipment for acid plating bath, all-iron filter for cyanide baths, spare plates to show plate detail, filter media; some equipment in operation.

In attendance: K. L. Carr, Sales Manager; G. C. Garland, R. E. Shields and J. C. Sharbaugh.

Special Chemicals Corporation, 39 Irving Place, New York 3, N. Y. Booth 9.

Standard Electrical Tool Company, 2488-2496 River Road, Cincinnati 4, Ohio. Booth 101.

Exhibiting: Infinitely-variable-speed buffing and polishing lathes from 1 to 20 hp in operation.

In attendance: W. A. Ferguson, President; Jack J. Falls, Vice-President; Ray A. Huhn, Secretary; Joseph J. Klopp,

Treasurer; L. Menke, Foreman; W. J. Holtmeier and F. W. Larson, Representatives.

Standard Plating Rack Company,
1925 N. Paulina Street, Chicago 22,
Ill. Booth 117.

Frederic B. Stevens, Inc., 1800 18th
Street, Detroit 16, Mich. Booths 57-58.

In attendance: R. H. Alden; R. C. Bender; H. M. Brown; Guy Cummings' E. T. Homan; J. M. Johnston; A. H. Kirkpatrick; A. H. Losey; J. M. Mayees; C. J. Menzemer; A. F. Norgren; Franklyn Roberts; H. M. Stevens.

Sturgis Products Company, 203 Jacob
Street, Sturgis, Mich. Booth 164.

Exhibiting: Roto-Finish and other mechanical finishing equipment, display of parts before and after Roto-Finishing.

In attendance: C. H. Castle, Technical Director; D. T. Barrett, President; L. W. Evans, Eastern Factory Representative.

~~S~~**ylvania Plastics Company,** 5520 S.
Main Street, Sylvania, Ohio. Booth 44.

Titeflex, Inc., 500 Frelinghuysen Avenue,
Newark 5, N. J. Booths 77-78.

Exhibiting: Industrial filters, flexible metal tubing.

In attendance: H. T. Lord, Sales Manager, Filter Department; B. W. Lerner, Assistant Sales Manager, Filter Department; Harry Forster, Metal Tubing Department.

H. O. Trerice Company, 1420 W. Lafayette
Boulevard, Detroit 16, Mich.
Booth 138.

Exhibiting: Industrial engraved stem, dial and recording thermometers; temperature controllers in operation; pressure regulators and gauges; steam traps in operation; air filters and air guns.

In attendance: James Leslie, New York Branch Manager; J. L. Brackett, Chief Engineer; E. L. Myers, F. Z. Dahn.

Udylite Corporation, 1651 E. Grand
Boulevard, Detroit 11, Mich. Booths
167-169.

United Chromium, Inc., 51 E. 42nd

Street, New York 17, N. Y. Booths
123-125.

Exhibiting: Anozine; Unichrome rack coatings, lacquers and synthetics; Unichrome copper, and dips for zinc and cadmium; Ucilon protective coatings; chromium technical assistance.

In attendance: H. D. McLeese and T. G. Coyle, Vice-Presidents; E. N. Riotte, Manager New York District; M. Shacat, Manager New England District; R. H. Dudley, Manager Detroit District; R. J. Wooley, Manager Los Angeles District, L. A. Critchfield, Manager Dayton District; V. C. Burr, F. Fulforth, G. Ashworth, G. E. Vibberts, T. A. Ayr, D. E. Hartman.

U. S. Control Laboratories, Inc., P. O.
Box 289, Red Bank, N. J. Booth 48.

U. S. Stoneware Company, Akron 9,
Ohio. Booths 71-73.

Exhibiting: Tank linings, rack coating materials, Tygon paint, lead anodes.

In attendance: Howard Farkas, Vice-President; Sidney Lewis, A. C. Coffman, L. E. Wybel, Walter Webb, Russell Fancher.

Wagner Brothers, Inc., 400 Midland
Avenue, Detroit 3, Mich. Booths
134-135.

Exhibiting: Wagner-Tiedeman rectifiers, Flat-Top zinc anodes.

In attendance: O. H. Tiedeman, Chief Engineer; Bill Ross and Fred Wagner, Vice-Presidents; Joe Wagner, President.

Waverly Petroleum Products Company, Drexel Building, Independence
Square, Philadelphia 6, Pa. Booth 139.

Exhibiting: Troxide pickling compound and Protectofoam, used to replace conventional acids in removing scale and rust from metals.

In attendance: George E. Willey, President; Edward P. Frankel, General Manager; T. F. O'Brien, Manager, Troxide Division; Edw. W. Coogan and Franklin A. Miller, Field Engineers.

Wico Metal Products Company, 23142
Sherwood Avenue, P. O. Box 145, Van
Dyke, Mich. Booth 114.

SUMMARY OF GENERAL PROGRAM

Monday, June 28, 1948

- 8:00 A. M.—Registration, Upper Lounge, Hotel Ambassador
- 9:30 A. M.—Opening Session, Convention Hall Ballroom
- 12:30 P. M.—International Fellowship Club Annual Luncheon, Hotel Ambassador
- 2:00 P. M.—First Educational Session, Convention Hall Ballroom
- 3:30 P. M.—OPEN HOUSE, Renaissance Ballroom, Hotel Ambassador

Tuesday, June 29, 1948

- 8:00 A. M.—Registration, Upper Lounge, Hotel Ambassador
- 8:00 A. M.—Breakfast, A. E. S. Branch Secretaries, Room 125, Hotel Ambassador
- 9:30 A. M.—Second Educational Session, Convention Hall Ballroom
- 12:00 Noon—Golf Tournament International Fellowship Club, Atlantic City Country Club, Northfield, N. J.
- Afternoon —VISIT
and Industrial Finishing Exposition—Plated-ware Branch Exhibit
Evening Enjoy Atlantic City "World's Playground"
- 8:00 P. M.—Research Committee Meeting, Room 106, Hotel Ambassador

Wednesday, June 30, 1948

- 8:00 A. M.—Registration, Upper Lounge, Hotel Ambassador
- 9:30 A. M.—Third Educational Session, Convention Hall Ballroom
- 2:00 P. M.—Fourth Educational Session, Convention Hall Ballroom
- 8:00 P. M.—Special A. E. S. Business Session, Convention Hall Ballroom

Thursday, July 1, 1948

- 8:00 A. M.—Registration, Upper Lounge, Hotel Ambassador
- 8:00 A. M.—Research Committee Breakfast, Room 125, Hotel Ambassador
- 9:30 A. M.—Fifth Educational Session (Research Reports), Convention Hall Ballroom
- 2:00 P. M.—Final A. E. S. Business Session, Convention Hall Ballroom
- 7:00 P. M.—Annual A. E. S. Banquet, Renaissance Ballroom, Hotel Ambassador

I M P O R T A N T

KEEP THIS CORRECTION SHEET WITH YOUR OFFICIAL PROGRAM

The General Committee regrets that it is necessary to make the following changes and additions to the Official Program.

Shuttle bus service between Convention Headquarters at the Statler Hotel and the Industrial Metal Finishing Exposition at Convention Hall will not be available. The public transportation system on Woodward Avenue will provide quick and efficient service to Convention Hall and is only a short block from the Hotel.

The Moonlight Cruise on Lake St. Clair scheduled for Tuesday night, June 24 at 8:00 P. M. has been cancelled for reasons beyond our control.

A ticket has been included in your book that, presented at the box office of any of the following theaters, will be exchanged for a regular admission ticket any time during the Convention, June 23 to 27 inclusive.

**Palms — Adams — Broadway Capitol — Madison
Michigan — Fox — Downtown — United Artists**

In addition to the plants listed in the Official Program available for plant visitations you are cordially invited to visit the Chrysler Engineering Laboratories at the Chrysler Highland Park Engineering Building, 12800 Oakland Avenue. A scheduled trip will leave by bus at 10:00 A. M. Friday, June 27 for the Chrysler Laboratories. Here you will be conducted through the Engineering and Research Division of the Chrysler Corporation. These laboratories have gained world-wide fame for their developments and research work. Do not miss this chance to visit the laboratories of one of the Big Three of the Automotive Industry. Be sure to indicate on the proper form, handed to you at the Registration Desk, the plants that you wish to visit so that proper arrangements may be completed.

The following was omitted from the Official Program as printed in "The Review".

Thursday, June 26, 2:00 P. M. — Annual Business Meeting
Hotel Statler — Grand Ballroom.

Final Business Session — Election of Officers — Selection of 1948 Convention city.

7:00 P. M. — Annual Banquet — Hotel Statler — Grand Ballroom — Dinner, floor show, dancing.

For identification, show your official registration badge or book of tickets when boarding a special bus engaged solely for transporting Convention registrants on any of the scheduled trips. As no special transportation tickets are provided, your Convention badge or your book of tickets are the only means of providing you with free transportation on the scheduled trips.

GREETINGS

We are happy to be hosts to the Thirty-fourth Annual Convention of the American Electroplaters' Society.

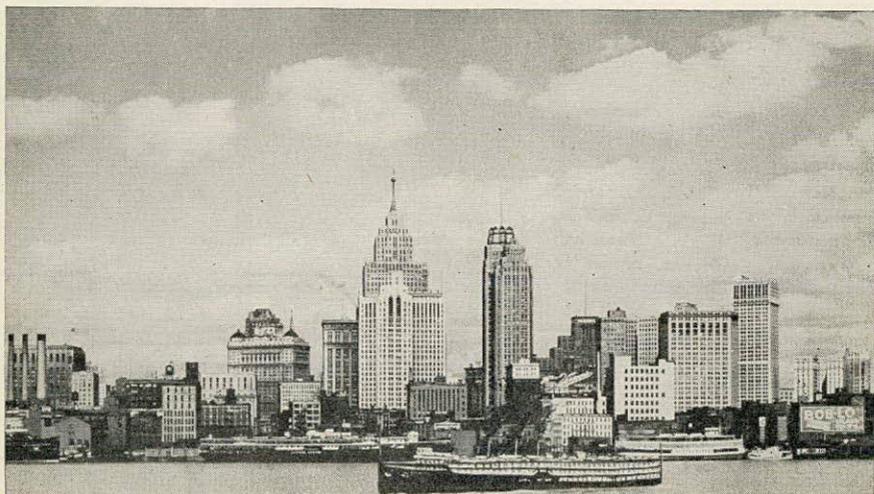
Each member of the Detroit Branch feels a personal responsibility for this tremendous undertaking and has appointed himself a committee of one to help make your visit profitable and entertaining.

To the Ladies may we say a special "Welcome". We do want you to have an enjoyable time.

This event inaugurating our combined Convention and Industrial Finishing Exposition has tremendous potential possibilities. We sincerely hope that it will prove to be an eventful milestone in the progress of our organization and will result in more universal recognition and acceptance of the Metal Finishing Industry.

We sincerely appreciate the cooperation of the many firms who have so generously helped in making this Convention and Exposition possible; and to the members of our Detroit Branch may I say, "Thank you".

GEORGE L. NANKERVIS,
General Chairman.



CONVENTION COMMITTEE

CHAIRMEN



G. L. NANKERVIS
General Chairman



WALTER L. PINNER
General Treasurer



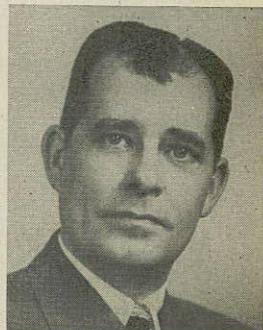
DR. RICHARD B. SALTONSTALL
Education



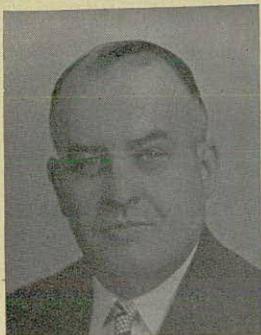
HERBERTH E. HEAD
Exposition



EDWARD F. BERRY
Exposition



R. L. REDMOND
Entertainment



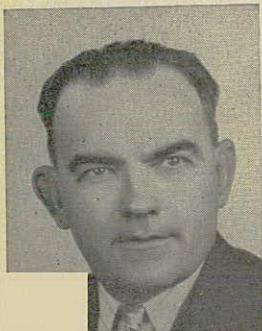
FRANK WATT
Advertising & Publicity



G. A. PILLSBURY
Finance



**MRS. GEORGE A.
PILLSBURY**
Women's



JESS E. BUNCH
Hotel



FRANK L. CLIFTON
Registration



C. L. SOUTHWICK
Transportation



C. R. BEAUBIEN
Plant Visitations

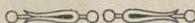


HENRY J. BOCK
Job Shops



B. G. CASE
Program—Finance

GENERAL PROGRAM



Sunday, June 22

3:00 P. M.—REGISTRATION, Ball Room Floor, Hotel Statler

Registration Fee: \$7.50. This entitles the registrant to a book of tickets to be used for all A. E. S. functions and activities. Registrants need not be members of the Society.

The Hotel Committee is turning over its entire file to the Registration Committee for the duration of the Convention.

Requests for information concerning hotel reservations should be made at the Registration Desk.

Monday, June 23

8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions: \$7.50

10:00 A. M.—TOUR TO GREENFIELD VILLAGE AND DEARBORN INN—See Ladies' Program

10:15 A. M.—OPENING SESSION, Grand Ball Room, Ball Room Floor, Hotel Statler. *George L. Nankervis*, Convention General Chairman, presiding

Invocation—Dr. Herbert Beecher Hudnut
Formal Opening of 1947 Convention—*George L. Nankervis*, Convention General Chairman



Program

Welcome to Detroit—Hon. Edward J. Jeffries, Jr., Mayor, City of Detroit
Greetings from the Detroit Branch—W. W. Wilson, President, Detroit Branch
Report of the President—Frank K. Savage, A. E. S. President

12:30 P. M.—INTERNATIONAL FELLOWSHIP CLUB'S ANNUAL LUNCHEON (for suppliers and their representatives only), Michigan Room, Hotel Statler

Following the luncheon will be election of officers for the coming year and a discussion of arrangements for the Open House.

2:00 to 4:30 P. M.—FIRST EDUCATIONAL SESSION, Grand Ball Room, Hotel Statler. *Charles L. Faust*, Battelle Memorial Institute, presiding

1. *Stress in Electrodeposits and Its Significance*—K. G. Soderberg and A. K. Graham, Graham, Crowley & Associates, Inc.
2. *Stress in Electrodeposited Nickel*—William Phillips and F. L. Clifton, General Motors Research Division
3. *Physical Properties of Electrodeposited Chromium*—Abner Brenner, Polly Burkhead and Charles W. Jennings, National Bureau of Standards
4. *Bright Brass Plating of Zinc Base Die Castings*—Stanley J. Beyer, Hart Manufacturing Company, formerly with Buffalo Plating Company

8:30 P. M.—OPEN HOUSE, Grand Ball Room, Hotel Statler

Dancing—Buffet Lunch—Refreshments

The Open House is held on the first night of the Convention to provide an opportunity for all registrants to become acquainted. It is sponsored by the International Fellowship Club, an organization formed to create goodwill in the Metal Finishing Industry. Membership in the Club is restricted to manufacturers, supply houses, and their representatives serving the Metal Finishing Industry, and it is through their generosity that the

Open House is made possible. A program including a list of contributors will be distributed.

A ticket for this event is included in your registration booklet.

Tuesday, June 24

8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions: \$7.50

8:30 A. M.—WWJ COFFEE CLUB BROADCAST, WWJ Building—See Ladies' program

9:30 A.M. to 12 NOON—SECOND EDUCATIONAL SESSION, Grand Ball Room, Hotel Statler. *Floyd F. Opplinger*, E. I. du Pont de Nemours & Company, presiding

1. *Modern Applications of Electroplating Solution Purification*—B. C. Case, Hanson-Van Winkle-Munning Company
2. *Electroforming Pitot Static Tubes*—Alfred S. Kasdan, Kollsman Instrument Division, Square D Company
3. *Chemical Deposition of Nickel and Cobalt*—Abner Brenner and Grace Riddell, National Bureau of Standards
4. *Recent Developments in the Use of Conversion Coatings on Zinc*—J. E. Stareck and W. S. Cibulskis, United Chromium, Incorporated
5. *Bulk Nickel Plating*—Henry Strow, Mac Dermid, Incorporated

12:00 NOON—CONTRACT PLATING SHOP OPERATORS' LUNCHEON, Michigan Room, Hotel Statler

Your host is the Plating Institute of Michigan.

12:30 P. M.—GOLF TOURNAMENT, Western Golf Club, *Joe Duffy*, Chairman

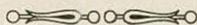
This tournament is sponsored by the International Fellowship Club. Prizes will be awarded for certain accomplishments. Luncheons will be available at the Golf Club.

Buses will leave the Bagley Street entrance of Hotel Statler at 12:30 P. M.

(Program continued page 8)

A. E. S.

CONVENTION COMMITTEES



General Chairman
GEORGE L. NANKERVIS
George L. Nankervis Company

General Treasurer
W. L. PINNER
Houdaille-Hershey Corporation

Exposition

HERBERT E. HEAD, *Co-Chairman*
Briggs Manufacturing Company
EDWARD F. BERRY, *Co-Chairman*
Detroit Plating Industries
LAWRENCE V. NAGLE
The Udylyte Corporation
FRANK TOUSLEY
Briggs Manufacturing Company

Entertainment

ROBERT L. REDMOND, *Chairman*
Automotive Rubber Company
B. C. CASE
Hanson-Van Winkle-Munning Co.
C. L. SOUTHWICK
A. T. Wagner Company
HAROLD M. CHERRY
George L. Nankervis Company
HENRY J. BOCK
Auto City Plating Company
A. L. SCAFURI
Belke Manufacturing Company
HOWARD J. WARD
The Udylyte Corporation
HOWARD McALEER
Formax Manufacturing Company

Educational

DR. RICHARD B. SALTONSTALL, *Chairman*
The Udylyte Corporation
ROBERT H. DUDLEY
United Chromium, Inc.
STANLEY S. KRENTEL
A. H. BEEBE
Chrysler Corporation
C. F. NIXON
Fisher Body-Ternstedt Div., G. M. C.

Hotel

JESS E. BUNCH, *Chairman*
Cadillac Motor Car Div., G. M. C.
HARRY M. BLUM
Cadillac Motor Car Div., G. M. C.
HARRY BENNER
E. I. duPont de Nemours & Co.

Registration

FRANK L. CLIFTON, *Chairman*
General Motors Research Div., G. M. C.
MRS. FRANK L. CLIFTON
EARL L. MORRISON
Budd Wheel Company
EDGAR A. HAHN
Ainsworth Manufacturing Corp.

Transportation

C. L. SOUTHWICK, *Chairman*
A. T. Wagner Company
HARRY E. MOSER
McCord Corporation
FRANCIS J. NEWTON
Detroit Bumper Division
Houdaille-Hersey Corporation

Plant Visitations

C. R. BEAUBIEN, *Chairman*
Wyandotte Chemicals Corporation

Job Shops

HENRY J. BOCK, *Chairman*
Auto City Plating Company

Program

B. C. CASE, *Chairman*
Hanson-Van Winkle-Munning Co.
L. M. MORSE
Chrysler Corporation

Branch Exhibits

ARTHUR W. LOGOZZO, *Chairman*
The Nutmeg Chrome Corp., Hartford, Conn.

Woman's

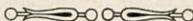
MRS. GEORGE A. PILLSBURY, *Chairman*
MRS. WALTER PINNER
MRS. HOWARD KNIGHT
MRS. GEORGE L. NANKERVIS
MRS. WRIGHT W. WILSON
MRS. O. H. LAIDY
MRS. CARL E. HEUSSNER
MRS. C. F. NIXON

Finance

GEORGE A. PILLSBURY, *Chairman*
Pillsbury Chemicals Company
B. C. CASE, *Co-Chairman*
Hanson-Van Winkle-Munning Co.
JAMES J. MALONE
L. M. MORSE
Chrysler Corporation
HENRY J. BOCK
Auto City Plating Company

Advertising and Publicity

FRANK WATT, *Chairman*
Frederic B. Stevens, Inc.
FRANKLYN ROBERTS
Frederic B. Stevens, Inc.
ROBERT C. TREES
The Udylite Corporation



Honorary Members of the A.E.S.

Dr. William Blum	Baltimore-Washington Branch
Mr. Charles S. Taylor	Boston Branch
Dr. O. P. Watts	Chicago Branch
Mr. Walter Fraine	Dayton Branch
Mr. Ernest Lamoureux	Los Angeles Branch
Mr. Daniel Wittig	Milwaukee Branch
Mr. John Feely	Montreal Branch
Mr. George B. Hogaboom	Newark Branch
Mr. Horace Smith	Newark Branch
Mr. Thomas Brosnan	New Haven Branch
Mr. George Gehling	Philadelphia Branch
Dr. Hiram Lukens	Philadelphia Branch
Mr. S. P. Gartland	Rochester Branch

Program

(Continued from page 5)

Afternoon—VISIT TO THE INDUSTRIAL FINISHING EXPOSITION, Convention Hall, out Woodward Avenue

This time has been set aside especially for members, wives, friends and guests to permit a leisurely inspection of the exhibits prepared by over one hundred nationally known manufacturers. See the latest developments in metal finishing, plating equipment and materials—witness actual plating operations—meet the men responsible for the industry's advancement. You will be astounded and pleased at the magnitude of the show and, we know, will enjoy it.

Afternoon—SPECIAL PLANT VISITS for those unable to participate in the regular plant visits arranged for Friday, June 27

If you are unable to arrange the visits you desire to make, fill out the form accompanying the registration booklet and give all requested information. Every effort will be made to assist you.

For information about specific plant visits, contact Mr. C. R. Beaubien, Chairman of the Plant Visitation Committee.

The planned visits are not as extensive as on Friday, June 27. If at all possible, stay through Friday and visit the large production plants which are famous throughout the world.

Note: The committee does not allocate new cars.

Transportation will be provided and will leave from the Bagley Street entrance of Hotel Statler.

8:00 P. M.—MOONLIGHT CRUISE ON LAKE ST. CLAIR. "Put-in-Bay," which has been engaged for Convention visitors' exclusive use, will sail at 8:45 P. M. from the dock at foot of First Street and return at 11:45 P. M.

Music—Dancing—Refreshments

Shuttle buses will leave the Bagley Street entrance of Hotel Statler for the dock beginning at 8:00 P. M. and meet you at the dock on your return.

Tickets included in the registration booklet.

Wednesday, June 25

8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions, \$7.50

9:30 to 12:00 Noon—THIRD EDUCATIONAL SESSION, Grand Ball Room, Hotel Statler. Arthur McNeil, MacDermid, Incorporated, presiding

1. *Manufacturing Process for Standard Sixty-Inch Reflector*, A Sound Film in Color—Engineer Board, Ft. Belvoir, Va.
2. *Barrel Chromium Plating*—G. Dubpernell and S. M. Martin, United Chromium, Incorporated
3. *Health Hazards in the Electroplating Industry*—J. E. Molas, City of St. Louis
4. *Standardization of Buffing for Preparation of Atmospheric Exposure Test Panels*—C. C. Cupps, Standard Steel Spring Company, and A. K. Graham, Graham, Crowley & Associates, Inc.
5. *Evaluation of Buffability of Nickel Deposits*—R. D. Miller, Bumper Division, Electric Auto-Lite Company, and A. H. DuRose, Harshaw Chemical Company

11:30 A. M.—LADIES' LUNCHEON AT DETROIT YACHT CLUB—See Ladies' Program

12:15 P. M.—MEN'S LUNCHEON AT MASONIC TEMPLE, courtesy Job Shop Operators of Detroit and Surrounding Territory Guest Speaker—Edgar A. Guest
Buses will leave the Bagley Street entrance of Hotel Statler at 12:15 P. M.
Tickets included in registration booklet.

2:30 to 5:00 P. M.—FOURTH EDUCATIONAL SESSION, Grand Ball Room, Hotel Statler. E. T. Candee, The American Brass Company, Chairman A. E. S. Research Committee, presiding

Program

Reports on A. E. S. Research Committee activities

1. Project No. 2—*Extraction Methods Applied to Electroplating Baths—Determination of Zinc and Other Impurities in Nickel Plating Solutions*—E. J. Serfass, Lehigh University
 2. Project No. 4—*Effect of Surface Finish of Non-Ferrous Base Metals on Protective Value of Plated Coatings*—George I. Kahan, U. S. Time Corporation
 3. Project No. 5—*Some Effects of Copper in Nickel Plating Solutions*—D. T. Ewing, Michigan State College
 4. Project No. 6—*Protective Power of Electrodeposits*—N. Thon, Princeton University
 - 6:30 P. M.—JOB AND CONTRACT SHOP OPERATORS' DINNER, Michigan Room, Hotel Statler
Sponsored by the National Association of Metal Finishers.
 - 7:30 P. M.—SPECIAL BUSINESS MEETING, Hotel Statler.
- Thursday, June 26**
- 8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions: \$7.50
 - 8:00 A. M.—BREAKFAST MEETING OF THE A. E. S. RESEARCH COMMITTEE (members only), Ivory Room, Hotel Statler
 - 8:30 A. M.—LADIES' BREAKFAST IN J. L. HUDSON COMPANY'S STORE—See Ladies' Program
 - 9:30 A. M. to 12:00 NOON—FIFTH EDUCATIONAL SESSION, Grand Ball Room, Hotel Statler. *R. M. Wick*, Bethlehem Steel Company, Chairman, Research Directing Sub-Committee of the A. E. S. Research Committee, presiding
 1. Project No. 7—*Evaluation of Methods for Determining the Thickness of Electrodeposited Coatings*—Harold J. Read, Pennsylvania State College
 2. Project No. 8—*General Considerations of Experimental Methods for Determining Polarization*—Alfred L. Ferguson, University of Michigan
 3. Project No. 9—*Physical Properties of Electrodeposited Metal*—Abner Brenner, National Bureau of Standards
 4. Project No. 10—*Present Status of Plating Room Waste Disposal*—B. F. Dodge and D. C. Reams, Yale University

Friday, June 27

All Day—PLANT VISITS

The following concerns have agreed to allow visitors to the A. E. S. Convention to inspect their plants, except that they reserve the right to refuse admittance to any individual whose presence they feel is prejudicial to their interests.

8:30 to 10:00 A. M.—FISHER BODY-TERNSTEDT DIVISION OF GENERAL MOTORS CORPORATION, West Fort Street at Livernois Avenue

This large and interesting plating plant is devoted to the buffing and plating of steel, brass, and stainless steel for automotive hardware. Almost all equipment is automatic.

The group will leave Hotel Statler at 8:30 A. M. and return between 9:30 and 10:00 A. M.

Arrangements can be made for additional groups which may visit this plant at 9:30 A. M. and 1:30 P. M.

9:00 to 10:30 A. M.—C. M. HALL LAMP COMPANY

Visitors will see the pressroom for stamping lamp bodies, reflectors, etc.; the polishing and buffing room with hand and automatic operations; the plating room with full-automatic, semi-automatic and hand operations in copper, nickel, chromium, zinc and cadmium, also barrel plating and automatic painting operations. Buses leave the Bagley Street entrance of Hotel Statler at 9:00 A. M.

(Program continued page 12)

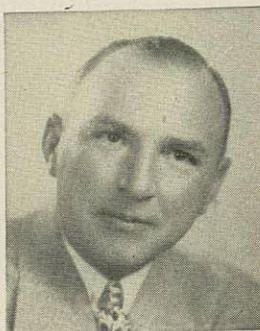
The Detroit Branch is the largest and one of the most active Branches of the American Electroplaters' Society. The Officers and Board of Managers, who ably guide its affairs, are pictured here.

DETROIT BRANCH



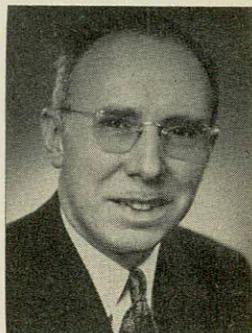
WRIGHT W. WILSON
President

Graduate of Michigan State College, 1924. Employed by General Spring and Bumper Corporation; Chrysler Corporation; now associated with Vickers, Inc.



G. L. NANKERVIS
First Vice-President

Active member of A. E. S. Detroit Branch for over twenty years. Engaged in distribution of electroplating equipment and supplies for 27 years. President of George L. Nankervis Company, Detroit



EDGAR A. HAHN
Second Vice-President

Graduate of University of Michigan, 1926. Active in electroplating and metallurgical work since. Chief Metallurgical and Chemical Engineer of Ainsworth Manufacturing Corporation for past 17 years



FRANK L. CLIFTON
Secretary-Treasurer

Active member of A. E. S. for many years. Research Engineer for past 26 years with General Motors Research Laboratories, mainly on electroplating problems



G. A. PILLSBURY
Librarian

Graduate of Carnegie Institute of Technology, 1933. Continuously engaged in the distribution of electroplating supplies since. Now President of Pillsbury Chemical Company



ROBERT H. DUDLEY
Publicity Chairman

Graduate of Pratt Institute, Brooklyn, N. Y., 1929. With United Chromium, Incorporated, since graduation. At present, District Manager

OFFICERS 1946-47



EDWARD F. BERRY
Board of Managers

Graduate of University of Pittsburgh, 1926. Chemist with Aluminum Company of America; Editor of Iron and Steel Publishing Co.; Adv. Mgr. of Udylite Corp.; now Gen. Mgr. of Detroit Plating Industries



E. C. F. NIXON
Board of Managers

Graduate of University of Wisconsin, 1923. With Western Clock Company for six years. With Fisher Body, Ternstedt Division, G. M. C.; at present Director of Process Engineering



WALTER L. PINNER
Board of Managers

Graduate of University of Michigan, 1923. With Houdaille-Hershey Corp. since. Now Mgr. Research and Development. Four A. E. S. Gold Medals; A. E. S. President, 1945-1946

Program

(Continued from page 9)

9:00 A. M.—WYANDOTTE CHEMICALS CORPORATION, Wyandotte, Mich.

The soda ash plant, the coke ovens and the dry ice plant will be shown.

Buses leave the Bagley Street entrance of Hotel Statler at 9:00 A. M., and guides will explain points of interest along the down-river route.

9:30 A. M.—CADILLAC MOTOR CAR DIVISION, GENERAL MOTORS CORPORATION
Visitors will be shown a newly designed and installed plating plant in operation incorporating the latest automatic equipment.

Buses leave the Bagley Street entrance of Hotel Statler at 9:30 A. M.

9:30 A. M. to 1:00 P. M.—FORD MOTOR COMPANY, River Rouge, Mich.

The Plating Sections in the Rolling Mill and the Motor Assembly Plant will be shown, and the Final Assembly Line will be toured.

Buses leave the Bagley Street entrance of Hotel Statler at 9:30 A. M.

9:30 to 11:00 A. M.—CHEVROLET FORGE DIVISION OF GENERAL MOTORS CORPORATION, Holbrook Avenue

This plant will be inspected in the following order: Bumper manufacture, including shearing, hot forming, quenching, and tempering (also manufacture of coil and other springs as well as drop forging of crank shafts)—Bumper finishing, including pickling, polishing (with wheel set up), automatic copper and nickel plating, nickel buffing and chromium plating.

For transportation information inquire at the Registration Desk.

10:00 A. M. to 3:00 P. M.—PONTIAC MOTOR DIVISION OF GENERAL MOTORS CORPORATION

Private escorts will show the largest individual plating machine in the world, 660 feet long, capable of producing 22,500 square feet of copper-nickel-chromium plate per eight-hour shift or 1½ acres of plate per day. A novel feature is the completely automatic loading and unloading devices.

The Pontiac Motor Division will be the host at a luncheon.

Buses will leave the Bagley Street entrance of Hotel Statler at 10:00 A. M. and Pontiac at 2:00 P. M.

10:00 A. M.—MOTOR PRODUCTS COMPANY

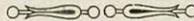
This trip will permit the inspection of manufacturing processes including an efficient automatic plating line for automatic parts such as windshield and ventilator frames.

Buses leave the Bagley Street entrance of Hotel Statler at 10:00 A. M.

1:00 P. M. to 10:00 P. M.—VISIT TO INDUSTRIAL FINISHING EXPOSITION, Convention Hall, 4484 Cass Avenue

Shuttle buses leave the Bagley Street entrance of the Hotel Statler at regular intervals during the day.

Do not fail to visit the Exposition.



Branch Exhibits

A number of the Branches and individual members have prepared exhibits of finished articles which will be on view in the foyer leading to the Grand Ball Room.

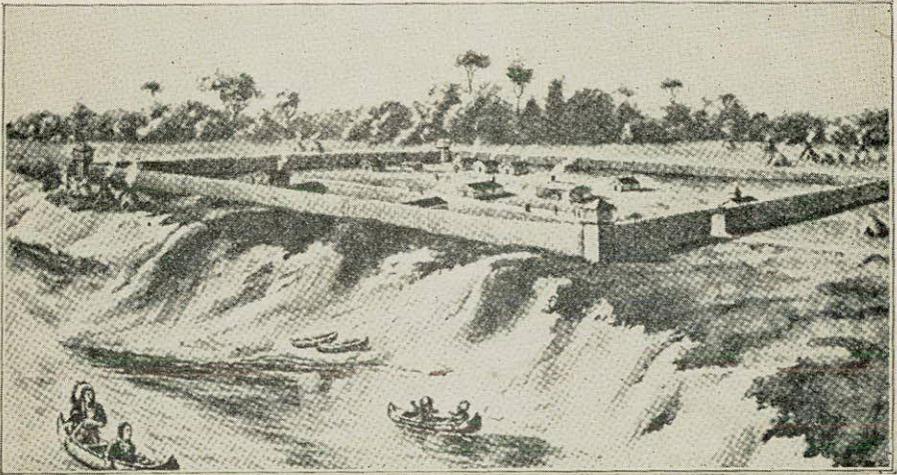
These exhibits will be judged by a Committee for general make-up, practical value

and quality of finish, disclosure of new or improved methods, and special skill and effort.

The exhibit awards will be distributed at the Banquet on Thursday evening, June 26.

Detroit

1947 CONVENTION AND EXPOSITION CITY



The City of Detroit, which will be the host to the A. E. S.'s 34th Annual Convention and the Industrial Finishing Exposition, June 23-27, was not always the great industrial center that it is today. Actually the city showed very little promise at first, and it was not until the middle of the 19th century that Detroit began to grow.

The present generation which thinks of Detroit as the hub of the automobile world will find it difficult to assimilate the historical fact that it was founded because of fashion. It was Louis XII of France who one day discarded his velvet cap and appeared in the first top hat of record, a lofty-crowned, narrow-brimmed affair made of the inner fur of the beaver. Detroit became one of the early beaver pelt stations in the wilds of New France, founded in 1701 by the French Officer Antoine Laumet de la Mothe Cadillac. Nothing is left of that old settlement.

Detroit has a checkered early history, having variously been under French, British and American flags before it finally settled down as an American city in 1813.

The zooming growth of Detroit began in 1899 when Ranson E. Olds formed a company to make the Oldsmobile. At that time the city had about 280,000 inhabitants. The history of the automobile industry is too well known to be repeated here. Henry Leland, the Dodge brothers, Ray Chapin, W. C. Durant, Henry Ford and the Fisher brothers are but a few of the outstanding figures in this development whose names come to mind.

But Detroit is more than an automobile city. It is also a center of the stove industry and the pharmaceutical industry, the seed industry and the salt industry, to mention only a few.

Visitors to the Convention and Exhibition will find much of interest in this the fourth city of the country.

TO THE LADIES!

Welcome! Detroit awaits you!

We are ready to entertain you.

We are taking you to the Ford Museum depicting Early American History, and to Greenfield Village, mecca for tourists, with luncheon at the beautiful Dearborn Inn.

You are going to have an opportunity to take part in an early morning radio breakfast program.

Then a luncheon at the spacious Detroit Yacht Club on Belle Isle, from where scores of needle-like boats with their bright sails and fabulous yachts, shiny and powerful, move into Lake St. Clair.

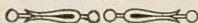
There will be an early morning breakfast in the beautiful Early American rooms of the J. L. Hudson Company, where you will enjoy seeing a mid-season Fashion Show, especially staged for you.

Several other functions have been planned for your pleasure, but we have also arranged the program so you can have time to shop or to visit other points of interest, such as Detroit's widely known Art Museum, across the Detroit River into Canada, or the Cranbrook Academy in Bloomfield Hills.

We hope to have fine weather, but suggest you bring a light top coat, good walking shoes, and a dinner dress for the banquet.

MRS. GEORGE PILLSBURY,

Chairlady, Ladies' Committee.



Ladies' Program

Sunday, June 22

3:00 P. M.—REGISTRATION, Ball Room Floor, Hotel Statler

Registration Fee: \$7.50. This entitles the registrant to a book of tickets to be used for all functions.

Request for information regarding hotel reservations should be made at the Registration Desk.

Monday, June 23

8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions: \$7.50

10:00 A. M.—TOUR TO GREENFIELD VILLAGE AND DEARBORN INN

Buses will leave the Bagley Street en-

trance of Hotel Statler beginning at 10:00 A. M. A conducted tour of two hours' duration through Greenfield Village, famous for its collections of early Americana, will start upon arrival. You will then be taken by bus to Dearborn Inn for a 1:30 P. M. luncheon. Return trip by bus from Dearborn Inn will start at 4:00 P. M.

Extensive arrangements have been made to make this trip most enjoyable.

8:30 P. M.—OPEN HOUSE, Grand Ball Room, Hotel Statler

Dancing—Buffet Lunch—Refreshments

The Open House is held on the first night of the Convention to provide an opportunity for all registrants to become ac-

quainted. It is sponsored by the International Fellowship Club, an organization formed to create goodwill in the Metal Finishing Industry. Membership in the Club is restricted to manufacturers, supply houses, and their representatives serving the Metal Finishing Industry, and it is through their generosity that the Open House is made possible. A program including a list of contributors will be distributed.

A ticket for this event is included in your registration booklet.

Tuesday, June 24

8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions: \$7.50

8:30 A. M.—WWJ COFFEE CLUB BROADCAST, WWJ Building, 630 Lafayette Boulevard. Be sure to be there at 8:30 A. M. The program will include special Convention features.

12:30 P. M.—GOLF TOURNAMENT, Western Golf Club—See General Program

Afternoon—VISIT TO INDUSTRIAL FINISHING EXPOSITION, Convention Hall, out Woodward Avenue

You will be interested in the wide range of products finished by electroplating as well as in the working exhibits which demonstrate the latest equipment and processes.

8:00 P. M.—MOONLIGHT CRUISE ON LAKE ST. CLAIR. "Put-in-Bay," which has been engaged for Convention visitors' exclusive use, will sail at 8:45 P. M. from the dock at foot of First Street and return at 11:45 P. M.

Music—Dancing—Refreshments

Shuttle buses will leave the Bagley Street entrance of Hotel Statler for the dock beginning at 8:00 P. M., and meet you at the dock on your return.

Tickets included in the registration booklet.

Wednesday, June 25

8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions: \$7.50

11:30 A. M.—LUNCHEON AT DETROIT YACHT CLUB. Following a bus trip around Belle Isle, truly a "beautiful island," you will be royally entertained at Detroit Yacht Club through the courtesy of Wyandotte Chemicals Corporation.

Luncheon—Entertainment—Music—Prizes
Buses leave the Bagley Street entrance of Hotel Statler at 11:30 A. M. and start the return trip approximately at 5:00 P. M.

Evening—PERSONAL ACTIVITIES at your leisure.

Note: The Industrial Finishing Exposition is open until 10:00 P. M.

Thursday, June 26

8:00 A. M.—REGISTRATION, Ball Room Floor, Hotel Statler. Registration Fee for all functions: \$7.50

8:30 A. M.—BREAKFAST IN J. L. HUDSON COMPANY'S STORE, a few blocks down Woodward Avenue.

A varied program has been arranged for your entertainment. There will then be time to inspect the store which is the second largest department store in the country and famous for its variety of goods and services.

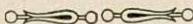
Afternoon—OPEN FOR PERSONAL ACTIVITIES

7:00 P. M.—ANNUAL BANQUET, Grand Ball Room, Hotel Statler.

Dinner—Distribution of Awards—Floor Show—Dancing

Friday, June 27

All Day—OPEN FOR REST AND PERSONAL ACTIVITIES.



INDUSTRIAL FINISHING EXPOSITION

Detroit, Michigan—June 23-27

The main feature of the 34th Annual Convention of the American Electroplaters' Society will be the Industrial Finishing Exposition being held in Convention Hall, "the Home of Detroit's Famous Automobile Shows".

Here, one hundred nationally known manufacturers and suppliers to the metal finishing industry will exhibit the latest metal finishing and plating equipment, processes, materials, services, and plated products.

This, the first Exposition to be conducted by the Society in eleven years, is the opportunity for everyone connected directly or indirectly with the metal finishing industry to see the combined efforts of the industry on display for inspection and discussion in one gigantic arena.

In order that the general public be more intimately acquainted with the importance of plated products in daily life, the Exposition will be open to the public, and it is believed that this will prove to be of educational value to the metal finishing industry as a whole.

One of the outstanding educational features of the Industrial Finishing Exposition will be a *completely equipped plating installation* where souvenirs will be plated and given to Exposition visitors. This plating plant will consist of full-scale plant equipment and will be operated under normal plant conditions. It is believed that this exhibit will illustrate to the public how plating procedures are conducted.

Fully automatic and semi-automatic plating and processing machinery will be in operation in several booths, and exhibitors will show full-scale production units.

Automatic polishing and buffing equipment will be in operation. Special emphasis will be laid on the application of buffing com-

pounds, and both *mechanical applicators and the latest spraying devices* will be shown.

A graphic illustration of *the largest plating installation in the world* will be the feature of one important display. The complete operation of this huge plant will be shown in mural-style photographs and charts.

One of the most interesting developments to reach the electroplating industry in some time is the matter of *generator control for "current reversal"*. This will be one of the feature attractions of a prominent display which will include recent developments in *temperature, automatic fluid or solution level controls*.

All of the important *generator and rectifier* manufacturers will have their products on display, and representatives will be present to explain the details of each product.

The latest processes in copper and nickel plating as well as new rust-proofing processes with recently developed supplementary protective coatings will be there for investigation.

For those interested in the protection of the "plating room tool", the plating rack, *new rack coatings* will be displayed, as will *lacquers* for special finishes.

New *cleaning* developments, *degreaser* equipment and applications, complete *filter* equipment and accessories will be presented.

Safety engineers will be particularly interested in seeing new methods and ideas for the safe handling of acids and other materials.

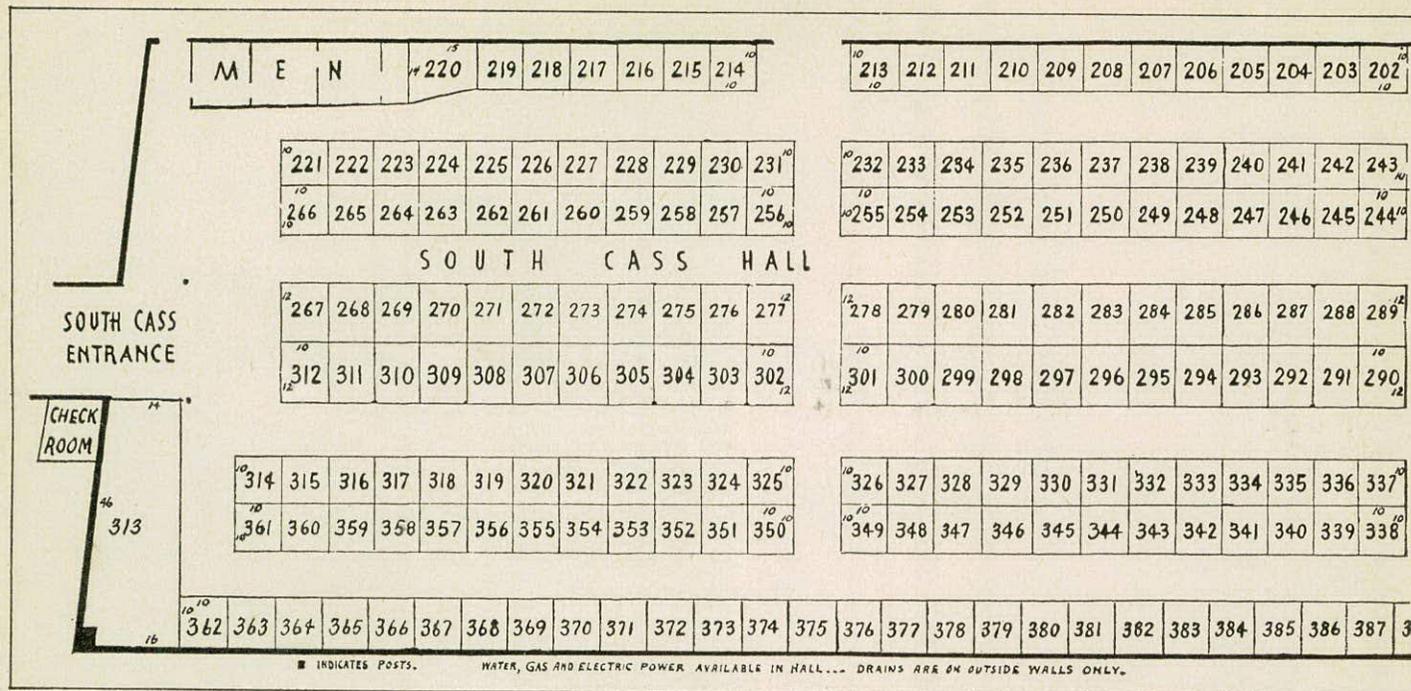
Truly, the Industrial Finishing Exposition will be the mecca for A. E. S. members, process engineers and technicians, and all operating engineers and executives who will for the first time in over ten years have the opportunity of seeing, investigating, and discussing the latest developments and ideas of the whole metal finishing industry.

GUIDE TO EXHIBITS



**CONVENTION HALL
4484 CASS AVENUE
DETROIT, MICHIGAN**



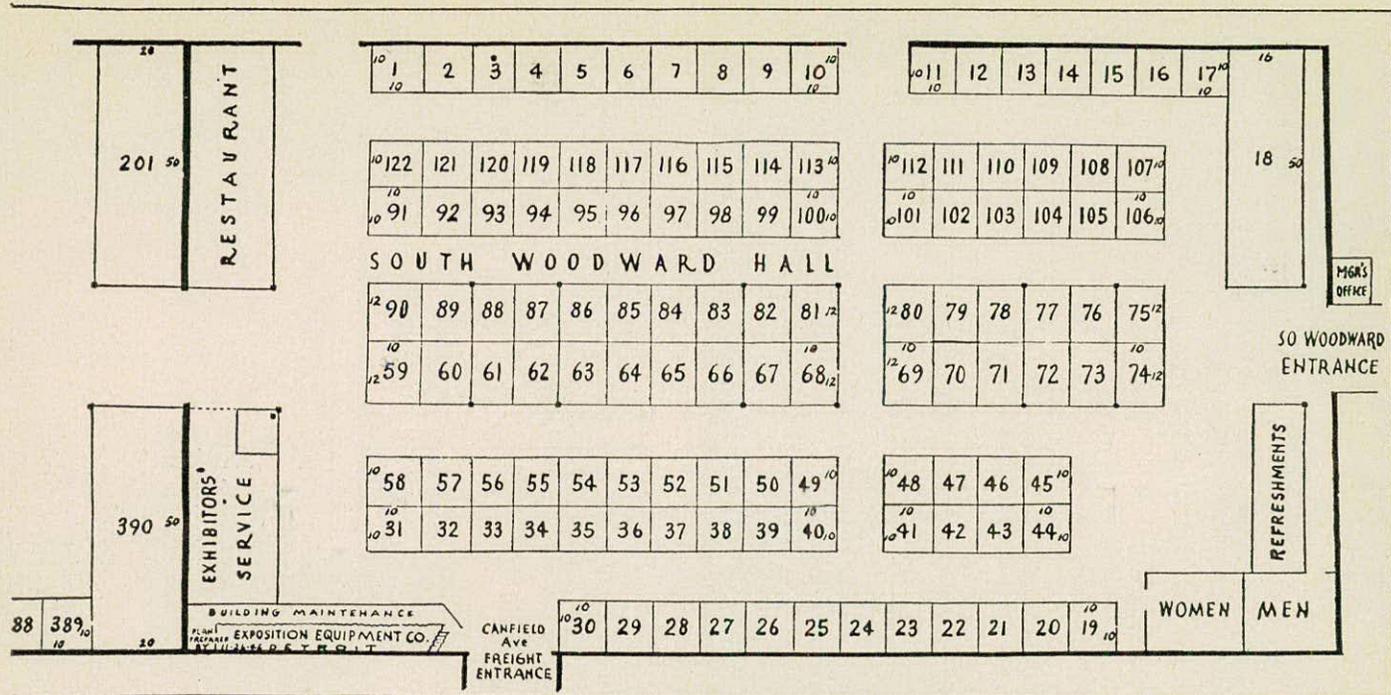


Floor Plan

INDUSTRIAL FINISHING EXPOSITION

Convention Hall

DETROIT, JUNE 23-27, 1947



Floor Plan

INDUSTRIAL FINISHING EXPOSITION

Convention Hall

DETROIT, JUNE 23-27, 1947

List of Exhibitors

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List of Exhibitors

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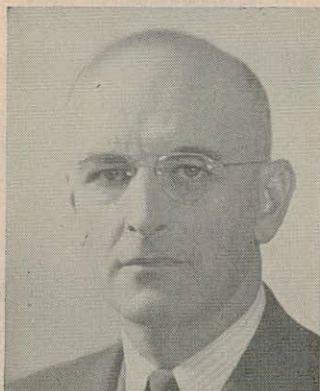
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THE MONTHLY REVIEW, official publication of the American Electroplaters' Society, and the leading technical periodical in the field, is now accepting subscriptions from individuals and companies who are not now members or sustaining members of the Society.

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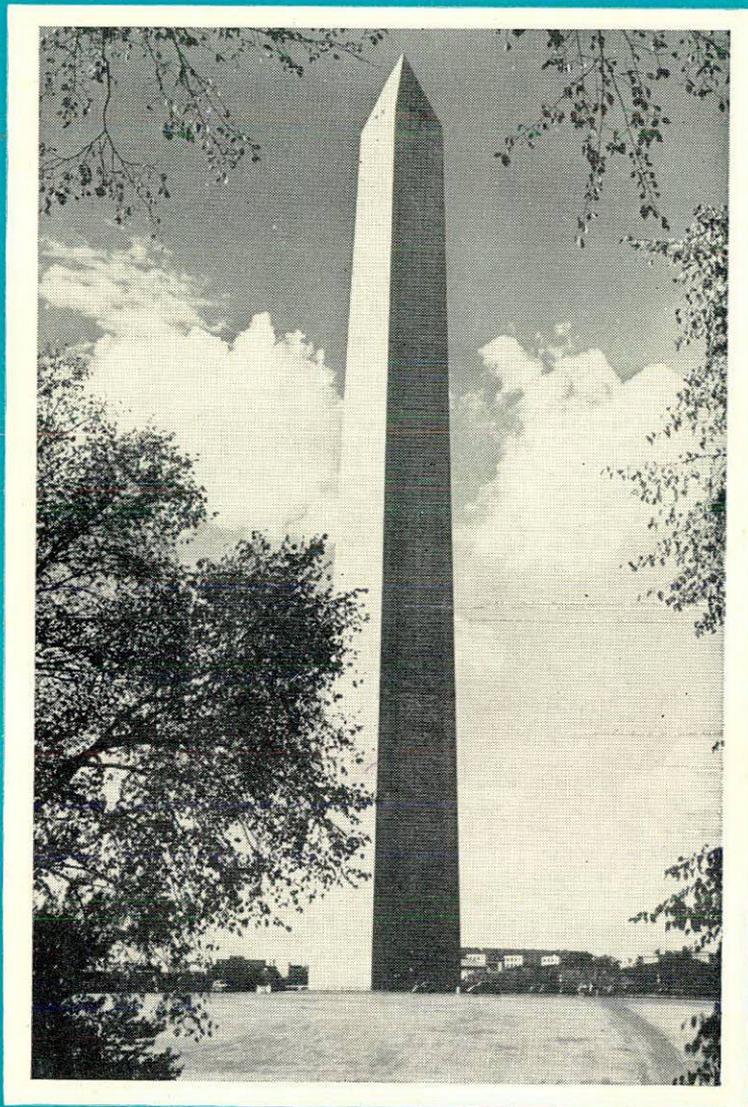
THE BALTIMORE-WASHINGTON BRANCH

PROUDLY WELCOMES

The American Electroplaters' Society

TO ITS

43RD ANNUAL CONVENTION



JUNE 17 - 21, 1956 • HOTEL STATLER, WASHINGTON, D. C.

1933





WELCOME

to the members and guests of the American Electroplaters' Society

The Baltimore-Washington Branch proudly welcomes you to your 43rd Annual Convention.

In keeping with the increasing importance and complexity of the metal finishing industry, our Educational Committee, under the able leadership of Dr. Abner Brenner, is offering the largest number of papers ever presented at any American Electroplaters' Society Convention. The quality and timeliness of these papers match their quantity.

For the past two years, our Committee has been planning a program dedicated to you and your entire family.

A trip to Washington is both an education and a delightful experience. The Capital is a city of unsurpassed beauty, rich in historical significance and magnificently equipped to care for tourists, visitors and conventions. Every effort has been extended to give you and your family a truly memorable experience they will cherish for years. So, have fun!

Arthur G. Picdon
General Chairman

Covers:

THE WASHINGTON MONUMENT, WASHINGTON, D. C.

The idea for this monument was crystallized in 1783 when the Continental Congress passed a resolution providing for an equestrian statue of Washington. However, no action was taken until 1833 when a group of private citizens formed the Washington National Monument Society to raise funds for building the monument. The cornerstone was laid in 1848. The monument had reached a height of 153 feet in 1854 when a stone from the Temple of Concord in Rome, presented by the Pope, was stolen by members of the "Know Nothing" (American) party. This stopped donations and work on the monument until 1876 when Congress took over the work. It was dedicated on February 22, 1885 and opened to the public October 9, 1888. It cost about \$1,500,000 of which about \$500,000 was contributed by the public.

The monument is 555 feet $5\frac{1}{8}$ inches high, 54 feet $1\frac{1}{2}$ inches square at the base and 34 feet $5\frac{1}{2}$ inches square at the top of the shaft. The walls are 15 feet thick at the base and 18 inches thick at the top. The outside facing

is of Maryland and Massachusetts white marble. Set into the interior walls are many memorial stones contributed by cities, states, fraternal and civic organizations, and many foreign governments.

Visitors may climb an inside stairway of 898 steps or use an elevator.

BACK COVER:

THE WASHINGTON MONUMENT, BALTIMORE, MARYLAND

This monument was the first in the nation erected by a city in memory of George Washington. It was completed in 1839. The total cost of \$291,000 was supplied by a lottery and a state appropriation. It was constructed with Maryland marble from a design by Robert Mills of South Carolina. The monument is 204 feet high and sits on a base 50 feet square. The figure of Washington in the act of tendering his resignation as a commander-in-chief of the Colonial Armed forces, weighs 16 tons and is 16 feet high. It was done by the Italian sculptor, Henrico Chucici. It is located at Charles and Monument Streets on land donated by Col. John Eager Howard.



43RD ANNUAL CONVENTION OF THE AES

Condensed Program and Index of Events

SUNDAY, JUNE 17, 1956

8:00 p.m. Get Together Party (Presidential Room) See Page

MONDAY, JUNE 18, 1956

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11:00 a.m. First Business Session AES Supreme Society
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12:00 Noon MFSA Luncheon and Meeting (South American Room)
12:00 Noon Ladies' Luncheon (Willard Hotel) 24
12:00 Noon Branch Secretaries' Luncheon (California Room) 7
12:00 p.m. Speakers' Luncheon (Pan-American Room)
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2:30 p.m. Editorial Board Meeting (Massachusetts Room)
6:30 p.m. Past Presidents' Dinner (California Room)
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8:00 a.m. Speakers' Breakfast (Ohio Room)
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(Presidential and Congressional Rooms) 15
10:00 a.m. Children's Program. Second Tour 26
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2:00 p.m. East-West Ball Game 27
2:00 p.m. Research Committee Meeting (Massachusetts Room)
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Congressional Rooms) 16



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THE AMERICAN ELECTROPLATERS' SOCIETY

The American Electroplaters' Society was incorporated in 1913. It was an outgrowth of the Associated Foreman Platers' Association formed in New York in 1909. This group became the American Platers' Association in the same year and later the National Association of Electroplaters of the United States & Canada. It is incorporated under the laws of the state of New Jersey. The Executive Secretary is the Residing Legal Officer.

Its object is the improvement and dissemination of the knowledge of the arts and sciences of electroplating; finishing of metals and allied arts; and the development of a cooperative spirit of friendship and mutual assistance among its members.

There are 55 branches of the Society located in the United States, Canada and Australia with a total membership of over 7000. Each branch elects three delegates to the governing body called the Supreme Society. The Supreme Society elects an Executive Board, consisting of a president, three vice presidents and the immediate past president, at each convention.

The Executive Board appoints an executive secretary, who as the business officer of the Executive Board, operates the National Office and as Managing Editor of the Society's official journal, publishes *Plating*.

List of Annual Meetings and Presiding Officers

No.	Year	City	President	No.	Year	City	President
	1909-1913	New York, N. Y.	*Charles N. Proctor	22.	1935	Bridgeport, Conn.	H. A. Gilbertson
1.	1914	Chicago, Ill.	*G. B. Hogaboom	23.	1936	Cleveland, Ohio	*T. F. Siattery
2.	1915	Dayton, Ohio	*H. J. Hansjosten	24.	1937	New York, N. Y.	E. Steen Thompson
3.	1916	Cleveland, Ohio	*Walter Barrows	25.	1938	Milwaukee, Wis.	A. B. Wilson
4.	1917	St. Louis, Mo.	*H. H. Williams	26.	1939	Asbury Park, N. J.	W. M. Phillips
5.	1918	Detroit, Mich.	*Walter J. Fraine	27.	1940	Dayton, Ohio	*R. M. Goodsell
6.	1919	Philadelphia, Pa.	*Walter J. Fraine	28.	1941	Boston, Mass.	Frederick Fulforth
7.	1920	Rochester, N. Y.	*O. E. Servis	29.	1942	Grand Rapids, Mich.	E. T. Candee
8.	1921	Indianapolis, Ind.	*S. P. Gariland	30.	1943	Buffalo, N. Y.	C. C. Conley
9.	1922	Cincinnati, Ohio	*Philip Uhl	31.	1944	Cleveland, Ohio	G. Wagner
10.	1923	Providence, R. I.	Walter J. Allen	32.	1945	Pittsburgh, Pa.	M. R. Caldwell
11.	1924	Milwaukee, Wis.	*J. E. Sterling	33.	1946	Pittsburgh, Pa.	W. L. Pinner
12.	1925	Montreal, Canada	*F. J. Hanlon	34.	1947	Detroit, Mich.	F. K. Savage
13.	1926	Newark, N. J.	E. J. Musick	35.	1948	Atlantic City, N. J.	K. M. Huston
14.	1927	Toledo, Ohio	F. C. Mesle	36.	1949	Milwaukee, Wis.	S. S. Johnston
15.	1928	Toronto, Canada	*John H. Feeley	37.	1950	Boston, Mass.	A. W. Logozzo
16.	1929	Detroit, Mich.	*Horace Smith	38.	1951	Buffalo, N. Y.	W. J. Neill
17.	1930	Washington, D. C.	*Horace Smith	39.	1952	Chicago, Ill.	C. F. Nixon
18.	1931	Rochester, N. Y.	*George Gehling	40.	1953	Philadelphia, Pa.	F. J. MacStoker
19.	1932	Philadelphia, Pa.	*Philip Sievering	41.	1954	New York, N. Y.	G. P. Swift
20.	1933	Chicago, Ill.	C. A. VanDerau	42.	1955	Cleveland, Ohio	R. A. Schaefer
21.	1934	Detroit, Mich.	C. A. VanDerau	43.	1956	Washington, D. C.	Clyde Kelly

* Deceased



**43rd Annual Convention
of the
American Electroplaters' Society**

Program of Convention Events

Eastern Daylight Savings Time Used Throughout Program

EVENTS AT THE HOTEL STATLER UNLESS OTHERWISE INDICATED

Registration: Registration in center hall on mezzanine floor

Sunday, June 17	1:00 p.m. to 9:00 p.m.
Monday, June 18	9:00 a.m. to 5:00 p.m.
Monday, June 18	8:30 p.m. to 10:30 p.m.
Tuesday, June 19	9:00 a.m. to Noon
Wednesday, June 20	9:00 a.m. to 1:30 p.m.
Thursday, June 21	9:00 a.m. to Noon

The registration fee of \$20.00 for men and women and \$10.00 for children 16 and under provides each registrant with a book of tickets covering all events on each program.

Table reservations for the Banquet on Thursday, June 21, should be made in advance at the Banquet Reservation Desk in the mezzanine, starting Tuesday, June 19, at 900 a.m.

Banquet tickets for children are not included in their registration ticket books. These may be purchased for \$7.00 additional, with their registration.

Sunday, June 17, 1956

10:00 a.m.

AES Executive Board Meeting (Massachusetts Room)

8:00 p.m.

AES Get Together Party (Presidential Room)

Light refreshments



NOTE: The Convention Committee has requested all suppliers to close their hospitality rooms during the educational sessions and at one a. m.



CONVENTION PROGRAM

Monday, June 18, 1956

10:00 a.m.

Opening Session and Business Meeting AES Supreme Society
(Presidential Room)

Invocation: The Rev. F. C. Mesle, Rochester Branch

General Chairmen: Arthur G. Pierdon, Kenneth Huston

Welcome Address: Jules Horlick, President, B-W Branch

Keynote Speaker:

Dr. Allen V. Astin, Director, National Bureau of Standards

11:00 a.m.

First Business Session: AES Supreme Society (Federal Room)

Supreme Society Delegates and Alternates

Clyde Kelly, President, Executive Board, Presiding Officer

Children's Program. First Tour (Sightseeing visit of National Zoological Park and Smithsonian Institute.)

12:00 Noon

Metal Finishing Suppliers' Association, Luncheon and Meeting
(South American Room)

Ladies' Luncheon (Willard Hotel)

Branch Secretaries' Luncheon (California Room)

Speakers' Luncheon (Ohio Room)

2:00 p.m.

Ladies' Tour of Washington (F Street entrance, Willard Hotel)

2:00 p.m. FIRST EDUCATIONAL SESSION

Session A (Presidential Room)

"Novel Applications of Plating"

Chairman: E. R. Bowerman, Jr., Sylvania Electric Products, Inc.

Session B (Congressional Room)

"Thickness and Distribution of Coatings"

Chairman: Dr. R. B. Saltonstall, The Udylyte Corporation

2:30 p.m.

Editorial Board Meeting (Massachusetts Room)

6:30 p.m.

Past Presidents' Dinner (California Room)

9:00 p.m.

Open House (Presidential and Congressional Rooms)

All registrants will be guests of the Metal Finishing Suppliers' Association. Refreshments and dancing. Buffet served at 10:30 p.m.



CONVENTION PROGRAM

Tuesday, June 19, 1956

8:00 a.m.

Research Committee Breakfast (California Room)

Speakers' Breakfast (Ohio Room)

8:30 a.m. Sightseeing Tour B (See Special Events Page 28)

9:00 a.m. SECOND EDUCATIONAL SESSION

Session A (Presidential Room)

"Physical and Mechanical Properties of Deposits"

Chairman: J. Teres, Wright Air Development Center

Session B (Congressional Room)

"Analysis and Control"

Chairman: Dr. Earl J. Serfass, Lehigh University

10:00 a.m. Children's Program. Second Tour. Sightseeing visit to U. S. Capitol, Federal Bureau of Investigation and through Potomac Park.

12:00 Noon

Branch Librarians' Luncheon (California Room)

"Aunt Ella" Luncheon for Ladies sponsored by Oakite Products, Inc. David X. Clarin, Host (Terrace Room National Airport)

12:15 p.m. Plant visit, Western Electric Company, Baltimore, Maryland. Buses leave from 16th Street Entrance. Box lunches may be purchased on bus. (See Special Events Page 29)

1:00 p.m.

Annual Golf Tournament, Metal Finishing Suppliers' Association, Manor Country Club, Norbeck, Md. (See Special Events Page 28)

1:25 p.m. Plant visit, National Bureau of Standards. Buses leave 16th Street Entrance. (See Special Events Page 28)

2:00 p.m.

East-West Baseball game (See Special Events Page 27)

Baseball Diamond No. 25, 25th St. and Constitution Ave.

Research Committee Meeting (Massachusetts Room)

6:30 p.m. Speakers' Dinner (New York Room)

8:00 p.m. THIRD EDUCATIONAL SESSION

Session A (Presidential Room)

"Equipment and Engineering"

Chairman: F. L. Scott, Metal and Thermit Corp.

Session B (Congressional Room)

"Protective Value and Related Properties of Coatings"

Chairman: C. H. Sample, International Nickel Co.



CONVENTION PROGRAM

Wednesday, June 20, 1956

8:00 a.m. Speakers' Breakfast (Ohio Room)

8:30 a.m. Tour E (See Special Events)

9:00 a.m. FOURTH EDUCATIONAL SESSION

Session A (Presidential Room)

"Alloy Plating", *Chairman*: Dr. W. A. Wesley, Int. Nickel Co.

Session B (Congressional Room)

"Three Different Coating Types—A Trilogy"

Chairman: G. A. Lux, Oakite Products, Inc.

10:00 a.m.

AES Public Relations Task Committee (Massachusetts Room)

12:00 Noon Michigan State Alumni Luncheon (California Room)

1:00 p.m. Trip to Arlington National Cemetery (Changing of Unknown Soldier's Guard at 2:00 p.m.) and George Washington's home at Mt. Vernon. Buses leave 16th Street Entrance. Returning by boat up the Potomac River, boat leaves Mt. Vernon Warf at 5:15 p.m. Light refreshments served on boat. (Admission by tickets)

9:30 p.m. AES Floor Show and Dance (Presidential and Congressional Rooms) Entertainment and Music by Jack Morton Productions.

Thursday, June 21, 1956

8:00 a.m. Speakers' Breakfast (Ohio Room)

9:00 a.m. FIFTH EDUCATIONAL SESSION

Session A (Presidential Room)

"Chromium Plating", *Chairman*: A. Logozzo, Nutmeg Chrome Corp.

Session B (Congressional Room)

"Basic Studies of Baths and Deposits", *Chairman*: Dr. Wm. Blum, Consultant

10:00 a.m. Children's Program. Third tour. Sightseeing visit to White House, Bureau of Engraving and Printing, and Washington National Airport.

12:00 Noon Ladies' Luncheon, sponsored by Udylyte Corp. Dr. Richard B. Saltonstall, host (Mayflower Hotel)

12:40 p.m. Plant visit Bureau of Engraving and Printing.

1:25 p.m. Plant visit Potomac Electrotype Co. and Judd & Detweiler

2:00 p.m.

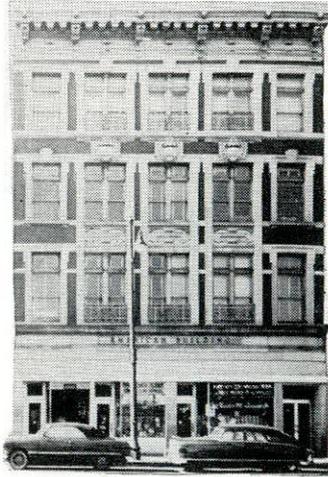
Ladies Plato Party, Mrs. J. Wiarda, (Mayflower Hotel)

Final Business Session, AES Supreme Society (Federal Room)

7:00 p.m. Annual Banquet and Dance (Presidential and Congressional Rooms) Music by Jack Morton Productions. Admission by reservation ticket only. Your registration book ticket must be exchanged for a special Banquet ticket. Ticket exchange starts at 9:00 a.m. Tuesday, June 19, at Banquet Reservation Desk in upper lobby.



AES HEADQUARTERS AND STAFF



Hq. Bldg., Newark, N. J.



Doria
Editor



Nichols
Exec. Sec.



Burnley
Adv. Mgr.



Huntley
Prod. Mgr.



Panico
Ed. Ass't.



Buehler
Ass't. Adv. Mgr.



BEHIND THE SCENES NATIONAL HEADQUARTERS AND STAFF

BUSINESS OFFICES

The business offices of the Supreme Society occupy one floor at 445 Broad Street in Newark, New Jersey. The Executive Secretary, the business officer of the Executive Board, supervises the functions connected with servicing your membership and the publication of *Plating*. A total of ten full-time headquarters employees serve you.

PUBLICATIONS

Plating is the official journal of the Society and is published monthly. It enjoys the reputation of being one of the foremost magazines of the industry. It has the only guaranteed paid circulation in the industry.

The *Technical Proceedings*, published annually, contains the technical papers and discussions presented at the Annual Convention. The technical articles published in *Plating* during the preceding year are also included.

PLATING EDITORIAL BOARD

The Editorial Board consists of 9 men appointed by the Executive Board. It is responsible for the Educational Sessions at the Annual Conventions and assists the Managing Editor of *Plating* in determining publication policies and the procurement of technical papers.

AES AWARDS

The Society cosponsors six awards for the best papers published in *Plating* during the year. They include awards for the best papers published on mechanical finishing, chromium plating and precious metal plating and other aspects of *Plating*. The awards are administered by the Paper Awards Committee appointed by the President.

HONORARY MEMBERSHIP

The Executive Board grants Honorary Membership to members distinguishing themselves by outstanding contributions of national importance. Nominations for this honor are made by the local branches. The Society has 14 living Honorary Members.

AWARD OF MERIT

This award is granted by the Executive Board to members, usually committeemen, for meritorious service.

AES RESEARCH PROGRAM

Basic research on the fundamental problems of the industry is the foundation of the AES research program. Its goal is the strengthening of the electroplating and metal finishing industry through greater knowledge of improved methods and processes.

The program is directed by the AES Research Committee consisting of nine men, all authorities in the field. Research is being conducted on eight active projects established at the Michigan State College, Yale University, Columbia University, University of Pennsylvania, Virginia Institute of Scientific Research, Ontario (Canada) Research Foundation, The National Bureau of Standards, and by a group of industries in the Detroit area. Each project is directed by a top technical man.

The program is supported by Sustaining Memberships at \$100 each and by an assessment of \$1 per year from each member of the Society.

PUBLIC RELATIONS COMMITTEE

This committee consists of 10 men appointed by the Executive Secretary. Its function is to promote the purposes of the Society and to obtain universal acceptance through a sustained program of public relations.

OFFICERS OF METAL FINISHING SUPPLIERS' ASSOCIATION



J. J. Duffy, Jr.,
1st Vice-President



T. A. Trumbour
Treasurer



A. P. Munning
Executive Secretary



Herman J. Struckhoff
President



M. M. Beckwith
2nd Vice-President



E. W. Couch
3rd Vice-President



Manson Glover
Past President



METAL FINISHING SUPPLIERS' ASSOCIATION

The Metal Finishing Suppliers' Association was incorporated under the laws of New Jersey in 1951. Most of us think of it as the sponsor of the Open House Party on the Monday evening of the convention. It is, however, an organization comprising manufacturers and distributors of equipment and supplies used in the metal finishing industry and the objects of this corporation are:

- (1) To promote the interests of the metal finishing industry, by furthering the welfare of the suppliers and customers of the products and supplies used in the industry, and to safeguard the interests of the ultimate consumer and user;
- (2) To co-operate with organizations in the metal finishing field, to promote mutual objectives;
- (3) To foster and strengthen acquaintanceships and promote a spirit of cooperation among the members;
- (4) To co-ordinate efforts in the common interest for concerted action in matters generally affecting the business of serving the industry, including the application thereto of sound business and ethical principles;
- (5) To appear on behalf of the Association and its members before legislative committees, governmental departments and agencies and other bodies and to co-operate with such committees, etc., regarding matters affecting the industry and to promote the interests of the Association and its members and the public.

The MFSA is an outgrowth of the International Fellowship Club organized in Milwaukee in 1924, whose first officers were Wilfred S. McKeon, President, George E. Lawrence, Vice President, and John C. Oberender, Secretary. The nineteen charter members were Frank J. Clark, Sam Cole, Harry C. Flanigan, Thomas B. Haddow, Rudy Hazucha, N. P. Hunter, C. J. Moyer, Ben Poppert, Charles H. Procter, Bill Schneider, R. H. Sliter, W. G. Stoddard, George Tanner, Frank Terrio, Van Winkle Todd, and Tom Trumbour and the officers.

The first IFC Luncheon was held in Montreal in 1925 and the first IFC Open House Party in Detroit in 1929. Since then they have become annual affairs at each AES Convention.

The first officers of the MFSA, elected in 1951, were A. P. Munning, President, A. N. Braun, 1st Vice President, C. E. Berry, 2nd Vice President, Manson Glover, 3rd Vice President, T. A. Trumbour, Secretary-Treasurer. Other original trustees were G. L. Nankervis, W. D. MacDermid, R. J. Hazucha and D. X. Clarin.

The Association each year names a liaison officer to represent it and to cooperate with the host branch of the Convention. Mr. J. J. Duffy, Jr., 1st Vice President represented the MFSA in connection with this convention. We sincerely hope that future host branches will have as cooperative a representative to work with as we had in Mr. Duffy.

Many of the speakers for the branch and regional meetings of the AES are supplied by the companies affiliated with the MFSA.

There are 176 supply houses holding memberships in the MFSA on local, regional and national classification bases.



Educational Program

FIRST EDUCATIONAL SESSION

2:00 p.m. Monday, June 18, 1956

Session A (Presidential Room)

“Novel Applications of Plating”

Chairman: E. R. Bowerman, Jr., Sylvania Electric Products, Inc.

1. Some Recent Developments in Selective Localized Plating for Engineering Purposes Marv Rubinstein, Metal Finishing Consultant
2. Investigation and Evaluation of Plating Processes and Plating Combinations for Use on Etched Circuitry E. H. Babcock, R. K. Stephens, and R. C. Grimsinger, Convair, Div. of General Dynamics Corp.
3. Overlay Plating of Steel-Back Aluminum-Lined Sleeve Bearings A. H. Beebe, Jr., B. F. Rothschild and G. J. LeBrasse, Federal-Mogul-Bower Bearings, Inc.
4. The Protection of Molybdenum Against High Temperature Oxidation Julius J. Harwood, Office of Naval Research, Dept. of the Navy

Session B (Congressional Room)

“Thickness and Distribution of Coatings”

Chairman: Dr. R. B. Saltonstall, The Udylite Corporation

5. Gaging Thin Nickel Coatings by X-Ray Fluorescence W. W. Sellers and Kenneth Carroll, Research Laboratory, International Nickel Co., Inc.
6. Coating Thickness Measurement by Filtered X-Ray Fluorescence Dr. E. J. Serfass and Dr. F. A. Achey, Lehigh University
7. Current Distribution of Microprofiles Dr. D. G. Foulke, and Dr. Otto Kardos, Hanson-Van Winkle-Munning Co.
8. Leveling—Definition, Measurement and Understanding J. D. Thomas, General Motors Corp.

Admission by badge

Please turn to pages 32 and 33 for abstracts of the papers.



Educational Program

SECOND EDUCATIONAL SESSION

9:00 a.m. Tuesday, June 19, 1956

Session A (Presidential Room)

"Physical and Mechanical Properties of Deposits"

Chairman: J. Teres, Wright Air Development Center

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|---|--|
| 9. Properties of Electrodeposits at Elevated Temperatures | W. H. Safranek and G. R. Schaer, Battelle Memorial Institute |
| 10. Limitations of Plated Nickel in Jet Engine Design | R. W. Moeller and W. A. Snell, Pratt and Whitney Aircraft |
| 11. Some Characteristics of Electroformed Iron Deposits | Dr. A. M. Max, Radio Corp. of America, Dr. G. R. Van Houten, P. R. Mallory and Co. |
| 12. A Study of the Effect of Several Organic Addition Agents on the Hardness and Residual Stress in Nickel Deposits | I. L. Newell, The Henry Souther Engineering Co. |

Session B (Congressional Room)

"Analysis and Control"

Chairman: Dr. Earl J. Serfass, Lehigh University

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|---|--|
| 13. Spectrochemical Determination of Nickel in Bright Cadmium Plating Solutions | Henry Friedberg, Metal Finishing Consultant Morton Levy, The Frank L. Crobaugh Laboratories. |
| 14. Complete Polarographic Analysis of Cyanide Zinc Plating Baths | Thomas H. Collard, Jr. and David K. H. Liu, Friedrich Refrigerators, Inc. |
| 15. The Polarographic Determination of Cadmium and Cyanide in Alkaline Cadmium Plating Solutions | G. T. Forsyth, Udylite Research Corp. |
| 16. Construction and Operating Characteristics of a New Electroplating Cell for Current Density Studies | R. F. Walton, Radio Corp. of America and R. Gilmont, Manostat Corp. |
| 17. Rapid Analysis of Cyanide Plating Baths | Dr. R. F. Muraca, Jet Propulsion Labs., California Institute of Technology |

Admission by badge

Please turn to pages 33, 34 and 35 for abstracts of the papers.



Educational Program

THIRD EDUCATIONAL SESSION

8:00 p.m. Tuesday, June 19, 1956

Session A (Presidential Room)

"Equipment and Engineering"

Chairman: F. L. Scott, Metal & Thermit Corp.

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| 18. Coated Abrasive Belts Speed Metal Working Production (Motion picture in color) | E. E. Oathoat, Behr-Manning Coated Abrasives Div. of The Norton Company |
| 19. Filter Media | M. L. Whitehurst, Elmer G. Lundberg, Quentin O. Shockley, and John M. Hood, Indianapolis Branch of American Electroplaters' Society |
| 20. Tank Linings | Kenneth G. LeFevre, Metalweld, Inc. |
| 21. Plating Room Tank Ventilation Equipment | F. W. Arndt, Heil Process Equipment Corp. |

Session B (Congressional Room)

"Protective Value and Related Properties of Coatings"

Chairman: C. H. Sample, International Nickel Co.

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| 22. Radiographic Detection of Pores in Plated Coatings (AES Project 13) | Fielding Ogburn and Margaret Hilker, National Bureau of Standards |
| 23. Effect of Corrosion on the Gas Permeability of Nickel Electrodeposits. | Dr. J. Martin Tobin, General Electric Corp. and Dr. D. G. Foulke, Hanson-Van Winkle-Munning Co. |
| 24. The Effects of Impurities and Purification of Electroplating Solutions. I. Nickel Solutions (9) The Effect and Removal of Aluminum. (AES Proj. No. 5) | Dr. D. T. Ewing, Dr. A. J. Smith, Michigan State University, and Dr. W. O. Dow, Jr., Sunbeam Corp. |
| 25. (10) The Effects and Removal of Manganese (AES Project 5) | Dr. A. J. Smith, Michigan State University and Dr. R. J. Rowe, Dow Chemical Co. |
| 26. Progress Report on Accelerated Corrosion Tests for the Performance of Plated Coatings (AES Project 15) | W. L. Pinner, Houdaille Industries, Inc. |

Admission by badge

Please turn to pages 35, 36 and 37 for abstracts of the papers.



Educational Program

FOURTH EDUCATIONAL SESSION

9:00 a.m. Wednesday, June 20, 1956

Session A (Presidential Room)

"Alloy Plating"

Chairman: Dr. W. A. Wesley, International Nickel Co.

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|--|--|
| 27. Electrodeposition of Porous Nickel-Cadmium Alloy | L. D. McGraw, J. P. Spenard and Dr. C. L. Faust, Battelle Memorial Institute |
| 28. Gold-Silver Alloy Plating | A. G. Cafferty and R. E. Harr, Western Electric Co. |
| 29. Nickel-Iron Alloy Electrodeposits for Magnetic Shielding | V. P. McConnell, Dr. I. W. Wolf, Electronics Div., General Electric Corp. |
| 30. Improved Techniques for Electroless Nickel Plating on Non-Conductors | Dr. Harold Narcus, Electrochemical Industries, Inc. |

Session B (Congressional Room)

"Three Different Coating Types—A Trilogy"

Chairman: G. A. Lux, Oakite Products, Inc.

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|---|--|
| 31. Study of Phosphate Treatments of Metals | Lloyd Gilbert, Rock Island Arsenal |
| 32. Enameling of Chromium Plate | Gene L. Leithauser, Research Staff, General Motors Corp. |
| 33. Some Notes on the Electrodeposition of Antimony | A. H. Du Rose, The Harshaw Chemical Company |
| 34. A Tool for Decision—Acceptance Sampling by Variables and How It Works | Roger H. Moore, Los Alamos Scientific Laboratory |

Admission by badge

Please turn to pages 37 and 38 for abstracts of the papers.



Educational Program

FIFTH EDUCATIONAL SESSION

9:00 a.m. Thursday, June 21, 1956

Session A (Presidential Room)

"Chromium Plating"

Chairman: Arthur Logozzo, Nutmeg Chrome Corp.

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| 35. Chromium Plating of Gun Bores | Dr. V. A. Lamb and J. P. Young, National Bureau of Standards |
| 36. Chromium Plating of Titanium Alloys. | L. Missel, Lockheed Aircraft Corp. |
| 37. The Adhesion of Electroplated Coatings to Titanium | Connie Stanley and Dr. Abner Brenner, National Bureau of Standards. |
| 38. Electroplating Chromium on Unusual Alloys | Charles Levy, Watertown Arsenal |

Session B (Congressional Room)

"Basic Studies of Baths and Deposits"

Chairman: Dr. William Blum

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|--|--|
| 39. A New Organo-Aluminum Chloride Bath for Deposition of Aluminum | Dr. Nelson F. Murphy and Dr. Arthur C. Doumas, Virginia Polytechnic Institute, Blacksburg, Va. |
| 40. The Growth and Properties of Metal Whiskers | S. M. Arnold, Bell Telephone Labs., Inc. |
| 41. Study of Adhesion by the High Speed Rotor Techniques | Dr. J. W. Beams, Dept. of Physics, Rouss Physical Laboratory, Univ. of Virginia |
| 42. Dissolved Gases in Plating Baths | W. M. Tucker and F. O. Beuckman, Eastman Kodak Co. |

Admission by badge

Please turn to pages 39 and 40 for abstracts of the papers.



NOTES



CHAIRMEN OF THE CONVENTION COMMITTEES



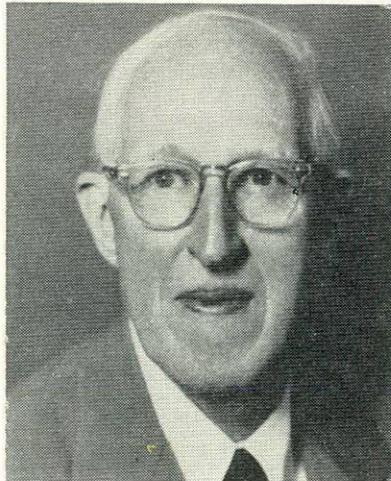
W. P. Barrows
Entertainment



A. A. Benderly
Hotel



T. R. Boggess
Transportation



Dr. Wm. Blum
Honorary Chairman



Dr. V. A. Lamb
Hotel



W. H. Metzger, Jr.
Outing



F. Ogburn
Registration



CHAIRMEN OF THE CONVENTION COMMITTEES



Dr. A. Renner
Educational



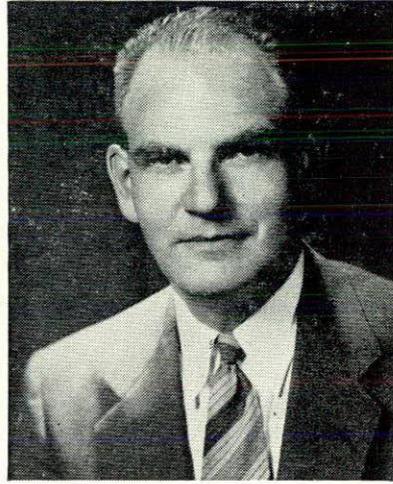
J. Horelick
Finance



V. J. Hughes
Plant Visits



K. M. Huston
Co-Chairman



A. G. Pierdon
Co-Chairman



Mary Pierdon
Ladies



R. Stricklen, Jr.
Publicity



C. H. Thiede
Program



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Kenneth M. Huston, Armco Steel Corporation

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Lancaster Lowry, U. S. Naval Gun Factory

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D. W. Couch, National Bureau of Standards
Sam Grant, Engineering Research Company Division ACF
Richard Norris, Diamond Ordnance Fuze Laboratory

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Mrs. Elsie Stricklen (Chairman, Children's Program)	Mrs. Wm. Metzger
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Mrs. Loretta A. Huston	Mrs. Gladys Scott
Mrs. Vernon Lamb	Mrs. Eleanor Thiede
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Elmer E. Gabel, Jr., Allied Research Products, Inc.
Gerald L. Greenstreet, Leidy Chemicals Corporation
George L. McDowell, Allied Metal Finishing Company
Walter E. Pocock, Allied Research Products, Inc.
Robert Quigley, E. I. duPont Company, Electrochemicals Department
Dan E. Weatherford, National Bureau of Standards
Phil Wright, Crown Cork & Seal Company

PLANT VISITS

V. J. Hughes, Jr., Hughes Chemical Supply Co., Inc. (Chairman)
Ed Oberland, Western Electric Company
Mrs. E. Oberland
Ed Roach, Wyandotte Chemicals.
Carrol Thomas, U. S. Bureau of Engraving & Printing
Dr. Gwendolyn Wood, National Bureau of Standards

PROGRAM

Carle Thiede, Potomac Electrotype Company (Chairman)
Walter Reid, Jr., National Bureau of Standards

PUBLICITY

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George Best, Mutual Chemical Company Division

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E. C. Bertucio, Mutual Chemical Division
Sam Goldberg, Bureau of Ships, U. S. Navy
Henry Pierdon, Student
Harold W. Scott, Capital Airlines
John P. Young, National Bureau of Standards

TRANSPORTATION

T. R. Boggess, Norfolk & Western RR (Chairman)
W. E. Turner, Virginia Electric Mfg. Corporation
Homer S. Peck, Jr., Yale & Towne Mfg. Co.



LADIES' PROGRAM

Welcome Ladies:—Washington, your capital city awaits your coming. Much thought and planning has gone into our efforts to make it possible for you to have "A Capital Time with the AES in the Capital of the US" at this, the 43rd Annual Convention.

Twenty-six years ago, in 1930, our Branch was host to a wonderful convention group. Once again we cordially invite you to come to your city to see and to learn first hand of the many historical and significant happenings, past and present, which make Washington world famous. A warm welcome awaits you!

Mary A. Pierdon

Chairman, Ladies' Committee

PROGRAM

SUNDAY, JUNE 17, 1956

8:00 p.m.

Get Together Party

This is the time and place to greet your old friends and to make new ones. Come one, come all! Refreshments
Hotel Statler, Presidential Room
Admission by ticket.

MONDAY, JUNE 18, 1956

10:00 a.m.

Opening Session

Ladies, see your men off to a good start for a successful Convention! Hear Dr. Allen V. Astin of the National Bureau of Standards deliver the keynote address.

Hotel Statler, Presidential Ballroom.

12 Noon

Luncheon

Meet with the Ladies Committee for luncheon in the newly decorated Grand Ballroom of Washington's most historic

hotel—The Willard. Here presidents have resided; the great have registered; historical decisions have been made; and all are graciously received. Willard Hotel, Grand Ballroom
Admission by ticket.

2:00 p.m.

Washington Tour

Get a bird's eye view of your Nation's Capital.

F Street Entrance—Willard Hotel

Bus Ticket in Ladies Book.

9:00 p.m.

Metal Finishing Suppliers' Association Open House

Fellowship, refreshments, and dancing will make a long to be remembered evening.

Buffet Supper at 10:30

Door Prizes

Hotel Statler, Presidential and Congressional Rooms

Admission by ticket.



LADIES PROGRAM

TUESDAY, JUNE 19, 1956

8:30 a.m.

Optional Tour B

See Special Events

12 Noon

Luncheon

The Aunt Ella Society Luncheon, sponsored by Oakite Products, Inc. awaits you at the Terrace Dining Room, National Airport. Dave Clarin, our genial host, makes it a delightful party in a most unusual setting.

Admission by ticket.

WEDNESDAY, JUNE 20, 1956

8:30 a.m.

Optional Tour E

See Special Events.

1:00 p.m.

Trip to Mt. Vernon

Buses: 16th St. Entrance—Hotel Statler

This is your opportunity to see the Changing of the Guard at the Tomb of the Unknown Soldier, to ride through Old Alexandria, to visit Mt. Vernon, and to enjoy a beautiful boat ride on historic Potomac River. Use tickets as marked.

9:30 p.m.

Floor Show and Dance

Hotel Statler, Presidential and Congressional Rooms

A gala evening of fun and dancing is in store for you. Don't miss.

Admission by ticket.

THURSDAY, JUNE 21, 1956

12 Noon

Luncheon

The Udylite Corporation entertains you in the Grand Ballroom of the elegant Mayflower Hotel. Our host, Dr. Richard Saltonstall, will conduct the ladies' "Educational Session." He will discuss "What the Quality of Plating Means to You."

Admission by ticket.

2:00 p.m.

Plato Party

Is this your lucky day? Mrs. Joan Wiarda, our Guest Hostess "with the mostess," provides an afternoon of fun. Mayflower Hotel—Grand Ballroom

There will be fabulous prizes galore.

Admission by ticket.

Before leaving you will receive:

1. Orchids from the Rapid Electric Company
2. Ladies gift from the Baltimore-Washington Branch

Use tickets in book.

7:00 p.m.

Annual Banquet—Dancing

Hotel Statler—Presidential and Congressional Rooms

A grand climax for your Washington visit! Be sure to change your Banquet ticket for a table reservation.

Prizes and awards will be made this evening.

CHILDREN'S PROGRAM

SUNDAY, JUNE 17, 1956

8:00 p.m. Get Together Party
 Hotel Statler, Presidential Room—
 Admission by ticket.

MONDAY, JUNE 18, 1956

11:00 a.m. Sightseeing
 to Bus: Hotel Statler—16th St. Entrance
4:00 p.m. Lunch
 Smithsonian Institute & Museum of
 Natural History—Use ticket in book.
 National Zoological Park.



Elsie Stricklen
Children's Program

9:00 p.m.
Metal Finishing Suppliers'
Association Open House
 Admission by ticket.

See Changing of the Guard at the Tomb
 of the Unknown Soldier
 Ride Through Old Alexandria
 Visit Mt. Vernon
 Enjoy a boat ride on historic Potomac
 River—Use tickets as marked.

TUESDAY, JUNE 19, 1956

11:00 a.m. to 4:00 p.m.
Sightseeing
 Bus: Hotel Statler—16th St. Entrance
 Washington Monument
 U. S. Capitol (Guided Tour)
 Lunch
 Federal Bureau of Investigation
 Trip through Potomac Park
 Use ticket in book.

9:30 p.m.
Floor Show
 Admission by ticket.

THURSDAY, JUNE 21, 1956

10:00 a.m. to 4:00 p.m.
Sightseeing
 Bus: Hotel Statler—16th St. Entrance
 White House
 Bureau of Engraving and Printing
 Lincoln Memorial
 Lunch
 Washington National Airport
 Use ticket in book.

WEDNESDAY, JUNE 20, 1956

1:00 p.m.
Trip to Mt. Vernon
 Bus: Hotel Statler—16th St. Entrance

ARRANGEMENTS HOSTESSES



Mabel Barrows
Monday Luncheon



Gladys Scott
Tuesday Luncheon



Loretta Huston
Thursday Luncheon



Mary Lowry
Information Desk



SPECIAL EVENTS

TUESDAY, JUNE 19

East-West Baseball Game — Game starts at 2:00 p.m.

Baseball Diamond No. 25, 25th Street and Constitution Avenue, N.W. Allow 15 minutes for transportation from hotel.

The diamond has been engaged and athletic equipment has been reserved. However, the *game will be played only if sufficient members show interest in playing* by Monday evening, June 18.

Players should *register at the Information Booth*. A notice will be posted at the Information Booth if insufficient players register.

Sightseeing Tours

The Gray Line offers two special sightseeing tours of Washington to the conventioners for half the regular cost of the trips. Neither trip will cover the same points covered by other trips scheduled as part of the convention.

Tickets may be purchased at the Information Desk.

THE TOURS WILL BE CONDUCTED ONLY IF 25 OR MORE PEOPLE PURCHASE TICKETS.

TUESDAY, JUNE 19 — Gray Line Tour B

Bus leaves 16th Street hotel entrance at 8:30 a.m. Returns about 11:30.

A personally conducted tour of the downtown area and government buildings. Includes complete tours of the Bureau of Engraving and Printing, The American Union Building; The White House, the United States Capitol, and the Smithsonian Institute.

TICKETS: Special at \$2.00 each (Regular Price \$4.00). Twenty-five tickets must be sold at the information desk before 5:00 p.m. on Monday, June 18, or the tour will not be conducted.

WEDNESDAY, JUNE 20 — Gray Line Tour E

Bus leaves 16th Street hotel entrance at 8:30 a.m. Returns about 11:30.

A tour of the residential section and churches. Passes many embassies, legations and prominent homes. Includes stops at the Islamic Center, Episcopal Cathedral of Saints Peter and Paul, National Shrine of the Immaculate Conception and the Franciscan Monastery.

TICKETS: Special at \$2.00 (Regular price \$4.00). Twenty-five tickets must be sold at the Information Desk before 5:00 p.m. on Tuesday, June 19 or the tour will not be conducted.



SPECIAL EVENTS

TUESDAY, JUNE 19

Golf Tournament, Manor Country Club, Norbeck, Maryland

The MFSA has arranged to hold its annual golf tournament at the Manor Country Club near Norbeck, Maryland.

The club is on Georgia Avenue extended (Maryland Route 97) near Norbeck, and is about 15½ miles from the Statler Hotel. Driving time is about 1 hour. Further details will be available at the Information Desk. Starting Time: 1:00 p. m.

PLANT VISITS

The Plant Visitation Committee has arranged four tours in interesting facilities in Washington and Baltimore. The number of visitors to each plant is limited by facilities to handle the group.

Tickets for each trip may be obtained from the Information Booth on a "first come-first served" basis.

All bus transportation is furnished by the Convention Committee.

If you register for one of these trips and learn you cannot take advantage of it, please return your ticket. Otherwise you may prevent a fellow member taking advantage of it.

TUESDAY, JUNE 19

Visit #1—National Bureau of Standards. Connecticut Ave. and Van Ness St., N.W. Limited to 165 persons.

Bus leaves 16th Street hotel entrance at 1:25 p.m. Returns to hotel about 4:45 p.m.

The National Bureau of Standards provides basic standards for science and industry and serves the Federal Government as a scientific laboratory in the physical sciences. The tour will be picked from the following facilities operating at the time of the convention: The multi-million volt X-ray involved in recent atomic energy developments; the electrodeposition laboratories where developments in electroless nickel, molybdenum, aluminum, titanium, and gun barrel plating and HAE coatings will be shown; the standards section which includes standards of weights, lengths and the new green wave length standard; the high temperature laboratory where rocket, jet engines and gas turbines are studied.



SPECIAL EVENTS

Plant Visits

Visit #2—The Western Electric Company. 2500 Broening Highway, Baltimore, Maryland. Limited to 80 persons.

Bus leaves 16th Street hotel entrance at 12:15 p.m. Returns to hotel about 5:15 p.m.

Arrangements have been made for the visitors to purchase a box lunch (\$1.50) when registering for this trip.

This visit will include the continuous wire plating operation where twenty-five steel wires are plated with sufficient copper to carry the telephone conversation. This is followed by electrodeposits of lead and brass in a tandem operation. Two machines are in operation. Each has a wire travel of about 600 feet. You will also see the high speed insulation of wire with rubber-type and plastic compounds.

THURSDAY, JUNE 21

Visit #3—U. S. Bureau of Engraving and Printing. 14th and C. Sts., S.W. Limited to 165 persons.

Bus leaves 16th Street hotel entrance at 12:40 p.m. Returns to hotel about 4:00 p.m.

This is not the standard tour conducted by the Bureau for tourists to Washington.

You will see the electrolytic process of producing plates for printing paper currency by electrodepositing coatings of nickel, iron and chromium over carefully prepared master plates. Then you will see the printing of paper currency from these plates. \$275,000,000,000 of currency was printed in 1954. You will also see the printing of postage and revenue stamps and U. S. Bonds, including the well advertised Savings Bonds.

Visit #4—Potomac Electrotype Company and Judd & Detweiler. 1508 Eckelton Place, N. E. Limited to 40 persons.

Bus leaves 16th Street hotel entrance at 1:25 p.m. Returns to hotel about 4:45 p.m.

The National Geographic Magazine is produced in these adjoining plants. You will see the production of electrotypes which includes casting of the type slugs and pressing them into plastic molds. These are plated with copper and chromium and backed with a special alloy. The color plates must match on the paper within eight one thousandths of an inch. You will also see printing of next month's Geographic by the wet printing process where as many as four colors may be printed wet, one upon the the other. Then you will see how these printed sheets, each of which will make 64 pages of the Geographic, are folded and bound into the magazine.



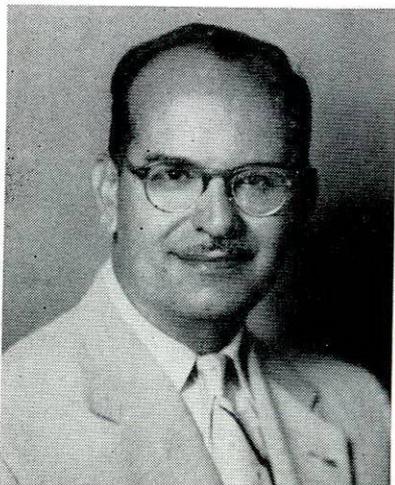
BALTIMORE-WASHINGTON BRANCH OFFICERS



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WELCOME . . . The Baltimore-Washington Branch extends a most cordial welcome to members, their families and guests at the 43rd ANNUAL CONVENTION in Washington, D. C.

The tremendous preparations of our Convention Committee, headed by "Art" Pierdon, PLUS the outstanding list of activities prepared for the members; the ladies and the children, promise to make this gathering memorable as a family convention.

The glamour of your Nation's Capital makes it second to none as a convention site—Think of it!—The White House, the Senate, Supreme Court, National Gallery of Art, Smithsonian Institute, F.B.I., Lincoln and Jefferson Memorials, are marvels that people travel halfway around the world to see.

We have tried to anticipate your every want in order to make this Washington visit an enjoyable and educational experience. We hope that you feel as we do . . . that a visit to Washington, D. C. in 1956 is "A Capital Idea!"

Jules Horelick
President
Baltimore-Washington Branch

THE BALTIMORE-WASHINGTON BRANCH

Your host branch is not one of the largest, but its contributions to "The Advancement of the Science of Electroplating" have been out of proportion to its size.

It was founded in May, 1928 through the activities of Wm. W. Chase, of the Agate Lacquer Company and a member of the New York Branch; Fred F. Pierdon, Art Metal Finishing Company, a founder of the Society; Dr. Wm. Blum, National Bureau of Standards; and T. F. Slattery, U.S. Bureau of Engraving & Printing, and a member of the Bridgeport Branch. They were assisted by National Officers Horace Smith, George Gehling and George Hogaboom. The permanent charter was granted in 1929. We were hosts to the well remembered National Convention in 1930 which operated on a budget of \$5000.

We have provided many speakers for other branch meetings and seldom has the technical sessions of our national convention been without a paper by some member of our branch. The branch has conducted several classes in electroplating under leadership of the National Bureau of Standards personnel. We have often provided members for committee assignments from the Executive Board.

Two of our members were elected President of the Society—T. F. Slattery in 1935 and K. M. Huston in 1947. Also two of our members, Dr. Wm. Blum and T. F. Slattery were elected to Honorary Membership.

Five of our charter members are still active in the affairs of the branch. We are proud of our contributions to the growth of the Society.



ABSTRACTS OF PAPERS
43rd Annual Convention
of A. E. S.

Abstract Numbers correspond to numbers in program

- 1 **SOME RECENT DEVELOPMENTS IN SELECTIVE,
LOCALIZED PLATING FOR ENGINEERING PURPOSES**
by Marv Rubinstein, Metal Finishing Consultant

The operation formerly known as "brush" or "touch-up" plating has recently undergone a complete revolution. Primarily the paper covers techniques of operations including a description of a variety of engineering applications. The metallurgical properties of deposits obtained by such methods also receive some attention.

- 2 **INVESTIGATION AND EVALUATION OF PLATING PROCESSES AND
PLATING COMBINATIONS FOR USE ON ETCHED CIRCUITRY**
by E. H. Babcock, R. K. Stephens, R. C. Grimsinger, Convair,
Division of General Dynamics Corp.

This work covers the various processes, plating baths, and plate combinations proposed for use on etched circuitry fabricated from one and two side copper laminate glass epoxy board.

- 3 **OVERLAY PLATING OF STEEL-BACK ALUMINUM LINED SLEEVE BEARINGS**
by A. H. Beebe, Jr., B. F. Rothschild and G. J. LeBrasse, Federal-Mogul Division,
Research and Development, Federal-Mogul-Bower Bearings, Inc.

One of the newer products in the sleeve bearing industry is the steel back - aluminum alloy lined bearing. This paper describes a method for electrodepositing a lead alloy overlay on such bearings.

- 4 **THE PROTECTION OF MOLYBDENUM
AGAINST HIGH TEMPERATURE OXIDATION**
by Julius J. Harwood, Head Metallurgy Branch,
Office of Naval Research, Navy Department

This paper reviews the status of the problem of the oxidation of molybdenum and attempts to summarize the research programs which have been underway for the development of protective coatings.

- 5 **GAGING THIN NICKEL COATINGS BY X-RAY FLUORESCENCE**
by K. G. Carroll and W. W. Sellers, International Nickel Company, Inc.,
Research Laboratory

Electrodeposited nickel coatings ranging in thickness from 10 to 200 microinches may be accurately measured by means of characteris-



ABSTRACTS OF PAPERS

tic X-rays generated in the coating. Suitable X-ray apparatus is described, and optimum conditions for X-ray excitation, dispersion, and detection are discussed. The non-destructive character of the measurements is important in many plating applications.

6 **COATING THICKNESS MEASUREMENT BY FILTERED X-RAY FLUORESCENCE**

by Dr. Earl J. Serfass and Dr. Fred A. Achey, Department of Chemistry, Lehigh University

Using X-ray fluorescence methods, thickness of thin coatings can be determined by measuring either excitation of the substrate or the coating layer. The use of filters to measure characteristic X-ray fluorescence radiation is suggested as a method for quantitatively determining the thickness of thin coatings. The method involves excitation of both the coating and substrate with an incident X-ray beam, and subsequent measurement of only fluorescence from the coating. Easily prepared filters replace the usual collimator-crystal procedures.

7 **CURRENT DISTRIBUTION ON MICROPROFILES**

by Dr. D. Gardner Foulke and Dr. Otto Kardos, Hanson-Van Winkle-Munning Company

The characteristic dimensions of microprofiles are relatively small with respect to: (1) The product of the specific conductivity and the slope of the polarization curve. (2) The "effective thickness" of the diffusion layer. Criterion 1 alone would lead to uniform current distribution on microprofiles under most conditions. Criterion 2, however, serves to explain both leveling and microthrow as it implies that the "effective thickness" of the diffusion layer is smaller for the peak than for the recess. New experimental data are presented.

8 **LEVELING—DEFINITION, MEASUREMENT, AND UNDERSTANDING**

by J. D. Thomas, General Motors Corp.

Leveling is defined. The bases for plating are electroforms of standard ruled specimens in which the spacing, depth, and angle of rulings were varied in a controlled manner. The degree of leveling on the plated samples was studied by means of the Surfagage, Tallysurf, interference microscope, and by cross-sectioning. Experimental data show that organic addition agent combinations primarily, influence the leveling characteristics of bright nickel plating baths.

9 **PROPERTIES OF ELECTRODEPOSITS AT ELEVATED TEMPERATURES**

by W. H. Safranek and G. R. Schaer, Battelle Memorial Institute

Elevated temperature properties including oxidation resistance in air and molybdenum oxide, stress rupture, thermal expansion, thermal stability, ductility, and hot hardness were determined for nickel, chromium, and other electrodeposits. The results of the research showed



ABSTRACTS OF PAPERS

promising leads for developing improved electrodeposits for protecting molybdenum and other metals against oxidation at high temperatures.

10 LIMITATIONS OF PLATED NICKEL IN JET ENGINE DESIGN

by R. W. Moeller and W. A. Snell, Pratt and Whitney Aircraft

This paper presents in graphic form some of the factors which restrict the use of plated nickel on highly stressed jet engine parts. Residual stress vs. temperature, residual stress vs. fatigue life, plate thickness vs. corrosion resistance and production control variations are discussed, showing the limitations of nickel plated from the Watts' type, sulfamate, and electroless nickel solutions.

11 SOME CHARACTERISTICS OF ELECTROFORMED IRON DEPOSITS

by Dr. A. M. Max, RCA Victor Record Division
and Dr. G. R. Van Houten, P. R. Mallory and Co.

Deposits from a typical iron chloride electroforming solution are investigated under a wide variety of deposition and solution variables. Cathode efficiency, deposit stress, tensile strength, and ductility as well as pitting are correlated with temperature, current density, acidity, ferric ion concentration and agitation. The importance of temperature is demonstrated and related to deposit stress.

12 A STUDY OF THE EFFECT OF SEVERAL ORGANIC ADDITION AGENTS ON THE HARDNESS AND RESIDUAL STRESS IN NICKEL DEPOSITS

by I. L. Newell, Henry Souther Engineering Co.

No hard and ductile metals are available as electrodeposited coatings with low residual tensile stress or compressive stress. The sulfamate formulation for Ni deposits was chosen to be modified with several organic addition agents to increase the hardness and produce a compressively stressed electrodeposit. Three organic addition agents were chosen for test: saccharin, paratoluene sulfonamide and naphthalene 1, 3, 6 trisulfonic acid. The results obtained show a correlation between the temperature, current density, stress and hardness with varying amounts of the addition agent.

13 SPECTROCHEMICAL DETERMINATION OF NICKEL IN BRIGHT CADMIUM PLATING SOLUTIONS

by Henry R. Friedberg, Metal Finishing Consultant
Morton L. Levy, Laboratory Manager, Crobaugh Laboratories

In the control of brightener additions to cadmium plating solutions it is important to determine the amount of nickel present in the bath. The relatively small amounts of nickel make the use of spectrochemical techniques attractive for speed, convenience, and accuracy. This paper describes the method selected and includes experimental data and analytical curves. The preparation of standards is given.

14 COMPLETE POLAROGRAPHIC ANALYSIS OF CYANIDE ZINC PLATING BATHS

by T. H. Collard, Jr. and David K. H. Liu, Friedrich Refrigerators, Inc.

A brief review of polarographic methods used, to date, in



ABSTRACTS OF PAPERS

cyanide zinc plating bath analyses is given. A method developed as a part of a general study undertaken in the authors' laboratory is described. This new polarograph makes possible the determination of zinc, total sodium cyanide, caustic soda, and sodium carbonate.

15 **THE POLAROGRAPHIC DETERMINATION OF CADMIUM AND CYANIDE IN ALKALINE CADMIUM PLATING SOLUTIONS**

by G. T. Forsyth, The Udylite Research Corp.

A rapid polarographic method for the determination of cadmium and total cyanide in cadmium plating solutions is presented. Both cadmium and total cyanide can be determined in 10 to 15 minutes. Data comparing results obtained using the method described and a conventional method of analysis is given together with the required calibration curves and a sample polarogram.

16 **CONSTRUCTION AND OPERATING CHARACTERISTICS OF A NEW ELECTROPLATING CELL FOR CURRENT DENSITY STUDIES**

by R. F. Walton, Radio Corporation of America
R. Gilmont, Manostat Corporation

A new type of electroplating cell, the "Hyperbolic Electroplating Cell" was developed. Cell calibration curves were experimentally developed which help to establish a simple mathematical formula expressing the linear relationship between primary current density and distance measured along the cathode of the cell.

17 **RAPID ANALYSIS OF CYANIDE PLATING BATHS**

by Dr. R. F. Muraca, Jet Propulsion Laboratories,
California Institute of Technology

The development of a simple procedure for analyzing plating baths is described. The analysis can be carried out in the plating shop within 10 minutes. The apparatus necessary for the analysis can be constructed by any machine shop and can be calibrated in the plating shop. The required reagents are generally available in the plating shop or can be purchased locally.

18 **COATED ABRASIVE BELTS SPEED METAL WORKING PRODUCTION**
(Motion picture in color)

by E. E. Oathout, Behr-Manning Coated Abrasives Div.
of The Norton Company

A motion picture designed to show advantages offered by coated abrasive belts, their adaptability, and available machinery for mass production finishing.

19 **FILTER MEDIA**

by Q. O. Shockley, M. L. Whitehurst, Elmer Lundberg, John Hood,
Indianapolis Branch, American Electroplaters' Society

The object of this paper is to collect and classify available information on filter media and present it as an aid in the selection of filter media for specific uses.



ABSTRACTS OF PAPERS

20 TANK LININGS

by Kenneth G. Le Fevre, Metalweld, Inc.

The paper begins with a general discussion of the lining and coating materials that have been used in pickling and plating tanks. Various coating and lining materials are covered including the more recent "Combination Coatings". The economies of various types are discussed. Case studies are presented.

21 PLATING ROOM TANK VENTILATION EQUIPMENT

by F. W. Arndt, Chief Engineer, Heil Process Equipment Corp.

A brief discussion of the most important considerations for determining the exhaust volumes required for the various typical plating tanks is presented. With this as a basis, the paper is divided into live topics each being discussed mostly from a practical viewpoint: A) Hoods, B) Ducts, C) Fans, D) Fume Scrubbers, E) Stacks.

22 THE RADIOGRAPHIC DETECTION OF PORES IN PLATED COATINGS (AES Project 13)

by Fielding Ogburn and Margaret Hilkert, National Bureau of Standards

Techniques for making radiographs of metal coatings plated adherently on steel or on a radioactive basis metal are described. Either a radioactive metal or an X-ray machine may be used as the radiation source. Means of greatly improving sensitivity by use of microradiography are indicated.

23 EFFECT OF CORROSION ON THE GAS PERMEABILITY OF NICKEL ELECTRODEPOSITS

by Dr. J. Martin Tobin, General Electric Corp.
and Dr. D. Gardner Foulke, Hanson-Van Winkle-Munning Company

The method for measuring the permeability of electrolytic nickel foils to gases and the "intrinsic" permeability of various nickel deposits as well as wrought nickel are discussed. Data on the initial permeability of nickel-chromium foils is reported. Induced permeability after corrosion in 10 per cent sulfuric acid is also reported as are the results of a study of effect of electrolytic corrosion, according to the Pinner-Pierce method.

24 EFFECTS OF IMPURITIES AND PURIFICATION OF ELECTROPLATING SOLUTIONS 1. NICKEL SOLUTIONS

9. The Effects and Removal of Aluminum (AES Project 5)
by Dr. D. T. Ewing and Dr. A. J. Smith, Michigan State University
and Dr. W. O. Dow, Jr., Sunbeam Corporation

The effects of aluminum on the appearance, adhesion, ductility, salt spray corrosion resistance, hardness and throwing power on electrodeposited nickel were studied. Low and high pH Watts solutions were studied for effects on spray nickel deposits, organic and nickel-cobalt solutions for bright deposits.



ABSTRACTS OF PAPERS

- 25 **EFFECTS OF IMPURITIES AND PURIFICATION OF ELECTROPLATING SOLUTIONS I. NICKEL SOLUTIONS**
10. The Effects and Removal of Manganese (AES Project 5)
by Dr. A. J. Smith, Michigan State University
and Dr. R. J. Rowe, Dow Chemical Co.

The effects of manganese in solution in the physical properties of electrodeposited nickel were studied. As in previous work solutions employed were 2.2 and 5.2 pH Watts organic, and nickel-cobalt. Concentrations up to 300 mg/l showed no significant effect on any of the properties. Removal of manganese cannot be effected by either low current density electrolysis or high pH treatments.

- 26 **PROGRESS REPORT ON ACCELERATED CORROSION TESTS FOR THE PERFORMANCE OF PLATED COATINGS**
(AES Project 15)
by W. L. Pinner, Houdaille Industries, Inc.

The third report of the Project 15 Committee accounts for continuing work in an endeavor to produce a dependable reproducible corrosion test for plated coatings. The report considers in detail the intensified effort which has been expended on two tests.

- 27 **ELECTRODEPOSITION OF POROUS NICKEL-CADMIUM ALLOY**
by L. D. McGraw, J. P. Spenard, and Dr. C. L. Faust,
Battelle Memorial Institute

Porous nickel-cadmium alloy plate was deposited from a sulfate-chloride bath. Porosity as high as 30 to 50 per cent was induced by a colloidal addition agent. Gelatin was added to control stress and nodulation up to thickness of about 0.015 inch. Plate composition could be controlled up to 5 per cent cadmium.

- 28 **GOLD-SILVER ALLOY PLATING**
by R. E. Harr and A. G. Cafferty, Western Electric Co., Inc.

This report covers investigations of gold silver alloy plating from a cyanide type solution. The investigation was conducted to develop a set of conditions which would produce an 8 per cent silver gold alloy and several sets of conditions which yield such an alloy are given.

- 29 **NICKEL-IRON ALLOY DEPOSITS FOR MAGNETIC SHIELDING**
by V. P. McConnell and Dr. I. W. Wolf, General Electric Co.

This paper covers the development of nickel-iron deposits to obtain thicknesses of plate from .003 inch to .025 inch. The effects of metal ion concentration and the conditions necessary to arrive at a deposit of the greatest initial permeability are listed. The effects of organic addition agents to reduce brittleness are also covered.



ABSTRACTS OF PAPERS

30 **IMPROVED TECHNIQUES FOR ELECTROLESS NICKEL PLATING ON NON-CONDUCTORS**

by Dr. Harold Narcus, President and Technical Director,
Electrochemical Industries, Inc.

This paper describes new and improved techniques for depositing electroless nickel coatings on non-conductors specifically ceramics, glass and plastics. More rapid and complete coverage of the non-conductive surface and greater adhesion of the nickel deposit to that surface result from employment of "de-polarizing", "sensitizing" and "activating" techniques which have been evaluated fully in many diversified industries.

31 **STUDY OF PHOSPHATE TREATMENTS FOR METALS**

by Lloyd Gilbert, Rock Island Arsenal

This paper covers the actual formulation of the phosphate coating chemicals and the functions of the individual components of the bath. The erratic corrosion behavior of the phosphate coatings is explained. A theory concerning the proper approach to improving the quality of phosphate coatings is presented as a conclusion drawn from the data presented.

32 **ENAMELING OF CHROMIUM PLATE**

by Gene L. Leithauser, Research Staff, General Motors Corporation

This report covers factors affecting the adhesion of organic finishes to plated parts. This will include plating procedures as well as post-plating procedures that influence the durability of the organic finish. Pre-paint methods, chemical treatments on chromium plate, and use of primers is covered. Durability of pigmented and clear finishes over plated parts are also discussed. Evaluation methods and results of surveys of durability are included.

33 **SOME NOTES ON THE ELECTRODEPOSITION OF ANTIMONY**

by A. H. Du Rose, Harshaw Chemical Co.

The results reported are a summary of an experimental survey made to determine the properties of electrodeposited antimony as a decorative and protective coating. The outstanding property of antimony is its lack of ductility or cohesive strength. In spite of this, good but not consistently reproducible corrosion protection was obtained. There appears to be some relation between adhesion and the respective orientations of the substrate and deposit.

34 **A TOOL FOR DECISION—ACCEPTANCE SAMPLING BY VARIABLES AND HOW IT WORKS**

by Roger H. Moore, Los Alamos Scientific Laboratory

This paper describes acceptance sampling by variables which is a set of rules for deciding whether or not a lot of production pieces is



ABSTRACTS OF PAPERS

acceptable under specification limits. The effectiveness of the set of rules is measured by the shape of an operating characteristic curve which gives the probability of accepting a lot if it has a certain proportion of defective parts in it.

35 CHROMIUM PLATING OF GUN BORES

by Dr. V. A. Lamb and J. P. Young, National Bureau of Standards

This paper describes the history of gun barrel plating prior to World War II, and since that period. The physical and chemical properties required of a gun bore coating are outlined, and the degree to which chromium and other metals meet these requirements is indicated. Methods for applying chromium electrodeposits to gun bores are described. Electropolishing of gun bores is also described.

36 CHROMIUM PLATING OF TITANIUM ALLOYS

by L. Missel, Lockheed Aircraft Corporation

Highly adherent chromium has been applied to several titanium alloys by electroplating. The process consists of an immersion treatment in a simple aqueous bath followed by plating in a conventional sulfate bath. A simple semi-quantitative plate adhesion-bearing property evaluation test has been developed.

37 THE ADHESION OF ELECTROPLATED COATINGS TO TITANIUM

by C. Stanley and Dr. Abner Brenner, National Bureau of Standards

Good adhesion of electrodeposited coatings to titanium is prevented by an oxide film. A pretreatment for circumventing this difficulty was developed which involved the formation of a titanium fluoride coating by an electrolytic treatment in a solution of hydrofluoric and acetic acids.

38 ELECTROPLATING CHROMIUM ON UNUSUAL ALLOYS

by Charles Levy, Watertown Arsenal

By variations in pretreatments, chromium has been electrodeposited from a conventional bath on some unusual alloys. Included among the basis metals were high-cobalt alloys, such as Stellite 21, S-816 and V-36; high nickel alloys, such as Hastalloy B, Hastalloy C and Inconel X; molybdenum; and stainless steels, such as 502 and 19-9DL. Chromium plated AISI 4340 steel was used for comparison purposes. A nickel chloride-hydrochloric acid electrolytic treatment applied prior to chromium plating was the principal means by which sound deposits with good adhesion were achieved.



ABSTRACTS OF PAPERS

39 A NEW ORGANO-ALUMINUM CHLORIDE BATH FOR DEPOSITION OF ALUMINUM

by Dr. Nelson F. Murphy, Virginia Polytechnic Institute and Dr. Arthur C. Doumas, Dow Chemical Co.

A new electrolyte for the deposition of aluminum, consisting of a solution of aluminum chloride in ether and substituted amine, is described. The limitations of operating conditions are given. The deposits are adherent, can be made of considerable thickness and may be polished. Bright deposits have been obtained from the bath at high current densities.

40 THE GROWTH AND PROPERTIES OF METAL WHISKERS

by S. M. Arnold, Bell Telephone Laboratories, Inc.

An account of studies at Bell Telephone Laboratories following the discovery that failure of certain electrical equipment was a result of the presence on a metal surface of a number of microscopic filaments. The filaments or "whiskers" were found to be metal single crystals possessing unique properties. These unusual properties are attributed to a perfection of structure not found in bulk material, and hence are of interest in fundamental studies of the metallic state.

41 STUDY OF ADHESION BY THE HIGH SPEED ROTOR TECHNIQUE

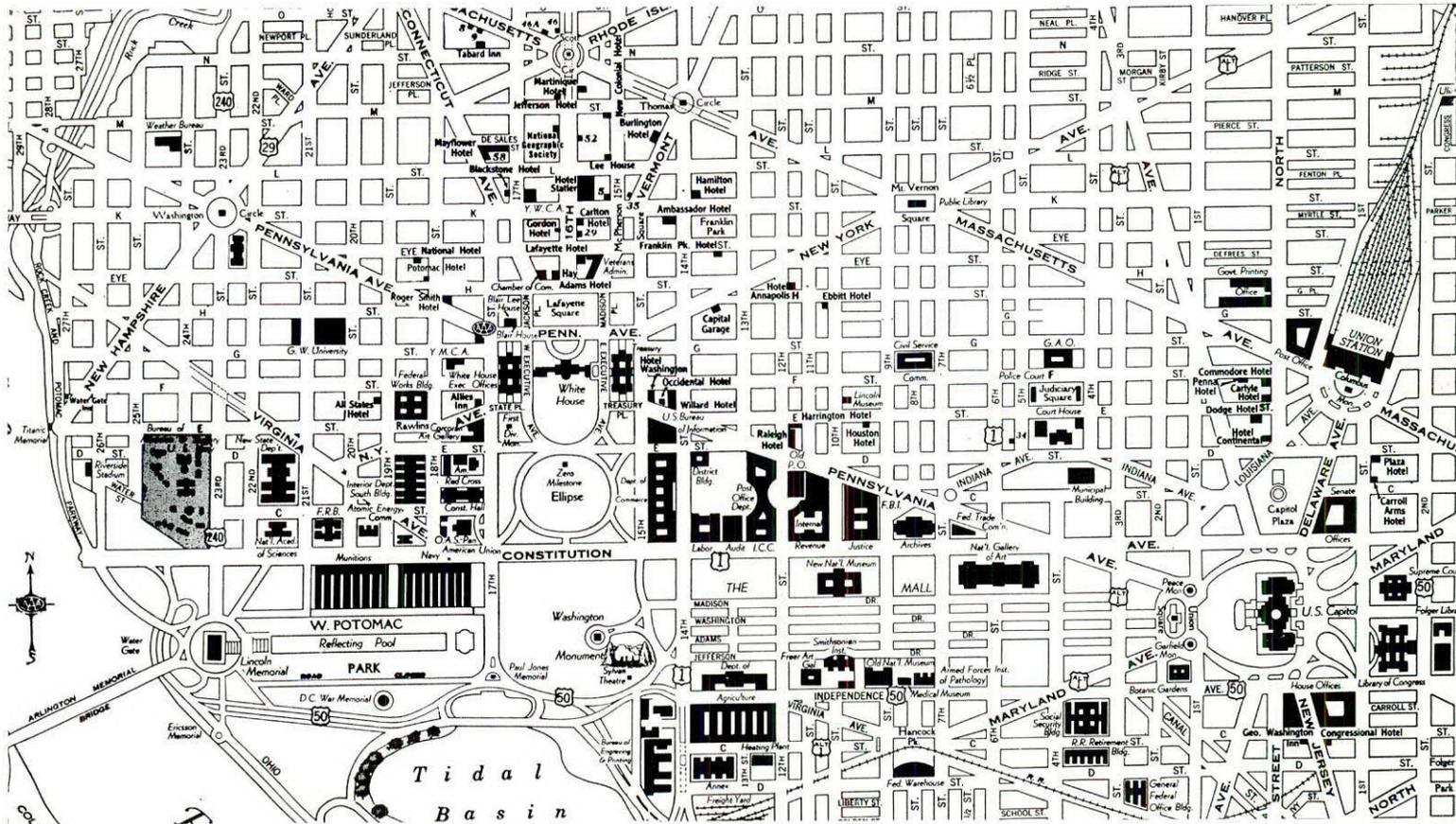
by Dr. J. W. Beams, Department of Physics, University of Virginia

If films of a material are uniformly deposited on the peripheries of cylindrical rotors having different radii and the rotor speeds are increased until the material is thrown off, both the tensile strength and the adhesion to the rotor surface of the material may be determined. If the material is deposited on a rotor in circumferentially disconnected patches, the absolute value of the adhesion can be obtained directly. The techniques of spinning magnetically suspended rotors in a vacuum is described and its application to the measurement of the adhesion of electrodeposited and evaporated metals on rotor surfaces is discussed.

42 DISSOLVED GASES IN PLATING BATHS

by W. M. Tucker and F. O. Beuckman, Eastman Kodak Co.

It was found that a Watts nickel bath in good operating condition, when properly degassed, would yield pit-free deposits until it became saturated with a gas or gases at the temperature of operation. A suitable device ready made was found in the VanSlyke Blood-Gas apparatus. Using the VanSlyke Blood-Gas apparatus equilibrium studies indicate the limits of this approach and confirm the conditions which will produce pit-free deposits.





WASHINGTON MONUMENT
BALTIMORE, MD.

45TH ANNUAL CONVENTION

American Electroplaters' Society



SHERATON - GIBSON HOTEL
CINCINNATI — MAY 18-22, 1958

1934

AMERICAN ELECTROPLATERS' SOCIETY

45th Annual Convention

All Events at the Sheraton-Gibson Hotel unless otherwise noted.
Eastern Standard Time used throughout this program.



REGISTRATION

SUNDAY, May 18

1:00 p.m. to 8:00 p.m. Ballroom Lobby

MONDAY, May 19

9:00 a.m. to 5:00 p.m. Ballroom Lobby

7:00 p.m. to 9:00 p.m. Ballroom Lobby

TUESDAY, May 20

9:00 a.m. to 12:00 Noon Ballroom Lobby

WEDNESDAY, May 21.

9:00 a.m. to 12:00 Noon Ballroom Lobby

THURSDAY, May 22

9:00 a.m. to 12:00 Noon Ballroom Lobby

Registration fee of \$20.00 provides each registrant with identification badge and book of admission tickets covering all events.

Banquet ticket must be exchanged for table reservation at Banquet Desk in registration area before 12:00 Noon, Wednesday, May 21.

The following tickets are available for children under 18 years of age, when purchased by a person registered for the Convention:

Tuesday — Outing	\$2.50
Wednesday — Floor Show & Dance	\$2.50
Thursday — Banquet & Dance	\$7.50



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National Association of Metal Finishers	22
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To The A.E.S. Members and Guests —

Four years of preparation have gone into the planning of this convention — four years of effort which we know will be amply repaid by your enjoying one of the finest conventions the A.E.S. has ever held. Your enjoyment of the activities planned for you will be just reward to those members of the Cincinnati Branch who have diligently worked toward the success of this affair.

We want to extend a most cordial welcome to you to the "Queen City of the West" where we hope your stay will not only be a profitable one from information obtained at the worthwhile Educational Program but also a most enjoyable one in that you will partake of Cincinnati's numerous hospitable recreation highspots.

Your host branch wants to do everything possible to make your visit to Cincinnati a pleasant one. Members of the local branch are so designated with a badge, and will be most happy to assist you in any way if you will direct your questions to them. Don't be afraid to ask them for help.

We hope you will enjoy your stay this week. Have a good time, and go home refreshed spiritually and mentally.

CHARLES WISE
General Chairman

★ ★ ★

Welcome Address



Hon. Donald D. Clancy
Mayor, City of Cincinnati

Keynote Speaker



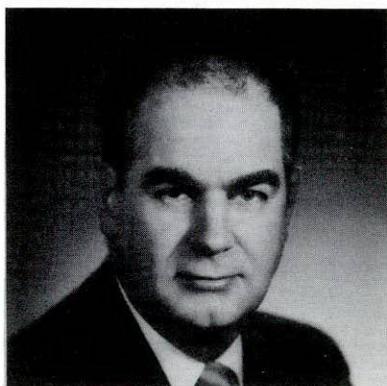
Louis Michelson
Manager, Rocket Engines
General Electric Co.

★ ★ ★

COVER: TYLER-DAVIDSON MEMORIAL FOUNTAIN is located in the heart of downtown Cincinnati. It is a monument to the power and gifts of water, and each of the figures is symbolic of one of the blessings of water. Made in Munich, Germany, the huge fountain was erected in 1871, the gift of a Cincinnati who established it as a memorial to his brother-in-law.

The pleasant, block-long area surrounding the fountain is popularly known as "Fountain Square". It has many of the qualities of the old European Squares: beauty, grandeur, enclosure, and a spirit of hustle and bustle that characterize a city center. The Sheraton-Gibson Hotel, A.E.S. Convention Headquarters, lies along the south-east boundary of the "Square".

NATIONAL OFFICERS



Francis T. Eddy
President
Technicraft Laboratories, Inc.



Herberth E. Head
First Vice-President
Chrysler Corporation



Ralph D. Wysong
Second Vice-President
Studebaker-Packard Corp.



Dr. W. Andrew Wesley
Third Vice-President
International Nickel Co.



Dr. Samuel Heiman
Past President
Philadelphia Rust Proof Co., Inc.



John P. Nichols
Executive Secretary
American Electroplaters' Society



THE SOCIETY IN ITS 49th YEAR

Founded in 1909, the American Electroplaters' Society (AES) in 1958 has a membership of over 7800 members residing not only coast-to-coast in the United States but also elsewhere globally. It is composed of some 58 autonomous Branches, here and in Australia and Canada, each conducting a full complement of educational and other Society activities in the common interest for its members.

An educational Society for the advancement of the science of electroplating, the finishing of metals and allied arts incorporated under the laws of the State of New Jersey, the AES's diverse work includes conduct of an intensive technical research program whose components embody research projects sponsored at many universities and foundations in the United States and Canada. Its monthly magazine PLATING has an over-all monthly circulation of over 9800.

Its governing council is the Supreme Society made up of three accredited Delegates from each AES Branch. The elected officers of the Society compose its Executive Board. As business officer of the Executive Board, the Executive Secretary operates National Headquarters and as Chairman of the Editorial Board and Managing Editor of the Society's official journal, publishes PLATING magazine.

PRESIDENTS AND ANNUAL MEETINGS

Year	President	Convention City	Year	President	Convention City
1909—					
1913	†CHARLES H. PROCTOR	New York, N. Y.	1935	H. A. GILBERTSON	Bridgeport, Conn.
1914	†G. B. HOGABOOM	Chicago, Ill.	1936	†T. F. SLATTERY	Cleveland, Ohio
1915	†H. J. HANSJOSTEN	Dayton, Ohio	1937	†E. STEEN THOMPSON	New York, N. Y.
1916	†WALTER BARROWS	Cleveland, Ohio	1938	A. B. WILSON	Milwaukee, Wis.
1917	†H. W. WILLIAMS	St. Louis, Mo.	1939	W. M. PHILLIPS	Asbury Park, N. J.
1918	†WALTER J. FRAINE	Detroit, Mich.	1940	†R. M. GOODSSELL	Dayton, Ohio
1919		Philadelphia, Pa.	1941	FREDERICK FULFORTH	Boston, Mass.
1920	†O. E. SERVIS	Rochester, N. Y.	1942	E. T. CANDEE	Grand Rapids, Mich.
1921	†S. P. GARTLAND	Indianapolis, Ind.	1943	C. C. CONLEY	Buffalo, N. Y.
1922	†PHILIP UHL	Cincinnati, Ohio	1944	G. J. WAGNER	Cleveland, Ohio
1923	WALTER J. ALLEN	Providence, R. I.	1945	M. R. CALDWELL	Pittsburgh, Pa.
1924	†J. E. STERLING	Milwaukee, Wis.	1946	W. L. PINNER	Pittsburgh, Pa.
1925	†F. J. HANLON	Montreal, Canada	1947	F. K. SAVAGE	Detroit, Mich.
1926	E. J. MUSICK	Newark, N. J.	1948	K. M. HUSTON	Atlantic City, N. J.
1927	F. C. MESLE	Toledo, Ohio	1949	S. S. JOHNSTON	Milwaukee, Wis.
1928	†JOHN H. FEELEY	Toronto, Canada	1950	A. W. LOGOZZO	Boston, Mass.
1929	†HORACE SMITH	Detroit, Mich.	1951	W. J. NEILL	Buffalo, N. Y.
1930		Washington, D. C.	1952	C. F. NIXON	Chicago, Ill.
1931	†GEORGE GEHLING	Rochester, N. Y.	1953	F. J. MACSTOKER	Philadelphia, Pa.
1932	†PHILIP SIEVERING	Philadelphia, Pa.	1954	G. P. SWIFT	New York, N. Y.
1933	†C. L. VAN DERAU	Chicago, Ill.	1955	R. A. SCHAEFER	Cleveland, Ohio
1934		Detroit, Mich.	1956	CLYDE KELLY	Washington, D. C.
† Deceased			1957	DR. SAMUEL HEIMAN	Montreal, Canada



John P. Nichols
National Executive Secretary
Chairman, Editorial Board and
Managing Editor, Plating



Thomas W. Lowe
Production Manager



Harry A. Johnston
Advertising Manager



Rodney Leeds
Editor, Plating
Secretary, Editorial Board



Mrs. Ann Marsh
Office Manager



Miss K. H. Langan
Accountant



A Part of the General Office at National Headquarters



NATIONAL HEADQUARTERS

National Headquarters of the Society occupies practically a full floor in the American Building at 445 Broad Street, Newark, New Jersey. Under the direction of the Executive Secretary, a competent staff of thirteen full-time specialists and other employees harness the Society's many services for its 7800 members, including the publishing of PLATING MAGAZINE, TECHNICAL PROCEEDINGS, and other Society publications.

PUBLICATIONS

PLATING, official monthly magazine of the Society, entered its 45th volume in 1958 and has global prestige as the Society's principal published medium for enriching scientific and technical knowledge in its field. It has an "over-all" international circulation of over 9800 copies monthly and is gaining even greater stature steadily.

The book, TECHNICAL PROCEEDINGS, published monthly, contains the technical papers and discussions presented at the annual convention.

PLATING EDITORIAL BOARD

The Editorial Board consists of nine qualified members appointed by the Executive Board. It is responsible for the Educational Sessions of the Society's annual convention and assists the Executive Secretary, as its Chairman and Managing Editor of PLATING, both in determining publication policy and in the procurement of technical papers.

AES AWARDS

The Society co-sponsors eight awards for the best papers published in PLATING or presented at AES Convention during the fiscal year. They include awards for the best papers published on mechanical finishing, chromium plating, precious metal plating, copper plating and other aspects of electroplating, metal finishing and allied arts. The Paper Awards Committee appointed by the President makes the selection. The new "AES Scientific Achievement Award" is the Society's highest award. The awardee selected by the Scientific Achievement Award Committee gives the annual "William Blum Lecture". The first such selectee will be announced at the Cincinnati Convention. Finally, the Award of Merit is granted by the Executive Board to AES members for meritorious service to the Society.

HONORARY MEMBERSHIP

The Executive Board grants Honorary Membership to members distinguishing themselves by outstanding contributions of national significance. Nominations for this honor are made by the Branches. The Society now has 14 living Honorary Members.

RESEARCH PROGRAM

Basic research on the fundamental problems of the industry is the foundation of the AES's vaunted research program. Its goal is the strengthening of the electroplating and metal finishing industry through greater knowledge of improved methods and processes.

The program is directed by the AES Research Committee consisting of nine men, all authorities in the field. Research is currently being conducted under the sponsorship of the AES at Columbia University; University of Pennsylvania; Virginia Institute for Scientific Research; Ontario (Canada) Research Foundation; the National Bureau of Standards; the Chicago Electroplaters' Institute and by a group of industries in the Detroit area. Each project is directed by a competent technical authority.

45th ANNUAL CONVENTION of the A.E.S.

CHECK LIST

(Unless Parenthesized, All Events Are A.E.S.)

SUNDAY, May 18

- 9:00 a.m. Executive Board Meeting, Parlor E
- 9:30 a.m. National Association of Metal Finishers (NAMF)
Annual Meeting of Members, Parlor 7, 8 & 9
- 1:00 p.m. Metal Finishing Suppliers' Association (MFSA)
Trustees' Meeting, Parlor G
- 1:30 p.m. (NAMF) Board of Directors Meeting, Parlor I
- 4:00 p.m. Credentials Committee Meeting, Parlor E
- 7:00 p.m. (NAMF) Representatives of Locals, Meeting, NAMF
Executive Secretary's Suite
- 9:00 p.m. Get-Together Party, Roof Garden

MONDAY, May 19

- 9:00 a.m. (NAMF) and (MFSA) Executive Committees, Breakfast,
Parlor I
- 10:00 a.m. Opening Session, Roof Garden
- 11:00 a.m. Business Meeting, Supreme Society, Sheraton Room
- 12:00 Noon Branch Secretaries' Luncheon, Parlors 4 & 5
- 12:00 Noon (MFSA) Luncheon and Annual Meeting, Ballroom
- 12:15 p.m. Speakers' Luncheon, Parlor 6
- 1:00 p.m. Ladies "Aunt Ella" Luncheon, Colony Restaurant, Swifton
Village
- 2:00 p.m. Educational Session A, Roof Garden
- 2:00 p.m. Plant Inspection Trip, Cincinnati Milling Machine Co.
- 2:00 p.m. (NAMF) 1st Educational Session, Sheraton Room
- 2:30 p.m. Editorial Board Meeting, Parlor I
- 4:30 p.m. Order of Past Presidents, Business Meeting, Parlor 7
- 6:30 p.m. Order of Past Presidents, Dinner, Parlor 6
- 9:00 p.m. MFSA Open House Party, Roof Garden

TUESDAY, May 20

- 8:00 a.m. Speakers' Breakfast, Parlor 6
- 8:00 a.m. Membership Committee Breakfast, Parlor H
- 8:30 a.m. (MFSA) Golf Tournament, Kenwood Country Club

CHECK LIST

- 9:00 a.m. **Educational Session B**, Ballroom
- 9:00 a.m. **Public Relations Committee Meeting**, Parlor 1
- 9:00 a.m. **Midwest Regional Committee Meeting**, Parlor 4
- 9:30 a.m. **(NAMF) 2nd Educational Session**, Parlors 7, 8 & 9
- 1:00 p.m. **Annual Outing**, Coney Island
- 7:00 p.m. **(NAMF) Reception and Cocktail Party**, Roof Garden
- 8:00 p.m. **(NAMF) Annual Banquet**, Roof Garden

WEDNESDAY, May 21

- 8:00 a.m. **Research Committee Breakfast**, Parlor 1
- 8:00 a.m. **Speakers' Breakfast**, Parlor 6
- 9:00 a.m. **Educational Session C**, Ballroom
- 9:00 a.m. **Educational Session D**, Sheraton Room
- 9:00 a.m. **Research Committee Meeting**, Parlor 1
- 9:00 a.m. **Educational Committee Meeting**, Parlor F
- 12:00 Noon **Branch Librarians' Luncheon**, Parlor H
- 12:00 Noon **Speakers' Luncheon**, Parlor 6
- 12:00 Noon **Ladies Luncheon**, Roof Garden
- 2:00 p.m. **Educational Session E**, Ballroom
- 2:00 p.m. **Educational Session F**, Sheraton Room
- 2:00 p.m. **Research Committee Meeting**, Parlor 1
- 9:30 p.m. **Floor Show and Dance**, Roof Garden

THURSDAY, May 22

- 8:00 a.m. **Speakers' Breakfast**, Parlor 6
- 9:00 a.m. **Educational Session G**, Ballroom
- 9:00 a.m. **Business Meeting, Supreme Society**, Sheraton Room
- 9:30 a.m. **Inspection Trip**, American Radiator & Standard Sanitary Corp., Plumbing & Heating Division
- 12:00 Noon **Ladies Luncheon**, Pavillon Caprice, Netherland-Hilton Hotel
- 1:00 p.m. **Inspection Trip**, Electric Auto-Lite Company
- 2:00 p.m. **Business Meeting, Supreme Society**, Sheraton Room
- 2:00 p.m. **Ladies Plato Party**, Pavillon Caprice, Netherland-Hilton Hotel
- 7:00 p.m. **Annual Banquet and Dance**, Pavillon Caprice, Netherland-Hilton Hotel

CINCINNATI BRANCH OFFICERS



W. Wilson Loveless
President
Varland Metal Service, Inc.



Lester A. Helmich
1st Vice-President
Bendix Aviation
Corp.



Donald W. Gusse
2nd Vice-President
U.S. Industrial
Chemicals Corp.



W. B. Stephenson, Jr.
Librarian
General Electric Co.



David L. Kaplan
Secretary
Electric Auto-
Lite Company



Gordon T. Speers
Treasurer
Employing Printers
Electrotype Co.

CINCINNATI BRANCH

American Electroplaters' Society

The President and the Executive Committee, on behalf of the entire Cincinnati Branch, extend to all Conventioneers a most sincere welcome. Our Chairman, his Co-Chairman, and all of the Convention Committee members have spent many months of preparation in anticipation of this, our second presentation of the A.E.S. Annual Convention.

We will endeavor to make your visit in Cincinnati one that you will long recall with pleasant memories. The program includes interesting highlights in education, entertainment and hospitality. We feel confident that you will truly learn why Cincinnati is called the "Queen City of the West" and the "Gateway to the South".

W. Wilson Loveless.
Branch President



Herman Schneider Foundation Building

Back in 1913 a small group of local platers succeeded in chartering a local branch of the American Electroplaters' Society.

Little is known of the original Cincinnati Branch but existing records give evidence of trials and tribulations which were ever present. As late as 1938 the local branch could boast of no more than 16 members. Since that time, slowed only temporarily by World War II, membership has grown steadily to a present group of 115 members.

The Cincinnati Branch acted as host to the 10th Annual Convention of the A.E.S. in 1922. More recently it has played a major role in the formation of the Tri-State Region, which held its first meeting in Cincinnati in 1954. Each Spring this group composed of the Cin-

cinnati, Columbus, Dayton, Indianapolis and Louisville Branches, holds an Educational Session and Dinner Dance. Because of the 45th A.E.S. Convention in Cincinnati there will not be a Tri-State Regional Meeting this year.

Cincinnati members are justly proud of their regular meeting place. As a member of the Technical & Scientific Societies Council of Cincinnati they enjoy the use of the Herman Schneider Foundation Building, the Engineering Society Headquarters.

Few branches are favored with these excellent facilities including a technical library, large auditorium seating 425 people, a new wing with capacity of 250, committee meeting rooms, lounge, dining room with catering service, and modern projection and sound equipment.

CONVENTION COMMITTEE CHAIRMEN



L. J. Howald
Publicity



Robert D. Miller
Education



Raymond A. Barry
Plant Visitation



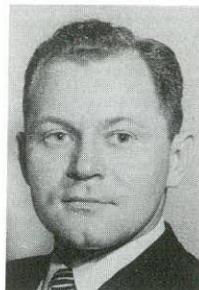
Charles Wise
General Chairman



Ezra A. Blount
Co-Chairman



Stewart Chipman
Entertainment



Arthur J. Gerada
Outing



Russ Waters
Banquet

CONVENTION COMMITTEE CHAIRMEN



W. Wilson Loveless
Hotel



Edwin Roof
Registration



L. A. Critchfield
Coordination



Addabelle Miller
Ladies Chairman



"Bunt" Young
Ladies Co-Chairman



R. K. Rarick
Finance



Roger E. Winterman
Program



David L. Kaplan
Secretary

45th Annual Convention

AMERICAN ELECTROPLATERS' SOCIETY



CONVENTION PROGRAM

(Unless Parenthesized, All Events Are AES)

The committee respectfully requests suppliers to close hospital-
ity rooms during educational sessions and at 1:00 a.m. nightly.

SUNDAY, May 18

- | | | |
|-----------|---|------------------|
| 9:00 a.m. | Executive Board Meeting (All Day) | Parlor E |
| 9:30 a.m. | National Association of Metal Finishers (NAMF)
Annual Meeting of Members | Parlors 7, 8 & 9 |
| 1:00 p.m. | Metal Finishing Suppliers' Association (MFSA)
Trustees' Meeting | Parlor G |
| 1:30 p.m. | (NAMF) Board of Directors Meeting | Parlor I |
| 4:00 p.m. | Credentials Committee Meeting | Parlor E |
| 7:00 p.m. | (NAMF) Meeting, Representatives of Locals
NAMF Executive Secretary's Suite | |
| 9:00 p.m. | Get-Together Party
Refreshments and Dancing
Admission by Registration Book Ticket | Roof Garden |

MONDAY, May 19

- | | | |
|------------|---|-------------|
| 9:00 a.m. | (NAMF) and (MFSA) Executive Committees, Breakfast | Parlor I |
| 10:00 a.m. | Opening Session | Roof Garden |
| | Invocation — Leonard A. Chesworth, Boston Branch | |
| | Welcome — Charles Wise, General Chairman | |
| | Welcome — Mrs. R. D. Miller, Ladies' Chairman | |
| | Address of Welcome — Hon. Donald D. Clancy
Mayor, City of Cincinnati | |
| | Remarks—Francis T. Eddy, President
American Electroplaters' Society, Inc. | |
| | Announcement of first A.E.S. Scientific Achievement Award | |
| | Winner — Dr. Russel E. Harr, Chairman, A.E.S. Scientific
Achievement Award Committee | |
| | Keynote Address — Louis Michelson, Manager,
Rocket Engines, General Electric Co.
Evendale, Ohio | |

11:00 a.m.	Business Meeting, Supreme Society FRANCIS T. EDDY, Presiding	Sheraton Room
12:00 Noon	Branch Secretaries' Luncheon	Parlors 4 & 5
12:00 Noon	(MFSA) Luncheon and Annual Meeting	Ballroom
12:15 p.m.	Speakers' Luncheon	Parlor 6
1:00 p.m.	Ladies "Aunt Ella" Luncheon , (see pg. 18) Colony Restaurant , Sponsored by OAKITE PRODUCTS, INC. Swifton Village Buses will leave hotel about 11:30 a.m. Admission by Registration Book Ticket	
2:00 p.m.	EDUCATIONAL SESSION A - Admission by Badge	Roof Garden
	Surface Preparation	
	Chairman: JOHN HOLLAND, Arvin Industries	
	1. "The Role of the Basis Metal in the Production of Stressed Electrodeposits" DR. JOSEPH B. KUSHNER, Kushner Electroplating School	
	2. "Effect of Shot-Peening Prior to Chromium Plating on the Fatigue Strength of High Strength Steel" BENNIE COHEN, Wright-Patterson Air Force Base	
	3. "Loose Abrasive Finishing Machines" FRED T. HALL, General Motors Corporation	
	4. "The Influence of Physical Metallurgy and Mechanical Processing of the Basis Metal on Electroplating" — A.E.S. Research Project No. 14 DR. MAURICE H. JONES and J. ZAJDOWSKI, Ontario Research Foundation	
2:00 p.m.	Plant Inspection Trip - Cincinnati Milling Machine Company Buses will leave hotel about 1:00 p.m. (see page 19)	
2:00 p.m.	(NAMF) First Educational Session	Sheraton Room
2:30 p.m.	Editorial Board Meeting	Parlor 1
4:30 p.m.	Order of Past Presidents, Business Meeting	Parlor 7
6:30 p.m.	Order of Past Presidents, Dinner	Parlor 6
9:00 p.m.	Open House Party, Sponsored by MFSA Buffet Supper, Refreshments and Dancing Admission by Registration Book Ticket	Roof Garden

WEDNESDAY, May 21

8:00 a.m. **Research Committee Breakfast** **Parlor I**

8:00 a.m. **Speakers' Breakfast** **Parlor 6**

9:00 a.m. **EDUCATIONAL SESSION C** - Admission by Badge **Ballroom**

Symposium on Electroplating Practices

Chairman: DR. R. O. McDUFFIE, Univ. of Cincinnati

1. **"Principles of Electrochemistry"**
FRED G. BRUNE, Chrysler Corporation
2. **"Factors Which Influence the Structure of Electrodeposits"**
DR. A. M. MAX, Radio Corporation of America
3. **"Cleaning, Pickling and Preparatory Surface Treatment"**
WILLIAM P. INNES, MacDermid, Inc.
4. **"Discussion of a Typical Plating Solution - Cyanide Zinc"**
EDWARD F. FOLEY, Stratford Chemical Co.

9:00 a.m. **EDUCATIONAL SESSION D** - Admission by Badge **Sheraton Room**

Specialized Finishes for Aircraft Components

Chairman: JULIUS TERES, Wright-Patterson Air Force Base

1. **"Alloy Plating Systems for Aircraft Engines"**
BRUCE E. SCOTT, Curtiss-Wright Corporation
2. **"Electrodeposited Metallic and Flame Sprayed Ceramic Coatings for Elevated Temperatures"**
DR. STANLEY ZIRINSKY, General Electric Company
and
DR. DODD S. CARR, Bart Laboratories & Design, Inc.
3. **"Hard Anodizing of Aircraft Fuel Metering Components"**
DR. HAROLD J. WIESNER and HENRY A. MEERS,
Bendix Aviation Corporation
4. **"Pitting in Thick Chromium Deposits"**
DONALD R. MILLAGE and WILBUR E. HAGUE,
The Udylite Corporation

9:00 a.m. **Research Committee Meeting** **Parlor I**

9:00 a.m. **Educational Committee Meeting** **Parlor F**

WEDNESDAY, May 21 (CONTINUED)

- 12:00 Noon **Branch Librarians' Luncheon** **Parlor H**
- 12:00 Noon **Speakers' Luncheon** **Parlor 6**
- 12:00 Noon **Ladies Luncheon** (see page 18) **Roof Garden**
Sponsored by PRODUCTS FINISHING
Admission by Registration Book Ticket
- 12:00 Noon **University of Cincinnati Alumni Luncheon** **Parlor 4**
- 2:00 p.m. **Research Committee Meeting** **Parlor I**
- 2:00 p.m. **EDUCATIONAL SESSION E - Admission by Badge** **Ballroom**
Symposium on Electroplating Practices
Chairman: GERALD A. LUX, Oakite Products, Inc.
1. **"Instrumentation"**
HAROLD A. KAHLER; General Motors Corporation
 2. **"Design and Engineering Problems in Plating Room Layout and Installation"**
HUGH V. MCGUIRE, McGuire Associates
 3. **"Plating Rack Design and Insulation"**
FRANK J. KLEIN, Rack Processing Company
- 2:00 p.m. **EDUCATIONAL SESSION F - Admission by Badge** **Sheraton Room**
Developments in Finishes and Controls
Chairman: WILLIAM H. SAFRANEK, Battelle Memorial Institute
1. **"When and How to Select an Organic Coating"**
HARRIS G. BECK, The Glidden Company
 2. **"Vinyl Plastics and Organics as Product Finishes"**
F. L. SCOTT and W. C. HOSFORD, Metal & Thermit Corporation
 3. **"Measurement of Chromium Plate Thickness on Molybdenum Alloy Turbine Buckets by X-Ray Fluorescence"**
DR. W. M. SPURGEON and OTTIS L. ISAACS, General Electric Co., Aircraft Gas Turbine Division
 4. **"Pattern Plating with Electrodeposits"**
SAMUEL S. FREY, Oakite Products, Inc.
- 9:30 p.m. **Floor Show and Dance** **Roof Garden**
Admission by Registration Book Ticket

THURSDAY, May 22

- 8:00 a.m. **Speakers' Breakfast** **Parlor 6**
- 9:00 a.m. **Business Meeting, Supreme Society** **Sheraton Room**
FRANCIS T. EDDY, Presiding
- 9:00 a.m. **EDUCATIONAL SESSION G - Admission by Badge** **Ballroom**
"Practical Plating Problems" - A Panel Discussion
Chairman: DR. ABNER BRENNER, National Bureau of Standards
- Panel Members:**
- DR. A. KENNETH GRAHAM, Graham, Savage & Associates, Inc.
Preparation of Base Metal and Decorative Plating
- DR. HAROLD J. READ, Pennsylvania State University
Corrosion
- LLOYD O. GILBERT, Rock Island Arsenal
Conversion Coatings and Military Requirements
- F. KELLER, Aluminum Company of America
Anodizing and Plating on Aluminum
- HAROLD F. SMITH, The Smith Electrochemical Company
Specialty Work, Job Shop Operation
- FREMONT L. SCOTT, Metal & Themit Corporation
Organic Coating
- 9:30 a.m. **Plant Inspection Trip - American Radiator & Standard Sanitary Corp., Plumbing & Heating Div. - (see page 19)**
Buses Leave Hotel at 8:30 a.m.
- 12:00 Noon **Ladies Luncheon (see page 18)** **Pavillon Caprice**
Sponsored by UDYLITE, Corp. **Netherland-Hilton Hotel**
Admission by Registration Book Ticket
- 1:00 p.m. **Plant Inspection Trip - Electric Auto-Lite Co., Sharonville Division (see page 19)**
Buses Leave Hotel at 12:00 Noon
- 2:00 p.m. **Business Meeting, Supreme Society** **Sheraton Room**
FRANCIS T. EDDY, Presiding
- 2:00 p.m. **Ladies Plato Party - (see page 18)** **Pavillon Caprice**
Netherland-Hilton Hotel
Admission by Registration Book Ticket
- 7:00 p.m. **Annual Banquet and Dance** **Pavillon Caprice**
Netherland-Hilton Hotel
Admission by Table Reservation Ticket
(see inside front cover)

LADIES ENTERTAINMENT

Welcome Ladies, to the "Queen City" . . .

We've waited a long time to have you visit us in our home town. An exciting program has been prepared for you from the traditional "Aunt Ella" Luncheon on Monday to the Plato Party on Thursday. Something new and different has been planned for our Wednesday Luncheon at the Sheraton-Gibson. You will find lots of prizes and surprises in Cincinnati.

We look forward anxiously to renewing of old friendships and making of new ones. The committee is waiting to serve you and make your visit with us happy and prosperous — a joy to remember.

Addabelle Miller
Chairman, Ladies Committee

PROGRAM

SUNDAY, MAY 18

9:00 p.m. **Get-Together Party** **Roof Garden**
Dancing and light refreshments

MONDAY, MAY 19

1:00 p.m. **"Aunt Ella" Luncheon**, David X. Clarin, Host **Colony Restaurant, Swifton Village**
Sponsored by OAKITE PRODUCTS, INC.
Buses leave hotel Approx. 11:30 a.m.
Style Show courtesy of Rollman's

9:00 p.m. **MFSA Open House Party** **Roof Garden**
Buffet Supper, Refreshments and Dancing

TUESDAY, MAY 20

1:00 p.m. **Annual Outing** **Coney Island**
Buffet Lunch served at 1:00 p.m.
Buses leave hotel Approx. 11:30 a.m.

WEDNESDAY, MAY 21

12:00 Noon **Ladies Luncheon**, Addabelle Miller and **Roof Garden**
"Bunt" Young, Hostesses
Sponsored by PRODUCTS FINISHING

9:30 p.m. **Floor Show and Dance** **Roof Garden**

THURSDAY, MAY 22

12:00 Noon **Ladies Luncheon**, Dr. R. B. Saltonstall, Host **Pavillon Caprice**
Sponsored by UDYLITE CORP. **Netherland-Hilton Hotel**

2:00 p.m. **Plato Party**, Joan T. Wiarda, Hostess **Pavillon Caprice**
Netherland-Hilton Hotel

7:00 p.m. **Annual Banquet and Dance** **Pavillon Caprice**
Netherland-Hilton Hotel

SPECIAL EVENTS

ANNUAL OUTING - Tuesday, May 20

The scene of the outing is Coney Island Amusement Park. Buses leave 4th Street entrance of the hotel beginning at 11:30 a.m.

Buffet lunch served at 1:00 p.m.

Afternoon program includes square dancing, games and amusement park rides, and a feature event will be the annual

East-West Baseball Game - 2:30 p.m.

Buses will arrive back at the hotel approximately 5:00 p.m.

GOLF TOURNAMENT - Tuesday, May 20

Sponsored by MFSA at Kenwood Country Club. Complete clubhouse facilities will be available.

Tee-off times starting at 8:30 a.m. Information and registration for starting time at desk in registration area, Ballroom Lobby.

Outing ticket in Registration Book may be used for luncheon at the Country Club.

Ladies are cordially invited to participate.

PLANT INSPECTION TOURS

Participants are asked to register for the tours in the registration area, Ballroom Lobby. Complete information will be available.

MONDAY, May 19

2:00 p.m. Cincinnati Milling Machine Co.

The world's largest machine tool manufacturer. Visitors will see metal cutting and forming, foundry and heat-treating, as well as finishing operations.

Buses leave hotel about 1:00 p.m. and will arrive back at hotel approximately 4:30 p.m.

THURSDAY, May 22

9:30 a.m. American Radiator & Standard Sanitary Corp. - Plumbing & Heating Division

This plant features the forming, machining, finishing and assembly of plumbing valves and fixtures. Also the assembly line production of a garbage disposer unit.

Buses leave hotel about 8:30 a.m. and will arrive back at hotel about 11:45 a.m.

1:00 p.m. Electric Auto-Lite Co. - Sharonville Bumper Division

The largest plating installation in the Cincinnati area. Here you will see step by step, modern, automatic processing of high quality automobile bumpers in volume production.

Buses leave hotel about 12:00 Noon. Buffet lunch will be served at the plant, courtesy of the Auto-Lite Co., with tour to follow. Buses will arrive back at hotel around 4:15 p.m.

OFFICERS and TRUSTEES
Metal Finishing Suppliers' Association, Inc.



E. W. Couch
 1st Vice-President
 Lea Manufacturing Co.



Raymond F. Ledford
 2nd Vice-President
 Industrial Filter &
 Pump Mfg. Co.



F. P. Green
 3rd Vice-President
 Crown Rheostat &
 Supply Co.



J. J. Duffy, Jr.
 Past President
 Kain & Hooven



T. A. Trumbour
 Treasurer
 Metal Finishing



M. M. Beckwith
 President
 Harshaw Chemical Co.



A. P. Munning
 Executive Secretary
 Munning & Munning, Inc.



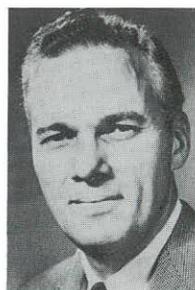
T. R. Gill
 Trustee
 G. S. Equipment Co.



C. C. Helmle
 Trustee
 Enthone Division,
 A. S. & R. Co.



L. J. Minbiolo
 Trustee
 Udylite Corp.



R. M. Norton
 Trustee
 Hanson-Van Winkle-
 Munning Co.



The Metal Finishing Suppliers' Association, Inc., is an organization of manufacturers and distributors of equipment and supplies used in the Metal Finishing Industry. It was organized in Milwaukee at the 1924 A.E.S. Convention as the International Fellowship Club. In 1951 it was formally incorporated under its present name. It is now in its 35th year of service to the industry and to the American Electroplaters' Society.

Originated to further hospitality and friendship among suppliers, M.F.S.A. has extended its efforts to include A.E.S. members and branches. M.F.S.A., as an organization, and through its individual members, is an important factor in the success of Branch, Regional, and Annual A.E.S. Meetings. M.F.S.A. and its members support many functions and activities of the A.E.S.

At A.E.S. Annual Conventions M.F.S.A. furnishes much of the entertainment, both as an organization and through its individual members.* M.F.S.A. is host to the entire A.E.S. Convention at an Annual Open House, and sponsors an Annual Golf Tournament.



R. M. Burford
M. F. S. A.
Golf Chairman



Bill Young
M. F. S. A. Cincinnati
Liaison Representative

PROGRAM

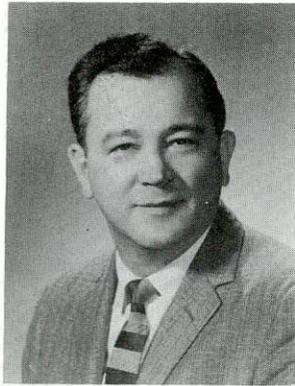
MONDAY, MAY 19

12:00 Noon Luncheon and Annual Meeting Ballroom
9:00 p.m. Open House Roof Garden
Refreshments, dancing, and buffet supper

TUESDAY, MAY 20

8:30 a.m. Golf Tournament Kenwood Country Club
Two 18-hole courses. Golfers may exchange the Outing ticket in registration books for \$1.50 lunch at Kenwood Country Club. Greens fee is \$5.00.
Lady Golfers are invited to participate.

EXECUTIVE COMMITTEE
National Association Of Metal Finishers



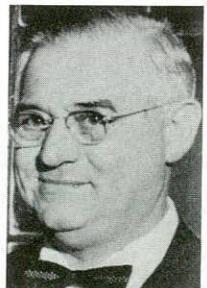
John Palik, Jr.
President



Harold W. Baker
1st Vice-President



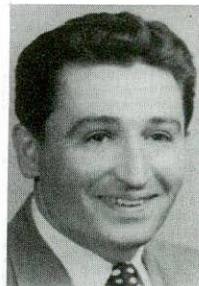
Webster B. Knight
2nd Vice-President



Frank Kaiser
Secretary-Treasurer



Silvestro Novelli
Asst. Secretary-Treasurer



P. Peter Kovatis
Executive Secretary



N.A.M.F. Convention Program Cincinnati, Ohio
May 18, 19, 20, 1958 Sheraton-Gibson Hotel

Highlighting this year's convention of the N.A.M.F. will be a two-day educational session and management seminar, instead of the usual one-day session. As has been the custom, the N.A.M.F. conclave is being held concurrent with that of the American Electroplaters' Society, with headquarters and activities at the Sheraton-Gibson Hotel.

An Annual Meeting of members on Sunday will open the three-day convention. President John Palik, Jr. of National Plating Corp., Cleveland, Ohio, is slated to rap his gavel at 9:30 a.m. The N.A.M.F. Board of Directors will convene at 1:30 p.m. the same day, and will elect their officers for the year 1958-59.

Monday should find owners and operators "talking shop" as the first day's educational program gets under way with A. T. Leonard, President of Superior Plating, Inc., Minneapolis; Minnesota serving as Moderator. The two-day session includes: Monday — Rust Proofing, Barrel: Bruce Roberts, Siegel-Roberts Plating Co., St. Louis, Missouri; Glenn H. Friedt, Jr., United Platers, Inc., Detroit, Michigan; Rust Proofing, Rack: John Lietz, B. Mercil & Sons Plating Co., and Lawrence J. Hay, Plating Service Co., both of Chicago, Ill.; Tuesday — Decorative Plating: Mariano Ranno, Imperial Plating Co., Brooklyn, N.Y.; Lewis T. Briggs, Jr., Erie Plating Co., Erie, Pa.; Hard Chrome Plating: Duke L. Saas, Atlas Hard Chrome Service, and John Hyde, Durable Plating Co., both of Cleveland, Ohio.

Meanwhile, back in their hotel rooms, miladies are primping for the traditional cocktail party, reception and banquet, Tuesday evening. N.A.M.F. Convention Chairman W. Wilson Loveless, Vice-President of Varland Metal Service, Inc., Cincinnati, Ohio, has announced that our banquet speaker will be Mr. Fay LeMeadows, a nationally known Congregational Minister, author, humorist, editor and educator. His topic will be "A Plater's Life Can Be Fun" which should please both members and their wives, thus bringing to a fitting climax three full days of fun, education and fellowship.

PROGRAM

SUNDAY, MAY 18

9:00 a.m. to 9:00 p.m.	Registration	Ballroom Lobby
9:30 a.m.	Annual Meeting of Members	Parlors 7, 8 & 9
1:30 p.m.	Board of Directors Meeting	Parlor 1
7:00 p.m.	Meeting, Representatives of Locals	Exec. Secy's. Suite

MONDAY, MAY 19

9:00 a.m. to 5:30 p.m.	Registration	Ballroom Lobby
9:00 a.m.	Executive Committee Breakfast (with MFSA Exec. Committee)	Parlor 1
2:00 p.m.	1st Educational Session and Management Seminar	Sheraton Room

TUESDAY, MAY 20

9:00 a.m. to 12:00 Noon	Registration	Ballroom Lobby
9:30 a.m.	2nd Educational Session and Management Seminar	Parlors 7, 8 & 9
6:30 p.m. to 8:00 p.m.	Registration	Roof Garden Mezzanine
7:00 p.m.	Cocktail Party and Reception	Roof Garden
8:00 p.m.	Annual Banquet	Roof Garden

NAMF

EDUCATIONAL SESSIONS
CHAIRMEN



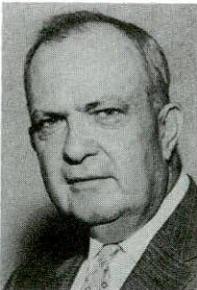
John Holland
Chairman - Session A



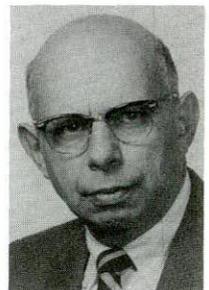
W. B. Stephenson, Jr.
Co-Chairman
Educational Committee



William J. Neill
Chairman - Session B



Dr. R. O. McDuffie
Chairman - Session C



Julius Teres
Chairman - Session D



Gerald A. Lux
Chairman - Session E



William H. Safranek
Chairman - Session F



Dr. Abner Brenner
Chairman - Session G

ABSTRACTS OF PAPERS

SESSION A - Monday, May 19

Chairman: JOHN HOLLAND, Arvin Industries

1. "The Role of the Basis Metal in the Production of Stressed Electrodeposits"

DR. JOSEPH B. KUSHNER, Kushner Electroplating School

The role of basis metal surface condition and cathode deposition film on stresses produced is discussed. Grain size, deposit thickness, magnitude of stresses developed and other factors are covered in the light of recent literature and experimentation. A theory is proposed as an explanation for this behavior.

2. "Effect of Shot-Peening Prior to Chromium Plating on the Fatigue Strength of High Strength Steel"

BENNIE COHEN, Wright-Patterson Air Force Base

This effect has been studied in an effort to minimize the drastic drop in fatigue strength, approximately 50%, which occurs as a result of chromium plating. Results using various high strength steels will be compared including baked and unbaked conditions.

3. "Loose Abrasive Finishing Machines"

FRED T. HALL, General Motors Corporation

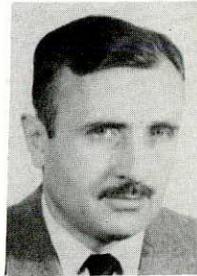
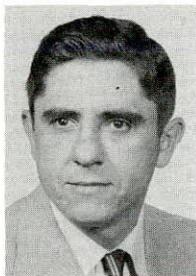
Use of loose abrasive finishing offers potential savings and improved productivity in many instances over presently used methods. Information is presented on some of the more prevalent types of commercially available equipment, construction and operational features, developed for loose abrasive finishing. Techniques for deburring, burnishing, blending and edge radiusing of machined parts are discussed, including advantages and limitations.

4. "The Influence of Physical Metallurgy and Mechanical Processing of the Basis Metal on Electroplating" —

A.E.S. Research Project No. 14

DR. MAURICE H. JONES and J. ZAJDOWSKI, Ontario Research Foundation

A comparison of the influence of the surface condition of an aluminum killed steel, resulting from various commercial and laboratory polishing techniques, on the durability of a Watts Nickel deposit. Several types of mechanical finishing of the basis metal studied include commercial belt polishing with alumina abrasives and laboratory polishing with silica carbide and diamond abrasives.



r. Jos. B. Kushner

Bennie Cohen

Fred T. Hall

Dr. M. H. Jones

J. Zajdowski

ABSTRACTS OF PAPERS

SESSION B - Tuesday, May 20

Chairman: WILLIAM J. NEILL, Columbus Metal Products, Inc.

1. "Metal Wastes - Contribution and Effect - Cincinnati Metropolitan Sewage Disposal Service Area"

FENTON H. DOBB, City of Cincinnati - Sewage Disposal Section

The paper deals with a municipality embarking on a sewage disposal program, including an ordinance for control of industrial wastes, especially metal contaminants. Factors, such as: inspection, cooperation, and acquisition of information and analyses of industrial wastes from companies in this service area before and after the ordinance was enacted into law is discussed.

2. "Ion Exchange and the Pickling of Magnesium Sheet"

ROBERT E. ANDERSON, The Dow Chemical Company

The role of ion exchange in the metal industry is discussed including purification of exhausted or contaminated solutions and recovery and concentration of valuable materials from dilute solutions. An automatic ion exchange process for acetic acid - nitrate pickling of magnesium sheets, showing reduction of costs and labor and improvement of quality control is described.

3. "The Use of Bioassays in the Safe Disposal of Electroplating Wastes"

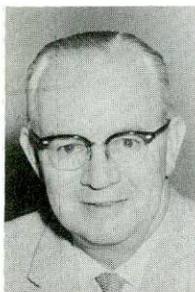
DR. CHARLES M. TARZWELL, Robert A. Taft Sanitary Engineering Center

A method of predicting the influence of individual components on the toxicity of complex waste water is described. How bioassays can be used to determine what process contributes most to the toxicity of waste water, how it varies and the type and extent of treatment necessary to render it safe for aquatic life is discussed.

4. "Industrial Waste Treatment and Water Reclamation - A Case Study"

WAYNE L. GASPER, The Maytag Company

The planning which went into the building of a complete waste treatment facility is discussed, together with the results of three years experience in industrial waste treatment and the reclamation and reuse of water after treatment. Costs of waste treatment and some of the methods used to reduce costs will be described.



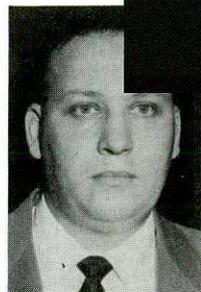
Fenton H. Dobb



Robert E. Anderson



Dr. C. M. Tarzwell



Wayne L. Gasper

ABSTRACTS OF PAPERS

SESSION C - Wednesday, May 21

Chairman: DR. R. O. McDUFFIE, University of Cincinnati

1. "Principles of Electrochemistry"

FRED G. BRUNE, Chrysler Corporation

Using Faraday's Laws as the basis for electroplating, principles of chemistry and electricity are explained. Ionic action in electroplating solutions is covered to show the changes which occur where electrical energy is used to produce a metallic plate. Other electrochemical properties of electroplating solutions are discussed.

2. "Factors Which Influence the Structure of Electrodeposits"

DR. A. M. MAX, Radio Corporation of America

The theory of metallic crystals and the role of imperfections in determining the physical properties of the common metals is surveyed. Factors affecting the character of electrodeposits are discussed including metal ion transition to the crystal lattice of the cathode, co-deposition, crystal formation, and properties of electrolytes.

3. "Cleaning, Pickling and Preparatory Surface Treatment"

WILLIAM P. INNES, MacDermid, Inc.

Modern practices in cleaning, degreasing, pickling, and activation of various metals prior to electroplating are discussed. Chemical and physical aspects of cleaning and degreasing and actions of pickling and activation solutions on metal surfaces are covered. Fundamental principles upon which these preplate treatments are based are covered and modern cycles illustrating these operations are outlined.

4. "Discussion of a Typical Plating Solution - Cyanide Zinc"

EDWARD F. FOLEY, Stratford Chemical Co.

The cyanide-zinc plating solution is covered thoroughly beginning with a discussion of bath composition (including the various bright plating solutions), purification of the solution prior to use, and operating conditions. Equipment required for zinc plating and engineering considerations connected with this solution are discussed.



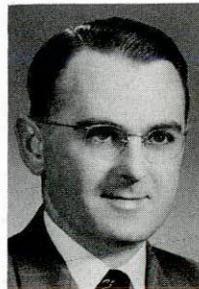
Fred G. Brune



Dr. A. M. Max



William P. Innes



Edward F. Foley

ABSTRACTS OF PAPERS

SESSION D - Wednesday, May 21

Chairman: JULIUS TERES, Wright-Patterson Air Force Base

1. "Alloy Plating Systems for Aircraft Engines"

BRUCE E. SCOTT, Curtiss-Wright Corporation

Performance of electrodeposited lead-indium, lead-tin, and silver-lead under high stress and cavitation erosion conditions is evaluated. Use of electroless nickel on aluminum and the increased salt spray resistance of cadmium-tin is discussed. High ambient temperature corrosion protection of nickel-cadmium and characteristics of new alloy systems of copper-tin, silver-tin, and tin-copper are explained.

2. "Electrodeposited Metallic and Flame Sprayed Ceramic Coatings for Elevated Temperatures"

DR. STANLEY ZIRINSKY, General Electric Company
DR. DODD S. CARR, Bart Laboratories & Design, Inc.

Application of heavy nickel and chromium (.005" to .040") to nickel and to copper and over plates of rhodium, platinum, and palladium and flame sprayed alumina are discussed. Reactions of various coatings to a 5000° K plasma jet from a water stabilized arc are evaluated.

3. "Hard Anodizing of Aircraft Fuel Metering Components"

DR. HAROLD J. WIESNER and HENRY A. MEERS, Bendix Aviation Corporation

The conditions for applying thin or heavy hard coatings to various aluminum alloys are given. Methods of controlling thickness on various sections of complicated shapes are discussed. A statistical comparison of various thickness measurement methods is included.

4. "Pitting in Thick Chromium Deposits"

DONALD R. MILLAGE and WILBUR E. HAGUE, UdyLite Corporation

The type of defect that is described as a "catalyst pit" and pitting due to basis metal defects are discussed. Results obtained by drilling a microhole in the basis metal and plating it with and without a surface-active agent are presented. The effect of surface-active agents upon the porosity of thin plates is included.



Bruce E. Scott

Dr. S. Zirinsky

Dr. Dodd S. Carr

Dr. H. J. Wiesner

Henry A. Meers

ABSTRACTS OF PAPERS

SESSION E - Wednesday, May 21

Chairman: GERALD A. LUX, Oakite Products, Inc.

1. "Instrumentation"

HAROLD A. KAHLER, General Motors Corporation

Control instrumentation, in recent years, has given assistance to the electroplater in meeting the exacting demands of specification deposits and lower operating costs. The application, use, and merits of instrumentation for large and small installations are reviewed. The advantages of some special electrical and solution control devices are discussed in detail.

2. "Design and Engineering Problems in Plating Room Layout and Installation"

HUGH V. McGUIRE, McGuire Associates

Factors involved in planning an electroplating installation are discussed including production rate, type of equipment, type of plating, plating cycles, arrangement of equipment, exhaust systems, location of power units, type of heating or cooling equipment, water pre-treatment and/or disposal. Equipment installation details to eliminate operating and maintenance problems will be suggested.

3. "Plating Rack Design and Insulation"

FRANK J. KLEIN, Rack Processing Company

Various kinds and types of plating racks are discussed including materials used, size, and construction for various types of plating and cycles used. The five principal types of rack coatings used today, methods of application of insulation materials and the relationship between the coating and the type of plating being done is explained.



D. R. Millage



W. E. Hague



H. A. Kahler



H. V. McGuire



F. J. Klein

ABSTRACTS OF PAPERS

SESSION F - Wednesday, May 21

Chairman: WILLIAM H. SAFRANEK, Battelle Memorial Institute

1. "When and How to Select an Organic Coating"

HARRIS G. BECK, The Glidden Company

Properties of the various organic finishes and the relation these have to surface pretreatment is discussed. Application of and curing procedures for organic finishes with their features and economics is presented along with suitable testing procedures to enable the engineer to specify and the customer to obtain the finish desired.

2. "Vinyl Plastisols and Organisols as Product Finishes"

F. L. SCOTT and W. C. HOSFORD, Metal & Themit Corporation

Polyvinyl chloride plastisols and organisols are finding greatly expanded use in the functional and decorative fields. Wide ranges in the hardness and smoothness of finishes are obtainable. These materials exhibit excellent chemical resistance and electrical insulation properties. Application methods include dipping, roller coating, spraying, and forming by molding.

3. "Measurement of Chromium Plate Thickness on Molybdenum Alloy Turbine Buckets by X-Ray Fluorescence"

DR. WILLIAM M. SPURGEON and OTTIS L. ISAACS, General Electric Co., Aircraft Gas Turbine Division.

Thickness of chromium plate on molybdenum alloy turbine buckets was measured non-destructively at six different locations. The method used was that of absorption by the plate of the characteristic radiation emitted by the molybdenum substrate. The procedure is suitable for quality control of chromium plate thickness on turbine buckets.

4. "Pattern Plating with Electrodeposits"

SAMUEL S. FREY, Oakite Products, Inc.

How definite patterns can be produced upon electrodeposited nickel and thin bright plates deposited over it without loss to the pattern intensity will be shown. The details of time, agitation, temperature, current density and chemical composition of the bath will be discussed. Process details for making these patterns and problems to be solved for commercial applications are covered.



W. C. Hosford Dr. W. M. Spurgeon Ottis L. Isaacs Samuel S. Frey

ABSTRACTS OF PAPERS

SESSION G - Thursday, May 22

Chairman: DR. ABNER BRENNER, National Bureau of Standards

"Practical Plating Problems" - A Panel Discussion

DR. A. KENNETH GRAHAM, Graham, Savage & Associates, Inc.
Preparation of Base Metal and Decorative Plating



DR. HAROLD J. READ,
Penn. State University
Corrosion



LLOYD O. GILBERT,
Rock Island Arsenal
**Conversion Coatings and
Military Requirements**



FREMONT L. SCOTT,
Metal & Themit Corp.
Organic Coating



F. KELLER, Aluminum
Company of America
**Anodizing and Plating
On Aluminum**



HAROLD F. SMITH, The Smith Electrochemical Company
Specialty Work, Job Shop Operation

- NOTES / -



47th ANNUAL CONVENTION American Electroplaters' Society



STATLER HILTON HOTEL
LOS ANGELES, CALIFORNIA

1935

July 24-28, 1960

EDMUND G. BROWN
GOVERNOR

State of California
GOVERNOR'S OFFICE
SACRAMENTO

GREETINGS TO THE MEMBERS OF THE
AMERICAN ELECTROPLATERS' SOCIETY, INC.

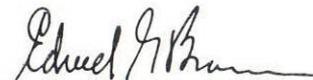
It is a pleasure to extend a warm California
welcome to the Forty-seventh Annual Convention
of the American Electroplaters' Society.

The Golden State is honored to be host to this
important nationwide organization, and its
citizens are fortunate to have the opportunity
of learning more about the vast scope of its
productivity, touching the lives of all of us.

The AES research program, widely recognized
for its support of outstanding projects at
universities in both the United States and
Canada, doubtless will have valuable reports
to make of high interest to industry in
California and the nation.

To all delegates, their families and friends
may I express best wishes for a most success-
ful convention and a pleasant sojourn in
Los Angeles.

Sincerely



EDMUND G. BROWN
Governor of California





OFFICE OF THE MAYOR
CITY HALL
LOS ANGELES 12, CALIFORNIA

P R O C L A M A T I O N



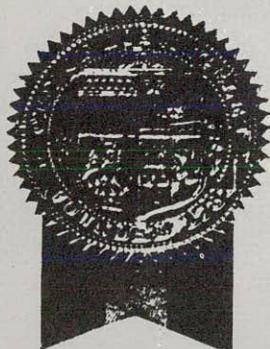
TO THE CITIZENS OF LOS ANGELES, GREETINGS:

WHEREAS, Los Angeles will be the site this year of the Annual Convention of the American Electroplaters' Society, Inc., and

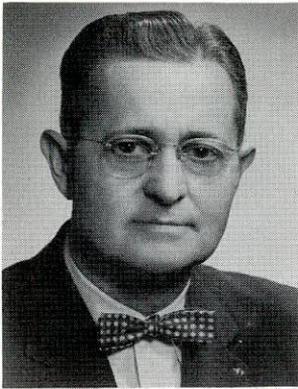
WHEREAS, the Los Angeles branch of this organization is more than 30 years old, indicating that this city is a leader not only in the electroplating industry but also in its scientific organizations and advancement, and

WHEREAS, electroplating is an industry which treats materials used by everyone in his home and business;

NOW, THEREFORE, as Mayor of the City of Los Angeles, I proclaim the week of July 24-28, 1960, as AMERICAN ELECTROPLATERS' SOCIETY WEEK and I call upon all citizens to familiarize themselves with this important organization and its contributions to better living.



Morris Paulson
MAYOR



Welcome...

Welcome to the 47th Annual Convention of the American Electroplaters' Society, the first to be held on the West Coast.

You can rest assured that the convention committees have exerted all efforts to see that everyone will be amply rewarded for the long trek west. The Educational Sessions, the Entertainment and the Good Fellowship will long be remembered by those who participate.

This is YOUR Convention!

Come, join with us in all activities, with the proper spirit, and make this the best convention you have ever attended.

Ralph D. Wysong
National President
AMERICAN ELECTROPLATERS' SOCIETY



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To ALL AES Members,
Families and Guests:

For the first time, the Los Angeles Branch of AES, the City of Los Angeles, and the State of California has the pleasure of being host to probably the nicest group of people to congregate here in a long time.

We will confess, however, we did have one little problem! We were going to give each of you a Key to the City (Electroplated, naturally) but we discarded that idea and decided to give you the whole city instead.

We have tried to give you the full treatment, i.e., a little education, time enough to meet old and new friends and exchange ideas, a little first hand observation of our industry in the far West, a little sightseeing, and enough free time to make you wish you had more to take advantage of the opportunity to enjoy the many things that we take pride in having available.

'Tis proud we are to have you here and, please remember, we are going to be hurt if you fail to enjoy yourself, so — make known your slightest wish — for it will be our command.

If you enjoy being here just half as much as we enjoy having you, then one and all will have a good time.

So, Welcome Amigos, kick off your shoes and c'mon in — the water's fine.

Tony Stabile, General Chairman

★ ★ ★

PAUL F. GLASER

Paul F. Glaser, keynote speaker at the Grand Opening Session of the Convention, is associate manager, system engineering department, Experimental Space Projects, Research and Development Division, of Space Technology Laboratories, Inc., El Segundo, California. The title of his speech is "Systems Problems of Space Probe Development."

He was Project Engineer for Pioneer V, the solar satellite, and for Explorer VI, the "Paddlewheel" satellite. In addition, he has been closely associated with other missile and space projects.

Mr. Glaser includes within his 11 years experience, extensive activity in the field of flight control systems, aircraft and missile instrumentation, servos, radar and radar instrumentation, ultrasonics, digital computers and space communication. He is author of several technical papers and has three patents pending in the fields of ultrasonics and communications.

He received his B.E.E. in 1949 and his M.E.E. in 1953, both from New York University. Mr. Glaser is a member of the Institute of Radio Engineers, the American Institute of Electrical Engineers and has been elected to membership also in Tau Beta Pi and Eta Kappa Nu. From 1944 to 1946, he served in the U. S. Navy.



NATIONAL OFFICERS



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Ralph D. Wysong
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First Vice President
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International Nickel Company



Second Vice President
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Grand Rapids Brass Company



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Manuel Ben
General Motors Corp.



Past President
Herberth E. Head
Chrysler Corporation



Executive Secretary
John P. Nichols
American Electroplaters'
Society, Inc.

INCORPORATED as a New Jersey non-profit membership corporation, American Electroplaters' Society, Inc. (AES) is the industry's educational Society for the advancement of electroplating, metal finishing and allied arts. Its large membership includes Active, Sustaining and Student Members grouped into 58 chartered Branches. Fifty of these are located in the United States, 5 in Canada, 3 in Australia. Its Members-at-Large are domiciled in countries globally.

The Society's work includes a vaunted research program. Its Annual Convention customarily attracts some 2,000 such members and their families. Its monthly PLATING MAGAZINE, with the largest audited paid circulation in this field, enjoys the reputation of being one of the foremost monthly magazines of its type and is rated high internationally.

The AES's governing council, termed Supreme Society, is composed of three accredited Delegates from each of the AES's 58 Branches. National Officers, elected annually by that council, comprise AES's Executive Board. AES staff, directed by the National Executive Secretary who is also publisher of PLATING MAGAZINE, is manned by specialists and practitioners.

RESEARCH PROGRAM

Directed by the AES Research Committee, basic research on the fundamental problems of the industry is the foundation of the AES's vaunted research program. Goal is the strengthening of the electroplating and metal finishing industry through greater knowledge of improved methods and processes. Research Projects are currently being conducted under AES sponsorship at Columbia University; University of Pennsylvania; Virginia Institute for Scientific Research; Ontario (Canada) Research Foundation; the National Bureau of Standards and elsewhere, notably Chicago and Detroit.

AES HONORS:

The Society's highest scientific award is its AES Scientific Achievement Award presented annually to that member who, by "decade plus" accomplishments, has advanced electroplating, metal finishing and allied arts or enhanced the dignity of the profession. The awardee delivers the "William



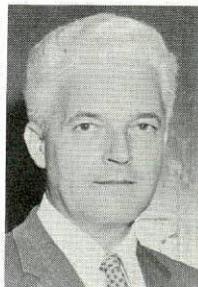
Rodney Leeds
Editor



Kathleen F. Duquette
Circulation Manager



Kathryn H. Langan
Accountant



S. W. Freestone
Advertising Manager



John P. Nichols
National Executive Secretary

Blum Lecture" at the next year's Annual Convention. He receives a scroll and a \$500 honorarium.

The Charles Henry Proctor Memorial Leadership Award is the Society's highest non-technical, non-scientific honor awarded annually.

AES Honorary Membership is conferrable upon any member of widely recognized eminence in the field of work of the Society who has rendered service to AES adjudged distinguished by it.

The AES Award of Merit is granted by the Executive Board to members for meritorious service to the Society.

TECHNICAL PAPER AWARDS:

The Society co-sponsors eight cash awards with industrial companies and/or AES Branches for the best original papers published in PLATING MAGAZINE or in TECHNICAL PROCEEDINGS during the fiscal year. A Paper Awards Committee, annually appointed, makes selections.

INTERSOCIETY COOPERATION:

AES recognizes that the best interests of its members are served through closer cooperation with the Associations and Societies of related fields. Consequently, it maintains liaison representation and close working relationship with many such representative bodies internationally.



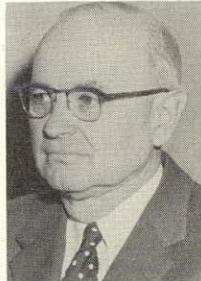
Charles B. Niebling
Lum, Fairlie & Foster
General Counsel



Thomas W. Lowe
Production Manager



Loretta B. Ehrhardt
Advertising Assistant



Clyde A. Zukswert
Clyde A. Zukswert & Co.
Auditor

PRESIDENTS OF THE SOCIETY

Year	President	Year	President
*1909-1913	†Charles H. Proctor	1936-1937	†E. Steen Thompson
1913-1914	†George B. Hogaboom	1937-1938	Austin B. Wilson
1914-1915	†H. J. Hansjosten	1938-1939	William M. Phillips
1915-1916	†Walter S. Barrows	1939-1940	†Raymond M. Goodsell
1916-1917	†H. H. Williams	1940-1941	Frederick Fulforth
1917-1918	†Walter J. Fraine	1941-1942	Ellsworth T. Candee
1918-1919	†Walter J. Fraine	1942-1943	Charles C. Conley
1919-1920	†Oscar E. Servis	1943-1944	George J. Wagner
1920-1921	†Sylvester P. Gartland	1944-1945	Maurice R. Caldwell
1921-1922	†Philip Uhl	1945-1946	Walter L. Pinner
1922-1923	Walter J. Allen	1946-1947	Frank K. Savage
1923-1924	†John E. Sterling	1947-1948	Kenneth M. Huston
1924-1925	†Frank J. Hanlon	1948-1949	Samuel S. Johnston
1925-1926	Edward J. Musick	1949-1950	Arthur W. Logozzo
1926-1927	Frank C. Mesle	1950-1951	William J. Neill
1927-1928	†John H. Feeley	1951-1952	Cleveland F. Nixon
1928-1929	†Horace H. Smith	1952-1953	†Franklyn J. MacStoker
1929-1930	†Horace H. Smith	1953-1954	George P. Swift
1930-1931	†George Gehling	1954-1955	Ralph A. Schaefer
1931-1932	†Philip Sievering	1955-1956	Clyde Kelly
1932-1933	†Clarence L. Van Derau	1956-1957	Samuel Heiman
1933-1934	†Clarence L. Van Derau	1957-1958	Francis T. Eddy
1934-1935	H. A. Gilbertson	1958-1959	Herberth E. Head
1935-1936	†Thomas F. Slattery	1959-1960	Ralph D. Wysong

†Deceased

*National Electro-Platers Association of the United States and Canada which in 1913 became the American Electroplaters' Society, Inc.



LIVING HONORARY MEMBERS

Dr. William Blum,
Baltimore-Washington Branch
Andrew W. Garrett, Boston Branch
H. A. Gilbertson, Chicago Branch
John Lockerbie,
St. Joseph Valley Branch
Arthur W. Logozzo,
Hartford Branch
Frank C. Mesle, Syracuse Branch

Edward J. Musick, St Louis Branch
William M. Phillips, Detroit Branch
Joseph P. Sexton,
New Haven Branch
Dr. George P. Swift, Boston Branch
George J. Wagner, Newark Branch
Donald M. Bedwell,
Los Angeles Branch

AES SCIENTIFIC ACHIEVEMENT AWARD WINNERS

1958 — Dr. William Blum (Baltimore-Washington Branch) — Consultant

1959 — Dr. A. Kenneth Graham (Philadelphia Branch), President, Graham, Savage & Associates, Inc.



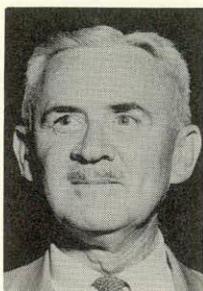
ANNUAL CONVENTIONS OF THE SOCIETY

Year	Convention City	Year	Convention City
1909-1913	New York, New York	1937	New York, New York
1914	Chicago, Illinois	1938	Milwaukee, Wisconsin
1915	Dayton, Ohio	1939	Asbury Park, New Jersey
1916	Cleveland, Ohio	1940	Dayton, Ohio
1917	St. Louis, Missouri	1941	Boston, Massachusetts
1918	Detroit, Michigan	1942	Grand Rapids, Michigan
1919	Philadelphia, Pennsylvania	1943	Buffalo, New York
1920	Rochester, New York	1944	Cleveland, Ohio
1921	Indianapolis, Indiana	1945	Pittsburgh, Pennsylvania
1922	Cincinnati, Ohio	1946	Pittsburgh, Pennsylvania
1923	Providence, Rhode Island	1947	Detroit, Michigan
1924	Milwaukee, Wisconsin	1948	Atlantic City, New Jersey
1925	Montreal, Canada	1949	Milwaukee, Wisconsin
1926	Newark, New Jersey	1950	Boston, Massachusetts
1927	Toledo, Ohio	1951	Buffalo, New York
1928	Toronto, Canada	1952	Chicago, Illinois
1929	Detroit, Michigan	1953	Philadelphia, Pennsylvania
1930	Washington, D. C.	1954	New York, New York
1931	Rochester, New York	1955	Cleveland, Ohio
1932	Philadelphia, Pennsylvania	1956	Washington, D. C.
1933	Chicago, Illinois	1957	Montreal, Canada
1934	Detroit, Michigan	1958	Cincinnati, Ohio
1935	Bridgeport, Connecticut	1959	Detroit, Michigan
1936	Cleveland, Ohio	1960	Los Angeles, California

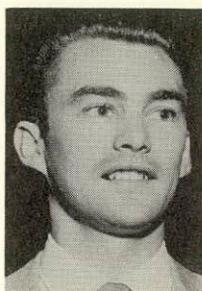
LOS ANGELES BRANCH OFFICERS



Emmett H. Babcock
First Vice President



Harvey K. Hunt
Second Vice President



Don E. Baudrand
Educational Chairman



Robert H. Pooler
Secretary



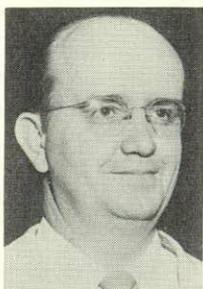
Harold Wanamaker
Treasurer



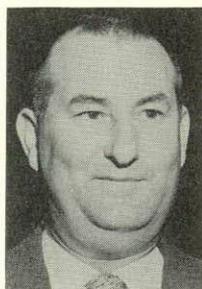
BOARD OF MANAGERS



Clare Ver West



Norman McEwan



Norman F. Painter



LOS ANGELES BRANCH American Electroplaters' Society

It gives me great pleasure, on behalf of the Los Angeles Branch, at last, to welcome all A.E.S. members and their guests to the West Coast to our first convention.

For many decades, the Los Angeles Branch has been very active in local as well as National activities, and it has actively participated, through its delegates and members, in your various conventions throughout the country. This time, thanks to the Jet Age — of which its products are a major industry in this area — we are able to bridge the distances and become a more integral part of the National scene.

The Red Carpet treatment is now ready for you. For this we must thank our very industrious and eager convention chairmen and committeemen. We invite you to indulge in all activities planned for you — education, entertainment and hospitality, all of which are outlined in this program. In addition, all the wonders of Southern California are at your disposal . . . please enjoy them.

See for yourself why we feel that Los Angeles will remain in your memory as the city with the most to offer A.E.S. members and their guests and families.

Frank Virgil
Branch President



HISTORY OF LOS ANGELES BRANCH

Back in 1929 when a fabulous America was riding the crest in finance of a "bull market," the American Electroplaters' Society, Inc. (AES), cast its eyes on further expansion. With Branches existing as far west as St. Louis, AES decided that the time had arrived to charter a Branch in Los Angeles.

At a dinner meeting held on Monday, January 7, 1929, at the Elite Catering at 633 South Flower Street in Los Angeles, it was decided that a Branch organization be created without delay. As officers pro tempore, that pioneering group named Robert Gripp, President; Donald M. Bedwell, Vice-President; M. D. Rynkofs, Secretary-Treasurer; C. A. Russell, Librarian; and J. Jacques, Sergeant-at-Arms. E. W. Francis, H. H. Dummit and Frank C. Rushton were appointed to the temporary Board of Managers.

When the group's next meeting was held at the Los Angeles Y.M.C.A. a month later, the Los Angeles Branch included such names as: A. J. Brannon, Benjamin Foss, Lewis Blaisdell, E. P. Robinson, Phillip M. Virtue, Earl Coffin, Ray Vasquez, O. S. Pendlay, George W. Kyle, Martin H. Brooks, B. D. Gardes, Charles H. Howe, E. D. Bedwell, J. R. Delaney, M. McNulty, J. A. Kirose, E. D. Martin, E. A. Savory and Harold Coombes, in addition to the above.

Clarence Thornton succeeded Robert Gripp as President, and the AES Branch was permanently chartered in September 1929 with 31 original members.

HISTORY OF LOS ANGELES (continued)

From the Los Angeles Branch's beginning, amazing advancements have been made. By 1949, twenty years after its creation, it had already won two AES trophies for the largest annual membership increase. Technical and scientific education have been the wellspring from which its stability and progress have stemmed. Education, moreover, was and is a main focus of the Branch's own monthly meetings. Speakers have been selected with emphasis on experts in technical subjects of wide membership interest.

Numerous honors have been bestowed upon Los Angeles Branch leaders. Ernest Lamoureux, Frank C. Rushton and Donald M. Bedwell were accorded Honorary Membership in the AES for conspicuously meritorious service by the Supreme Society.

The Los Angeles Branch was named for the third time to stage the Annual Convention for the AES as Host Branch, July 24-28, 1960. In the first two instances, World War II and the Korean struggle necessitated other locations. The 47th Annual Convention promises to rate among the outstanding AES national assemblies in the Society's half-century history.

The Los Angeles area has had a more phenomenal and sustained industrial, commercial and population growth than any area in the United States, in the three decades since the founding of the AES's Los Angeles Branch. Today, with over 300 members, it already ranks fifth in membership stature among AES chartered Branches here, in Canada and Australia.

Industrial companies that are Los Angeles Branch Sustaining Members of the AES include the following:

Ajax Hardware Manufacturing Corp., Los Angeles	George E. Nichols Plating, West Los Angeles
Alert Supply Company, Los Angeles	Peterson Plating & Processing Company, Glendale
Associated Plating Company, Los Angeles	Price Pfister Brass Mfg., Co., Los Angeles
The Barber-Webb Company, Inc., Los Angeles	Rheem Automotive Company, Fullerton
Burton Silverplating Company, Los Angeles	Royal Plating Works, Los Angeles
L. H. Butcher Company, Los Angeles	Standard Nickel-Chromium Plating Co., Los Angeles
Crown City Plating Company, El Monte	Surface Alloys Engineering Company, Huntington Park
Hall Mack Company, Los Angeles	Turco Products, Inc., Los Angeles
McKesson & Robbins, Inc., Los Angeles	Virtue Bros. Manufacturing Company, Los Angeles
Modern Plating Company, Los Angeles	

The unprecedented growth of pioneering industries has brought the title, "Creative Center of America" to the city. Advancements in electroplating and metal finishing have played a part in fabricating many of those improved products.

And as Los Angeles develops, it is AES's confident trust that its own Los Angeles Branch membership will have contributed its share to that continued industrial progress through studied improvements in plating and metal finishing aided by AES research and educational enrichment.

AMERICAN ELECTROPLATERS' SOCIETY

47th Annual Convention

A Message Center has been established at the Registration Desk for incoming calls for our guests at the Convention. The telephone number is MA 4-0931

All Events at the Statler Hilton Hotel unless otherwise noted.
P. D. S. Time used throughout this program.

REGISTRATION

SUNDAY, JULY 24

1:00 p.m. to 8:00 p.m. Ballroom Lobby

MONDAY, JULY 25

9:00 a.m. to 5:00 p.m. Ballroom Lobby

7:00 p.m. to 9:00 p.m. Ballroom Lobby

TUESDAY, JULY 26

9:00 a.m. to 12:00 Noon Ballroom Lobby

WEDNESDAY, JULY 27

9:00 a.m. to 12:00 Noon Ballroom Lobby

THURSDAY, JULY 28

9:00 a.m. to 12:00 Noon Ballroom Lobby

Registration fee of \$25.00 provides each registrant with identification badge and book of admission tickets covering all events.

Banquet ticket must be exchanged for table reservation at Banquet Desk in registration area before 12:00 Noon, Wednesday, July 27.

A Banquet ticket is available for children under 18 years of age, when purchased by a person registered for the convention:

Thursday — Banquet & Dance \$7.00

ANNUAL OUTING DISNEYLAND

Outing tickets must be exchanged for admission to Disneyland and ten attraction ticket book at the outing desk before 1:00 p. m. Tuesday, July 26.

Annual outing Tuesday, July 26: Buses will leave for Disneyland from Francisco St. west end of Hotel at 2:30 P.M.

The grand outing at Disneyland. Families or individuals will be treated to such novelties as plastic push button dream home, America from a space station 500 miles out in space, an explorer's boat along jungle rivers meeting life-like alligators, hippos and waterfalls, Main Street U.S.A. with its turn of the century shops and stores, rides and counterparts, Fantasyland highlighting storybook classics: i.e. Sleeping Beauty, flight with Peter Pan over moonlit London and the Diamond Mine of the Seven Dwarfs.

There are thrills for all ages in this extravaganza dreamed up by Walt Disney. Chartered Buses to and from Disneyland, free admission and ten ride ticket book are included with your registration fee.

Upon entering Disneyland you will move at will throughout the park. There are several excellent restaurants for your eating convenience. Buses will leave Disneyland no later than 9:05 P.M.

CONVENTION COMMITTEE CHAIRMEN



E. W. Wells
Publicity



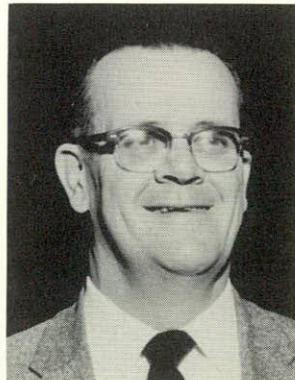
Earl W. Arnold
Educational



Harvey K. Hunt
Plant Visits



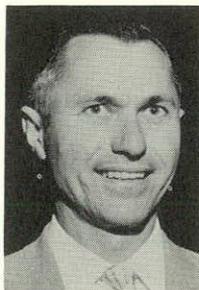
Tony Stabile
General Chairman



George J. Hetz
Co-Chairman



Lawrence O'Neil
Entertainment

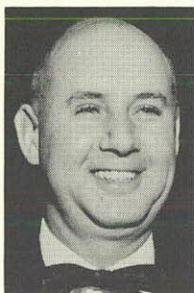


L. Truman Stoner
Outing



William P. Thomas
Banquet

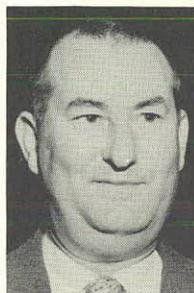
CONVENTION COMMITTEE CHAIRMEN



L. M. Henderson
Hotel



C. P. Simon
Registration



Norman F. Painter
Housing



Mrs. Glen J. Beckwith
Ladies Chairman



G. Stuart Krentel
Printing



Alice M. Prescott
Convention Committee
Secretary



Walter P. Behlendorf
Finance



John D. Millhorn
Program



E. C. Bosl
Children

47th ANNUAL CONVENTION

AMERICAN ELECTROPLATERS' SOCIETY, Inc.



CONVENTION PROGRAM

SUNDAY, JULY 24

- 9:00 a. m. Executive Board Meeting
(All Day) Dallas Room (Hq. Room)
- 10:30 a. m. Ladies' Program. Brunch Honoring National
Officers' Wives — Sponsored by Los Angeles
Branch Boston Room
- 2:00 p. m. Honorary Membership Award
Committee Meeting Washington Room
- 2:00 p. m. Scientific Achievement Award
Committee Meeting St. Louis Room
- 3:00 p. m. Ladies' Program. Western Welcome
Tea Garden Room
- 4:00 p. m. Credentials Committee Meeting with
Executive Board Dallas Room
- 8:00 p. m. Get-Together Party Golden State Room

MONDAY, JULY 25

- 8:30 a. m. Children's Program — Supervised
Bus Outing Leave from Statler Hotel
Itinerary includes Forest Lawn Park, Griffith Park, Universal-
International Movie Studio, Farmers' Market (includes lunch),
"Homes of the Stars" in Hollywood and Beverly Hills, Santa
Monica Beach
- 10:00 a. m. Grand Opening Session Golden State Room
- 11:00 a. m. Business Meeting, Supreme Society Golden State Room
- 12:00 noon Branch Secretaries' Luncheon New York Room
- 12:00 noon Ladies' Program. Luncheon and
Entertainment Pacific Room
- 12:15 p. m. Speakers' Luncheon Cleveland Room
- 2:00 p. m. Educational Opening Session Golden State Room
The Second Annual "William Blum Lecture" — "Faraday's
Laws Applied to Cleaning" by Dr. A. Kenneth Graham, Gra-
ham, Savage & Associates, Inc., Second Winner, AES Scien-
tific Achievement Award

MONDAY, JULY 25

- 2:00 p. m. Plant Visit, U.S. Chem Milling Corp.,
Manhattan Beach Bus from Statler Hotel
- 2:30 p. m. Editorial Board Meeting Boston Room
- 2:30 p. m. Midwest Regional Council Meeting Dallas Room
- 2:30 p. m. Educational Session A Golden State Room
"Applying Statistical Quality Control to Plating Processes"
by Robert W. Steinmetz, Western Electric Company, Inc.
"Chemical Milling: Controlled Metal Removal With Chemi-
cals" by C. Conner Shepherd, North American Aviation, Inc.
"Hazards in the Plating Room" by Dr. Walter R. Meyer,
Enthone, Inc., Subsidiary of American Smelting and Refining
Company
- 2:30 p. m. Educational Session B West Garden Room
"Adhesion of Organic Enamels to Electrodeposited Nickel"
by Francis X. Carlin, The International Nickel Company, Inc.
Research Laboratory
"Solid Film Lubricants as Organic Finishes" by Lowell C.
Horwedel, Electrofilm, Inc.
"Magnesium Corrosion" by E. I. Weed, Convair/Pomona,
Convair Division of General Dynamics Corporation
- 4:00 p. m. Order of Past Presidents'
Business Meeting Detroit Room
- 6:30 p. m. Order of Past Presidents' Dinner Washington Room
- 8:00 p. m. Convention Ball (Given by Metal Finishing Suppliers'
Association—Admittance by Registration
Badge) Pacific & Sierra Rooms

TUESDAY, JULY 26

- 8:00 a. m. Charles Henry Proctor Memorial Leadership Award
Selection Committee Breakfast Boston Room
- 8:00 a. m. Speakers' Breakfast Cleveland Room
- 8:30 a. m. Golf Tournament (Sponsored by
MFSA) Los Coyotes Country Club, Buena Park
- 9:00 a. m. Membership Committee Meeting Washington Room
- 9:00 a. m. Public Relations Committee Meeting Detroit Room
- 9:00 a. m. Southwestern Regional Council—Organization
Meeting Dallas Room
- 9:00 a. m. Educational Session C Golden State Room
"Recent Developments in Gold Electroplating" by Barnet D.
Ostrow, and Fred I. Nobel, Lea-Ronal, Inc.
"A Cyanide Bath for Heavy Gold Plating" by James K. Gore
and Robert Seegmiller, University of California, Los Alamos
Scientific Laboratory
"Acid Gold Plating" by Robert A. Ehrhardt, Bell Telephone
Laboratories, Inc.

TUESDAY, JULY 26

- 9:00 a. m. Educational Session D West Garden Room
"Corrosion and Electrode Potential Studies of Nickel-Chromium Coatings" by Arthur H. Du Rose, The Harshaw Chemical Company
"A Progress Report on Experiences in Improving the Corrosion Resistance of Automotive Parts" by J. D. Thomas, D. W. Hardesty and C. F. Nixon, General Motors Corporation Research Laboratories
"New Data on the Performance of Nickel and Chromium Plated Zinc Die Castings" by W. H. Safranek, H. R. Miller, R. W. Hardy, and Dr. C. L. Faust, Battelle Memorial Institute
"A Study of Variations in Certain Characteristics of Bright Nickel Deposits with Variations in Bath Temperature" by R. J. Clauss, The Udylite Research Corporation
- 2:30 p. m. Annual Outing (Buses leave Statler Hotel) Disneyland

WEDNESDAY, JULY 27

- 8:00 a. m. Research Committee Breakfast Cleveland Room
- 8:00 a. m. Speakers' Breakfast Buffalo Room
- 8:30 a. m. Children's Program—Supervised
Visit Bus from Statler Hotel
Marineland of the Pacific and Knott's Berry Farm (lunch)
- 9:00 a. m. Educational Session E—"Hydrogen Embrittlement in Metal Finishing" Symposium Golden State Room
"The Metallurgical Aspects of Hydrogen Embrittlement in Metal Finishing" by Dr. Harold J. Read, Department of Metallurgy, The Pennsylvania State University
"On the Mechanism of Transport of Hydrogen Across a Solution-Metal Interface" by Dr. Richard J. Barton, Wright Air Development Division, Wright-Patterson Air Force Base
"The Behavior of Hydrogen in Iron and Steel" by Maynard L. Hill, Westinghouse Electric Corporation Research Laboratories
"Detection and Control of Chemisorbed Hydrogen During Electrolysis" by Samuel C. Lawrence, Jr., Metal Physics Laboratory, Boeing Airplane Company
- 9:00 a. m. Research Committee Meeting Detroit Room
- 9:00 a. m. Publications Committee Meeting Boston Room
- 9:00 a. m. Educational Committee Meeting Washington Room
- 12:00 noon Joint Educational Committee and Branch
Librarians' Luncheon New York Room
- 12:00 noon Speakers' Luncheon Buffalo Room
- 12:30 p. m. Ladies' Program. Luncheon and Don Loper Fashion Show (Buses leave Statler Hotel) at 11:30 a. m.
Sportsmen's Lodge, North Hollywood
- 2:00 p. m. Research Committee Meeting Detroit Room

WEDNESDAY, JULY 27

- 2:00 p. m. Educational Session F—"Hydrogen Embrittlement in Metal Finishing" Symposium Golden State Room
"Measurements Pertaining to Hydrogen Embrittlement" by Dr. Cloyd A. Snavely, Battelle Memorial Institute
"A New Look at the Hydrogen Embrittlement of Cadmium Coated High Strength Steels" by Norman M. Geyer, G. William Lawless, and Bennie Cohen, Materials Laboratory, Wright Air Development Center, Wright-Patterson Air Force Base
"Effectiveness of Metallic Undercoats in Minimizing Plating Embrittlement of Ultra High Strength Steel" by Dr. Walter Beck and E. J. Jankowsky, Naval Air Material Center, Aeronautical Materials Laboratory
"Control of Hydrogen Embrittlement by Plating from Cadmium Cyanide Baths Containing Nitrate" by Dr. W. F. Hamilton and Myron Levine, Lockheed Aircraft Corporation, California Division
- 4:00 p. m. AES Regional Group and Council Chairmen's Meeting Dallas Room
- 7:30 p. m. Round Table Discussion on "Hydrogen Embrittlement in Metal Finishing" Los Angeles Room
- 9:30 p. m. Floor Show and Dance Pacific & Sierra Rooms

THURSDAY, JULY 28

- 8:00 a. m. Speakers' Breakfast St. Louis Room
- 8:30 a. m. Children's Program Bus from Statler Hotel
- 9:00 a. m. Business Meeting, Supreme Society Sierra Room
- 9:00 a. m. Educational Session G Golden State Room
"Magnetic Properties of Electrodeposited Cobalt Alloys" by Dr. Victor Zentner, Hughes Aircraft Company
"Plating of Nickel, Cobalt, Iron and Cadmium from Sulfamate Solutions" by Richard C. Barrett, Barrett Chemical Products Company
"The Chemical Reduction of Nickel-Phosphorus Alloys from Pyrophosphate Solutions" by Morton Schwartz, Kelite Corp.
- 9:00 a. m. Educational Session H West Garden Room
"Solution Transfer in Barrel Plating" by Paul Glab, R. Scott Modjeska and Simon P. Gary, Scientific Control Laboratories, Incorporated
"Cleaning Techniques in the Electronics Industry" by Dr. D. E. Koontz, Dr. D. O. Feder and Dr. C. O. Thomas, Bell Telephone Laboratories, Incorporated
"Chromium Plating of Rifle Barrels" by Robert J. Girard and Edward F. Koetsch, Jr., Springfield Armory
- 9:30 a. m. Plant Visit, McCulloch Corp.,
Los Angeles Bus from Statler Hotel
- 10:30 a. m. Ladies' Program. Motion Picture Studio
Tour Bus from Statler Hotel

THURSDAY, JULY 28

- 12:30 p. m. Ladies' Luncheon (Dutch Treat) and Shopping Farmer's Market
- 1:00 p. m. Plant Visit, Golden Citrus Juices, Inc., Anaheim Bus from Statler Hotel
- 2:00 p. m. Business Meeting, Supreme Society Sierra Room
- 2:00 p. m. Educational Session I Golden State Room
- "AES Research—Its Purpose and Accomplishments" by J. D. Thomas, 1959-1960 Chairman, AES Research Committee
- "Corrosion Protection with Decorative Chromium" by Dr. E. J. Seyb, Metal & Thermit Corporation
- "Experience in the Operation and Performance of Dual Chromium Systems" by W. E. Lovell, E. H. Shotwell and James Boyd, Ternstedt Division, General Motors Corporation
- 6:00 p. m. Cocktail Party (Given by Metal Finishing Suppliers' Association) Wilshire Room
- 7:00 p. m. Annual Banquet and Dance Pacific & Sierra Rooms

FRIDAY, JULY 29

- 8:00 a. m. President's Breakfast to National Officers & Families AES Executive Suite
- 9:00 a. m. Executive Board Meeting Dallas Room



LADIES' PROGRAM

SUNDAY, JULY 24

- 10:30 a. m. Brunch Boston Room
Honoring wives of National Officers. Sponsored by Los Angeles Branch
- 3:00 p. m. Welcome Western Tea Garden Room
For all the Ladies
- 8:00 p. m. Get-Together Party Golden State Room

MONDAY, JULY 25

- 12:00 noon Luncheon and Entertainment Pacific Room
- 8:00 p. m. Convention Ball Pacific & Sierra Rooms
(Given by Metal Finishing Suppliers' Association. Admission by Registration Badge)

TUESDAY, JULY 26

- 2:30 p. m. Outing Disneyland
Buses leave from Statler Hotel

WEDNESDAY, JULY 27

- 12:30 p. m. Luncheon and Fashion
Show Sportsmen's Lodge, North Hollywood
Buses leave from Statler Hotel at 11:00 a. m.
9:30 p. m. Floor Show and Dance Pacific and Sierra Rooms

THURSDAY, JULY 28

- 10:30 a. m. Motion Pictures Studio Tour (Buses leave from Statler Hotel)
12:30 p. m. Luncheon (Dutch Treat) and
Shopping Farmer's Market
6:00 p. m. Cocktail Party Wilshire Room
Given by Metal Finishing Suppliers' Association
7:00 p. m. Banquet and Dance Pacific and Sierra Rooms



CHILDREN'S PROGRAM

MONDAY, JULY 25

- 8:30 a. m. Children's Supervised Bus
Outing Buses Leave from Statler Hotel
(Francisco Street, Westside)

Visits to Forest Lawn Park, Griffith Park, Universal-International Studios, Farmer's Market (Lunch arranged), "Homes of the Stars" in Hollywood, Beverly Hills and Santa Monica Beach

TUESDAY, JULY 26

- 2:30 p. m. Outing Disneyland
Buses leave from Statler Hotel (Francisco Street, Westside)

WEDNESDAY, JULY 27

- 8:30 a. m. Supervised Trip Buses Leave from Statler Hotel
(Francisco Street, Westside)
Marineland of the Pacific, Knott's Berry Farm, (Lunch arranged)

THURSDAY, JULY 28

- 8:30 a. m. Supervised Trip Buses Leave from Statler Hotel
(Francisco Street, Westside)
Boat Ride from Pierpoint Landing, Long Beach Harbor



PLANT VISITS

MONDAY, JULY 25

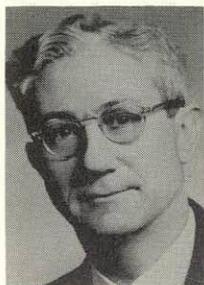
- 2:00 p. m. United States Chemical Milling Corporation, Manhattan
Beach — Buses Leave from Statler Hotel

THURSDAY, JULY 28

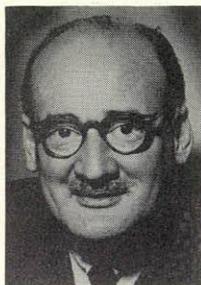
- 9:30 a. m. McCulloch Corporation, Los Angeles — Buses leave from
Statler Hotel
1:00 p. m. Golden Citrus Juices, Incorporated, Anaheim — Buses leave
from Statler Hotel

OFFICERS

Metal Finishing Suppliers' Association, Inc.



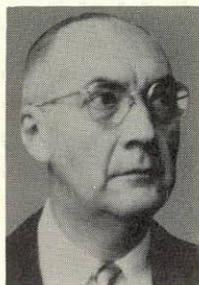
E. W. Couch
Past President
Lea Manufacturing Co.



J. G. Carrique
2nd Vice President
Alloycraft Ltd.



F. P. Green
1st Vice President
Crown Rheostat &
Supply Co.



Dr. H. L. Kellner
3rd Vice President
Lea Manufacturing Co.



Ezra A. Blount
Treasurer
Products Finishing



Raymond F. Ledford
President
Chemray Corp.



A. P. Munning
Executive Secretary
Munning & Munning, Inc.

TRUSTEES

E. L. Combs
with Diamond Alkali Company
Cleveland, Ohio

L. A. Davies
with Davies Supply & Manufacturing Co.
St. Louis, Mo.

A. B. Hoefler
with Frederic B. Stevens, Inc.
Detroit, Mich.

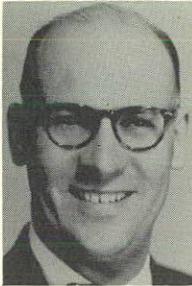
H. J. McCracken
with Northwest Chemical Co.
Detroit, Mich.

R. M. Norton
with Hanson-Van Winkle-Munzing Co.
Matawan, N. J.

J. E. Trumbour
with Metals & Plastics Publications
Westwood, N. J.

The Metal Finishing Suppliers' Association, Inc., is an organization of manufacturers and distributors of equipment and supplies used in the Metal Finishing Industry. It was organized in Milwaukee at the 1924 A.E.S. Convention as the International Fellowship Club. In 1951 it was formally incorporated under its present name. It is now in its 37th year of service to the industry and to the American Electroplaters' Society.

Metal Finishing Suppliers' Association, Inc.



R. M. Burford
Pennsalt Chemicals Corp.
M. F. S. A.
Golf Chairman



Herman J. Struckhoff
Struckhoff Engineering
& Sales, Inc.
M. F. S. A. Los Angeles
Liaison Representative

PROGRAM

SUNDAY, JULY 24 :

"METAL FINISHING SUPPLIERS' ASSOCIATION BOARD OF TRUSTEES MEETING"

Buffalo Room — Brunch at 11:30 a.m.

MONDAY, JULY 25:

"METAL FINISHING SUPPLIERS' ASSOCIATION ANNUAL LUNCHEON AND BUSINESS MEETING"

Sierra Room — 12 noon to 2:30 p.m.

"METAL FINISHING SUPPLIERS' ASSOCIATION OPEN HOUSE BALL"

Pacific Ballroom and Sierra Room — 8 p.m. to 12:30 a.m.

Continuous dancing — two bands — one for "sweet music" and "Tyrolean" band for their type of music.

Pretzels, potato chips, popcorn and peanuts — Beer (no hard liquor)

Prizes to the ladies holding lucky numbers.

TUESDAY, JULY 26:

"METAL FINISHING SUPPLIERS' ASSOCIATION ANNUAL GOLF TOURNAMENT"

Los Coyotes Country Club, Buena Park, California

"Tee-off time" starting at 8:30 a.m. — Prizes

THURSDAY, JULY 28:

"METAL FINISHING SUPPLIERS' ASSOCIATION COCKTAIL PARTY"

Wilshire Room — 5:50 p.m. to 6:50 p.m.

Admission to all Metal Finishing Supplier's Association functions will be BY REGISTRATION BADGE ONLY.

EXECUTIVE COMMITTEE

National Association of Metal Finishers



A. T. Leonard
President
Superior Plating, Inc.
Minneapolis, Minn.



Robert L. Giesel
1st Vice President
Adolph Plating, Inc.
Chicago, Ill.



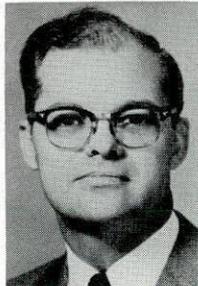
Edward N. Marlette
2nd Vice President
Marlette Plating Company
Buffalo, N. Y.



Frank Kaiser
Secretary-Treasurer
Long Island Mech. Plating
Company, Inc.
Woodside, L. I., N. Y.



Sal Novelli
Asst. Secretary-Treasurer
Service Plating Company
Brooklyn, N. Y.



George W. Taylor
Past President
Production Plating Co.
Adel, Ga.



P. Peter Kovatis
Executive Director
National Assn. of
Metal Finishers
Montclair, N. J.

— 1960 AES PROGRAM —

The NAMF Strives for a Bigger, Better Finishing Industry

Although celebrating its fifth year under its present name, the National Association of Metal Finishers actually represents close to 30 years of dynamic organization leadership under different titles. The NAMF is an offshoot of the now non-existent National Federation of Metal Finishers/ and National Association of Plating. At one time in its history, it bore its present name.

Comprising metal finishing firm owners and operators in the main, the NAMF is an international, independent, non-political "management" organization. NAMF's avowed purpose and objectives: to develop and perpetuate the highest standards of ethics, service, and quality of workmanship in the field of metal finishing.

In addition to annual surveys on operating costs, wages and salaries, the NAMF publishes a "Management Manual," and a monthly magazine, "Plating Management." Its headquarters are located in Montclair, New Jersey.



PROGRAM

Annual Convention & Meeting

NATIONAL ASSOCIATION OF METAL FINISHERS

Statler-Hilton Hotel • Los Angeles, California

Friday, Saturday, Sunday and Monday

— July 22, 23, 24 and 25, 1960 —

Post-convention: Tuesday, July 26; Friday, Saturday and
Sunday, July 29, 30 and 31, 1960

SUNDAY, JULY 24

6:00 p. m. - 8:00 p. m. Dinner Meeting St. Louis Room
Industry-wide Steering Committee on Public Relations

MONDAY, JULY 25

8:30 a. m. - 10:30 a. m. Breakfast-Meeting Cleveland Room
Local Association Secretaries

9:30 a. m. Tour Buses Leave from the Statler Hotel
Tour of City of Hollywood and a Movie Studio.

10:30 a. m. - 5:00 p. m. Plant Tour Buses Leave from Hotel
(NAMF registration badge required. Tour restricted to persons outside of So. Cal. area).

Tour itinerary: Crown City Plating, El Monte, Sanford Process Co., Los Angeles. Modern Plating, Los Angeles. Burton Silverplating, Culver City

POST-CONVENTION PROGRAM

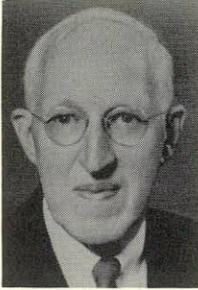
TUESDAY, JULY 26

2:30 p. m. Trip to Disneyland Buses leave from the hotel

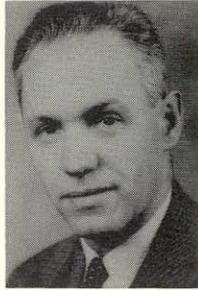
FRIDAY, SATURDAY and SUNDAY — JULY 29-31

Trips to Hawaii and Las Vegas (Fuller particulars to be announced)

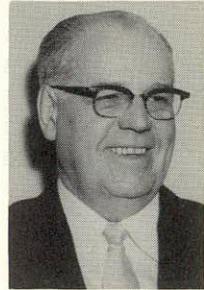
EDUCATIONAL SESSIONS CHAIRMEN



Dr. William Blum
Opening Session Chairman



Dr. Harold J. Wiesner
Chairman - Session A



Herberth E. Head
Chairman - Session B



Dr. Russel E. Harr
Chairman - Session C



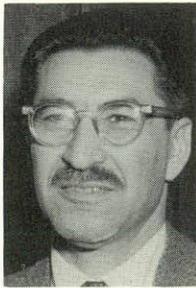
Dr. Richard B. Saltonstall
Chairman - Session D



Dr. Harold J. Read
Chairman - Session E



Dr. Samuel Heiman
Chairman - Session F



Dr. Abraham M. Max
Chairman - Session G



Francis T. Eddy
Chairman - Session H



Maurice R. Caldwell
Chairman - Session I

ABSTRACTS OF PAPERS

MONDAY, JULY 25

OPENING SESSION

MONDAY, JULY 25

2:00 p.m.Golden State Room

Session Chairman — DR. WILLIAM BLUM

THE SECOND ANNUAL "WILLIAM BLUM LECTURE" — FARADAY'S LAWS APPLIED TO CLEANING

by Dr. A. Kenneth Graham, Graham, Savage, & Associates, Inc.

SESSION A

2:30 p.m.Golden State Room

Chairman — DR. HAROLD J. WIESNER, Bendix Products Division, Bendix Aviation Corporation

APPLYING STATISTICAL QUALITY CONTROL TO PLATING PROCESSES

by Robert W. Steinmetz, Western Electric Company, Inc.

Statistical quality control is a scientific method of analyzing data and using the analysis to solve practical problems. Its application to the control of plating baths and plating thickness to reduce costs and increase quality is illustrated. Cost reduction and quality improvement can be illustrated best by utilizing the control chart which has the ability to form data into patterns which when tested statistically can lead to information about the process.

CHEMICAL MILLING: CONTROLLED METAL REMOVAL WITH CHEMICALS

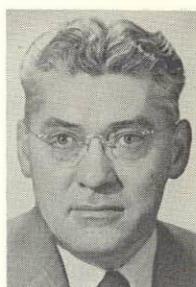
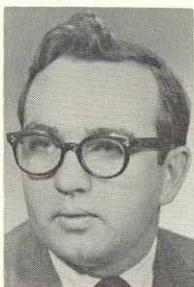
by C. Conner Shepherd, North American Aviation, Inc.

The factors which have led to the development of chemical techniques for metal removal are discussed in relation to present applications of the chemical milling process. The factors to be considered in selection of a chemical etchant are described, along with variables influencing efficiency of the major processing steps.

HAZARDS IN THE PLATING ROOM

by Dr. Walter R. Meyer, Enthone, Inc., Subsidiary of American Smelting and Refining Co.

Cause for serious accidents, explosions and fires that have occurred in the plating room are described. Hydrogen explosions and eruptions from heated caustic solutions are considered. The hazards associated with the use of the following chemicals are discussed: cyanides, chlorinated solvents, sulfuric acid, halogen-oxygen compounds, chromates, nitric acid, hydrogen peroxide, and hydrofluoric acid. Miscellaneous accidents of different natures are mentioned



Dr. A. K. Graham Lowell C. Horwedel R. W. Steinmetz Dr. Walter R. Meyer

ABSTRACTS OF PAPERS

SESSION B

2:30 p.m. West Garden Room

Chairman — HERBERTH E. HEAD, Engineering Division, Chrysler Corporation

ADHESION OF ORGANIC ENAMELS TO ELECTRODEPOSITED NICKEL

by Francis X. Carlin, The International Nickel Company, Inc., Research Laboratory

Strong bonds between freshly deposited nickel and subsequent organic enamel finishes have been affected. Various aqueous solutions of organic and inorganic compounds are employed as post-treatments for the electrodeposits. The solutions apparently react either to cause a conversion-type film on the nickel surface or to deposit a thin film of material which becomes strongly bonded to nickel. The film produced is receptive to application of a coating of organic enamel. Types of solutions, methods of application of nickel, films, and organic finishes, and the method for testing the bond are discussed.

SOLID FILM LUBRICANTS AS ORGANIC FINISHES

by Lowell C. Horwedel, Electrofilm, Inc.

The place in which solid film lubricants fit into the organic finishing industry is presented. The diversified field of their application as organic finishes, due to such physical properties as color, electrical conductivity, corrosion resistance and others is discussed. Emphasis is placed on corrosion resistance and substantiating data is presented graphically and with photographs. The effect of pre-treatments on the corrosion resistance of base metals "coated" with solid lubricants and the relative corrosion resistance of the base metals so treated is developed at considerable length.

MAGNESIUM CORROSION

by E. I. Weed, Convair/Pomona, Convair Division of General Dynamics Corporation

Considerable progress has been made in the past ten years in the field of materials and processes for the corrosion protection of magnesium. These improvements include anodizing processes, plating processes and various organic coating materials. In spite of these improvements, the protection of magnesium when subjected to a corrosive environment continues to be a problem. This problem can be solved in most cases by intelligent use of protective mechanisms now available, attacking on three levels—engineering, production and quality control.



Francis X. Carlin



E. I. Weed



Barnet D. Ostrow



James K. Gore

ABSTRACTS OF PAPERS

TUESDAY, JULY 26

SESSION C

TUESDAY, JULY 26

9:00 a.m. Golden State Room

Chairman — DR. RUSSEL E. HARR, Western Electric Company Inc.

RECENT DEVELOPMENTS IN GOLD ELECTROPLATING

By Barnet D. Ostrow, and Fred I. Nobel, Lea-Ronal Inc.

A discussion of the new developments in gold plating with particular emphasis on application of such processes to industrial usage. The low pH type acid gold baths are discussed as well as a new high speed bright cyanide gold. Graphs, photomicrographs and tables of physical characteristics are presented.

A CYANIDE BATH FOR HEAVY GOLD PLATING

by James K. Gore and Robert Seegmiller, University of California, Los Alamos Scientific Laboratory

A cyanide gold plating bath capable of producing heavy gold deposits with good physical properties at rapid plating rates and reasonable temperatures is described. Designed for use in engineering applications, the bath produces bright to semi-bright, smooth, fine-grained, hard and relatively pore-free deposits, as rapidly as 1.5 mils/hr. Although the deposits are hard they are more ductile than most commercial bright golds. Smooth deposits 20-30 mils thick are readily obtained.

ACID GOLD PLATING

by Robert A. Ehrhardt, Bell Telephone Laboratories, Inc.

An acid gold plating bath developed for plating on printed circuits is described. It includes the study of the influence of pH, temperature, current density and bath composition on cathode efficiency and appearance. A porosity test was developed and used to determine the influence of the physical condition of the basis metal and of the various operating parameters on the porosity of thin gold deposits.



Robert Seegmiller



Robert A Ehrhardt



Arthur H. DuRose



James D. Thomas

ABSTRACTS OF PAPERS

SESSION D

9:00 a.m. West Garden Room

Chairman — DR. RICHARD B. SALTSONSTALL, The Udylite Corporation

CORROSION AND ELECTRODE POTENTIAL STUDIES OF NICKEL-CHROMIUM COATINGS

by Arthur H. Du Rose, The Harshaw Chemical Company

A corrosion protection comparison for different systems of nickel-chrome deposits is given. It is shown that "duplex" nickel has much to offer in improved protection for plated parts. The correlation among various types of exposure tests is discussed. The outdoor corrosion weight loss for bright nickel foil is only slightly greater than that for sulfide-free nickel, but the degree of perforation is much greater, and chromium intensifies the perforation. Potential, galvanic and polarization data are given for bright nickel, sulfide-free nickel and chromium.

A PROGRESS REPORT ON EXPERIENCES IN IMPROVING CORROSION RESISTANCE OF AUTOMOBILE PARTS

by J. D. Thomas, D. W. Hardesty and C. F. Nixon, General Motors Corp. Research Labs.

With improvement in the corrosion resistance of decorative plated finishing systems, the CASS test has been modified, especially as to the time required for testing because in its present form as much as 100 hours has been required to produce failure. Further experience now permits better correlation of CASS results with outdoor performance, particularly for plating capable of withstanding 16 hours or more of CASS exposure without failure. Changes in plating techniques which have resulted in improved corrosion resistance are discussed.

NEW DATA ON THE PERFORMANCE OF NICKEL AND CHROMIUM PLATED ZINC DIE CASTINGS

by W. H. Safranek, H. R. Miller, R. W. Hardy, and Dr. C. L. Faust, Battelle Memorial Inst.

The results of research conducted for American Zinc Institute on procedures for improving electroplated zinc die castings have shown outstandingly better corrosion performance for die castings plated with 0.8 or 1.2 mils of duplex nickel and 0.05 mil of bright crack-free chromium in place of bright nickel-ordinary chromium composites. Greater resistance to cracking during thermal cycling was another advantage shown for duplex nickel. Higher impact values were obtained for die-cast zinc alloy when bright nickel was replaced by duplex nickel. Crack-free chromium eliminated the corrosion pitting that occurred in duplex nickel-ordinary chromium composites. In this respect, outdoor weathering confirmed the results of accelerated corrosion studies.

A STUDY OF VARIATIONS IN CERTAIN CHARACTERISTICS OF BRIGHT NICKEL DEPOSITS WITH VARIATIONS IN BATH TEMPERATURE

by R. J. Claus, The Udylite Research Corporation

The effects of operating bright nickel solutions at temperatures above 175F have been studied and certain characteristics of the electrodeposit such as microstructure, appearance and ductility are compared with the properties of deposits made at normal plating temperatures. The effectiveness of various addition agents at these temperatures is compared to their utility at today's lower operating temperatures. Analogous properties of bright nickel deposited at elevated temperatures and bright nickel-cobalt alloy deposits are also discussed.



Donald W. Hardesty



Cleveland F. Nixon



R. J. Claus



William H. Safranek

ABSTRACTS OF PAPERS

WEDNESDAY, JULY 27

SESSION E

WEDNESDAY, JULY 27

9:00 a.m.

Golden State Room

Chairman — DR. HAROLD J. READ, The Pennsylvania State University

THE METALLURGICAL ASPECTS OF HYDROGEN EMBRITTLEMENT IN METAL FINISHING

by Dr. Harold J. Read, Department of Metallurgy, The Pennsylvania State University

The practical problems of metal damage by hydrogen are outlined with emphasis on metal finishing aspects. The nature and extent of damage are discussed. Remedies are classified according to their application, that is, as modifications of the finishing processes to prevent hydrogen occlusion or as post treatments to remove occluded hydrogen. Selection of metals and finishes for specific applications is discussed in the light of hydrogen damage problems, & metallurgical information of assistance to metal finishers facing embrittlement problems is presented.

ON THE MECHANISM OF TRANSPORT OF HYDROGEN ACROSS A SOLUTION METAL INTERFACE

by Dr. Richard J. Barton, Wright Air Development Div. Wright-Patterson Air Force Base

The mechanisms of hydrogen entry into and release from metals are discussed in consideration of presently accepted mechanisms for the hydrogen electrode reaction. The applicability of these hydrogen evolution mechanisms to certain solutions and metals is considered. These mechanisms are analyzed, using various possible migrating species, to determine at which stage deviation from the gas evolution process may occur to cause hydrogen entry into the metal. The effects of the rates of various kinetic steps, the nature of the surface films and the amount of the surface coverage are evaluated and experimental evidence is cited. The influence that mechanisms of the release process may have upon penetration studies is pointed out.

THE BEHAVIOR OF HYDROGEN IN IRON AND STEEL

by Maynard L. Hill, Westinghouse Electric Corporation Research Laboratories

Studies of the solubility and diffusivity of hydrogen in ferritic alloys have shown that the normal behavior above about 200°C is for the hydrogen to dissolve interstitially. However, several pronounced deviations from this fundamental behavior have been observed at lower temperatures where embrittlement occurs. These indicate that the hydrogen no longer resides in interstitial sites, but instead, it segregates at sites of lower energy. Various possible types of segregation such as condensation around dislocations, molecular gas formation in voids, chemisorption in cracks and others are discussed along with the possible role of such segregation in the mechanism of embrittlement.

DETECTION & CONTROL OF CHEMISORBED HYDROGEN DURING ELECTROLYSIS

by Samuel C. Lawrence Jr., Metal Physics Laboratory, Boeing Airplane Company

Instrumentation to detect and measure hydrogen entering plated parts during electrolysis is described, and data obtained from experiments employing these techniques have been applied successfully to keep chemisorbed hydrogen to a minimum. The relative importance of different "catalysts" or "poisons" on adsorption rates is shown, and proper control of voltage, temperature and other parameters allows satisfactory plating to be made with lower hydrogen pickup. Adsorption during other portions of the electroplating process, such as liquid honing, cleaning, pickling, and rinsing can also be substantially reduced. These methods can be used for continuous, accurate monitoring of chemisorbed hydrogen.



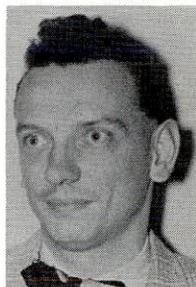
Hugh R. Miller



R. W. Hardy



Dr. Harold J. Read



Dr. Richard J. Barton

ABSTRACTS OF PAPERS

SESSION F

2:00 p.m.Golden State Room

Chairman — DR. SAMUEL HEIMAN, Philadelphia Rust Proof Company, Inc.

MEASUREMENTS PERTAINING TO HYDROGEN EMBRITTLEMENT

by Dr. Cloyd A. Snively, Battelle Memorial Institute

Measuring techniques which have been useful in hydrogen embrittlement studies are described, and their usefulness for future studies is critically examined. Included in the discussion are hydrogen charging methods, stressing methods, analytical problems, surface effects, and related phenomena. Problems in developing a standard embrittlement test are outlined.

A NEW LOOK AT THE HYDROGEN EMBRITTLEMENT OF CADMIUM COATED HIGH STRENGTH STEELS

by Norman M. Geyer, G. William Lawless, and Bennie Cohen, Materials Laboratory, Wright Air Development Center, Wright-Patterson Air Force Base

A sensitive embrittlement test consists of a sustained loaded notched tensile specimen, loaded at 75 per cent of the ultimate notched tensile strength for a minimum of 200 hours. Detrimental hydrogen embrittlement is shown to be dependent upon the steel alloy, the current efficiency of the cadmium plating bath and the physical structure of cadmium coating obtained. Cadmium electroplating processes for coating high strength steel without detrimental hydrogen embrittlement are given.

EFFECTIVENESS OF METALLIC UNDERCOATS IN MINIMIZING PLATING EMBRITTLEMENT OF ULTRA HIGH STRENGTH STEEL

by Dr. Walter Beck and E. J. Jankowsky, Naval Air Materials Center, Aeronautical Materials Laboratory

Effective reduction of hydrogen embrittlement of ultra high strength steel resulting after chromium and cyanide cadmium electroplating was achieved by pyrophosphate copper and Watts type nickel undercoats and replacement of the cyanide cadmium plating solution by the fluoborate bath. Embrittlement was evaluated by measurements of bend and tensile ductilities and sustained-loading delayed-failure tests on notched specimens. The sustained-loading test exceeds the other two procedures in sensitivity and reliability. Mechanisms were suggested for embrittlement inhibition by metallic undercoats and replacement of the cyanide by the fluoborate solution and the experimental results discussed in the light of these mechanisms.

CONTROL OF HYDROGEN EMBRITTLEMENT BY PLATING FROM CADMIUM CYANIDE BATHS CONTAINING NITRATES

by Dr. W. F. Hamilton and Myron Levine, Lockheed Aircraft Corp., California Division
A modification of the conventional electroplating process has been developed by which the plating of high strength steel parts can be satisfactorily accomplished without harmful hydrogen embrittlement. Addition of sodium nitrate and a throwing power additive to a high cadmium, low free-cyanide electrolyte produces satisfactory operating characteristics without visible cathodic gassing. The need for post plate baking is eliminated. A new cleaning procedure has been developed for use with the modified electrolyte and the operation, control, testing and results of the process are given.



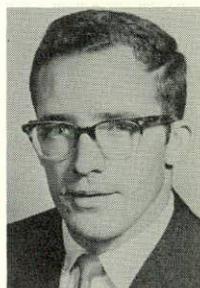
S. C. Lawrence Jr.



Dr. Cloyd A. Snively



Norman M. Geyer



G. William Lawless

ABSTRACTS OF PAPERS

ROUND TABLE SESSION

7:30 p.m. Los Angeles Room

Chairman — DR. HAROLD J. READ, The Pennsylvania State University

HYDROGEN EMBRITTLEMENT IN METAL FINISHING

THURSDAY, JULY 28 SESSION G THURSDAY, JULY 28

9:00 a.m. Golden State Room

Chairman — DR. ABRAHAM M. MAX R C A Victor Division, Radio Corporation of America

MAGNETIC PROPERTIES OF ELECTRODEPOSITED COBALT ALLOYS

by Dr. Victor Zentner, Hughes Aircraft Company

The performance of permanent magnets depends primarily on the magnitude of the coercive force and remanence of the magnetic material. The correlation of these two properties with plating conditions in electrodeposited cobalt-nickel and other binary cobalt alloys were investigated. Photographs of hysteresis curves taken with the aid of a B/H loop tracer which displays these curves visually on an oscilloscope show the influence of conditions of deposition on these magnetic properties. Corroborative evidence for the magnetic behavior of these alloys is shown by saturation curves obtained by plotting writing currents for signals at various frequencies against readback voltage. Preferred conditions of deposition for producing alloys with desirable magnetic properties have been established.

PLATING OF NICKEL, COBALT, IRON AND CADMIUM FROM SULFAMATE SOLUTIONS

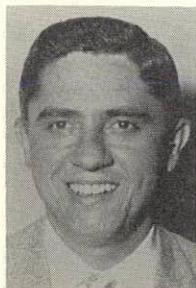
by Richard C. Barrett, Barrett Chemical Products Company

Technical data are given on the application and properties of nickel electrodeposited from sulfamate solution, with particular emphasis on high temperature applications of deposits, special magnetic properties of nickel-cobalt and nickel-iron alloys. Hydrogen embrittlement aspects of cadmium deposition at 100 per cent cathode efficiency in sulfamate plating baths are discussed. Bath formulae and operating conditions covering the electrodeposition of cobalt, iron, and cadmium from sulfamate solutions are included.

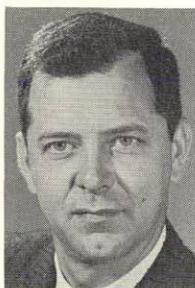
THE CHEMICAL REDUCTION OF NICKEL-PHOSPHORUS ALLOYS FROM PYROPHOSPHATE SOLUTIONS

by Morton Schwartz, Kelite Corporation

New electroless nickel solutions using pyrophosphate complexing agents have been developed. These alkaline pyrophosphate solutions can be operated at temperatures lower than normally employed, with higher deposition rates. The solutions are stable and easily maintained and controlled. Deposition rates of 0.5 to 0.7 mil/hr have been obtained at 68° to 74°C. The composition of the deposit is constant at 5 per cent phosphorus over a wide range of operating conditions. The effects of the important variables are discussed.



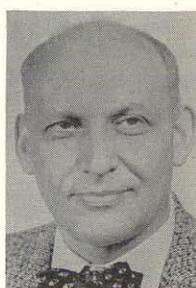
Bennie Cohen



C. C. Shepherd



Maynard L. Hill



Dr. Walter Beck

ABSTRACTS OF PAPERS

SESSION H

9:00 a.m. West Garden Room

Chairman — FRANCIS T. EDDY, TEL-Autograph Corporation

SOLUTION TRANSFER IN BARREL PLATING

by Paul Glab, R. Scott Modjeska and Simon P. Gary, Scientific Control Laboratories, Inc.

Results are presented of a study of solution changes within a plating barrel occurring during the plating period and the effects of those changes in deposit characteristics, plating rates, etc. A barrel is immersed in clear water with a soluble dye added to the barrel. Color dilution measurements show quantitative rate of solution transfer. Types of loads, perforation sizes and barrel speeds are varied. Studies in actual production in cadmium, copper, nickel, silver, tin, zinc, and brass show metal ion concentration variation within the barrel from start to cycle completion.

CLEANING TECHNIQUES IN THE ELECTRONICS INDUSTRY

by Dr. D. E. Koontz, Dr. D. O. Feder and Dr. C. O. Thomas, Bell Telephone Laboratories, Incorporated

Trace amounts of extraneous materials may significantly influence either the electrical characteristics or the feasibility of fabrication of modern electronic devices. Current trends in the electronic industry which have created a need for more effective control over both the type and amount of residual contaminants are described. Contaminants are classified and examples are presented of their effects on the performance of typical devices. Practical techniques developed for the detection, removal and control of contaminants are described. Cleaning techniques and their integration into typical cleaning cycles of interest to electroplaters are presented.

CHROMIUM PLATING OF RIFLE BARRELS

by Robert J. Girard and Edward F. Koetsch Jr., Springfield Armory

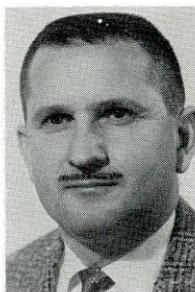
The process for chromium plating the M14 barrel has advanced to a production stage at Springfield Armory. This paper discusses methods employed in the development and adaptation of a process to electropolish and chromium plate the entire bore and chamber of the M14 Springfield Rifle. Electropolishing and chromium plating processes are outlined, including processing equipment and procedures, bath compositions, fixture design and maintenance, semiautomatic bore-cleaning operations, gauging of barrels, time guides for controlling electropolishing and chromium plating, and the relationship of viscosity and temperature to the degree of taper obtained during electropolishing.



E. J. Jankowsky



Dr. W. F. Hamilton



Myron Levine



Paul Glab

ABSTRACTS OF PAPERS

SESSION I

2:00 p.m. Golden State Room

Chairman — MAURICE R. CALDWELL, Doehler-Jarvis Division, National Lead Company

AES RESEARCH—ITS PURPOSE AND ACCOMPLISHMENTS

by J. D. Thomas, 1959-1960 Chairman AES Research Committee

The reasons for sponsoring research, the aims in selection of areas to be studied, and benefits to be gained are discussed. Financial support is obtained from Active Members, Sustaining Memberships, and donations from Branches and other Societies. A brief review is given of the presently active projects and those which have been completed. What the future promises is contemplated in view of the rapid changes taking place in the metal finishing industry.

CORROSION PROTECTION WITH DECORATIVE CHROMIUM

by Dr. E. J. Seyb, Metal & Thermit Corporation

During recent years there have been dramatic advances in the concept of chromium's role in corrosion protection with copper-nickel undercoats. Previously, chromium was not considered in providing corrosion protection, and was used primarily for tarnish resistance. It is now recognized that chromium is a major factor in providing improved corrosion protection. The improvement is obtained by means of greater thicknesses of crack-free or duplex chromium. These different chromium deposits are discussed, and their corrosion protection illustrated by accelerated and outdoor exposure tests. Industrial applications are described.

EXPERIENCE IN THE OPERATION AND PERFORMANCE OF DUAL CHROMIUM SYSTEMS

by W. E. Lovell, E. H. Shotwell and James Boyd, Ternstedt Division, Gen. Motors Corp.

Dual chromium plating has been practiced on a production scale for about two years, and is shown on the basis of accelerated and outdoor exposure tests to provide markedly improved corrosion resistance over the single chromium system formerly used. Methods of applying dual chromium, and problems encountered, are discussed. Theory explaining the improvement in corrosion resistance obtained by dual chromium is developed, including illustrations of desired crack patterns, potentials of electrodeposited metals and techniques used for their measurement, and the mechanisms of corrosion in single and dual chromium systems.



R. S. Modjeska



Simon P. Gary

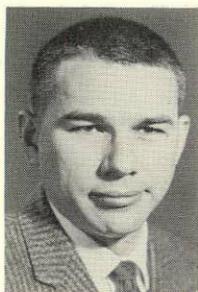


Dr. D. E. Koontz



Dr. David O. Feder

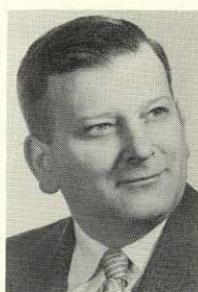
ABSTRACTS OF PAPERS



Dr. Carl O. Thomas



Dr. Victor Zentner



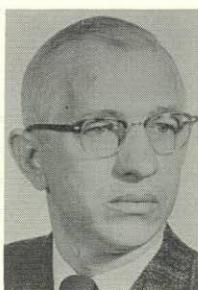
Richard C. Barrett



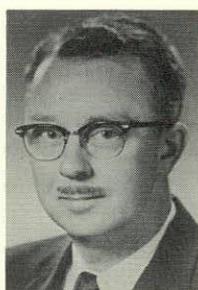
Morton Schwartz



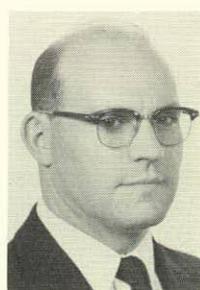
Robert J. Girard



Edward F. Koetsch Jr.



Dr. Charles L. Faust



Dr. E. J. Seyb



William E. Lovell



Eldon H. Shotwell

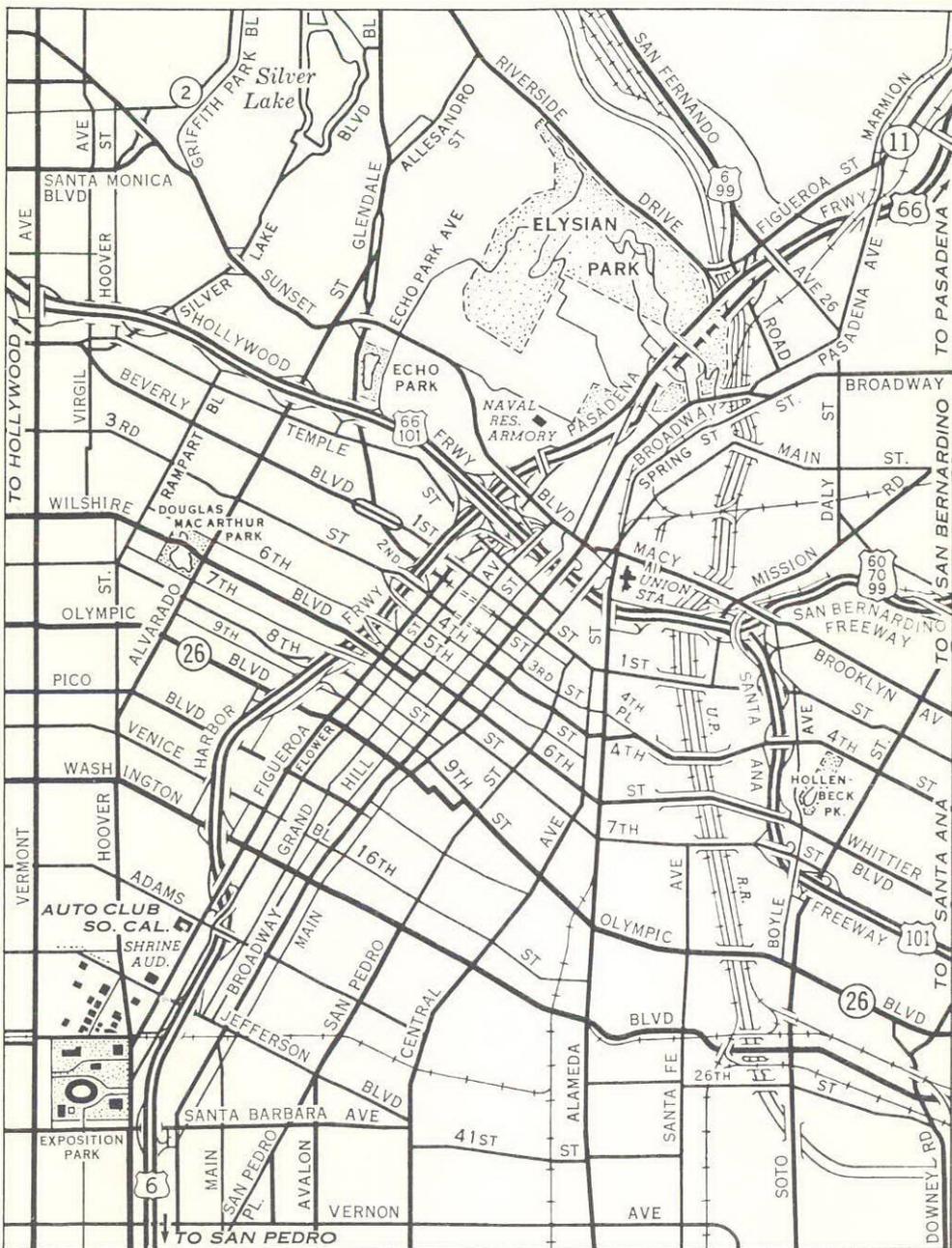


James Boyd



Fred I. Nobel

DOWNTOWN LOS ANGELES



(REPRODUCED BY PERMISSION OF AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA)



Milwaukee 1962

*American
Electroplaters'
Society, Inc.*



**49th ANNUAL
CONVENTION**

■ Hotel Schroeder
June 25 - 28

1936

**OFFICE OF THE GOVERNOR
MADISON, WISCONSIN**

December 22, 1961

To the American Electroplaters' Society:

I want to extend my greetings to you and welcome you to Milwaukee and Wisconsin for your 49th annual convention.

The roots of your organization are deep in Milwaukee, in our state, and in the Midwest. It is a pleasure to welcome your convention back to Milwaukee for the fourth time since your founding.

Yours is a skilled and distinguished craft. It has many branches and reaches into many other fields. Many of the arts and most industries depend upon your skill, which is available whether beauty, durability, or still other qualities are desired.

Your research program is widely known and respected. This is the way of progress, and all of us in the United States owe much to your work.

Wisconsin is well-known to you through its industry. We have many other advantages which will be available to you when you come to Milwaukee. I know our outdoor resources and the friendly welcome of our people will combine to make your stay during your convention a most pleasant one.

Sincerely yours,



GAYLORD A. NELSON

Governor

GAN:fv



Office of the Mayor
CITY OF MILWAUKEE



Proclamation

W

HEREAS: The American Electroplaters' Society, Inc. is celebrating its 52nd year as the nationwide leader in fostering technical and scientific knowledge and advancements in electroplating, metal finishing and allied arts, and

WHEREAS, The AES will hold its annual convention in the City of Milwaukee to draw attention to its many educational and research projects being carried on at Columbia University, National Bureau of Standards, University of Pennsylvania, Ontario Research Foundation, Virginia Institute for Scientific Research and other American and Canadian institutions, and

WHEREAS, Today the AES has global membership, including many members who are residents of the City of Milwaukee and who will participate in the convention program, and

WHEREAS, Every individual of the United States comes into contact every day with many products that have been developed or produced by electroplaters, ranging from guided missiles to safety pins, now

THEREFORE, I, HENRY W. MAIER, as Mayor of the City of Milwaukee, do hereby proclaim June 24-28, 1962, as **AMERICAN ELECTROPLATERS' SOCIETY WEEK** in Milwaukee.

Henry W. Maier
HENRY W. MAIER
Mayor

March 5, 1962



Welcome

For the fourth time in nearly two score years, the American Electroplaters' Society (AES) will conduct an Annual Convention in Milwaukee, Wisconsin's eminent city, this June.

Not only will AES members become educationally enriched by the Educational Sessions of the coming Convention but they and their families will also enjoy abundant relaxation and fellowship fare. This Convention may even pass into history as the milepost at which the Society received a vitally needed new Constitution and Bylaws.

May each of you be richly rewarded by your presence at this AES 49th Annual Convention and may you create happy memories during your stay that will delight you for many years ahead.

Chester G. Borlet
National President

AMERICAN ELECTROPLATERS' SOCIETY, INC.



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A Hearty Welcome To All AES Members, their Families and Guests

Your convention committee has a splendid program for your educational benefit, entertainment and enjoyment.

Members of the Midwest Regional Council will be all around you to assist you and assure your enjoyment while in Milwaukee. Don't hesitate to let your wishes be made known. We are all glad to see so many of our old friends and I'm sure they will enjoy one another's company as well.

This is "American Electroplaters' Week" in Milwaukee, by proclamation of our

Mayor. Milwaukee's many varied facilities are wide open to all of you. This includes, of course, our numerous fine eating establishments. If anyone is still hungry or thirsty after this convention, it will be their own fault.

Society business sessions will be of extreme importance, as we contemplate a major revision of the Society's structure. Non-delegate members are cordially invited to sit in on these sessions.

We sincerely enjoy having you here and wish you a successful convention together with that famous Milwaukee "Gemuetlichkeit".

Cordially,
Herman A. Tessmann
General Chairman
For the Convention Committee



JAMES E. DORNOFF

James E. Dornoff, Vice President of Pate Oil Company, A Division of Humble Oil & Refining Company, is the keynote speaker at the Grand Opening Session of the Convention. The title of his speech is "The Power of Enthusiasm."

Mr. Dornoff was born and raised in Milwaukee. He is a 1932 graduate of Marquette University with a degree in Business Administration. As a prize winning graduate of Dale Carnegie Institute, he became an instructor of Elmer Wheeler's course in "Tested Salesmanship". From Salesman for Texaco Inc. in 1939, he was promoted to Sales Manager in 1944 and was elected Vice President in 1951.

A Past President of Sales Executive Club of Milwaukee, and 1960 International Chairman of the Oil Industry TBA Group, Jim Dornoff has addressed over 750 management and executive groups throughout the United States and Canada. Mr. Dornoff and his favorite hobby, public speaking, are living examples of the keynote subject, "The Power of Enthusiasm".



NATIONAL OFFICERS



President
Chester G. Borlet
Metal & Thermit Corp.



First Vice President
Manuel Ben
General Motors Corp.



Second Vice President
Frank O. Beuckman
Eastman Kodak Co.



Third Vice President
Edward E. Oberland
Western Electric Co.



Past President
W. Andrew Wesley
International Nickel Co.



Executive Secretary
John P. Nichols
American Electroplaters'
Society, Inc.



AMERICAN ELECTROPLATERS' SOCIETY IN ITS FIFTY-THIRD YEAR

INCORPORATED as a New Jersey non-profit membership corporation, American Electroplaters' Society, Inc. (AES) is the industry's educational Society for the advancement of electroplating, metal finishing and allied arts. Its large membership includes Active, Sustaining and Student Members grouped into 62 chartered Branches. Fifty-four of these are located in the United States, 5 in Canada, 3 in Australia. Its Members-at-Large are domiciled in countries globally.

The Society's work includes a vaunted research program. Its Annual Convention customarily attracts some 2,000 such members and their families. Its monthly PLATING MAGAZINE, with the largest audited paid circulation in this field, enjoys the reputation of being one of the foremost monthly magazines of its type and is rated high internationally.

The AES's governing council, termed Supreme Society, is composed of three accredited Delegates from each of the AES's 62 Branches. National Officers, elected annually by that council, comprise AES's Executive Board. AES staff, directed by the National Executive Secretary who is also publisher of PLATING MAGAZINE, is manned by specialists and practitioners.

NATIONAL HEADQUARTERS IN THE FIFTY-THIRD YEAR OF AES

National Headquarters is located in the American Building, 443-445 Broad Street, Newark, New Jersey. Under the direction of the National Executive Secretary, a staff of practitioners and specialists conduct the Society's abundant services for its large international membership, including the following.

PUBLICATIONS

PLATING MAGAZINE, tailored specifically for AES members by publishing experts monthly, and itself a half-century old, possesses global prestige as the Society's principal educational and informational published medium.

AES's internationally sought annual book, TECHNICAL PROCEEDINGS, contains the technical papers and discussions presented at the Annual Convention.

RESEARCH PROGRAM

Directed by the AES Research Committee, basic research on the fundamental problems of the industry is the foundation of the AES's vaunted research program. Goal is the strengthening of the electroplating and metal finishing industry through greater knowledge of improved methods and processes. Research Projects are currently being conducted under AES sponsorship at Columbia University; University of Pennsylvania; Ontario (Canada) Research Foundation; the National Bureau of Standards and elsewhere, notably Chicago and Detroit.

AES HONORS:

The Society's highest scientific award is its AES Scientific Achievement Award presented annually to that member who, by "decade plus" accomplishments, has advanced electroplating, metal finishing and allied arts or enhanced the dignity of the profession. The awardee delivers the "William Blum Lecture" at the next year's Annual Convention. He



Rodney Leeds
Editor



Kathleen F. Duquette
Office Manager



Kathryn H. Langan
Accountant



S. W. Freestone
Advertising Manager



John P. Nichols
National Executive Secretary

receives a scroll and a \$500 honorarium.

The Charles Henry Proctor Memorial Leadership Award is the Society's highest non-technical, non-scientific honor awarded annually.

AES Honorary Membership is conferrable upon any member of widely recognized eminence in the field of work of the Society who has rendered service to AES adjudged distinguished by it.

The AES Award of Merit is granted by the Executive Board to members for meritorious service to the Society.

TECHNICAL PAPER AWARDS:

The Society co-sponsors eleven cash awards with industrial companies and/or AES Branches for the best original papers published in PLATING MAGAZINE or in TECHNICAL PROCEEDINGS during the fiscal year. A Paper Awards Committee, annually appointed, makes selections.

INTERSOCIETY COOPERATION:

AES recognizes that the best interests of its members are served through closer cooperation with the Associations and Societies of related fields. Consequently, it maintains liaison representation and close working relationship with many such representative bodies internationally.



Charles B. Niebling
Lum, Biunno &
Tompkins
General Counsel



Thomas W. Lowe
Production Manager



Bob Wettstein
Western Advertising
Representative



Clyde A. Zukswert
Clyde A. Zukswert & Co.
Auditor

PRESIDENTS OF THE SOCIETY

Year	President	Year	President
*1909-1913	†Charles H. Proctor	1937-1938	Austin B. Wilson
1913-1914	†George B. Hogaboom	1938-1939	William M. Phillips
1914-1915	†H. J. Hansjosten	1939-1940	†Raymond M. Goodsell
1915-1916	†Walter S. Barrows	1940-1941	Frederick Fulforth
1916-1917	†H. H. Williams	1941-1942	Ellsworth T. Candee
1917-1918	†Walter J. Fraine	1942-1943	Charles C. Conley
1918-1919	†Walter J. Fraine	1943-1944	George J. Wagner
1919-1920	†Oscar E. Servis	1944-1945	Maurice R. Caldwell
1920-1921	†Sylvester P. Gartland	1945-1946	Walter L. Pinner
1921-1922	†Philip Uhl	1946-1947	Frank K. Savage
1922-1923	Walter J. Allen	1947-1948	Kenneth M. Huston
1923-1924	†John E. Sterling	1948-1949	Samuel S. Johnston
1924-1925	†Frank J. Hanlon	1949-1950	Arthur W. Logozzo
1925-1926	†Edward J. Musick	1950-1951	William J. Neill
1926-1927	Frank C. Mesle	1951-1952	†Cleveland F. Nixon
1927-1928	†John H. Feeley	1952-1953	†Franklyn J. MacStoker
1928-1929	†Horace H. Smith	1953-1954	George P. Swift
1929-1930	†Horace H. Smith	1954-1955	Ralph A. Schaefer
1930-1931	†George Gehling	1955-1956	Clyde Kelly
1931-1932	†Philip Sievering	1956-1957	Samuel Heiman
1932-1933	†Clarence L. Van Derau	1957-1958	Francis T. Eddy
1933-1934	†Clarence L. Van Derau	1958-1959	Herberth E. Head
1934-1935	†H. A. Gilbertson	1959-1960	Ralph D. Wysong
1935-1936	†Thomas F. Slattery	1960-1961	Dr. W. Andrew Wesley
1936-1937	†E. Steen Thompson	1961-1962	Chester G. Borlet

†Deceased

*National Electro-Platers Association of the United States and Canada which in 1913 became the American Electroplaters' Society, Inc.



AES SCIENTIFIC ACHIEVEMENT AWARD WINNERS

- 1958 — Dr. William Blum (Baltimore-Washington Branch) — Consultant
- 1959 — Dr. A. Kenneth Graham (Philadelphia Branch) — President, Graham, Savage & Associates, Inc.
- 1960 — Dr. Charles L. Faust (Columbus Branch) — Battelle Memorial Institute
- 1961 — Dr. Abner Brenner (Baltimore-Washington Branch) — National Bureau of Standards

LIVING HONORARY MEMBERS OF AMERICAN ELECTROPLATERS' SOCIETY, INC.

Prof. C. F. Burgess (Lehigh University)
 Dr. Edward Kunz (Newark)
 Prof. W. Lash Miller (Toronto)
 Prof. Joseph W. Richards (Lehigh University)
 Prof. Edgar F. Smith (Philadelphia)
 Dr. William Blum (Baltimore-Washington)
 Mrs. Zahlia Jencks Gailey Rowe (Baltimore-Washington)
 Daniel Wittig (Milwaukee)
 Thomas Brosnan (New Haven)
 Hedley J. Richards (St. Louis)
 Charles S. Taylor (Boston)
 Albert Hirsch (Philadelphia)
 E. M. Stephenson (Hartford)
 Andrew W. Garrett (Boston)
 F. C. Rushton (Los Angeles)

John Lockerbie (St. Joseph Valley)
 J. P. Sexton (New Haven)
 F. J. Clark (Springfield)
 Frank C. Mesle (Syracuse)
 Wm. M. Phillips (Detroit)
 George J. Wagner (Newark)
 Donald M. Bedwell (Los Angeles)
 Arthur W. Logozzo (Hartford)
 Dr. George P. Swift (Boston)
 Frederick K. Fulforth (Southeastern)
 Walter L. Pinner (Detroit)
 Myron B. Diggin (Newark)
 Manson Glover (Boston)
 Daniel Gray (Syracuse)
 W. J. Neill (Columbus)
 R. J. O'Connor (Bridgeport)



ANNUAL CONVENTIONS OF THE SOCIETY

Year	Convention City	Year	Convention City
1909-1913.....	New York, New York	1938.....	Milwaukee, Wisconsin
1914.....	Chicago, Illinois	1939.....	Asbury Park, New Jersey
1915.....	Dayton, Ohio	1940.....	Dayton, Ohio
1916.....	Cleveland, Ohio	1941.....	Boston, Massachusetts
1917.....	St. Louis, Missouri	1942.....	Grand Rapids, Michigan
1918.....	Detroit, Michigan	1943.....	Buffalo, New York
1919.....	Philadelphia, Pennsylvania	1944.....	Cleveland, Ohio
1920.....	Rochester, New York	1945.....	Pittsburgh, Pennsylvania
1921.....	Indianapolis, Indiana	1946.....	Pittsburgh, Pennsylvania
1922.....	Cincinnati, Ohio	1947.....	Detroit, Michigan
1923.....	Providence, Rhode Island	1948.....	Atlantic City, New Jersey
1924.....	Milwaukee, Wisconsin	1949.....	Milwaukee, Wisconsin
1925.....	Montreal, Canada	1950.....	Boston, Massachusetts
1926.....	Newark, New Jersey	1951.....	Buffalo, New York
1927.....	Toledo, Ohio	1952.....	Chicago, Illinois
1928.....	Toronto, Canada	1953.....	Philadelphia, Pennsylvania
1929.....	Detroit, Michigan	1954.....	New York, New York
1930.....	Washington, D.C.	1955.....	Cleveland, Ohio
1931.....	Rochester, New York	1956.....	Washington, D.C.
1932.....	Philadelphia, Pennsylvania	1957.....	Montreal, Canada
1933.....	Chicago, Illinois	1958.....	Cincinnati, Ohio
1934.....	Detroit, Michigan	1959.....	Detroit, Michigan
1935.....	Bridgeport, Connecticut	1960.....	Los Angeles, California
1936.....	Cleveland, Ohio	1961.....	Boston, Massachusetts
1937.....	New York, New York	1962.....	Milwaukee, Wisconsin

MIDWEST REGIONAL COUNCIL OFFICERS



William Geissman
Chairman



Dr. Harold Wiesner
Vice Chairman



Paul Glab
Secretary-Treasurer

YOUR HOST

Midwest Regional Council of The American Electroplaters' Society

Chicago, Milwaukee, Mississippi Valley, Rockford, St. Joseph Valley,
St. Louis, and Central Iowa

In response to the desire to foster further growth and progress of the metal finishing industry and the American Electroplaters' Society in the Midwest by many members of our branches, the Midwest Regional Council was activated on January 31, 1959 when the member branches ratified the Constitution and Bylaws of the Council. Leslie L. Diveley, who had been serving as temporary chairman, was elected chairman. Eugene Roth was elected vice chairman and Paul Glab, secretary-treasurer. Thus was born the first formal regional organization of the AES in America's Midway.

The Council was constituted to sponsor meetings of regional and national value, and to give information and assistance to member branches. Member branches are represented on the Council by their AES accredited delegates. A Liaison Officer, appointed by the Council Chairman, assists member branches in resolving conflicts of interest and aids in arranging educational programs when called upon to do so.

To date, The Midwest Regional Council has undertaken the following activities:

1. Hosted the 49th Annual Convention of the AES. Members of the various branches have provided leadership as well as ideas and manpower for this convention.
2. Sponsored an Educational Conference and Exhibit at Rockford College, Rockford, Illinois in November, 1959. It was here that Dr. William Blum in his luncheon talk, "**Education and the Electroplating Industry**," struck the keynote for this and future Regional Educational Meetings. Featured, along with an exhibit of plated parts and a symposium on Modern Testing Methods for Plated Coatings, were Organic and Inorganic Workshop sessions.
3. Sponsored an Educational Conference and Exhibit at the University of Notre Dame, South Bend, Indiana in October, 1960. Talks on safety and personnel accompanied the workshop sessions on mechanical finishing, plating, and organic finishing.

YOUR HOST (Continued)

4. Sponsored a Technical Seminar on "Plating on Uncommon Basis Metals," at Argonne National Laboratories, Lemont, Illinois in October, 1961. The symposium included eight original papers that are under consideration for publication by the AES. Workshop sessions were held on Organic Finishing, Pickling and Bright Dipping, Barrel Plating, and Cleaning.
5. Plans for the future include a fourth Educational Conference at Washington University, in St. Louis, Missouri on October 27, 1962. An Exhibit on Metal Finishing is being planned for the Museum of Science and Industry in Chicago.
6. Welcomed a new member, the Central Iowa branch, into our Council in 1962. We are now composed of seven branches.

These accomplishments and plans are easily recognized and appreciated. In addition, the organization gives ample opportunity for discussion of mutual problems both on the branch and national level, and provides for frequent contacts with local committees dealing with membership, research finance, and education.

This is the nature of your 1962 National Convention host, "The Midwest Regional Council." Have a fruitful and pleasant convention in this wonderful city of Milwaukee.

William Geissman, Chairman
Midwest Regional Council



AES 49th ANNUAL CONVENTION

REGISTRATION SCHEDULE

A message center has been established at the Registration Area for incoming calls for convention guests.

All events will be at the Schroeder Hotel unless otherwise noted. Time is Central Daylight Time.

SUNDAY, JUNE 24th

1:00 P. M. to 8:00 P. M.....Foyer — 4th Floor

MONDAY, JUNE 25th

8:00 A. M. to 5:00 P. M.....Foyer — 4th Floor

7:00 P. M. to 9:00 P. M.....Foyer — 4th Floor

TUESDAY, JUNE 26th

8:00 A. M. to 5:00 P. M.....Foyer — 4th Floor

WEDNESDAY, JUNE 27th

8:00 A. M. to 12:00 Noon.....Foyer — 4th Floor

THURSDAY, JUNE 28th

8:00 A. M. to 12:00 Noon.....Foyer — 4th Floor

Registration fee of \$25.00 provides each adult registrant with identification badge and a book of tickets covering all events.

Registration fee of \$15.00 provides each child registrant (under 18 years) with identification badge and a book of tickets for all children's activities.

Banquet tickets must be exchanged for table reservations at the Banquet Desk in the registration area before noon, Wednesday, June 27th.

Banquet tickets are available for children at \$8.50 when purchased by an adult registered for the convention.



ANNUAL OUTING - BROWN DEER PARK

The annual AES Outing will be held at one of Milwaukee County's beautiful parks, Brown Deer Park, located to the northwest of the city. You will find it an area to relax and enjoy the "Milwaukee Gemuetlichkeit" planned for your entertainment.

On Wednesday, June 27, 1962 the buses will depart from the Schroeder Hotel beginning at 12:30 thru 1:00 P. M. from the East entrance.

Upon your arrival at the park you will be greeted with lots of oompah pah and what Milwaukee is famous for on tap.

There will be entertainment throughout the afternoon along with the traditional AES "East versus West" baseball game.

It is requested that you display your AES identification badge while at the outing.

Buses will depart from the Park beginning at 5:00 P. M. with last bus leaving at 6:00 P. M. sharp. It is hoped that your memory of this event will be pleasant and long remembered.

CONVENTION COMMITTEE CHAIRMEN



Ralph D. Wysong
Assistant General Chairman



Herman Tessmann
General Chairman



Leonard E. Weeg
Assistant General Chairman



Joe Andrus
Educational



Bill Geissman
Steering Committee



Art Linn
Steering Committee



Paul Glob
Secretary



Robert Steuernagel
Finance



E. H. McCoy
Registration



Ralph Brouwer
Publicity



Frank Marshall
Hotel

CONVENTION COMMITTEE CHAIRMEN



Lee K. Graves
Outing



Mrs. Charles
Auchter, Jr.
Ladies Chairman



Florence
Steuernagel
Ladies
Assistant Chairman



Eugene C. Johnson
Children



Gene Piellusch
Exhibits



Ted Sobczynski
Entertainment



Ray B. Goodsell
Banquet



Sy Taterzynski
Plant Visitation



Phil Ritzenthaler
Assistant Publicity



Edward J. Weiss
Program



Clinton Host
Printing



Edwin Ratterman
Transportation

FORTY-NINTH ANNUAL CONVENTION AMERICAN ELECTROPLATERS' SOCIETY, INC.



CONVENTION PROGRAM

SATURDAY, JUNE 23

9:30 a.m. Executive Board Meeting.....AES Headquarters Room 508

SUNDAY, JUNE 24

9:00 a.m. Joint Meeting, AES Constitution and Bylaws Revision Committee and Executive Board.....AES Headquarters Room 508

10:30 a.m. Ladies Program Chairman's Brunch for National Officers Wives....Ladies Chairman's Home

1:00-8:00 p.m. Registration.....4th Floor Foyer

2:00 p.m. Honorary Membership Award Committee Meeting.....4th Floor Parlor B

3:00 p.m. Ladies Program, Midwest Kaffee Klatsch.....Lobby Floor, Lorraine Room
Sponsored by Donald Sales & Manufacturing Co.

4:00 p.m. Credentials Committee Meeting with Executive Board.....AES Headquarters Room 508

8:00 p.m. AES Get Together Party.....Crystal Ballroom

MONDAY, JUNE 25

8:00 a.m.-9:00 p.m. Registration.....4th Floor Foyer

9:00 a.m. Grand Opening Session.....Crystal Ballroom

10:00 a.m. First Business Session, Supreme Society Annual Meeting.....Crystal Ballroom

12:00 noon Branch Secretaries Luncheon.....4th Floor Parlor A

12:15 p.m. Speakers' Luncheon.....4th Floor Parlor E

12:30 p.m. Ladies Luncheon.....Lobby Floor, Empire Room
Sponsored by The Udyllite Corporation
Fashion Show by Hixon's followed by Entertainment

1:00 p.m. Plant Visit. Square D Company, Good Hope Plant.....Buses from Schroeder Hotel

1:00 p.m. Plant Visit. General Electric Co., X-Ray Department.....Buses from Schroeder Hotel

- 1:30 p.m. Children's Program (Visit to Milwaukee County Museum, tour and films).....Leave from Schroeder Hotel
- 2:00 p.m. Opening Educational Session, 4th Annual William Blum Lecture — "The Speed of Plating Processes: Movement of Solute, Attainment of the Steady State, and Formation of Metal"
By Dr. Abner Brenner.....Crystal Ballroom
- 2:45 p.m. Educational Session A (Research).....Crystal Ballroom
1. "AES Research — A Symbol of Progress" by Dr. Harold J. Wiesner, 1961-1962 Chairman, AES Research Committee
 2. AES Research Project No. 16. "Some Progress in Evaluation of Atomic Steps in Deposition of Metals" by Dr. John O'M. Bockris, University of Pennsylvania
 3. AES Research Project No. 18. "The Buffing of Zinc Base Die Castings with Liquid Compound" by William C. Geissman, National Lock Company; R. Scott Modjeska, Cinch Manufacturing Company; and Kenneth Gatchel, National Lock Company.
- 2:45 p.m. Educational Session B.....East Room
4. "Gold Plating of Electron Devices — Production Techniques" by Robert W. Steinmetz, Western Electric Company, Inc.
 5. "The Effects of Metal Finishing Effluent on the Sanitary Sewage Treatment Processes and Sewer Structures" by Dr. Leslie E. Lancy, Lancy Laboratories
- 2:45 p.m. Editorial Board Meeting.....4th Floor Parlor D
- 2:45 p.m. Publications Committee Meeting.....4th Floor Parlor E
- 4:00 p.m. Order of the Past Presidents Meeting.....4th Floor Parlor B
- 6:00 p.m. Order of the Past Presidents Dinner..4th Floor Parlor C
- 8:00 p.m. MFSA Ball.....Crystal Ballroom

TUESDAY, JUNE 26

- 8:00 a.m. Charles Henry Proctor Memorial Leadership Award Selection Committee Breakfast.....4th Floor Parlor A
- 8:00 a.m. Speakers' Breakfast.....4th Floor Parlor E
- 9:00 a.m.-5:30 p.m. Registration.....4th Floor Foyer
- 9:00 a.m. Educational Session C.....Crystal Ballroom
6. "Chromium Plating Stainless Steels" by Dr. E. J. Seyb, Metal & Thermit Corporation
 7. "Mobile and Static Exposure of Decorative Nickel-Chromium Deposits" by D. R. Millage, E. Romanowski and R. Klein, The Udylite Research Corporation
 8. "Crack Detection Methods for Chromium Electroplates" by E. W. Turns, General Dynamics/Fort Worth and M. E. Browning, American Machine & Foundry Company
- 9:00 a.m. Educational Session D.....East Room
9. "Electroforming Pressure Vessels" by J. C. Ladd, Thiokol Chemical Corporation and D. L. Allie, General Dynamics/Ft. Worth

10. "Electroplating Solution for the Deposition of a Tungsten-Gold Codeposit by Robert F. Walton, Texas Instruments, Inc.
 11. "Adherent Electroplated Coatings on Tungsten, Molybdenum, Tantalum and Niobium" by Robert Seegmiller, James K. Gore and Brant Calkin, Los Alamos Scientific Laboratory
- 9:00 a.m. Educational Committee Meeting.....4th Floor Parlor B
- 9:00 a.m. Membership Committee Meeting....4th Floor Parlor C
- 9:00 a.m. Public Relations Committee Meeting.....4th Floor Parlor D
- 9:00 a.m. Plant Visit. American Motors Corp., Rambler Body Plant.....Buses from Schroeder Hotel
- 9:00 a.m. Plant Visit. Cutler-Hammer, Inc. (30th Street Plant).....Buses from Schroeder Hotel
- 9:15 a.m. Children's Program (New Milwaukee Zoo Visit, Luncheon, Fun at Muskego Beach Amusement Park).....Buses from Schroeder Hotel
- 9:30 a.m. Ladies Program, Tour of Miller Brewing Company.....Buses from Schroeder Hotel
- 12:00 noon Joint Educational Committee and Branch Educational Chairmen's Luncheon.....4th Floor Parlor A
- 12:00 noon Speakers' Luncheon.....4th Floor Parlor E
- 12:30 p.m. Ladies Luncheon followed by Card Party, Chalet on the Lake.....Buses from Schroeder Hotel
Luncheon sponsored by Crown Metal Co., Heatbath Corp. and Electrochemical Products, Inc.
- 1:00 p.m. Plant Visit. Evinrude Motors Division, Outboard Marine Corp...Buses from Schroeder Hotel
- 2:00 p.m. Educational Session E (Color).....Crystal Ballroom
12. "Color Specification" by Carl E. Foss, Consultant, Container Corporation of America
 13. "Improvement of Light and Heat Stability of Colored Anodic Coatings." by Dr. B. H. Kirby, Chemical & Dye-stuffs Division, Koppers Company
 14. "Color in Organic Finishes" by W. J. Kiernan, Bell Telephone Laboratories, Inc.
- 2:00 p.m. Educational Session F.....East Room
15. "The Hard Chromium Plating of Large Crankshafts" by D. D. Dalrymple, National Forge Company
 16. "Examination of Electrodeposits by Low-Voltage X-Ray Radiography" by Dr. Harold J. Read and William A. Nystrom, The Pennsylvania State University
 17. "Electrodeposition of Antimony" by Christopher Marzano, Amphenol Connector Division, Amphenol-Borg Electronics Corporation, and R. Scott Modjeska, Cinch Manufacturing Company
- 2:00 p.m. AES Midwest Regional Council Meeting.....4th Floor Parlor B
- 2:00 p.m. Regional Council Meetings (Other if any).....4th Floor Parlors C and D
- 8:00 p.m. Floor Show and Dance.....Crystal Ballroom

WEDNESDAY, JUNE 27

- 8:00 a.m. Research Committee Breakfast.....4th Floor Parlor A
8:00 a.m. Speakers' Breakfast.....4th Floor Parlor E
9:00 a.m. Educational Session G.....Crystal Ballroom
18. "Organic Coating Using the Fluidized Bed Techniques" by Lloyd O. Gilbert, Rock Island Arsenal
 19. "Paint Protective Processes on Car Bodies" by Dr. S. Wernick, Metal Protection Advisory Services Ltd., England
 20. "Functional Applications of Chemical Finishing" by Leo Missel, Missiles and Space Division, Lockheed Missiles and Space Company.
- 9:00 a.m. Educational Session H.....East Room
21. "Visual Criteria for Appearance Estimation of Anodized Aluminum" by Dr. Roger L. Saur, Research Laboratories, General Motors Corporation
 22. "Thermal Reflectance of Anodized Metals for Spacecraft" by J. Janssen, J. Luck and R. Torborg, Minneapolis-Honeywell Regulator Company
 23. "Vapor Plating of Aluminum on Steel" by J. J. Crosby, Wright-Patterson Air Force Base
- 9:00 a.m. Research Committee Meeting.....4th Floor Parlor B
9:00 a.m. AES Convention Golf (Buses from Schroeder Hotel).....Brown Deer Park
9:00 a.m.-12:00 noon Registration.....4th Floor Foyer
12:30 p.m. AES Outing, Buses start from Schroeder Hotel (Picnic Supper 3:30 p.m.) Last Bus to Schroeder 6:00 p.m.....Brown Deer Park
8:00 p.m. Second Business Session, Supreme Society Annual Meeting.....East Room

THURSDAY, JUNE 28

- 8:00 a.m. Speakers' Breakfast.....4th Floor Parlor E
9:00 a.m.-5:00 p.m. Registration.....4th Floor Foyer
9:00 a.m. Third Business Session, Supreme Society Annual Meeting.....East Room
9:00 a.m. Educational Session I.....Crystal Ballroom
24. "Finishing of Low-Cost Costume Jewelry" by Alfred M. Weisberg, Technic, Inc.
 25. "Detection of Inorganic Cleaner Residues" by Dr. Edward B. Saubestre and R. J. Bahn, Enthone, Inc.
 26. "Chemical Polishing of Carbon Steel" by Gordon Conn, Westinghouse Research Laboratory
 27. "Effects and Control of Nickel and Iron Impurities in Cyanide Zinc Plating Baths" by Wilfred Dingley, Canadian Department of Mines and Technical Surveys
- 9:00 a.m. Plant Visit. Pittsburgh Plate Glass Co.....Buses from Schroeder Hotel
9:00 a.m. Plant Visit. Cutler-Hammer, Inc. (30th Street Plant).....Buses from Schroeder Hotel
9:00 a.m. Plant Visit. Allen-Bradley Co.....Buses from Schroeder Hotel

- 9:30 a.m. Ladies Program, Tour of Whitnall Park Boerner Botanical Gardens.....Buses from Schroeder Hotel
- 12:00 noon Speakers' Luncheon.....4th Floor Parlor E
- 12:30 p.m. Ladies Luncheon,
Wisconsin Club.....Buses from Schroeder Hotel
Sponsored by Sel-Rex Corporation
- 12:30 p.m. Children's Banquet and Afternoon
Entertainment (Music and Fun).....Empire Room
- 2:00 p.m. Third Business Session, Supreme Society....East Room
- 6:00 p.m. MFSA Cocktail Party (Shuttle Buses from and to
Schroeder Hotel).....Milwaukee Auditorium
- 7:00 p.m. AES Farewell Banquet (Shuttle Buses from and to
Schroeder Hotel).....Milwaukee Auditorium

FRIDAY, JUNE 29

- 8:00 a.m. President's Breakfast to National Officers
and their Families.....4th Floor Parlor A
- 9:00 a.m. Executive Board
Meeting.....AES Headquarters Room 508



LADIES' PROGRAM

SUNDAY, JUNE 24

- 10:30 a.m. Brunch.
Honoring wives of National Officers.
Given by Mrs. Charles Auchter, Jr.
at her home, 920 E. Wye Lane, Fox
Point, Wis.
- 3:00 p.m. to 5:00 p.m. Midwest Kaffee
KlatschLorraine Room
Sponsored by Donald Sales & Mfg.
Co., Milwaukee, Wis.
- 8:00 p.m. AES Get-Together Party.....
.....Crystal Ballroom



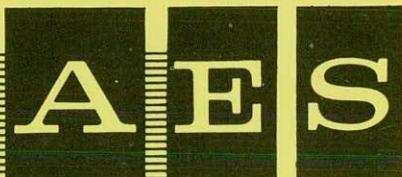
Mrs. Charles
Auchter, Jr.
Ladies Chairman

MONDAY, JUNE 25

- 9:00 a.m. Grand Opening Session.....Crystal Ballroom
- 12:30 p.m. Luncheon.....Empire Room
Sponsored by the Udyllite Corp., Detroit, Michigan.
Fashion Show by Hixon's.
Entertainment — Marvin Moran and the Malone Sisters.
- 8:00 p.m. Metal Finishing Suppliers'
Association Ball.....Crystal Ballroom

TUESDAY, JUNE 26

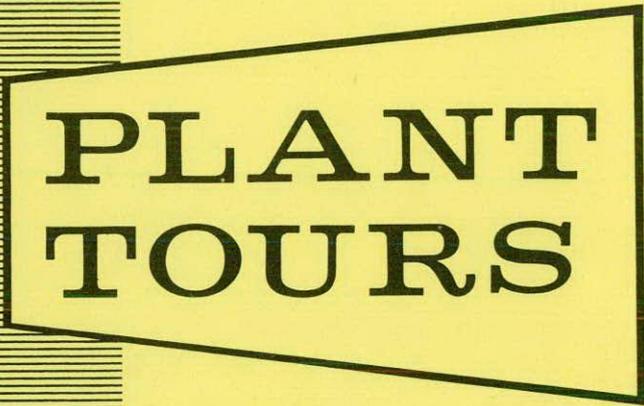
- 9:30 a.m. Tour — Miller Brewing
Co.....Buses from Schroeder Hotel
- 12:30 p.m. Luncheon.....Chalet on the Lake
Sponsored by Crown Metal Co., Milwaukee, Wis.; Electro-
chemical Products Inc., Milwaukee, Wis.; Heatbath Corp.,
Chicago, Ill. and Springfield, Mass.
- 2:00 p.m. Card Party.....Chalet on the Lake
- 8:00 p.m. Concert and Dancing —
Obert-Anthony Orchestra.....Crystal Ballroom



AES

49th

Annual Convention



**PLANT
TOURS**

★ Register for Tours
at
Schroeder Hotel...
(Foyer - 4th Floor)

ALL BUSES LEAVE FROM THE SCHROEDER HOTEL

PLANT TOURS

Monday, June 25 - 1:00 P.M. **SQUARE D COMPANY (Good Hope Plant)**

The Good Hope Plant is the newest plant of the Square D Company and was designed primarily for production of high volume units and employs many labor saving devices and techniques. In layout, it follows the work flow principle for a job operation's location. Principal units produced at this plant include: AC Contactors, AC Starters, AC Machine Tool Relays, AC Manual Starters and AC & DC Timers.

After a short welcome, the tour will begin with emphasis on metal protection achieved by plating and painting operations. The plating operations are tailored to the needs of the two Square D Plants, producing zinc and cadmium plate in both barrel and still line operations, chromate finishing and bright dip of copper and brass components. Of special interest to the group should be the multi-conveyered painting operation with both automatic and manual spray painting.

Monday, June 25 - 1:00 P.M. **GENERAL ELECTRIC X-RAY**

The General Electric X-Ray Company is a manufacturer of X-Ray tubes and related equipment, which involves some of the most interesting and exacting manufacturing operations. Visitors will observe the assembly of tube parts, ultrasonic cleaning, glass blowing and the steps leading to the manufacture of regular and complex units. The modern metal finishing department offers the opportunity to watch the plating of metals, including aluminum, and the painting of parts from the preparation of the metal to the final spraying in the pressure paint spray booths.

Of particular interest will be the demonstration of the X.R.D. non-destructive thickness tester.

Tuesday, June 26 - 9:00 A.M. **AMERICAN MOTORS (Rambler Body Plant)**

The American Motors Body Plant has the responsibility of manufacturing the body for the popular Rambler automobile. Visitors will observe the entire construction of the unique Rambler Unitized Body from the pressroom to the final application of the trim. Of particular interest will be the dip primer tank in which the entire body is submerged in a rust-proofing primer.

**Tuesday, June 26 - 9:00 A.M. and
Thursday, June 28 - 9:00 A.M.**
CUTLER-HAMMER, INC. (30th Street Plant)

Cutler Hammer's 30th Street Plant is the newest of the firm's four manufacturing facilities in Milwaukee and employs nearly 1000 people. Built in 1954 and expanded in 1956, it is recognized for its efficient design and pleasant working atmosphere. Plant operations include fabrication of control unit enclosures used in all Milwaukee production, assembly of some control components and assembly and testing of control systems for major industrial installations. Outstanding among its modern equipment is a unique reciprocal motion flow-coat painting machine. The system automatically finishes and cures sheet metal enclosures of various shapes and sizes.

Tuesday, June 26 - 1:00 P.M.
EVINRUDE MOTORS (Division of Outboard Marine Corp.)

Evinrude is a famous name among sportsmen and the company has arranged for a tour of Plant No. 1 located at 4143 N. 27th Street. Of prime interest to visitors will be the tour through the parts plant where they will observe how crankshafts, connecting rods, driveshafts and other parts are machined and plated. Bearing surfaces are copper and silver plated in automatic lines. Crankshafts, driveshafts and brass pump parts are chrome plated for wear. These are the plated finishes so important in providing quality and life to outboard motors.

Thursday, June 28 - 9:00 A.M.
PITTSBURGH PLATE GLASS CO.

Convention visitors will be conducted on a tour through the Trade Sales Building ending with a visit to the Paint Control Laboratory. Tourists in units of eight will be individually guided in order to offer maximum benefit from this visit to a great producer of modern quality organic finishes.

Thursday, June 28 - 9:00 A.M.
ALLEN-BRADLEY COMPANY

Allen-Bradley, founded in 1903, is one of the major motor control and electronic component manufacturers with its largest plant in Milwaukee and another in Galt, Ontario. Of interest to metal finishers will be a visit to the plating department where tourists will observe vibrating and conventional tumbling equipment, degreasing, automatic machines performing immersion plating, dichromating of aluminum, phosphatizing, barrel and still plating of zinc. Organic finishing operations will include a 6 stage phosphating unit, electrostatic spraying of primer coats and central control of the paint supply. Of special interest is the automatic painting of the interiors of small control cabinets. The tour will end with a visit to the motor control assembly and test, the recreational facilities, the library, the medical department and cafeteria.

WEDNESDAY, JUNE 27

12:30 p.m. Outing at Brown Deer
Park.....Buses from Schroeder Hotel

THURSDAY, JUNE 28

9:30 a.m. Tour — Whitnall Park Boerner
Botanical Gardens.....Buses from Schroeder Hotel

12:30 p.m. Luncheon.....Wisconsin Club
Sponsored by Sel-Rex Corp., Nutley, N.J.
Lecture by Mr. Al Korbelak — "More on Gold and Man".

6:00 p.m. Metal Finishing Suppliers'
Association Cocktail Party....Milwaukee Auditorium

7:00 p.m. AES Farewell Banquet.....Milwaukee Auditorium



CHILDREN'S PROGRAM

MONDAY, JUNE 25

1:30 p.m. Children's Supervised Tour
.....Buses leave from Hotel Schroeder
(5th Street Entrance)
Tour followed by movies at the Milwaukee Museum.

TUESDAY, JUNE 26

9:15 a.m. Supervised Trip.....Buses leave from Hotel Schroeder
(5th Street Entrance)
New Milwaukee County Zoo, Muskego Beach Amusement
Park, (Lunch Arranged)

WEDNESDAY, JUNE 27

12:30 p.m. Outing — Brown Deer Park
.....Buses leave from Hotel Schroeder
(5th Street Entrance)

THURSDAY, JUNE 28

12:30 p.m. Children's Banquet.....Hotel Schroeder (Empire Room)
Plenty of food and soft drinks, followed by entertainment.



PLANT VISITS

All buses leave from the Schroeder Hotel

MONDAY, JUNE 25

1:00 p.m. Square D Company (Good Hope Plant)
1:00 p.m. General Electric Co. (X-Ray Dept.)

TUESDAY, JUNE 26

9:00 a.m. American Motors (Rambler Body Plant)
9:00 a.m. Cutler-Hammer Inc. (30th Street Plant)
1:00 p.m. Evinrude Motors Inc. (Division of Outboard Marine
Corporation)

THURSDAY, JUNE 28

9:00 a.m. Pittsburgh Plate Glass Co.
9:00 a.m. Cutler-Hammer Inc. (30th Street Plant)
9:00 a.m. Allen-Bradley Co.

OFFICERS

Metal Finishing Suppliers' Association, Inc.



Fred P. Green
Crown Rheostat &
Supply Co.
Past President



Dr. H. L. Kellner
Lea Mfg. Co.
1st Vice President



R. M. Norton
Hanson-Van
Winkle-Munning Co.
2nd Vice President



King Ruhly
Michigan Chrome &
Chemical Co.
3rd Vice President



J. E. Trumbour
Metal Finishing
Treasurer



J. G. Carrique
Alloycraft, Ltd.
President



E. A. Blount
Products Finishing
Secretary

TRUSTEES

J. A. Cairns
Allied Research Products, Inc.

R. E. Belke
Belke Manufacturing Co.

J. M. Davidson
Pennsalt Chemicals Corp.

S. M. Goble
Federated Metals Division
American Smelting & Refining Co.

H. D. McLeese
Metal & Thermit Corp.

R. C. Trees
The Udylyte Corp.

Metal Finishing Suppliers' Association, Inc., is an organization of manufacturers and distributors of equipment and supplies used in the metal finishing industry. Organized in Milwaukee at the 1924 AES Convention as the International Fellowship Club, it was incorporated under its present name in 1951. It is in its 39th year of service to the industry and to American Electroplaters' Society.

Metal Finishing Suppliers' Association, Inc.



F. H. Marshall
Milwaukee Liaison
Representative
Belke Mfg. Co.

PROGRAM

ADMISSION to all Metal Finishing
Suppliers' Association functions
will be only by
Registration Badge

SUNDAY, JUNE 24

1:00 p.m. Board of Trustees — Business Meeting.....Parlor G

MONDAY, JUNE 25

12:00 Noon Luncheon and Annual Meeting..Pere Marquette Room
9:00 p.m.-1:00 a.m. M.F.S.A. Ball.....Crystal Ballroom

MONDAY through THURSDAY

M.F.S.A. Literature Room.....Parlors F and G
This room is being maintained by M.F.S.A. for
the display and distribution of technical and sales
literature of M.F.S.A. member companies to
AES Convention registrants.

THURSDAY, JUNE 28

6:00-7:00 p.m. M.F.S.A. Cocktail
Party.....Milwaukee Public Auditorium

EXECUTIVE COMMITTEE

National Association of Metal Finishers



Edward N. Marlette
Marlette Plating Co.
Buffalo, N.Y.
President



James E. Cogan, Jr.
Globe
Electroplating Co.
Philadelphia, Pa.
1st Vice-President



Harold E. Coombes, Jr.
Crown City
Plating Co.
El Monte, Calif.
2nd Vice-President



Frank Kaiser
Long Island Me-
chanical Plating Co.
Woodside, L.I., N.Y.
Secretary-Treasurer



Sal Novelli
Service Plating Co.
Brooklyn, N.Y.
Assistant
Secretary-Treasurer



Robert L. Giesel
Adolph Plating, Inc.
Chicago, Ill.
Past President



P. Peter Kovatis
Executive Director
National Association
of Metal Finishers
Montclair, N.J.

NATIONAL ASSOCIATION OF METAL FINISHERS

Celebrating its seventh year under its present name, the National Association of Metal Finishers has taken another giant-step forward in the area of public relations and international understanding, with the recent successful completion of a 16-day Plant Inspection Tour of Europe.

Another industry "first," the tour was described by one State Dept. official as "an excellent people-to-people project which was responsible for the creation of a vast amount of goodwill for the United States in general, and the metal finishing industry, in particular.

The sole "management" organization in the industry, the NAMF comprises in the main, owners and operators of job metal finishing firms.

In addition to its "Management Manual," the NAMF publishes a monthly magazine, "Plating Management," and conducts annual surveys on labor costs, general operating costs, wages and salaries. NAMF headquarters are located in Montclair, New Jersey.



EDUCATIONAL SESSIONS CHAIRMEN



Dr. William Blum
Opening Session
Chairman



Dr. Harold J.
Wiesner
Chairman - Session A



Philip Ritzenthaler
Chairman - Session B



Arthur W. Logozzo
Chairman - Session C



Christopher
Marzano
Chairman - Session D



Robt. Fred Howard
Chairman - Session E



Harold W. Scott
Chairman - Session F



Dr. A. Kenneth
Graham
Chairman - Session G



Donald L. Allie
Chairman - Session H



Dr. Martin S. Frant
Chairman - Session I

ABSTRACTS OF PAPERS

MONDAY, JUNE 25

2:00 p.m.Crystal Ballroom

OPENING SESSION

Session Chairman — Dr. William Blum, Consultant

THE FOURTH ANNUAL "WILLIAM BLUM LECTURE"

THE SPEED OF PLATING PROCESSES: MOVEMENT OF SOLUTE, ATTAINMENT OF THE STEADY STATE, AND FORMATION OF METAL

by Dr. Abner Brenner, National Bureau of Standards

Various complex chemical and physical changes occur in the vicinity of an electrode during the flow of current. The slowest processes are the convection currents which assist in replenishing the diffusion layer with metal ion. About one or two minutes are required before the metal ion concentrations in the diffusion layer reach a steady state. Less is known about the time of the transfer of electrons to the solution, but it is probably less than a microsecond. A moot point at present is whether the deposit forms instantaneously at the moment of electron transfer to the ion or whether it requires an appreciable fraction of a second. The conventional kinetics of electrode reactions give no information on this subject.

2:45 p.m.Crystal Ballroom

SESSION A

Session Chairman — Dr. Harold J. Wiesner, Bendix Corporation

AES RESEARCH ... A SYMBOL OF PROGRESS

by Dr. Harold J. Wiesner, 1961-1962 Chairman, AES Research Committee

Individual companies grow and progress in proportion to the amount of research they do to meet competition, to develop new products, and to maintain their reputation. Likewise, the AES has grown and will continue to grow based on its ability to meet the new challenges. The AES Research program is one symbol of that progress. The paper outlines what has been accomplished by the program with special emphasis on the work of the past year. Plans for future projects to be sponsored by the AES are discussed.

AES RESEARCH PROJECT NO. 16 — SOME PROGRESS IN EVALUATION OF ATOMIC STEPS IN DEPOSITION OF METALS

by Dr. John O'M. Bockris, University of Pennsylvania

Work on Project 16 is summarized. The discussion includes: (1) development of a model of the metal-solution interface; (2) development of the kinetics of the build up and decay of mono-layers, with experimental verification; (3) development of ideas concerning the relationships between deposition mechanisms and the structure of the surface; (4) concepts concerning stability of a surface on which a metal is being deposited; (5) development of the theory of current distribution at surfaces, and (6) the beginning of progress towards the study of crystal growth.



Dr. Abner Brenner



Dr. H. J. Wiesner



Dr. J. O'M. Bockris

ABSTRACTS OF PAPERS

AES RESEARCH PROJECT NO. 18 — THE BUFFING OF ZINC BASE DIE CASTINGS WITH LIQUID COMPOUND

by **William C. Geissman, National Lock Co., R. Scott Modjeska, Cinch Manufacturing Co., and Kenneth Gatchel, National Lock Co.**

Continuing the research initiated with bar compound, a liquid compound specified by generic terms rather than absolute constituents, was selected. The ramifications for a consistent, sufficient amount of compound delivered under various constant pressures, temperatures, water contents, and buff speeds were studied. A weighted, statistical method demonstrating proper evaluation of the buffed samples pinpointed the various factors for optimum buffing with the corresponding buffing temperatures. The physical structure was investigated to determine the effect of buffing on the metal.

2:45 p.m. East Room

SESSION B

Session Chairman — Philip J. Ritzenthaler, Plating Engineering Company GOLD PLATING OF ELECTRON DEVICES — PRODUCTION TECHNIQUES by Robert W. Steinmetz, Western Electric Company, Inc.

Electron device component parts and assemblies are provided with a gold plated finish to facilitate semiconductor water bonding, resist acid etchants, provide an oxide-free surface for soldering and the welding of enclosures and where required, furnish an external surface resistant to atmospheric corrosion and oxidation at elevated temperatures. This paper describes the production techniques which were developed to plate electronic components in volume to achieve the objectives referred to above. A 16 mm color-sound film which complements this paper serves as a visual training aid for the education of engineers, platers and laymen concerned with electroplating.

THE EFFECTS OF METAL FINISHING EFFLUENT ON THE SANITARY SEWAGE TREATMENT PROCESSES AND SEWER STRUCTURES

by **Dr. Leslie E. Lancy, Lancy Laboratories, Inc.**

The possible harmful effects of metal finishing wastes are discussed: (a) Acidic waste is corrosive to concrete sewer structures and to cast iron diversion gates, pumps, and other conventional equipment. (b) Oil in the effluent and solid materials, such as scale, tumbling abrasive, paint solids, tend to clog sewer lines. (c) Solvents, paints, and oils may lead to explosions or fires while cyanide on acidification, and also chlorinated solvents, constitute a health hazard for sewer workers. (d) Chemicals employed in metal finishing processes are toxic to the bacteria providing the treatment phase in the biological treatment plant. A general description of the biological treatment process is given. (e) Possible harmful effects of contamination by high metallic salt content of the dry sludge sold as by-product fertilizer are discussed.



William Geissman



R. Scott Modjeska



Kenneth Gatchel

ABSTRACTS OF PAPERS

TUESDAY, JUNE 26

9:00 a.m.Crystal Ballroom

SESSION C

Session Chairman — Arthur H. Logozzo, Nutmeg Chrome Corporation

CHROMIUM PLATING STAINLESS STEELS

by Dr. E. J. Seyb, Metal & Thermit Corporation

Modern procedures for decorative chromium plating stainless steel are outlined. Methods are given for preventing passivation, a major cause of frosty or cloudy plate. Results of corrosion tests at Kure Beach and Detroit are given for different thicknesses of crack-free, duplex and micro-cracked chromium on several different stainless steels.

MOBILE AND STATIC EXPOSURE OF DECORATIVE NICKEL-CHROMIUM DEPOSITS

by D. R. Millage, E. Romanowski and R. Klein, The Udylite Research Corporation

The corrosion protection of steel with nine plating systems involving decoratively plated chromium was studied. The results of CASS and Corrodokote tests, and roof exposure in Detroit and Kure Beach marine exposure are compared with the results of actual mobile service performance on cars used in Detroit. The extensive tests showed that a substantial increase in corrosion protection was gained through the use of nickel-chromium-nickel chromium, copper-nickel-dual chromium, and dual nickel-chromium plating systems.

CRACK DETECTION METHODS FOR CHROMIUM ELECTROPLATES

by E. W. Turns, General Dynamics/Fort Worth, and M. E. Browning, American Machine & Foundry Company

Superior corrosion resistance is afforded structurally loaded bearing surfaces by the use of relatively thin crack-free chromium electroplates. Reliable tests to assure that this chromium is crack- and pore-free on these components are desired. A number of methods reported as useful for crack detection were investigated. The method involving cathodic treatment in copper sulfate appeared most useful in detecting fine cracks and pores.



Robt. W. Steinmetz



Dr. Leslie E. Lancy



Dr. Edgar J. Seyb

ABSTRACTS OF PAPERS

9:00 a.m. East Room

SESSION D

Session Chairman — Christopher Marzano, Amphenol-Borg Electronics Corporation

ELECTROFORMING PRESSURE VESSELS

by J. C. Ladd, Thiokol Chemical Corporation and D. L. Allie, General Dynamics/Fort Worth

Electroforming, as a means of filling the design-technology gap, offered a promising potential for manufacturing pressure vessels. A program was planned and initiated to develop manufacturing methods for fabricating a double wall sandwich panel type vessel of 2400 milliliter capacity. Data are presented showing manufacturing procedures and mandrel materials used. Test information, including data using a liquid at cryogenic temperature, static pressure tests, and strength properties of the electroformed nickel at minus 423, room temperature, 500 and 1000F is summarized.

ELECTROPLATING SOLUTION FOR THE DEPOSITION OF A TUNGSTEN-GOLD CODEPOSIT

by Robert F. Walton, Texas Instruments, Inc.

Electroplating solution formulation for the deposition of a tungsten-gold codeposit containing 1-8 per cent tungsten is proposed. Optimum concentrations of the main constituents — gold chloride, tungstic acid and tartaric acid — were determined by a statistical evaluation of the solution, at three concentration levels. Investigation of electroplating variables such as current density, pH and temperature of the solution enabled determination of the optimum condition. Solution formulation and operating conditions were established which result in the tungsten-gold codeposit having the best possible appearance and least porosity, with the greatest concentration of tungsten.

ADHERENT ELECTROPLATED COATINGS ON TUNGSTEN, MOLYBDENUM, TANTALUM AND NIOBIUM

by Robert Seegmiller, James K. Gore and Brant Calkin, Los Alamos Scientific Laboratory

A cobalt sulfate solution acidified with sulfuric acid is used to plate an adherent layer of cobalt on molybdenum or tungsten. This strike may then serve as a base for any desired electrodeposit. The molybdenum must be given an anodic treatment in strong sulfuric acid prior to cobalt striking. An alternate method for maintaining adhesion on tungsten involves an anodic-cathodic treatment in a nickel sulfate solution containing hydrosulfuric acid. These methods furnish sufficiently good adhesion that the basis metal surface is pulled away when the deposit is peeled. Good mechanical adhesion on tantalum or niobium is obtained by etching in a methyl alcohol solution containing dilute hydrochloric and hydrofluoric acid.



Donald Millage



Edw. Romanowski



Roy Klein

ABSTRACTS OF PAPERS

2:00 p.m.Crystal Ballroom

SESSION E (COLOR)

Session Chairman — Robert Fred Howard, Bell Helicopter Company

COLOR SPECIFICATION

by Carl E. Foss, Consultant, Container Corporation of America

Color specification procedures are available in wide variety. They range from collections of material standards from which a sample is used as a reference, to instrumental techniques where only numbers are derived. The principles underlying these various methods are outlined and illustrated. Emphasis is placed on simple methods using relatively inexpensive aids rather than optical and electronic devices.

IMPROVEMENT OF LIGHT AND HEAT STABILITY OF COLORED ANODIC COATINGS

by Dr. B. H. Kirby, Chemicals and Dyestuffs Division, Koppers Company

The application of water soluble colors to anodic coatings is covered. Types of dyestuffs are discussed, including their light-fastness and heat-fastness characteristics. A new proprietary process — under U.S. Patent 2,975,081 — is described. This is a nonaqueous solvent technique whereby pigments, dyes, and other coloring matters having outstanding fade and heat resistance can be applied.

COLOR IN ORGANIC FINISHES

by W. J. Kiernan, Bell Telephone Laboratories, Inc.

Color in organic finishes is reviewed with emphasis on classification of inorganic and organic colorants, physical and chemical properties of colorants related to use and application, spectrophotometric reflectance characteristics of pigments, color related to lighting, metamerism and the effect of gloss on color.

2:00 p.m.East Room

SESSION F

Session Chairman — Harold W. Scott, United Air Lines

THE HARD CHROMIUM PLATING OF LARGE CRANKSHAFTS

by D. D. Dalrymple, National Forge Company

Worn crankshafts are being successfully reconditioned by chromium plating. This paper deals with the method of rotating the shaft while the journals and anodes are enclosed in plastic boxes. The plating solution is circulated through the enclosures. Thorough inspection is essential. Prior to plating, surface conditions and straightness must be checked. The grinding after plating is a critical operation and must be carried out with precise control.



Earl W. Turns



Myron E. Browning



Chris. Marzano

ABSTRACTS OF PAPERS

EXAMINATION OF ELECTRODEPOSITS BY LOW-VOLTAGE X-RAY RADIOGRAPHY

by Dr. Harold J. Read and Mr. William A. Nystrom, The Pennsylvania State University

X-radiation generated at 5-50 PKV* in a tube with a beryllium window has limited penetrating power and is well suited to the examination of thin metal films. Thickness in general can be measured by use of calibration curves wherein radiographic density is related to thickness, and distribution of metal in a Hull-cell deposit can be quickly determined either qualitatively or quantitatively. Uniformity of a specimen for mechanical-property determinations is quickly revealed from a single exposure. Pinholes and some other kinds of defects can be detected in corrosion specimens under certain specified and rather restricted conditions.

*Peak kilovolts

ELECTRODEPOSITION OF ANTIMONY

by Christopher Marzano, Amphenol Connector Division, Amphenol-Borg Electronics Corporation, and R. Scott Modjeska, Cinch Manufacturing Company

Antimony was deposited in pattern on copper, employing a near duplication of an ancient Egyptian method. Fluoborate solutions were prepared by several methods, including that of a diaphragm cell. This latter method can be employed to prepare electrolytes for studying other metals. Deposits were obtained from varying concentrations of solutions. A series of addition agents were studied. Of these, beta-naphthol and certain sequestrants seemed best. Analytical information and deposition curves are reported.

WEDNESDAY, JUNE 27

9:00 p.m.Crystal Ballroom

SESSION G

Session Chairman — Dr. A. Kenneth Graham, Graham, Savage and Associates

ORGANIC COATING USING THE FLUIDIZED BED TECHNIQUES

by Lloyd O. Gilbert, Rock Island Arsenal

The fluidized bed coating process, sometimes referred to as "powder painting" or simply "plastic cladding" is one of the most promising new coating processes to become available to industry in the past decade. Process details, advantages and deficiencies of the process as compared to conventional coating methods, as well as tricks of the trade, are covered. Masking cold fixturing techniques, patching of the coatings, inspection techniques, machining, and special applications of the coatings are discussed. Use of the process in applying both plastic and metallic coatings reveals an envisioned future application of fluidized bed techniques.



J. C. Ladd



Donald L. Allie



Robert F. Walton

ABSTRACTS OF PAPERS

PAINT PROTECTIVE PROCESSES ON CAR BODIES

by Dr. S. Wernick, Metal Protection Advisory Services Ltd., London, England

The paper discusses the results achieved to date in overcoming the problems involved in the effective protection of under-body components, i.e. such hidden members as box sections, etc. It emphasizes the importance of paint refluxing or solvent washing in box sections. A comparison is made between the various body-painting systems currently used in the United Kingdom and the U.S.A. Indications are given of possible future developments in British auto body finishing which aim primarily at producing a finish which, at reduced cost, is uniformly protective both inside and outside the body.

FUNCTIONAL APPLICATION OF CHEMICAL FINISHING

by Leo Missel, Missiles and Space Division, Lockheed Aircraft Corporation

Chemical finishing provides a means for effectively meeting many diverse engineering requirements. This paper reviews a number of specific problem areas in which it is being presently utilized and discusses possible future uses.

9:00 a.m. East Room

SESSION H

Session Chairman — Donald L. Allie, General Dynamics/Fort Worth

VISUAL CRITERIA FOR APPEARANCE ESTIMATION OF ANODIZED ALUMINUM

by Dr. Roger L. Saur, Research Laboratories, General Motors Corporation

Two important visual criteria for appearance evaluation of anodized aluminum surfaces are haze and image resolution loss. Experimental results imply that those people who prefer that the surface approach mirror perfection visually integrate criteria in their judgment of appearance; those who prefer that the surface be matte use either of these criteria separately.

THERMAL REFLECTANCE OF ANODIZED METALS FOR SPACECRAFT

by J. Janssen, J. Luck and R. Torborg, Minneapolis-Honeywell Regulator Company

Selection of material having proper thermal radiation properties permits passive temperature control in spacecraft. The effect of anodizing variables on the reflectance of anodized aluminum and magnesium was studied over the range of 0.4-22 microns in a vacuum of 10^{-5} mm Hg with specimen temperatures of 100-825F. In general, the anodizing process had a greater effect on the reflectance than did alloying elements in the metal. The presence of water in some coatings, which was driven off at elevated temperatures in the vacuum, caused lower reflectance in the infrared.



Robert Seegmiller



James K. Gore



Brant Calkin

ABSTRACTS OF PAPERS

VAPOR PLATING OF ALUMINUM ON STEEL

by J. J. Crosby, Wright-Patterson Air Force Base

Adherent coatings of aluminum were deposited on mild steel specimens by vapor plating. Vapor plating in general consists of decomposing a volatile metallic compound at a hot surface to obtain a metal deposit. In the process covered by this paper, liquid triisobutyl aluminum was first vaporized, then thermally decomposed at a heated steel surface into metallic aluminum plus volatile decomposition products — the aluminum depositing on the steel substrate. Uniform ductile coatings approximately 2 mils thick were obtained.

THURSDAY, JUNE 28

9:00 a.m. Crystal Ballroom

SESSION I

Session Chairman — Dr. Martin S. Frant, AMP, Incorporated

FINISHING OF LOW-COST COSTUME JEWELRY

by Alfred M. Weisberg, Technic, Inc.

A survey of the finishing of low cost costume jewelry is presented primarily for the non-jewelry plater. The jewelry finishing "secrets" of in-process cleaning and pre-plating finishing are described. Examples of pre-finishing methods for varieties of basis metal and non-metal composite assemblies are considered. Measurements were made of the improvement in micro-inch surface finish during the pre-finishing of brass and die cast parts. Operating conditions and solutions are tabulated.

DETECTION OF INORGANIC CLEANER RESIDUES

by Dr. Edward B. Saubestre and Mr. R. J. Bahn, Enthone, Inc.

The Interference Color Test is proposed for detecting inorganic cleaner residues on steel surfaces. This test showed that silicated cleaners cause greater residues than cleaners containing phosphates or borates. Complex phosphates produce greater residues than orthophosphates. Surfactants (especially hydrophilic and nonionics) increase such residues. The greatest residues are produced in the silicate cleaners by cathodic cleaning; in phosphate cleaners by anodic cleaning. Radio-tracer studies showed the minimum amount of residual phosphate to be about 2.5×10^{-8} g/cm².



Carl E. Foss



Dr. B. H. Kirby



William J. Kiernan

ABSTRACTS OF PAPERS

CHEMICAL POLISHING OF CARBON STEEL

by Gordon Conn, Westinghouse Research Laboratory

A chemical polishing system for carbon steel using a mixture of sulfuric, phosphoric and nitric acid maintained at 85-90C is described. The conditions for polishing are shown to be controlled dissolution with the corrosion potential relatively constant within the polishing range. Surface roughness and comparative reflectivity measurements indicate the limit of solution concentration suitable for polishing. Limited data indicate that brightness increases with temperature and decreases with water content.

EFFECTS AND CONTROL OF NICKEL AND IRON IMPURITIES IN CYANIDE ZINC PLATING BATHS

by Wilfred Dingley, Canadian Department of Mines and Technical Services

Zinc-plated steel cartridge cases in unheated storage had displayed a tendency to corrode excessively. This was shown to be due largely to the contamination of the zinc plating bath with iron and nickel, particularly nickel. An improved method of treating the zinc plating solution and anodes, to remove these materials, is described. It also is shown that the rate of bath contamination can be greatly reduced by a suitable choice of internal anodes. A hydrochloric acid test that will indicate the presence of these impurities in zinc coatings has been developed.



D. D. Dalrymple



Dr. Harold J. Read



Wm. A. Nystrom



Lloyd O. Gilbert

ABSTRACTS OF PAPERS



Dr. Simon Wernick



Leo Missel



Dr. Roger L. Saur



John E. Jannssen



James R. Luck



Ralph H. Torborg



Jesse J. Crosby



Alfred M. Weisberg



Dr. E. B. Saubestre



Robert Bahn



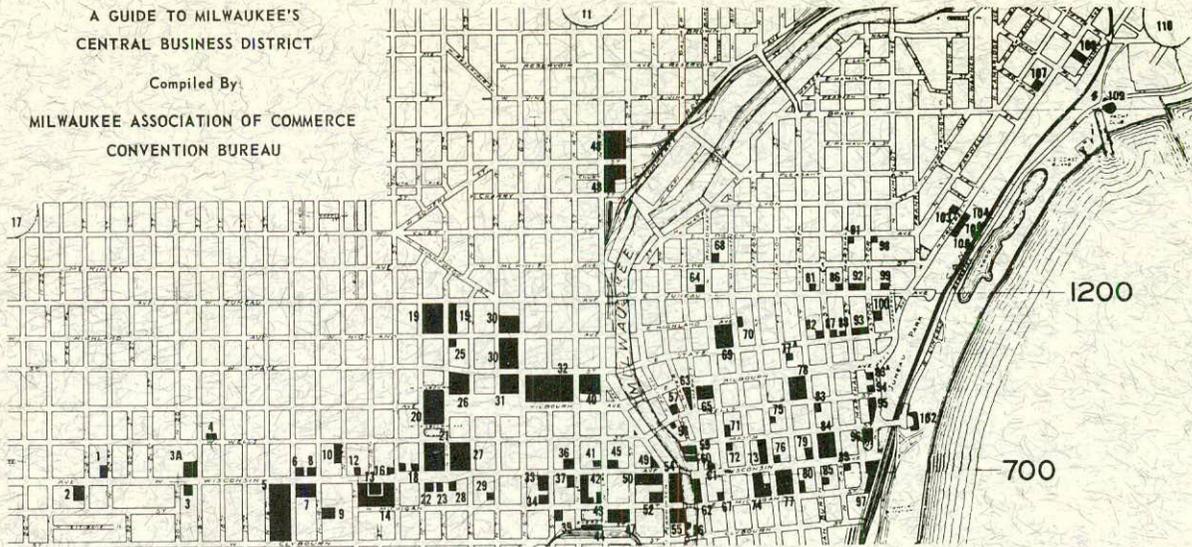
Gordon Conn



Wilfred Dingley

A GUIDE TO MILWAUKEE'S
CENTRAL BUSINESS DISTRICT

Compiled By
MILWAUKEE ASSOCIATION OF COMMERCE
CONVENTION BUREAU



HOTELS	
Abbot Crest	12
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Milwaukee

Central Business District



ANNUAL CONVENTION



JUNE 24-27, 1963

HOST BRANCH
NEWARK

AMERICAN ELECTROPLATERS' SOCIETY, INC.

AMBASSADOR HOTEL,
ATLANTIC CITY, N. J.

1937

EDUCATIONAL PROGRAM

Preparation for Growth and Profits
in
Metal Finishing

50th ANNUAL CONVENTION



AMERICAN ELECTROPLATERS'
SOCIETY, INC.

JUNE 24-27, 1963

AMBASSADOR HOTEL

ATLANTIC CITY, N. J.

Notes

Welcome to Atlantic City

Five years ago, a banner bearing the prophetic promise, "DOWN BY THE SEA IN '63," spilled across the facade of a ballroom in Cincinnati. At that Convention, Newark won the honor to sponsor the 50th Golden Convention of the AES, to be held "by the sea" in Atlantic City, in 1963.

By no coincidence at all, Newark Branch also celebrates its Golden Anniversary in 1963 as a Member Branch of the AES. In the ensuing years since 1913, Newark has been one of the acknowledged leaders in the dissemination of knowledge and science to the electroplating industry. The numerous contributions its members have made to increased scientific technology have had a great impact on American economy, and we are justly proud of this record of achievement.

It is fitting, then, that our dynamic Society should hold its 50th Convention in the Garden State, and we of the Newark Branch offer all its members, delegates and guests a warm welcome and the friendship of all Jerseyites. We are confident that the diligent, well constructed plans of the last five years will blossom into an outstanding educational and fraternal gathering — one that will long be remembered.

A very special word of welcome is extended to the distaff side of the Conventioneers. The Ladies Committee has planned a varied and interesting program with no need to worry about the kids; the lure of the Jersey Shore plus "built-in baby sitters" will solve that problem.

By and large, we anticipate that the gently rolling surf, the balmy breezes, the best fishing in the East, the excitement of the Boardwalk, the unexcelled sea-food dinners, the gay night life, and the over-all magic of Atlantic City will leave you longing for an extended visit on our shores.

*F. J. LA MANNA, President
Newark Branch, A.E.S.*

National Officers



Manuel Ben
Pres.



Frank Beuckman
1st Vice-Pres.



E. E. Oberland
2nd Vice-Pres.



L. Diveley
3rd Vice-Pres.



C. E. Borlet
Past President



R. Leeds
Exec. Sec'y.

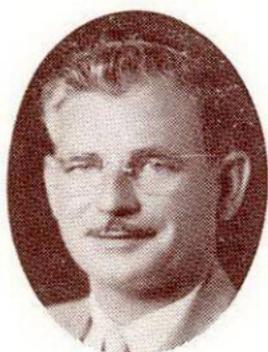
Welcome . . .

Fifteen years have passed since Newark Branch last welcomed AES members and guests to Atlantic City. However, many of you know that for a number of years we have hoped for and worked toward hosting the Fiftieth Convention in this, Newark's fiftieth year. We are so happy you are here that "sincere", "cordial" and even "heartfelt" are inadequate adjectives for the welcome we are extending to each of you.

We have planned a balanced fare, consisting of an excellent technical program, spiced with the condiments of social activities, sweetened and accented by old friendships renewed and new ones made at our Conventions — stimulated, of course, by MFSA support. We sincerely hope, as you savor each course, your palate will be titilated in a manner you will long remember. If a pinch of salt is needed here, a dash of monosodium glutamate there, call upon any committee member, each of whom is abundantly supplied with capsules carrying the invisible but all pervading label, "Have a wonderful time, Down by the Sea in '63."

*D. GARDNER FOULKE
Convention Chairman*

Newark Branch — Hosts and



G. Wagner
Honorary Chairman
Branch Treasurer
Hy-Grade Electroplating Co.



D. G. Foulke
Chairman
Branch Secretary
Sel-Rex Corp.

G. Bittrich
Co-Chairman
Branch Bd. of Mgrs.
Bell Telephone Labs., Inc.



F. Lowenhe'm
Educational Chairman
M & T Chemicals Inc.



Committee Chairmen

F. J. La Manna
Banquet Chairman
Branch President
Industrial Circuits Co.



M. Di Chiara
Registration Chairman
Branch Vice-President
Ronal-Hariton Corp.



A. Korbelak
Publicity Chairman
Branch Bd. of Mgrs.
Sel-Rex Corp.



J. E. Trumbour
Program Chairman
Branch Librarian
Metal Finishing

Katherine Carr
Ladies Chairman



J. Kosmos
Entertainment Chairman
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Kosmos Electro-Finishing Research Co.



R. Duva
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A. Mendizza
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Mrs. Joan Wiarda
Program Co-Chairman
Metal Finishing



W. A. Wesley
Finance Chairman



H. O'Brien
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Hubbard-Hall Chemical Co.



F. Meyer
Secretary
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Mr. & Mrs. J. Horrocks
Children's Committee
Bendix Corp.



E. Wagner
Branch Vice-President
Hy-Grade Electroplating Co.



E. Gut
Branch
Sergeant-at-Arms
Allen B. Du Mont
Labs., Inc.



George Reuter
Branch Bd. of Mgrs.
J. Wiss & Sons Co.



PLEASE BE PROMPT

All Presiding Chairmen have been given special instructions to start and close each session **EXACTLY ON TIME.**

Please be seated on time, out of courtesy to the speakers.

All Technical AES Sessions will be held at the Ambassador Hotel.

Admission—Registration Badge

General Program

SATURDAY, JUNE 22

9:30 a.m. Executive Board Meeting—AES Headquarters
Room 102

SUNDAY, JUNE 23

9:00 a.m. Executive Board Meeting—AES Headquarters
Room 102

1:00 p.m.-5:00 p.m. Ladies Hospitality Room 118

1:00-7:00 p.m. Registration Mezzanine Lounge

2:00 p.m. Nominating Committee Meeting ... Room 116

2:00 p.m. Honorary Membership Awards Committee
Meeting Room 108

2:00 p.m. Mid-Atlantic Regional Council Meeting—
Room 107

3:00 p.m. Credentials Committee Meeting ... Room 122

3:00-5:00 p.m. Ladies Tea Surf Room

Sponsored by Frederick Gumm Chemical Co., Inc.

8:00 p.m. AES Get-Together Party 22 Club

Host—AES Philadelphia Branch

MONDAY, JUNE 24

9:00 a.m.-5:00 p.m. Registration Mezzanine Lounge

9:00 a.m.-5:00 p.m. Ladies Hospitality Room 118

9:00 a.m.-9:00 p.m. Children's Game Room—
Board Room

9:00 a.m.-5:00 p.m. Children's Supervised Playroom (ex-
cept noon to 1:00 p.m.) Room 116

9:30 a.m. Grand Opening Session Renaissance Room

10:00 a.m. 5th Annual William Blum Lecture
by Dr. W. Andrew Wesley ... Renaissance Room

11:00 a.m. Business Session, Supreme Society Annual
Meeting Renaissance Room

11:30 a.m.-3:00 p.m. Children's Program — Trip aboard
Capt. Starn's Boat (Lunch). Assemble in
Board Room

12:00 noon Speakers' Luncheon—assigned table—
Embassy Room

12:30 p.m. Ladies Luncheon 22 Club

*Sponsored by Daniels Plating Barrel & Supply
Co., Maas & Waldstein Co., Nuodex Products
Division, Plating Products, Inc., Rapid Electric
Co., Summit Chemicals Corp., and AES New-
ark Branch.*

*Plato Party following the luncheon. Sponsored
by Metal Finishing, Conducted by Joan Wiar-
da, Elizabeth Meyers and Inez Oquendo.*

WEDNESDAY, JUNE 26

- 8:00 a.m. Speakers' Breakfast—assigned table—
Embassy Room
- 8:00 a.m. Research Breakfast Room 122
- 9:00 a.m. Council of Delegates Business Meeting—
Venetian Room
- 9:00 a.m.-12 noon Registration Mezzanine Lounge
- 9:00 a.m. Educational Session D Renaissance Room
- 9:00 a.m.-5:00 p.m. Ladies Hospitality Room 118
- 9:00 a.m.-9:00 p.m. Children's Game Room—
Board Room
- 9:00 a.m.-4:00 p.m. Children's Supervised Playroom (ex-
cept noon to 1:00 p.m.) Room 116
- Free day for ladies and children until picnic time for
swimming, beach, boardwalk, sightseeing, shopping, etc.*
- 12:00 noon Speakers' Luncheon—assigned table—
Embassy Room
- 2:00 p.m. Educational Session E Renaissance Room
- 5:30 p.m. Poolside Picnic at the Traymcre. All Conven-
tion Registrants

THURSDAY, JUNE 27

- 8:00 a.m. Speakers' Breakfast—assigned table—
Embassy Room
- 9:00 a.m. Educational Session F Renaissance Room
- 9:00 a.m. Board of Directors Meeting Room 120
- 9:00 a.m.-5:00 p.m. Ladies Hospitality Room 118
- 9:00 a.m.-9:00 p.m. Children's Game Room—
Board Room
- 9:00 a.m.-5:00 p.m. Children's Supervised Playroom—
(Except noon to 1:00 p.m.) Room 116
- 12:00 noon Speakers' Luncheon—assigned table—
Embassy Room
- 12:00 noon Ladies Luncheon Deauville Ballroom
Sponsored by Sel-Rex Corporation
- 12:00 noon-4:00 p.m. Children's Program — Luncheon
and Swimming Pool — Assemble in Room 125
- 2:00 p.m. Educational Session G Renaissance Room
- 6:00 p.m. MFSA Reception Mezzanine Lounge
- 7:00 p.m. Gala Banquet—Dancing—
Renaissance and Venetian Rooms

FRIDAY, JUNE 28

- 8:00 a.m. President's Breakfast Room 122

Technical Abstracts

MONDAY, JUNE 24

11:00 a.m. OPENING SESSION

FIFTH WILLIAM BLUM LECTURE. Introduction of the lecturer: Charles L. Faust, Battelle Memorial Institute, Columbus, Ohio. William Blum Lecture: "Pitting of Decorative Nickel-Chromium Coatings," W. Andrew Wesley, retired from International Nickel Co., Bayonne, N. J.



The status of the knowledge of the weathering of nickel-chromium coatings is reviewed, attention being focused on the process of corrosion of the chromium and nickel layers. This is not as well understood as is the subsequent attack of the basis metal. It is shown that the present theories are useful guides to investigators in their search for new coating systems.

The remainder of the lecture is devoted to speculation on the most important remaining mystery in the behavior of nickel-chromium coatings: "How is a surface pit started? What property of a point on a chromium surface determines that a pit will or will not start there?" New approaches are suggested which are worthy of trial in attempting to solve this intriguing problem.

2:00 p.m. TECHNICAL SESSION A

B. B. KNAPP, Chairman. International Nickel Co., Bayonne, N. J.



1. "The AES Research Program," B. B. Knapp, 1962-63 chairman, AES Research Committee.

The goals of the AES Research Program and the achievements to date are discussed. A review is given of the status of the active projects and the subjects of potential projects being considered. The financial support of the AES Research Program and the present financial condition are reviewed. Operation of the Research Committee under the new constitution of the Society is considered.

2:20 p.m.

2. Project 12: "The Effect of Soils on the Mechanism of Copper Deposition," Henry B. Linford and Leonard Karasyk, Columbia University, New York, N. Y.



H. B. Linford



L. Karasyk

Project No. 12, dealing with the cleaning and preparation of metals prior to electroplating, has developed new techniques to study how soils on the cathode affect the mechanism of copper deposition. To date this study has shown that if the equivalent of one monolayer of stearic acid is placed on the cathode the deposition process is changed. This is indicated by the fact that α_c , the transfer coefficient, is reduced from 0.57 for the clean electrode to about 0.3 for the soiled one. This would suggest different slow steps in the deposition process for the clean and soiled electrodes.

3:00 p.m.

3. Project 19: "Galvanic Currents Observed

During Outdoor Exposure of an Iron-Nickel Cell," Fielding Ogburn and Robert L. Myklebust, National Bureau of Standards, Washington, D. C.



F. Ogburn



R. L. Myklebust

An iron-nickel cell was constructed to simulate a pit extending through a nickel coating to the steel substrate. The iron, which was insulated from the nickel, had an exposed cross section 0.23 mm (9 mils) in diameter. Such cells were exposed outdoors for about a year and the short circuit currents generated were continuously recorded. In general, the magnitude of the current is independent of how hard it rains, and corrosion is primarily proportional to the time during which the cell is wet.

3:45 p.m.

4. "Aspects of the Autocatalytic Plating Reaction," Donald J. Levy, Lockheed Missiles and Space Co., Palo Alto, California.



Autocatalytic (electroless) plating can be performed with a number of different metals and reductants. A prime concern of this article is the mechanism of this base catalyzed reaction. Characteristics of the reaction, requirements of the reactants, side reactions, kinetics and energetics are discussed in relation to phenomena occurring at the catalyst surface. Other metals are suggested as potentially suitable for autocatalytic plating.

TUESDAY, JUNE 25

9:00 a.m. TECHNICAL SESSION B

Joint AES-ASTM Symposium on the Testing of Electrodeposits in cooperation with ASTM Committee B-8, Sub 111. *Chairman*, CLARENCE H. SAMPLE, International Nickel Co., New York, N. Y.; Chairman of ASTM B-8.



9:00 a.m.

Introductory remarks: AES-ASTM Intersociety Cooperation, Chairman Sample.

9:15 a.m.

5. "Hardness Tests in Metal Finishing," Harold J. Read, Pennsylvania State University, University Park, Pa., and members of Section C, Sub 111 B-8.



Because hardness is a complex combination of physical and mechanical properties that cannot exactly be defined, it can be measured only by specifying the factors involved in any test. Care must be used in interpreting and using the results. Because protective coatings are thin, only micro-hardness tests are useful in metal finishing; the details of specimen preparation, equipment, and procedure are particularly important. This paper reviews the methods of micro-hardness testing applicable to metallic coatings. Problems and precautions are discussed under the headings of apparatus construction, load selection, anvil effect, specimen preparation and reproducibility of results. Equipment for micro-hardness testing available in the United States is described and illustrated.

46
53
58

9:55 a.m.

6. "Methods for the Measurement of Stress in Electrodeposits," L. C. Borchert, Houdaille Industries, Huntington, W. Va. and members of Section F, Sub 111 B-8.



The three most commonly used methods of measuring stress in electrodeposits are reviewed and discussed: The Rigid Strip, the Spiral Contractometer and the Stresometer. The recommended procedure for the preparation of the specimen and the operation of the instrument is outlined. A comparison of results submitted by several industrial and research laboratories determining the stress in nickel deposits from the same solution using the three instruments has been submitted. The results obtained from each type of instrument check well, but there is a slight variation existing between the three instruments as used by these laboratories in conducting these tests.

10:35 a.m.

7. "The Measurement of Ductility," G. C. Van Tilburg, American Metal Climax, N. Y., N. Y. and members of Sec. G, Sub 111 B-8.



This paper reviews a number of reported methods for measuring the ductility of electrodeposited metallic coatings and comments on the requirements of a standard test.

11:05 a.m.

8. "The Adhesion Testing of Electrodeposited Coatings," R. W. Polleys, IBM Corp., Poughkeepsie, N. Y. and members of Section E, Sub 111 B-8.



Qualitative and quantitative methods of adhesion testing are briefly described to provide a survey of available techniques as a starting point for those wanting to evaluate a process or product for consumer applications. Recent experiences show that refinement of old or established methods is a most fruitful approach. New electropotential and "nodule" techniques appear promising. Scratch and abrasion methods seem to be useful for thin films on non-conductors.

2:00 p.m. TECHNICAL SESSION C



Joint AES-ASTM Symposium on the Testing of Electrodeposits in cooperation with ASTM Committee B-8, Sub 111, continued. *Chairman*, A. D. SQUITERO, International Nickel Co., New York, N. Y.; *Chairman* of Subcommittee 111, ASTM B-8.

2:00 p.m.

9. "Porosity in Electroplated Coatings—A Review of the Art with Respect to Porosity Testing," R. G. Baker, C. A. Holden and A. Mendizza, Bell Telephone Laboratories, Inc., Murray Hill, N. J. and members of Section B, Sub 111 B-8.



R. G. Baker



C. A. Holden



A. Mendizza

The testing of porosity in electroplated coatings has, for many years, been of considerable interest and concern to producers and consumers alike. While the desirability of accurately assessing the porosity of a plated coating is felt generally throughout industry, it is of particular importance in the field of outdoor decorative finishes and where coatings are used for electrical contact purposes. Many procedures and methods have been devised and used for evaluating the porosity of coatings. These are briefly reviewed. This paper describes some of the more recent activities of the ASTM and in the authors' laboratory in the field of porosity testing.

2:40 p.m.

10. "Measurement of Plating Thickness," W. Geissman, National Lock Co., Rockford, Ill., and R. E. Harr, Western Electric Co., and members of Section A, Sub 111 B-8.



W. Geissman



R. E. Harr

This report calls attention to the work that has been done in evaluation of thickness measuring methods. At the same time it proposes, not for the first time, that thickness results properly used with an adequate sampling plan would be a much better criterion of acceptance than accelerated corrosion tests. It also emphasizes that this ASTM project is of a continuing nature and that as soon as a method of measuring thickness becomes of sufficient general interest, the evaluation of its characteristics will be conducted by Committee B-8.

END OF JOINT SYMPOSIUM

3:30 p.m.

11. "Control of Zinc Electrodeposition to Decrease Hydrogen Embrittlement in Steel," W. Dingley and J. Bednar, Dept. of Mines and Technical Surveys, Ottawa, Canada.



W. Dingley



J. Bednar

The number of failures in zinc-plated high strength steels attributed to hydrogen embrittlement is causing concern. Normally, the hydrogen absorbed by the steel during plating is removed by a baking treatment; however, this is time-consuming and not always successful. This paper describes a zinc-plating process designed to decrease greatly the amount of hydrogen that is absorbed by the steel during plating.

The new method involves modifications of the standard methods of preparing the surface of the steel, preparing the plating bath and applying the current. Steel specimens plated by the new method retained their original bending ductility without baking.

4:15 p.m.

12. "Plating Thickness Measurements by X-Ray Diffraction Techniques," E. H. Babcock and W. T. Barnes, General Dynamics, Pomona, Calif., and F. T. Eddy, AVDEL, Inc., Burbank, Calif.

This paper presents data that show possibilities and limitations of the use of x-ray diffraction equipment and techniques as a non-destructive method for the determination of the thickness of electrodeposited metallic films on metal substrates. The results obtained using six different electrodeposited metals of various thicknesses and a comparison of



E. H. Babcock



W. T. Barnes



F. T. Eddy

two different techniques for thickness measurement are discussed. Curves for each of the electrodeposits investigated are presented with the pertinent operating data.

The advantages, disadvantages and economics of the use of x-ray diffraction equipment as a general laboratory tool are discussed.

WEDNESDAY, JUNE 26

9:00 a.m. TECHNICAL SESSION D

ROBERT A. EHRHARDT, *Chairman*, Bell Telephone Laboratories, Inc., Murray Hill, N. J.



9:00 a.m.

13. "Applications of Electroplating and Electroforming in Space Travel—A Survey," William Blum, Consultant, Washington, D. C.



The most important application of electroplating on spacecraft is the extensive use of gold plating to aid in the control of temperature in satellites. Control within certain limits is necessary to avoid injury to equipment or personnel. This requires a balance between the heat absorbed

from the sun largely as ultra-violet rays and the emittance of infra-red radiation. Gold is applied to a part of the surface because gold is a poor emitter, and therefore prevents the temperature from becoming too low.

Hundreds of parts of satellites and their equipment are electroplated with nickel, chromium, silver or gold to prevent tarnish and corrosion, to reduce wear, to protect against high temperatures, and to meet special conditions encountered in space. Electroplating has a minor but essential role in the vast space program.

9:45 a.m.

14. "Soldering to Gold Plating," W. B. Harding and H. B. Pressly, Bendix Corp., Kansas City, Mo.



W. B. Harding



H. B. Pressley

Weak, brittle solder joints may be encountered when soldering to gold plated parts. Gold alloys rapidly with tin-lead solder and forms brittle intermetallic compounds at the gold-solder interface. The effects of various types of gold plating, thicknesses of gold plating, soldering temperatures, soldering times, and solders on the wettability of gold plated parts and on the mechanical properties and metallurgical structures of solder joints are reported.

10:30 a.m.

15. "Throwing Power of Precious Metal Plating Solutions," D. Gardner Foulke and David C. Johnson, Sel-Rex Corp., Nutley, N. J.

Throwing power measurements were made on a



D. G. Foulke



D. C. Johnson

number of precious metal plating baths and related to certain base metal plating solutions. A modified Haring-Blum cell was used, and the effects of current density, pH, temperature and conductivity were determined. The throwing power measurements of acid, neutral and cyanide gold baths as well as silver, rhodium, platinum and palladium baths are compared to similar measurements for nickel, copper and cadmium solutions. The current distribution over micro-profiles was studied for a number of precious metal solutions and related to the work done by other authors with base metal plating baths.

11:15 a.m.

16. "Diffusion Phenomena in Plated Precious Metals," R. Scott Modjeska and Sam N. Kann, Cinch Manufacturing Company, Division of United Carr Fastener Corp., Chicago, Ill.



R. S. Modjeska



S. N. Kann

Connector terminals are generally fabricated from high copper alloys with suitable over plates to provide solderability, as well as mechanical and elec-

trical surface properties. Combinations of electrodeposits in varying thicknesses have been applied to a copper alloy and subjected to various heat cycles. Cross sections of these deposits have been studied to evaluate the diffusion rate between the various metals in different combinations. Other samples have been studied to determine the change in electrical characteristics of the surfaces as a result of the diffusion observed. Results of studies on porosity and solderability as shown by the test specimens will be reported.

2:00 p.m. TECHNICAL SESSION E

FRANK PASSAL, *Chairman*, M & T Chemicals, Inc., Detroit, Mich.



2:00 p.m.

17. "A Dual Cell Plating Apparatus for Deposition of Multilayer Metal Systems," V. P. Greco, Watervliet Arsenal, Watervliet, N. Y.



An experimental dual cell apparatus for the electrodeposition of alternating metal layers employing a rotating cathode is described. Microstructures of multilayered systems of nickel-copper are shown and some of their properties are discussed and evaluated. Also shown are nickel-iron and nickel-chromium microstructures. X-Ray diffraction data on the behavior of the nickel-copper systems are given.

2:45 p.m.

18. "A Cell for High-Speed Plating Evaluations," A. K. Graham and H. L. Pinkerton,

Graham, Savage and Associates, Inc., Jenkintown, Pa.

A plating cell for evaluating high speed plating processes, consisting of a rotating cylindrical cathode, positioned centrally within a conical anode in a container, has been devised which enables one to control the surface speed of the cathode (simulating strip speed in continuous plating) and, at the same time, to obtain a spectrum of the deposit over a range of current densities in a single test. This device may also be used in many cases for the control of the addition agents to the process, since the location of the defects associated with the limiting current density toward the higher current density end of the cathode will vary with the concentration of the addition agents. The cell has been used for rapid screening of a large number of addition agents in lead plating in a relatively short period of time.



A. K. Graham



H. L. Pinkerton

3:30 p.m.

19. "Evaluation of Addition Agents for High Speed Lead Plating," A. K. Graham and H. L. Pinkerton, Graham, Savage and Associates, Inc., Jenkintown, Pa.

It has been found possible to plate lead to an average thickness of 2 mils from two fluoborate bath compositions without addition agents at 80F with fair grain refinement and to limiting current densities (LCD) from 350 asf with no agitation to 1400-1800 asf with agitation equivalent to 300 fpm. Over 220 addition agents have been screened by evaluating in a special cell in one fluoborate bath at 80F, with agitation equivalent to 75 fpm. Many of the agents gave LCD values well above 1000 asf and

superior grain refinement, even when observed at 40X magnification. A selected group of some 26 agents were further evaluated at agitation rates equivalent to 0, 75, 150, and 300 fpm at both 80 and 125F. The grain refinement remained uniformly high under these conditions.

4:00 p.m.

20. "Electrochemical Machining," Walter B. Kleiner, Kleiner Electrochemical, Dunellen, N. J.



Description of machinery and methods of machining aerospace and common metals by anodic dissolution in various electrolytes is presented. Typical problems and electrolytes are described to introduce electroplaters to this application of deplating and electropolishing in the electrochemical machining field. Problems for which companies will be leaning on their plating departments for assistance, such as control and selection of the deplating solutions are discussed. Equations for metal removal rates and tool-work gap are developed from Ohm's and Faraday's laws for typical electrochemical machining operations.

THURSDAY, JUNE 27

9:00 a.m. TECHNICAL SESSION F

JAMES D. THOMAS, *Chairman*,
General Motors Corp., Warren,
Mich.



9:00 a.m.

21. "Salt Spray Corrosion Studies of Electroless Nickel-Plated Magnesium Alloys," Ivan C.

Hepfer, Kenneth R. Hampel and Carroll B. Turner, Furniture City Plating Co., Grand Rapids, Mich.



I. C. Hepfer



K. R. Hampel



C. B. Turner

This paper describes salt spray corrosion studies made on electroless nickel-plated magnesium alloys. It covers the protection afforded by various thicknesses of electroless nickel plates on magnesium AZ91C sand castings, AZ31E sheet, and AZ31E tooling plate. The effect of surface finish of plated sand castings is also shown. Some "barrier" plates applied prior to the electroless nickel deposit were also studied and found to be of little value. Post plates applied over the electroless nickel such as tin (both as plated and heat flowed), zinc, cadmium, gold, silver, and black nickel afforded protection in general in accordance with the electromotive series of metals. Post plates of silver and gold decreased the corrosion resistance whereas heat flowed tin considerably increased it. The latter system is recommended for optimum corrosion resistance.

9:45 a.m.

22. "Satin Nickel by Co-deposition of Finely Dispersed Solids," T. W. Tomaszewski, R. J. Clauss and H. Brown, The UdyLite Research Corp., Warren, Mich.

The effect of very fine bath-insoluble particles, such as oxides, sulfates, oxalates, carbides, to semi-bright and bright nickel electroplating baths on the appearance and satin texture of the deposits is described. The excellent corrosion protection afforded by these decorative nickel electrodeposits when



T. W. Tomaszewski



R. J. Clauss



H. Brown

plated with a final 0.01 mil chromium and when the underneath plate is a conventional semi-bright sulfur-free nickel, bright nickel, or duplex nickel is discussed.

A series of steel and zinc die-cast panels plated with satin nickel and exposed at Kure Beach and in an industrial atmosphere in Detroit are compared with conventional plate.

The mechanism of the greatly improved corrosion protection which is obtained after chromium plating these decorative deposits is considered.

10:30 a.m.

23. "Further Corrosion Studies on Bright Deposits Using Duplex Chromium," Edgar J. Seyb, M & T Chemicals Inc., Detroit, Mich.



New data are reported on the outdoor corrosion protection provided by duplex chromium plated on single and duplex nickel after three years' exposure. The thinner deposit combinations have corroded sufficiently to permit the calculation of endurance ratings in terms of months for a plate sequence to give a rating lower than 8. Improvements in endurance values of 8 to 10 times are common for the thicker duplex chromium. Test results are given for steel and zinc panels. Data for Kure Beach and Detroit exposure are compared with earlier CASS and Corrodokote corrosion ratings on the same sets of panels. Areas of agreement and disagreement among the exposures are discussed.

11:15 a.m.

24. "High Speed Copper Electroforming of Disk Record Matrices," A. M. Max and M. L. Whitehurst, RCA Victor Record Division, Radio Corporation of America, Indianapolis, Ind.



A. M. Max



M. L. Whitehurst

High speed electroforming offers economic advantages to an industry where a particular record may become popular overnight and its popularity may disappear almost as fast. High speed copper electroforming equipment has developed in the past thirty years to its present stage. The development of the equipment is reviewed and the latest equipment now in use is described.

As is well known, high speed plating can be obtained by high relative motion of solution and cathode. This is obtained by rotation of the cathode in the solution. Thickness uniformity is obtained by the use of anode shields. These and other factors entering into the design are elaborated.

Typical tensile strength and elongation data are presented under different conditions of deposition with photomicrographs of deposits obtained.

2:00 p.m. TECHNICAL SESSION G

E. C. BERTUCIO, *Chairman*, International Nickel Co., New York, N. Y.



2:00 p.m.

Panel Discussion: "Practical Problems in Industrial Plating."

Moderator: A. LogoZZo, Nutmeg Chrome Corp., Hartford, Conn.



PANEL MEMBERS:



M. M. Beckwith
R. O. Hull Co.,
Cleveland, Ohio



D. Carr
Bart Mfg. Co.,
Newark, N. J.



C. L. Faust
Battelle Mem. Inst.
Columbus, Ohio



F. A. Lowenheim
M & T Chemicals Inc.
Rahway, N. J.



E. A. Parker
Technic, Inc.
Cranston, R. I.



E. C. Rinker
Sel-Rex Corp.,
Nutley, N. J.



D. Swalheim
E. I. DuPont de
Nemours & Co.,
Wilmington, Del.

Adjournment in time for evening functions.

METAL FINISHING SUPPLIERS' ASSOCIATION, INC.



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PROGRAM

(All events at the Ambassador Hotel)

SUNDAY, JUNE 23

1:00 p.m. Board of Trustees Business Meeting—
Room 110

MONDAY, JUNE 24

9:00 a.m.-5:00 p.m. MFSA Literature Room—
Brighton Avenue Sun Porch

12:00 noon Luncheon and Annual Meeting — Surf Room

9:00 p.m.-1:00 a.m.—MFSA Ball—
Renaissance, Venetian, Rotunda Rooms

TUESDAY, JUNE 25

9:00 a.m.-5:00 p.m.—MFSA Literature Room—
Brighton Avenue Sun Porch

WEDNESDAY, JUNE 26

9:00 a.m.-2:00 p.m.—MFSA Literature Room—
Brighton Avenue Sun Porch

THURSDAY, JUNE 27

9:00 a.m.-5:00 p.m.—MFSA Literature Room—
Brighton Avenue Sun Porch

6:00 p.m.-7:00 p.m.—MFSA Cocktail Party—
Embassy Room



R. M. Norton
1st Vice-President



K. Ruhly
2nd Vice-President



R. E. Belke
3rd Vice-President



J. G. Carrique
Past President



J. E. Trumbour
Treasurer



E. A. Blount
Secretary



S. M. Goble
Trustee



A. B. Hoefler
Trustee



R. O. Hull, Jr.
Trustee



H. Leever
Trustee



H. D. McLeese
Trustee



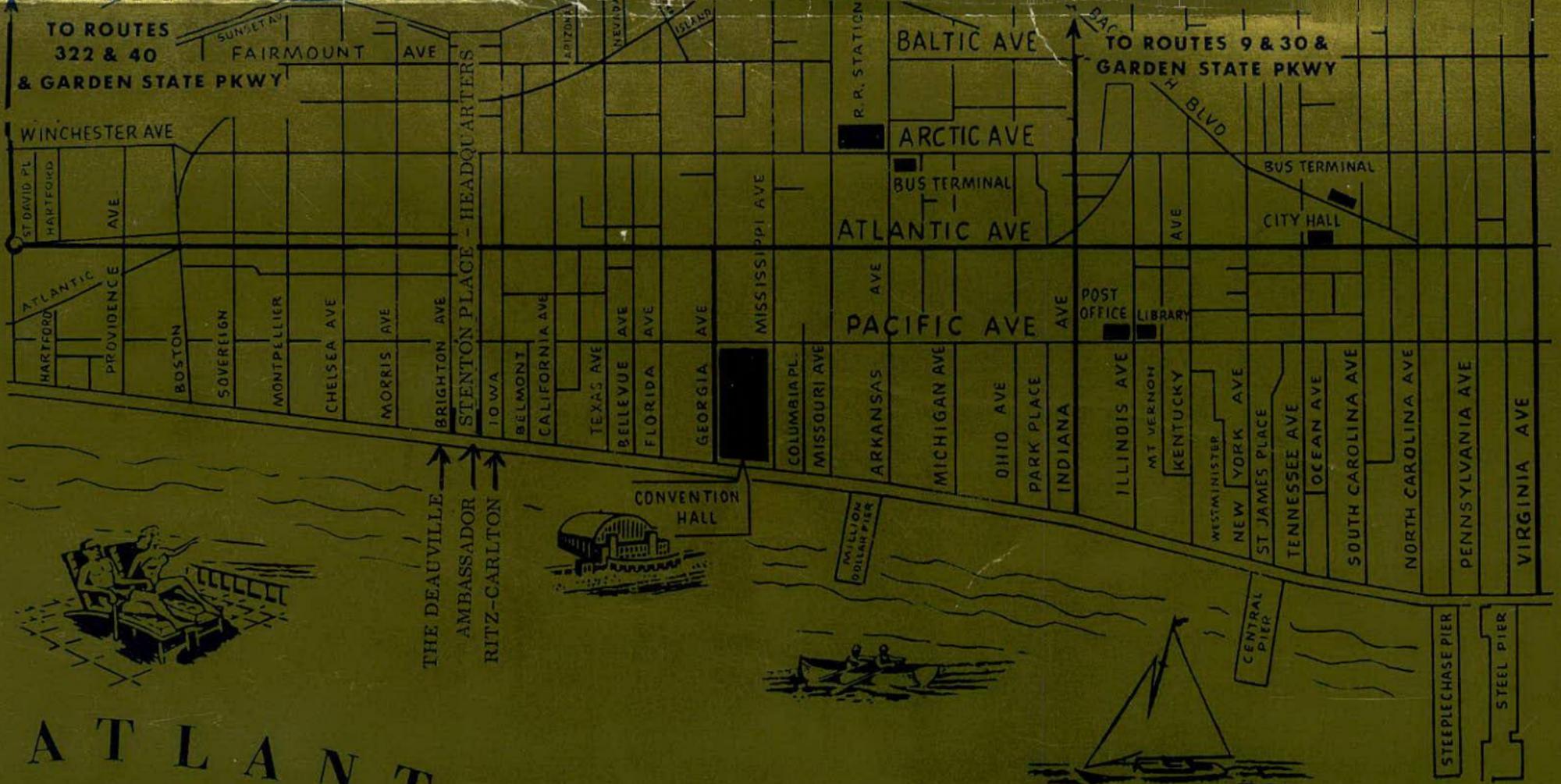
W. K. Murray
Trustee

See you at the
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AND
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