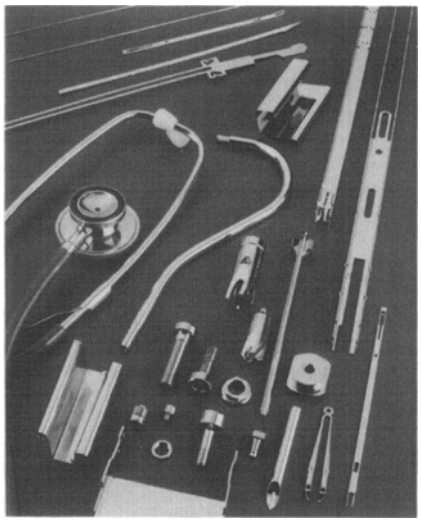
News

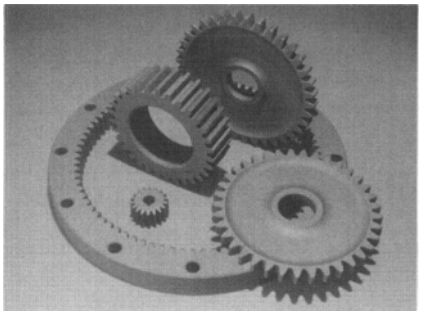
Materials/Products

New England Electropolishing will ***electropolish stainless steel used in medical products.*** The reverse plating process selectively removes the high points on stainless steel with 0.0003 cm (0.0001 in.) precision and deposits a clear, chemically bonded oxide layer that retards corrosion and resists the impregnation of bacteria. The result is a bright, reflective surface finish. For more information, contact: New England Electropolishing Inc., 220 Shove St., Fall River, MA 02724; tel: 1/800/672-6616; fax: 508/673-5252; e-mail: nee@ici.net.



New England Electropolishing Inc.

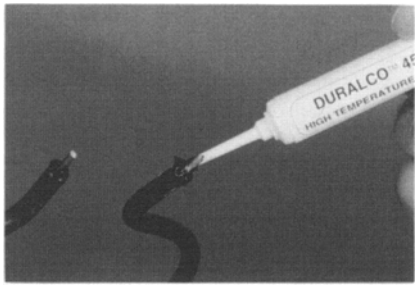
General Magnaplate offers Hi-T-Lube, ***a dry film lubricant for metals.*** Applied in a multilayer electrodeposition process to wear surfaces, the lubricant forms a metallic-oxide matrix of controlled thickness, with self-healing qualities, and good adhesion and shear properties. Coated gears outlived untreated gears by up to 15 times under cryogenic conditions. In simulated nuclear environments, the self-healing property protected teeth for long periods. For more information, contact: General Magnaplate Corp., 1331 Rte. 1, Linden, NJ 07036; tel: 908/862-6200; fax: 908/862-6110.



General Magnaplate Corporation

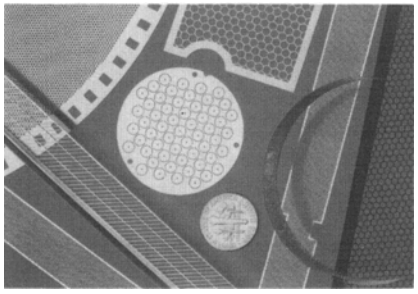
Halar ECTFE 812, from **Ausimont USA,** is a ***fluoropolymer for rotational molding, rotational lining, and compression molding.*** The packing density of the material aids in the production of homogeneous, stress-free compression molded parts. The material also has good stress crack resistance to assist use in large diameter stock shapes and thick sheet. For more information, contact: Ausimont USA Inc., 10 Leonards Ln., Thorofare, NJ 08086; tel: 1/800/221-0553; fax: 609/853-6405; web: http://www.ausiusa.inter.net.

Duralco 4525 epoxy, from **Cotronics,** is an ***electrically resistant epoxy*** that cures at room temperature and bonds to 260 °C (500 °F). High-temperature electrical applications include sealing thermocouples, electric heaters, and electronic components; installation of thermocouples, strain gages, and flow measuring instruments; and repairing glass-lined tanks. For more information, contact: Cotronics Corp., 3379 Shore Pkwy., Brooklyn, NY 11235; tel: 718/646-7996; fax: 718/646-3028.



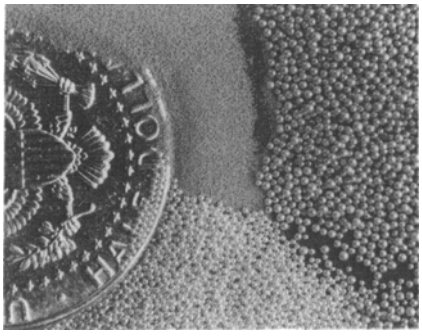
Cotronics Corporation

Photofabrication Engineering is producing custom PEI ***screens, strainers, and filters.*** Produced by photochemical machining, and made from virtually any metal or alloy, the screens can have features as small as 0.01 cm (0.004 in.) diam on 0.03 cm (0.012 in.) centers. For more information, contact: Photofabrication Engineering Inc., 500 Fortune Blvd., Milford, MA 01757; tel: 508/478-2025; fax: 508/478-3582; e-mail: etchitall1@aol.com.



Photofabrication Engineering Inc.

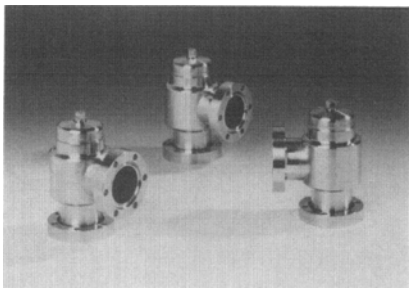
Nuclear Metals has available ***titanium and titanium alloy powders*** for fabricating parts by hot isostatic pressing or extrusion, or to produce porous structures through plasma spraying or sintering. The free-flowing, spherical powders have a controllable median particle size distribution from 44 to 1000 μm (0.002 to 0.04 in.). Compositions available include Ti-6Al-4V and Ti-6Al-2Sn-4Zr-2Mo. For more information, contact: Nuclear Metals Inc., 2229 Main St., Concord, MA 01742; tel: 508/369-5410; fax: 508/369-



Nuclear Metals Inc.

4045; e-mail: sales@nucmet.com; web: http://www.nucmet.com.

Valve 54, an ***all-metal angle valve*** for UHV applications that closes to a mechanical stop without a torque wrench, is available from **VAT.** The stainless steel sealing surfaces are elastically deformed to create a seal. The valve can be baked to 300 °C (572 °F) in the open or closed position. For more information, contact: VAT Inc., 500 W. Cummings Pk., Woburn, MA 01801; tel: 617/935-1446; fax: 617/935-3940; e-mail: usa@vatvalve.com; web: http://www.vatvalve.com.

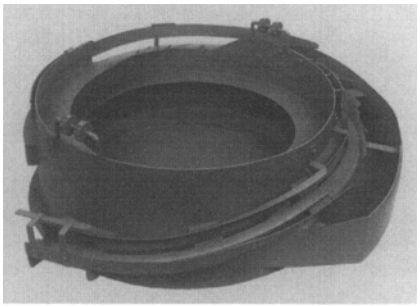


VAT Inc.

Siemens has introduced ***epoxy-coated toroidal cores*** with enhanced electrical and mechanical characteristics for such applications as chokes in EMC filters or switch-mode power supplies. Made from high-permeability materials, the cores have diameters of 4 cm (1.6 in.) and up. A blue electrostatic epoxy powder coating provides no degradation of the A_L compared to uncoated high perm cores, higher voltage strength, and improved mechanical strength. For more information, contact: Special Products Div., Siemens Components Inc., 186 Wood Ave. S., Iselin, NJ 08830; tel: 1/800/689-3717.

Oakite Products has available Controlant 650NS, a ***metalworking coolant*** for use in machining and grinding of most metals, alloys, and composites. This "neo-synthetic" coolant improves film boundary characteristics, chip carrying capabilities, and heat dissipation between the tool and workpiece. By eliminating metal-to-metal contact, temperatures are reduced and greater speeds and feeds can be realized for maximum productivity. For more information, contact: Oakite Products Inc., 50 Valley Rd., Berkeley Heights, NJ 07922-2798; tel: 1/800/526-4472; fax: 908/464-4658; web: http://www.oakite.com.

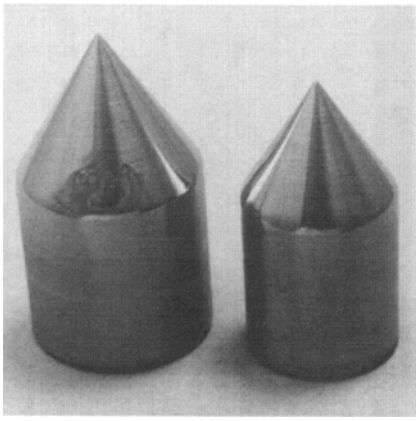
General Magnaplate will apply Plasmadize ***thermal spray coatings for wear- and corrosion-protection on metal parts.*** Good release properties make the coatings suitable for use on molds. Applications include plastics manufacturing, extrusion, and injection molding. In ASTM B 117 salt spray testing, the coatings exceed 1000 h. For more information, contact: General Magnaplate Corp., 1331 Rte. 1, Linden, NJ 07036; tel: 1/800/852-3301; fax: 908/862-6110; e-mail: info@magnaplate.com; web: http://www.magnaplate.com.



General Magnaplate Corporation

ICI Acrylics has introduced Lucite Super-Tuf ST ***acrylic polymers.*** The high-impact polymers are available in two grades: ST50G8 is for injection molding and extrusion, while ST50G6 is a higher melt-flow grade for injection moldings where lower viscosity polymer melt is required. For more information, contact: ICI Acrylics Inc., 7275 Goodlett Farms Pkwy., Cordova, TN 38018-4909; tel: 1/800/325-9577; fax: 901/381-2357.

Carpenter Technology has available ***Chrome Core 18-FM stainless, a soft magnetic ferritic alloy with good corrosion resistance,*** for applications exposed to mild chemicals or for automotive applications such as fuel injection, antilock braking systems, and automatically adjusting suspension systems. The material has better corrosion resistance than 430FR or 18%Cr 430 stainless. For more information, contact: Carpenter Technology Corp., P.O. Box 14622, Reading, PA 19612-4662; tel: 610/208-2524; fax: 610/208-2858.



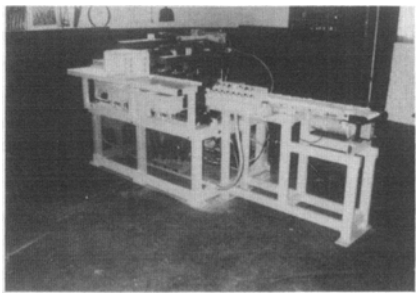
Carpenter Technology Corporation

Processing/Equipment

The 78-40 TOC Gas Generator, from **Whatman,** produces a continuous supply of ***low-pressure carrier/combustion gas,*** containing less than 0.1 ppm of hydrocarbons and less than 1 ppm CO_2, from any available compressed air supply. For more information, contact: Whatman Inc., 260 Neck Rd., P.O. Box 8223, Haverhill, MA 01835-0723; tel: 508/374-7400; fax: 508/374-7070.

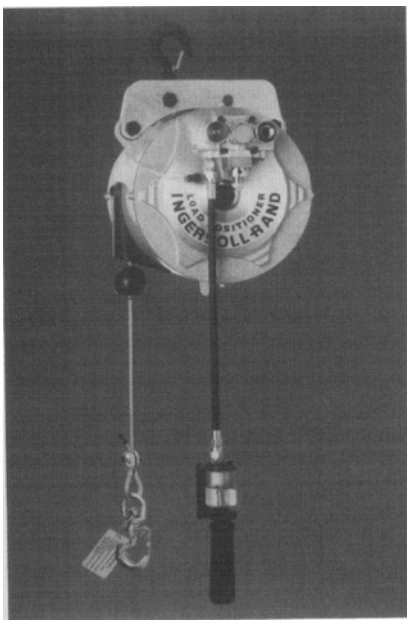
Metal Benders has available a ***multihead bending system*** with four bending heads for automatic loading and positioning of prenotched blank into the machine. The bending heads cycle to make a series of bends, for applications such as cabinet or appliance manufacture, and the system produces a part every 12 s. For more information, contact: Metal Benders Inc., 100

S. Hancock Ave., P.O. Box 1151, Freeport, IL 61032; tel: 815/233-1455; fax: 815/233-0939.



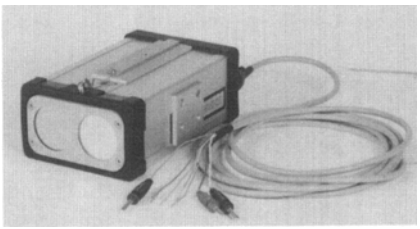
Metal Benders, Inc.

Ingersoll-Rand has available the M-series ***load positioner, for lifting, moving, and manipulating objects*** up to 23 to 907 kg (50 to 2000 lb). A recoil control brake prevents rapid upward movement of the balancers' cables and chains. A "down stop" option prevents a load from drifting down if the main air supply is disrupted. Available with a variety of suspension options, including hook, lug, beam trolley, and rail trolley, the load positioner has balance controls for handling constant loads or pendant controls for handling variable loads. For more information, contact: Tool and Hoist Div., Ingersoll-Rand Co., 253 E. Washington Ave., Washington, NJ 07882-9988.



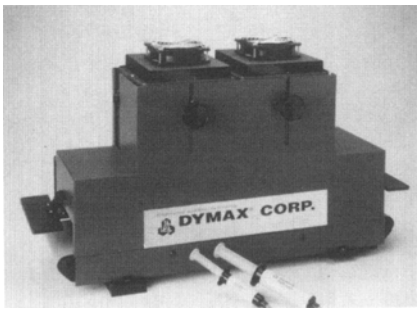
Ingersoll-Rand Company

Riegl USA has available ***a pulsed laser range finder for noncontact distance measurement of hot solid or liquid steel or other metal surfaces.*** Measurement is accurate to ±2.0 cm (±0.8 in.), with 0.25 cm (0.1 in.) resolution. Measuring range varies as a function of target temperature. For liquid steel with temperatures to 1450 °C (2460 °F), maximum range is about 7 m (23 ft). For glowing steel slabs with temperature to 1200 °C (2192 °F), measurements can be taken to 10 m (33 ft) away. Targets with temperatures below 800 °C (1440 °F) can be measured at up to 100 m (328 ft). Typically applications include tracking hot slabs in a reheat furnace or on a rolling table and level measurement of molten steel in a transfer ladle, converter, or tundish. For more information, contact: Riegl USA, 8516 Old Winter Garden Rd., Ste. 101, Orlando, FL 32835; tel: 407/294-2799; fax: 407/294-3215.



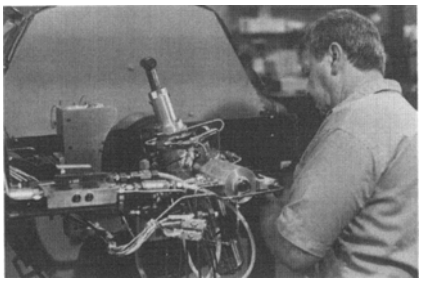
Riegl USA

Dymax has available the UVC-6-2 ***UV curing converter system for adhesives, coatings, and sealants.*** The system works on assembly lines with belt speeds from 0.3 to 10 m/min (1 to 33 ft/min). In addition, Dymax will evaluate assembly applications and recommend an appropriate adhesive and UV lamp. For more information, contact: Dymax Corp., 51 Greenwoods Rd., Torrington, CT 06790; tel: 860/482-1010; fax: 860/496-0608.



Dymax Corporation

Kemp Development has available ***a mechanical fluidized vacuum machine that alloys, coats, or purifies metal powder without causing agglomeration or shape change.*** The system keeps powder in a fluidlike state while mechanical fluidization ensures perfect mixing, eliminates hot spots, and provides unlimited residence time while temperatures and pressures change. Applications include ore reduction, aluminide manufacture, hydrogenation-dehydrogenation, heat storage, and surface treatment of small parts. For more information, contact: William Kemp, Kemp Development Corp., P.O. Box 218943, Houston, TX 77218-8943; tel: 281-492-6767; fax: 281/492-7026; e-mail: wekemp@kempdev.com; web: http://www.kempdev.com.

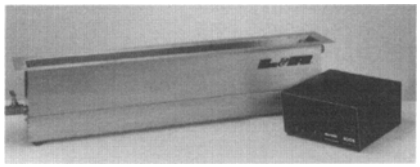


Kemp Development Corporation

With axis travels of 150 × 80 × 50 cm (59 × 31.5 × 19.7 in.) and a 1496 kg (3300 lb) table load capacity, the VMC 1500 portal-style ***vertical machining center*** from **Bridgeport Machines** is designed to machine large, heavy parts. Positioning accuracy is within 0.0005 cm (0.0002 in.) and repeatability within 0.0002 cm (0.00008 in.), with traverse speeds up to 2794 cm/min (1100 in./min) on the *x*- and *y*-axes and 1998 cm/min (787 in./min) on the *z*-axis. For more information, contact: Bridgeport Machines Inc., 500 Lindley St., Bridgeport, CT 06606; tel: 1/800/243-4292.

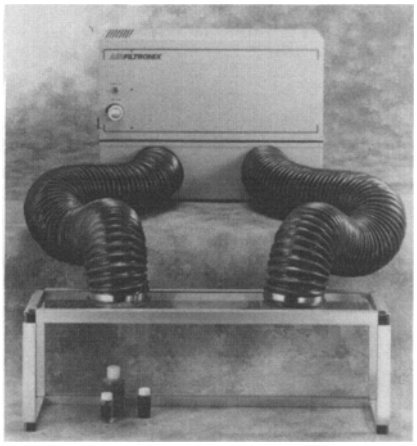
Bridgeport Machines Inc.

L&R Manufacturing has available the LE30 ***ultrasonic cleaning tank,*** using a 4002 Constant Power Output ultrasonic generator, for cleaning of such items as metal and plastic pipes, glass or PVC tubes, and small motors. The optional generator maintains a constant power level regardless of solution level, cleaning load, or voltage fluctuations. For more information, contact: L&R Mfg. Co., 577 Elm St., Kearny, NJ 07032-3604; tel: 201/991-5330.



L&R Mfg. Company

AirFiltronix has available ***customized, modular enclosures.*** Dimensions range from 25.4 cm (10 in.) minihood to 3 m (10 ft) multiperson workstations. The blower-filter unit can be mounted on or off the hood. The filter housing accommodates up to 19 cm (7.5 in.) stack of filters for removing particles, chemicals, powders, or sprays. For more information, contact: AirFiltronix Corp., 154 Huron Ave., Clifton, NJ 07013; tel: 201/779-5577.



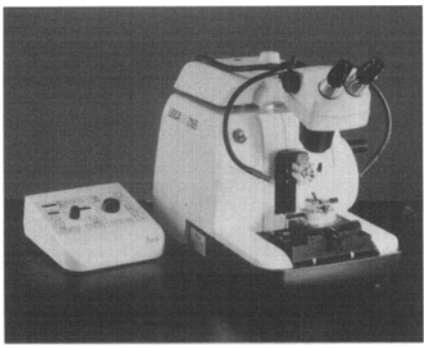
AirFiltronix Corporation

Metaullics Systems has introduced a Lotuss ***low-turbulence scrap submergence melting system*** for processing light gage aluminum scrap. Operating in conjunction with a molten metal circulation pump, the system uses an inverted wedge in a refractory wall design to generate a downward flow in the metal, so scrap materials are submerged below the molten metal surface for melting. For more information, contact: Metaullics Systems Co. L.P., 31935 Aurora Rd., Solon, OH 44139; tel: 216/349-8860.

Nortech Engineering has available the CM2010-D, a 51 cm (20 in.) ***industrial video monitor*** for factory floor or control room applications that require an enclosed, self-contained assembly. Compatible with IBM, VESA, and Apple MacIntosh II standards, and housed in a sheet metal enclosure, the monitor has maximum resolution of 1280 × 1600 pixels. For more information, contact: Nortech Engineering Inc., 153 Washington St., P.O. Box 266, E. Walpole, MA 02032-0266; tel: 508/668-3490; fax: 508/668-3568; web: http://www.norteng.com.

Measurement/Testing/Evaluation

Leica has available the RM-2165 ***automatic rotary microtome for sectioning polymers and plastic materials, foils, films, and electronic components*** for quality assurance, failure analysis, and research and development applications in the automotive and electronics industries. Motorized sectioning, large control surfaces, and ergonomic control panels reduce repetitive motion disorders. For more information, contact: Leica Inc., 111 Deer Lake Rd., Deerfield, IL 60015; tel: 847/405-0123; fax: 847/405-0147.



Leica Inc.

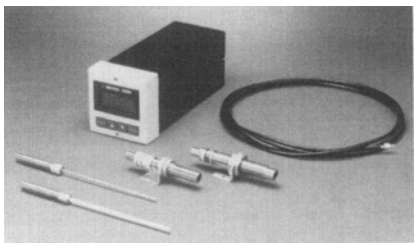
Ocean Optics offers ***miniature fiber-optic spectrometers that measure the optical characteristics of various materials.*** The portable or benchtop instruments are available with 14 diffraction gratings, for applications in the ultraviolet, visible, or shortwave near-infrared wavelengths. For more information, contact: Ocean Optics Inc., 1237 Lady Marion Ln., Dunedin, FL 34698-5314; tel: 813/733-2447; fax: 813/733-3962; e-mail: info@oceanoptics.com; web: http://www.oceanoptics.com.

Fischer Technology has available the MP2C and MP3C handheld ***coating thickness measurement instruments.*** Each instrument is available in two models. The Deltascope model measures nonconductive and nonmetallic coatings on iron and steel using the magnetic induction method; the Isoscope model measures nonconductive coatings on nonferrous base metals using the eddy current method. The company also offers a Dualscope MP4 that uses both measurement methods. For more information, contact: Fischer Technology Inc., 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 1/800/243-8417 (in CT: 860/683-0781); fax: 860/688-8496; e-mail: fischer-technology@worldnet.att.net.

Fischer Technology Inc.

The M680 ***fiber-optic infrared thermometer,*** from **Mikron Instrument,** ***measures temperature at multiple locations*** over a range from 150 to 4000 °C (300 to 7230 °F) and within selected spectral responses in the 0.65 to 1.06 μm (0.03 to 0.04 mils) range. Applications include rapid thermal processing, automatic induction heating, automated component assembly, vacuum melting, and metal heat

treatment. For more information, contact: Mikron Instrument Co., Inc., 16 Thornton Rd., Oakland, NJ 07436; tel: 1/800/631-0176; fax: 201/405-0090.



Mikron Instrument Company, Inc.

International Light has introduced IL Special Probes, ***probes that measure light*** over a band from 200 to 2000 nm (0.008 to 0.08 mils). The probes were developed for use with the IL1400A Radiometer. For more information, contact: International Light Inc., 17 Graf Rd., Newburyport, MA 01950; tel: 508/465-5923; fax: 508/462-0759; e-mail: ilsales@intl-light.com; web: http://www.intl-light.com.

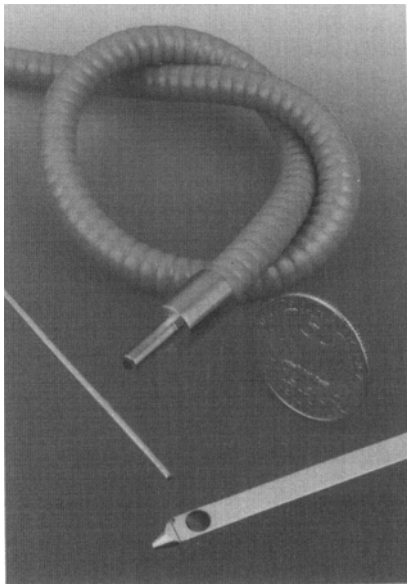
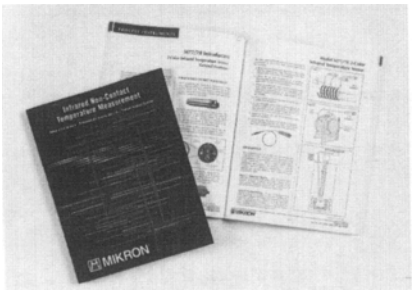


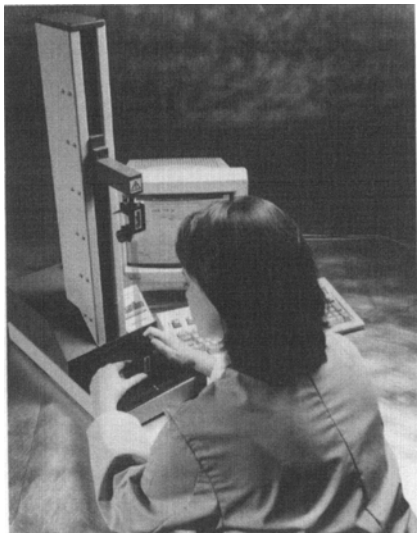
Photo 22b—International Light Inc.

The 250-page *Infrared Temperature Sensing Handbook,* from **Mikron Instruments,** presents data and diagrams to assist in selecting of ***infrared temperature sensors, thermal imaging systems, or blackbody calibration sources*** for a particular application. Technical data cover material emissivity, installation, temperature conversion, atmospheric transmittance, and the theory of infrared thermometers. For a copy, contact: Mikron Instrument Co., Inc., 16 Thornton Rd., Oakland, NJ 07436; tel: 1/800/631-0176; fax: 201/405-0090.



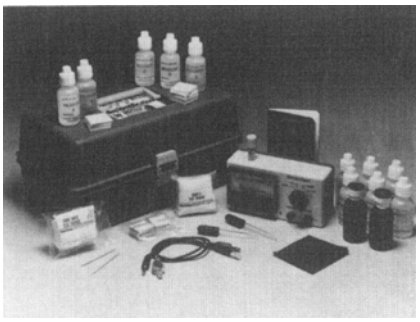
Mikron Instrument Company Inc.

Chatillon has available the LF500 ***materials testing system.*** Capable of testing up to 500 N (110 lbf), the system offers a force measuring accuracy of ±1%, with a speed accuracy of ±0.2%. Instrument software records maximum load, load at break, extension at maximum load, and extension at break for up to 50 samples per batch. For more information, contact: John Chatillon & Sons Inc., P.O. Box 35668, Greensboro, NC 27425-5668; tel: 1/800/527-9999; fax: 910/668-3746; e-mail: chatillon@chatillon.com.; web: http://www.chatillon.com.



John Chatillon & Sons Inc.

Koslow Scientific has developed the General Alloy ID Lab Kit 1599 for ***identification of stainless steels, nickel alloys, and tool steels.*** Requiring no special training to use, the kits perform simple spot tests that are typically used to identify stainless steels, Inconels, Monels, Hastelloys, low-alloy steels, and tool steels. For more information, contact: Koslow Scientific Co., 75 Gorge Rd., Edgewater, NJ 07020; tel: 1/800/556-7569; fax: 201/941-4485.



Koslow Scientific Company

Nekton 3.1, from **Fluent,** is ***computational fluid dynamics-based modeling and analysis software for thin film coatings.*** This updated version supports a wider variety of thin film coating flows. Designers can analyze the effects of manipulating fluid properties, operating conditions, and coater geometry. For more information, contact: Fluent Inc., 10 Cavendish Ct., Centerra Resource Pk., Lebanon, NH 03766-1442; tel: 603/643-2600; fax: 603/643-3967.

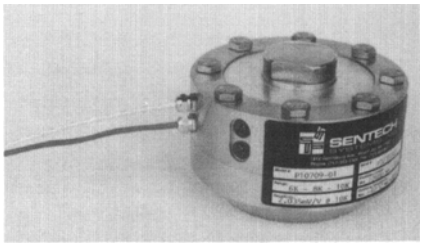
"Weathering Services," a 32-page brochure from **Atlas Weathering Services Group** details ***climatological data for the company's 17 exposure facilities*** in Kentucky, Arizona, Florida, France, Holland, Singapore, Australia, Canada, Russia, and Saudi Arabia. The brochure also covers the company's weathering, automotive testing, and laboratory testing services. For a copy, contact: South Florida Test Service, Atlas Weathering Services Group, 17301 Okeechobee Rd., Miami, FL 33015; tel: 305/824-3900; fax: 305/362-6276.

The Fischerscope MMS, from **Fischer Technology,** performs ***nondestructive testing of coating thickness using electromagnetic, eddy current, or beta backscatter methods*** from a single desktop unit. Ideal for PCB manufacturers that measure several types of coatings, the unit can measure the electrical conductivity of non-

ferrous metals or the thickness of zinc coatings on steel. For more information, contact: Fischer Technology Inc., 750 Marshall Phelps Rd., Windsor, CT 06095; tel: 1/800/243-8417 (in CT: 860/683-0781); fax: 860/688-8496; e-mail: fischer-technology@worldnet.att.net.

The **North American Die Casting Association** has published ***three booklets on identifying and eliminating common defects in die castings.*** The 43-page *Defects Troubleshooting Guide* ($40, $25 NADCA members), intended for shop-floor use, contains photographs and photomicrographs on 22 defects, along with step-by-step solutions. The 160-page *Die Casting Defects: Causes and Solutions* ($80, $50 NADCA members) is a comprehensive textbook for die casting engineers. *Defects CD-ROM* ($120, $75 NADCA members) contains a library of defects pictures, along with causes and solutions for problems. For more information, contact: North American Die Casting Association, 9701 W. Higgins Rd., Ste. 880, Rosemont, IL 60018-4721; tel: 847/292-3600; fax: 847/292-3620; e-mail: nadca@diecasting.org.

The FN3042S load cell, from **Sentech Systems,** is ***a transducer ideal for high-cycle fatigue testing.*** Available in ranges from (1000 to 100,000 lbf), the load cell provides ±0.05% FSO performance. Fatigue-rated strain gages configured in the form of a wheatstone bridge let the cell undergo more than 10^9 full-scale cycles with minimal change in zero offset stability. For more information, contact: Sentech Systems Inc., 1814 Harrisburg Ave., Mount Joy, PA 17552; tel: 717/653-2306; fax: 717/653-0637; e-mail: ssi@redrose.net.



Sentech Systems Inc.

Balston 31S6, 31G, 41S6, 41G, and 91S6 ***stainless steel sample filters,*** from **Whatman,** are designed to protect process analyzers and monitoring equipment from the sample impurities that are the most frequent cause of maintenance problems for instruments in an industrial environment. The filters remove solids and liquids from gases with 99.99% efficiency at 0.01 mm (0.0004 mils), and solid particulate removal from liquids to 0.2 mm (0.008 mils). For more information, contact: Whatman Inc., 260 Neck Rd., P.O. Box 8223, Haverhill, MA 01835-0723; tel: 508/374-7400; fax: 508/374-7070.

Whatman

The F-Scan, from **Digital Wave,** ***nondestructively measures elastic properties,*** measuring bending and out-of-plane shear stiffness of a material using guided Lamb waves. For laminated composite plats, the F-Scan outputs the D_{11}, D_{22}, A_{44}, and A_{55} stiffness matrix components. The system can be used in place of mechanical testing of sample specimens for quality assurance or material characterization studies. Because it requires access to only one side of the specimen without immersion or couplants, the system is suited for measuring time-dependent material behavior. For more information, contact: Digital Wave Corp., 11234-A E. Caley Ave., Englewood, Colo. 80111; tel: 303/790-7559; fax: 303/790-7567; e-mail: info@digitalwavecorp.com.

Atlas Electric Devices has available two XenoCal ***sensors to measure irradiance and radiant exposure for Xenotest xenon arc test equipment.*** One sensor measures UV irradiation (300 to 400 nm, 0.011 to 0.015 mils); the other measures global solar irradiation (300 to 800 nm, 0.011 to 0.030 mils). For more information, contact: Atlas Electric Devices Co., 4114 N. Ravenswood Ave., Chicago, IL 60613; tel: 773/327-4520; fax: 773/327-5787.

International Research/Manufacturing Centers

R&D Magazine has named a ***refractory corrosion monitor*** developed by the Department of Energy's **Pacific Northwest National Laboratory** in conjunction with researchers at MIT, Cambridge, MA, one of the 100 most significant innovations of 1996. The device monitors the thickness of insulation in an operating, high-temperature furnace. For more information, contact: Pacific Northwest National Laboratory, Communications, P.O. Box 999, Richland, WA 99352; tel: 509/375-3776; fax: 509/375-2242; web: http://www.pnl. gov/news.

The Filmetrics F-30 optical probe, developed at **Sandia National Laboratories,** lets failure within a ***thin film growth*** run be detected almost immediately so the recipe can be modified as the run progresses. The device, which evaluates almost ten times the number of wavelengths as its closest competitor, works by reflecting visible or near-infrared light from films to measure their growth rates. In other news, researchers at the lab have developed a Closed Loop

Induction Process Controller that ***monitors material during the manufacturing process*** and orders changes to make the material meet design specifications. For more information, contact: Sandia National Laboratories, Albuquerque, NM 87185-0167; tel: 505/844-8066; fax: 505/844-6367; web: http://www. sandia.gov.

University View

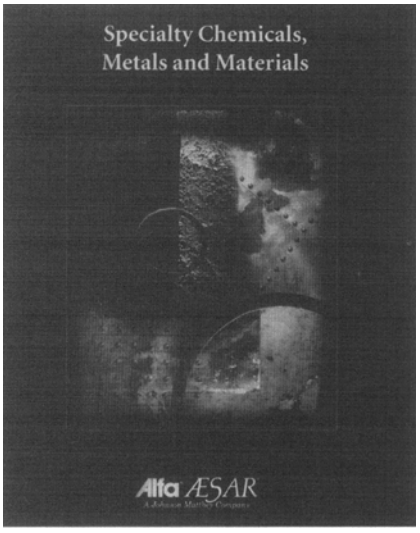
The **National Technology Transfer Center** is providing ***Technical Support Packages from NASA Field Centers.*** These packages ($10 each), which expand on items in *NASA Tech Briefs,* are technical reports on NASA processes, methods, procedures, or research. Topics include automated gathering of information on the Internet, deconvolution method for reducing multipath GPS errors, and software for mathematical modeling of dynamics and controls. For more information, contact: National Technology Transfer Center, Wheeling Jesuit College, 316 Washington Ave., Wheeling, WV 26003; tel: 1/800/678-6882; fax: 304/243-2463.

Behrokh Khoshnevis, a research at the **University of Southern California,** has patented ***contour crafting, a rapid prototyping technology*** that can create large objects that require relatively little final finishing from a variety of materials. The process adds a pair of movable, flat control surfaces just above and to the size of the extrusion nozzle. This "nozzle and trowel" arrangement creates the outside walls of the object as a thin but strong shell. A separate pouring mechanism then fills in solid objects by adding layer after layer of material. For more information, contact: University of Southern California, 3620 S. Vermont Ave., Los Angeles, CA 90089-2538; tel: 213/740-2215; fax: 213/740-7600;web:http://www.usc.edu.

Literature/Data Sources

Ausimont USA offers a 22-page design guide on Halar ***ECTFE fluoropolymer***: properties, grades, product forms, properties, and processing. Available in powder, pellet, film, and sheet form, the thermoplastic resin can be used in such applications as film and tubing extrusion, general-purpose injection molding, wire coating, cable jacketing, rotational molding and lining, and electrostatic powder coating. For a copy, contact: Ausimont USA Inc., 10 Leonards Ln., Thorofare, NJ 08086; tel: 1/800/323-AUSI; fax: 609/853-6405; e-mail: alison@ausiusa.com.

Alfa Aesar has available a 12-page ***corporate capabilities brochure.*** The company produces inorganic compounds, precious metal chemicals and catalysts, organics and organometallics, selenium and selenium compounds, iodine and iodine compounds, fabricated metals and powders, rare earth metals and compounds, electronic materials, precious metal labware, and analytical fluxes. For a copy, contact: Alfa Aesar, 30 Bond St., Ward Hill, MA 01835-8099; tel: 508/521-6300; fax: 508/521-6350; web: http://www.alfa.com.



Alfa Aesar

Plastic Injection Molding...Material Selection and Product Design Fundamentals by Douglas Bryce, published by the **Society for Manufacturing Engineers,** is a 360-page book that addresses the ***basics and fine points of materials selection and production design of the thermoplastic injection molding process.*** For a copy ($76, $64 SME members), contact: The Society of Manufacturing Engineers, One SME Dr., P.O. Box 930, Dearborn, MI 48121-0930; tel: 313/271-1500; fax: 313/271-2861.

The **Powder Metallurgy Equipment Association,** a member of the Metal Powder Industries Federation, has published a 190-page ***directory of the catalogs of major suppliers of equipment used to manufacture powder metallurgy parts and products.*** The catalog covers such equipment as P/M compacting presses, metal injection molding presses, tools and dies, and sintering furnaces. For a copy, contact: Metal Powder Industries Federation, 105 College Rd. E., Princeton, NJ 08540-6692; tel: 609/452-7700; fax: 609/987-8523; e-mail: info@mpif.org; web: http://www.mpif.org.

ICI Performance Chemicals has available a packet of product sheets on grades of Saffil ***alumina fibers,*** for use in refractory, automotive, hot gas filtration, and catalyst support applications. The high-purity materials contain low levels of non-fibrous material and low linear shrinkage, resilience, and chemical and thermal resistance to 1750 °C (3182 °F). For a copy, contact: Lorena McMenamin, ICI Performance Chemicals, Concord Pl., Tatnall 2, 3411 Silverside Rd., P.O. Box 15391, Wilmington, DE 19850; tel: 302/887-4160.

Relative Metrics has released *EPMatLib for Windows 3.1/95/NT, **a database of electronics packaging materials properties.*** Materials are organized into 13 classes, including metals and alloys, ceramics, adhesives, laminates, and solders. A search function selects only those materials conforming to a specific set of user criteria. The database also retains the properties of materials added by the user. For a copy, contact: Relative Metrics, 5908 Westslope Dr., Austin, TX 78731; tel: 512/458-5560.

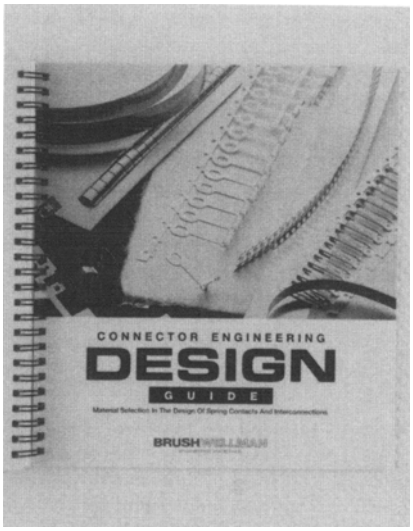
Timken has published a guide to its ***microalloy steels, an economical alternative to heat-treated steels.*** The six-page brochure describes characteristics, chemis-

tries, processing advantages, tool wear curves, and hardness and yield strength comparisons with competitive steels. For a copy, contact: Timken Co., Mail Code: GNW-37, 1835 Dueber Ave., S.W., P.O. Box 6932, Canton OH 44706-0932; tel: 330/471-3502; fax: 330/471-7032; web: russelle@timken.com.

A 72-page guide, from **Advanced Polymer Sciences,** covers the formulations of the company's ***Siloxirane-based coatings for use with various chemical products.*** The booklet includes IMO codes and temperature ratings on more than 5000 chemical products. Siloxirane is a patented polymer resin used in corrosion-resistant coatings. For more information, contact: Advanced Polymer Sciences, P.O. Box 269, Avon, OH 44011; tel: 1/800/334-7193; fax: 216/937-5046.

The **International Copper Association** has published a ***CD-ROM containing the 12-volume INCRA monographs on the metallurgy of copper in text-searchable format,*** including phase diagrams; diffusion rate data and mass transport phenomena, solidification characteristics; forming limit diagrams; gaseous elements; and cryogenic and high-temperature property data. For a copy (free to universities, technical libraries, and interested researchers) contact: Technical Information Dept., International Copper Association Ltd., 260 Madison Ave., New York, NY 10016; tel: 212/251-7249; fax: 212/251-7245; e-mail: ica@copper.org.

The *Connector Engineering Design Guide,* from **Brush Wellman,** assists in ***materials selection for spring contacts and interconnections*** by describing the characteristics and interrelationships governing material performance. The guide includes information on industry trends, connector requirements, design analysis, and material properties. For a copy, contact: Brush Wellman Inc., 17876 St. Clair Ave., Cleveland, OH 44110; tel: 216/486-4200.



Brush Wellman Inc.

The *Statistical Review for 1996,* available as a book or disk from the **Aluminum Association,** covers ***U.S. aluminum supply, shipments, markets, U.S. foreign trade, and world statistics.*** Most of the information is assembled in 10-year trend tables, beginning with 1986, and includes introductions, descriptions, and highlights. For a copy ($100, plus $8.50 shipping), contact: Aluminum Association, Publications Dept., P.O. Box 753, Waldorf, MD 20601; tel: 202/862-5100; fax: 202/862-5164; telex: 710/822-1129.

NACE International has released a ***1997 products catalog supplement*** featuring about 65 books, standards, and software products not included in the 1997 products catalog, such as the Corrosion Information Compilation Series, Corrosion Atlas, Reference Electrodes, and Corrosion Journal on CD-ROM. For a copy, contact: NACE International, P.O. Box 218340, Houston, TX 77218-8340; tel: 281/228-6200.

Literature, from **International Specialty Products,** describes grades, properties, and applications of the company's Micropowder and Ferronyl ***carbonyl iron powders*** for use in radar-absorbing materials, electronic components, EMI/RFI shielding products, metal-injection molded parts, and powder metallurgy products. For a copy, contact: International Specialty Products, Wayne, NJ; tel: 1/800/622-4423.

The H_2O Infokit is an 86-page packet, from **Danielson Associates,** on ***water vapor in vacuum systems.*** This series of technical notes discusses sources of and behavior of water in vacuum systems. The notes also propose detailed solutions to water vapor problems, using formulas, guidelines, and graphs. For a copy, contact: Danielson Associates Inc., 1989A University Ln., Lisle, IL 60532-4132; tel: 630/960-0086; fax: 630/960-0546; e-mail: tgarza@interaccess.com.

In Business

Parker Hannifin Corporation, Cleveland, OH, has acquired EWAL Manufacturing, Belleville, NJ, a manufacturer of fittings and valves. The acquired company had sales of over $33 million in 1996. Terms of the deal were not disclosed.

AutoSimulations Inc., Bountiful, UT, has opened an office to serve Asian markets: AutoSimulations Asia Pacific Pte. Ltd., 37 Tannery Ln., #05-1-Tannery House, Singapore; tel: 011/65/749-1268; fax: 011/65/749-3713; e-mail: autosim @pacific.net.sg.

Degussa AG, Frankfurt, Germany, has divested two vacuum systems businesses. Degussa sold Durferrit GmbH Thermotechnik, Mannheim, Germany, to **Houghton GmbH,** Subs. Houghton International Inc., Valley Forge, PA. In addition, ALD Vacuum Technologies GmbH, Subs. Degussa AG, Erlensee, Germany, was taken over by **Euro-Metallconsult GmbH,** Vienna, Austria.

Bayer Corporation, Pittsburgh, PA, has broken ground on a $60 million nitric acid plant at its Baytown, TX, facility. EDNC, Subs. LSB Industries Inc., will build and operate the plant for Bayer. Nitric acid is a key feedstock for the production of MDI and TDI isocyanates, which are used to make polyurethanes. When completed in fall 1997, the plant will have a rated capacity of 402,000 metric tons (443,000 tons) per year.

Parker Hannifin Corporation, Cleveland, OH, has opened ParkerStores in Argentina and Brazil, that let customers view industrial motion control products. The Argentinean store is located at Echeverria 1775/77 Villa Maipú, San Martin Pica. de Buenos Aires; tel: 011/54/1/752-4129.

The Brazilian store is at Ruo Bernardo Lobo 22, 09942-210 Diadema, SP, São Paulo; tel: 011/55/11/746-2474.

The **European Powder Metallurgy Association,** Shrewsbury, U.K., reports that, following two years of double-digit growth, West European shipments of powder metallurgy grade ferrous and nonferrous powders (mainly copper base) totaled 117,000 metric tons (129,000 tons) in 1996, 0.5% higher than for 1995. One factor was "downsizing" of P/M parts that resulted in reduced requirements for powders. For example, the automotive P/M camshaft pulley has shed 40% weight through redesign of the PM part.

AstroCosmos Metallurgical Inc., Wooster, OH, is providing Quick-Ship service for corrosion-resistant metals, including titanium, zirconium, tantalum, niobium, and nickel alloys. Orders received by 1 p.m. for in-stock items are shipped the same day.

According to a report from the **Copper Development Association,** New York, NY, domestic consumption of copper and copper alloy mill products rose 2.9% in 1996, to 3.4 million kg (7.6 million lb). Building construction, the largest end-use market for copper products, accounted for 42.6% of total consumption; electrical and electronic products for 23.9%; industrial machinery and equipment for 12.0%; and consumer products for 9.4%.

Varian Associates Inc., Palo Alto, CA, has purchased the nuclear magnetic resonance instrument business of **Otsuka Electronics USA,** Ft. Collins, CO. Varian Associates will run the Fort Collins business as part of its Palo Alto-based nuclear magnetic resonance instruments business. Nuclear magnetic resonance spectrometry is used to investigate molecular structures.

Cadillac Plastic has moved its corporate offices to 2855 Coolidge Hwy., Ste. 300, Troy, MI 48084; tel: 248/205-3100; fax: 248/205-3187.

Mannesmannröhren-Werke (MRW), Mannesmann AG, Düsseldorf, Germany, will merge its hot-finished seamless steel tube activities into those of **Vallourec.** The resulting joint venture, to be incorporated under French law under the name Vallourec & Mannesmann Tubes, will be 55%-owned by Vallourec and 45%-owned by MRW. MRW will take over a 21% stake in Vallourec, to become the principal shareholder of Vallourec.

Under a licensing agreement with **Kobe Steel Ltd.,** Tokyo, Japan, **Outkumpu Copper Kenosha,** Kenosha, WI, will manufacture KLF-5, KFC, KLF-5Z, CAC92, and KLF-7 copper alloy strips, developed by Kobe Steel.

Houghton International Inc., Valley Forge, PA, will take over the aluminum anodizing business of **Benchmark Products,** Indianapolis, IN. Benchmark will retain its job shop business and continue to manufacture the products for Houghton for five years.

Carpenter Technology, Reading, PA, has purchased three vacuum arc remelting furnaces from Consarc, Rancocas, NJ. The furnaces will be used to produce 91 cm (36 in.), 11,300 kg (25,000 lb) ingots of nickel-base aerospace alloys. The first two furnaces are expected to be on-line by early spring.

On 1 July 1997, the American Society for Quality Control, Milwaukee, WI, changed its name to the **American Society for Quality,** after 80% of ballots returned by members approved the change. Some members felt "quality control" was not representative of the diverse duties of quality professionals. The Society is dedicated to the ongoing development, advancement, and promotion of quality concepts, principles, and techniques.

An aircraft aluminum extrusion mill in Canton, GA, the nation's first such mill constructed in almost three decades, will be operational in September 1997. The 10,450 m^2 (112,500 ft^2) mill, owned by **Universal Alloy Corporation,** Anaheim, CA, will have four extrusion presses from 816 metric tons (900 tons) to 2495 metric tons (2750 tons).

Kudos

Armco Inc., Pittsburgh, PA, a specialty steel producer, has named ***Robert Pasquarelli*** as General Manager for Mansfield Operations. Mr. Pasquarelli, who holds a B.S. in metallurgical engineering from the University of Notre Dame, had been Acting President and CEO at Susquehanna Steel.

The **American Society for Testing and Materials,** W. Conshohocken, PA, has awarded its William T. Cavanaugh Memorial Award, for excellence in the voluntary standards system, to ***Helmut Reihlen,*** director of Deutsches Institut für Normung, and ***Lendell Steele,*** a consulting nuclear professional engineer. Mr. Reihlen, who holds a Ph.D. in metallurgy from the University of Clausthal, Germany, was cited for leadership in strengthening the world community of standardization. Mr. Steele was cited for his pioneering research and promulgation of related standards for improved structural materials in nuclear power systems.

Thomas Donohue has joined the Electric Power Research Institute's Center for Materials Production at **Carnegie Mellon University,** Pittsburgh, PA, as a Senior Project Consultant. Mr. Donohue had been Director of Project Engineering at Mill Service, Inc.

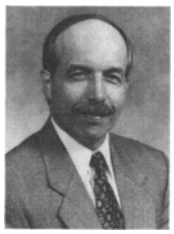
J.B. McCrudden

J. Barry McCrudden has been elected President and CEO of **MMR Group** of materials testing laboratories. The group's subsidiaries include Lehigh Testing Laboratories Inc., New Castle, DE; Connecticut Metallurgical, E. Hartford, CT; and Massachusetts Materials Research Inc., W. Boylston, MA.

The **Machinery Dealers National Association,** Silver Spring, MD, has named ***Raymond Roberts,*** of Roberts Machin-

ery Sales Ltd., Ferndale, MI, as President of the Austin D. Lucas Scholarship Fund, which awards grants for tuition to the children of MDNA member firm employees.

The **American Vacuum Society,** New York, NY, has awarded its Peter Mark Memorial Award to ***Brian S. Swartzentruber,*** Sandia National Laboratory, for studies of the morphology of silicon surfaces; its Medard W. Welch Award to ***Phaedon Avouris,*** IBM T.J. Watson Research Center, for his contributions to the study of the chemistry of semiconductor surfaces; its John Thornton Award to ***James M.E. Harper,*** IBM T.J. Watson Research Center for his research on ion beam deposition and sputtered thin films; its Albert Nerken Award to ***John C. Helmer,*** retired from Varian Associates, for his research on molecular beams, Masers, cross-field discharges and plasmas, gas flow in molecular and transition regimes, turbomolecular pumps, and vacuum and surface science instrumentation; and its George Hanyo Award to ***Mark H. Engelhard,*** Pacific Northwest National Laboratory, for outstanding performance in technical support of research.



S. Samatas

Sam Samatas has assumed the position of President of **Atlas Electric Devices Company,** Chicago, IL. Mr. Samatas had been Vice President of Operations for a division of Moore Corporation.

Precision Specialty Metals, Los Angeles, CA, a stainless steel and alloy conversion mill, has named ***Tony Gallegos*** as Director of Engineering. Mr. Gallegos had been Chief Engineer at the company.

Dr. Gail Eaton has been named President of **TRI/Princeton,** Princeton, NJ, an institute that disseminates information on the fiber and textile industries. Dr. Eaton holds a Ph.D. in Chemical Engineering and Materials Science from Lehigh University.

A. Bagarry III

Alex Bagarry III has joined the ***Hellier Pacific School,*** Fullerton, CA, an NDT training institute, as an instructor and consultant. Mr. Bagarry is a graduate of the U.S. Navy NDT School, Naval Training Center, San Diego, CA, and had been a General Manager at SGS Industrial Services.
