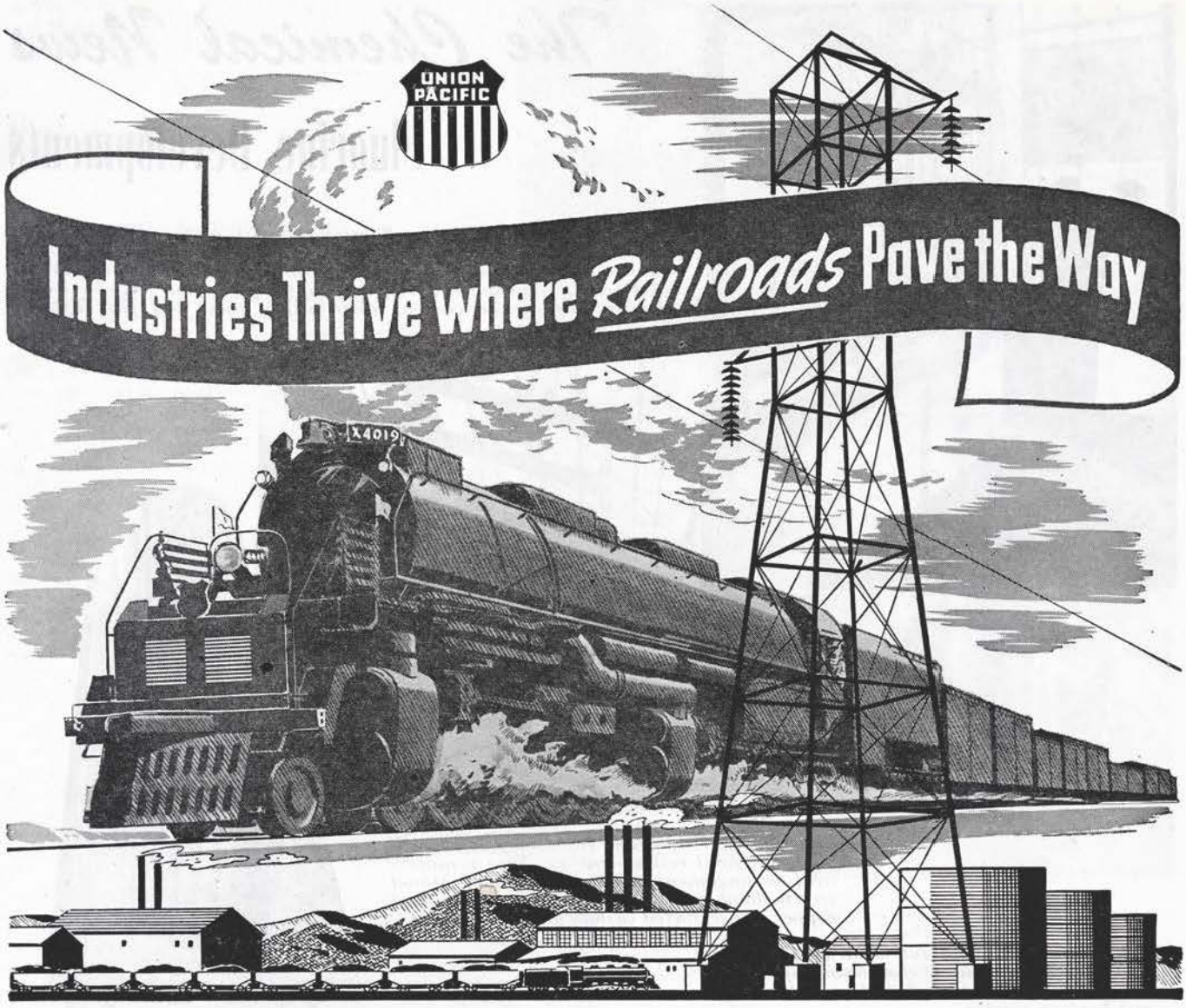
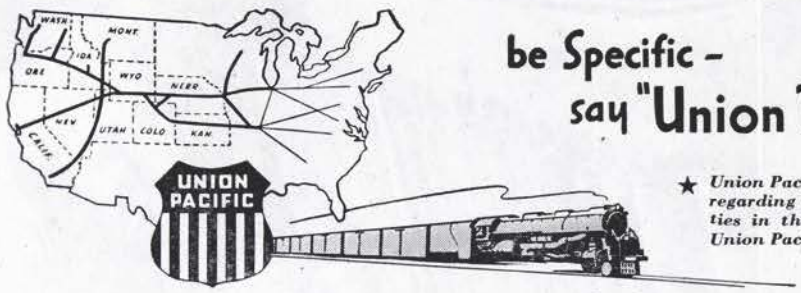


WITH the coming of the railroads, the western frontiers were conquered. They brought men, implements for building homes and towns, transportation for marketing products. Then factories were built. And industries thrived where railroads paved the way.

In the 13 great states served by Union Pacific, there still is land to be tilled, minerals to be unearthed, livestock to be raised, room for new homes and industrial expansion.

Union Pacific will continue to serve the territory it pioneered, by providing efficient, dependable, safe transportation for shippers over the time-saving Strategic Middle Route.



be Specific – say "Union Pacific"

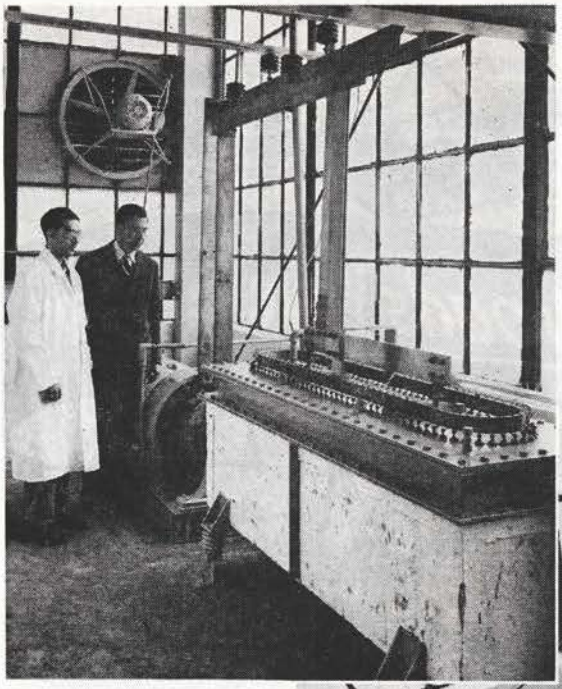
★ *Union Pacific will gladly furnish confidential information regarding available industrial sites having trackage facilities in the territory it serves. Address Industrial Dept., Union Pacific Railroad, Omaha 2, Nebraska.*

UNION PACIFIC RAILROAD

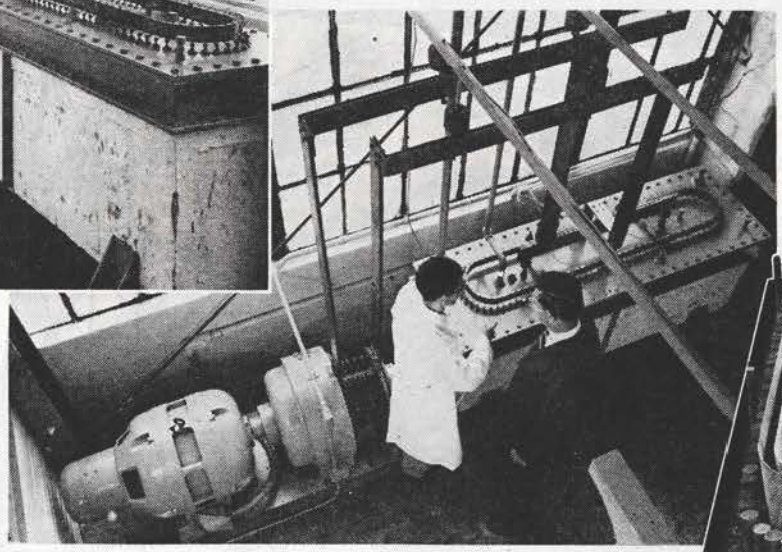
The Strategic Middle Route

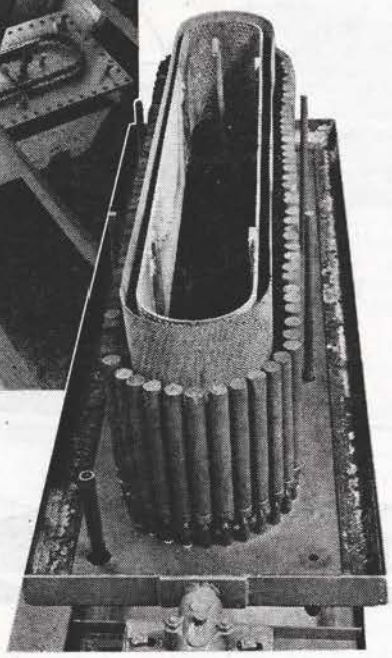
The Chemical News

Fluorine Developments



Left. Side view of Harshaw fluorine cell with motor-generator set in background. Such cells drawing 1,500 amperes have operated continuously for more than 9,000,000 ampere hours. Below. View of Harshaw fluorine cell showing motor-generator set, electrical connections, anode current distributing ring, and gas outlets





Right. Inverted head of Harshaw fluorine cell ready for final cell assembly. Note symmetrical arrangement of steel cathode, Monel screen diaphragm, and individually mounted copper impregnated carbon anodes

Below. Inspection of cell head assembly removed after one year of continuous operation. After minor adjustments this cell head was put back in service

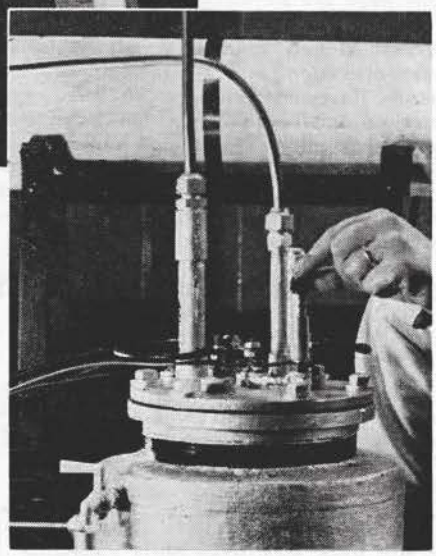
Below. Close-up view of anodes in cell head. The white deposit on these anodes is solidified electrolyte, KF.2HF, to which a minor amount of LiF has been added

Parade

Released

Progress from the small, temperamental fluorine cells which existed before the war to commercially practical cells has been released from its "secret" classification. It can now be revealed that the Harshaw Chemical Co. has been in full commercial scale production of fluorine for several years, with the operation reduced to routine. This was made possible by the development of a rugged, dependable fluorine cell drawing 1,500 amperes. In plant operation with a minimum of care and attention such cells have run continuously for well over a year.

Further advancements in fluorine technology are being made in the Harshaw research laboratories by means of a small scale cell which produces about 20 liters of fluorine an hour. This cell, in its small way, has the same reliable operating characteristics as the large commercial cell.

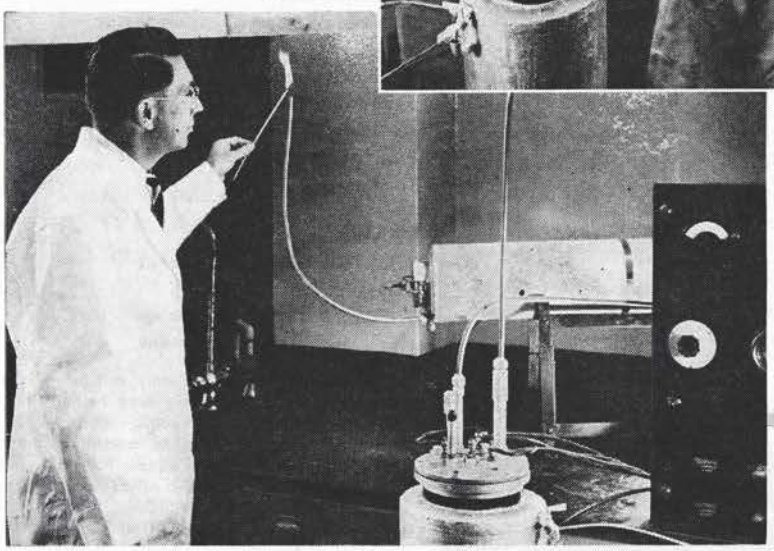


Above. Laboratory fluorine cell and a spare cell head. Note symmetry of anode, screen diaphragm, and perforated cathode. Such a cell is capable of producing approximately 20 liters of fluorine an hour

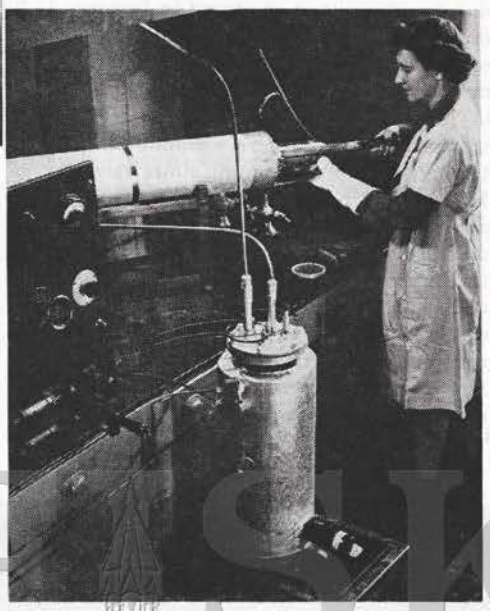
Above. Determination of electrolyte level in fluorine cell by an adjustable electrical probe for quick approximate check on HF concentration in the electrolyte

Right. Addition of HF to cell electrolyte. This is necessary once in eight hours of continuous operation

Below. Testing for completeness of fluorine utilization. The unreacted fluorine will cause an unlighted wax taper to ignite immediately

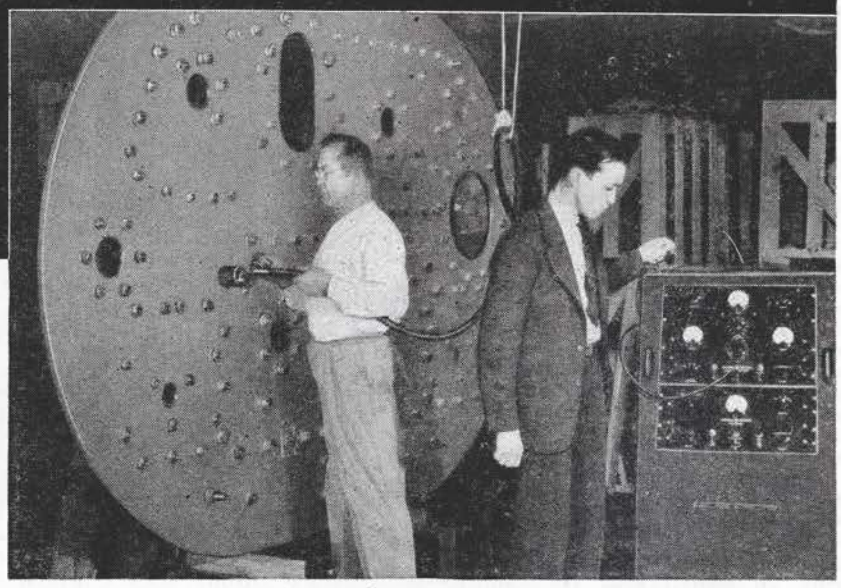


Below. Removal of fluorinated product from reaction furnace. No difficulty is encountered in starting the cell after such shutdowns



3 NEW TOOLS FOR PRODUCTION LINE OR LABORATORY

- **SAVE TIME**
- **SAVE MONEY**



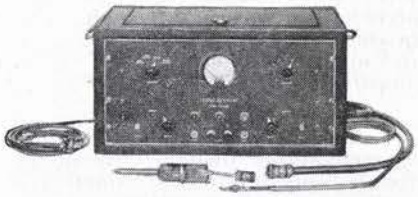
The newly-developed instruments shown on this page are already proving their value in scientific and industrial processing fields. Expert design assures simple installation, easy operation, and a minimum of maintenance. Fast and accurate performances result in time and cost savings. These tools solve newly-encountered problems and replace old tedious methods. Recently-found applications of these instruments are constantly simplifying testing procedures and improving production rates.

●Newly-discovered application—new G-E leak detector is being used in a test for leaks on a large transformer cover. This method is quicker and does not contaminate the oil as the old method using soap solution and air pressure did.

1. NEW LEAK DETECTOR DOES FASTER, BETTER JOB . . .

In the application shown, the G-E leak detector is being used to test studs on transformer plates for oil tightness. Contamination of material, which results from the method using air pressure and a soap solution, is avoided since helium, which is inert, is used as the tracer gas. The leak detector is a special mass spectrometer which locates leaks in closed systems—even small leaks in the presence of large ones. It is used to test leakage in radio tubes, refrigerator parts, boiler tanks, piping systems, and other closed systems which can be evacuated. For further information, write us.

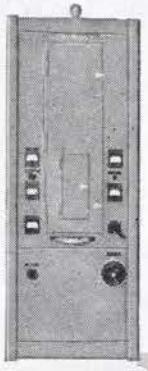
2. ION GAGE MEASURES HIGH VACUUMS



With the G-E ion gage, the highest vacuums ordinarily encountered in factory or laboratory processes can be measured or monitored continuously. This instrument is used to measure high vacuum in process-control spectrometers, electronic-tube manufacture, vacuum-pump testing, and as a vacuum-failure relay. It measures pressures of 10^{-4} mm (0.1 micron) to 10^{-7} (0.0001 micron) of mercury. The ion gage circuits permit the indication of small pressure changes and the measurement of slow pressure drifts—without the inconvenience of continual adjustment. The gage tube filament is protected by automatic disconnection of the current at pressures above 10^{-4} mm. Write for Bulletin GEA-4529.

3. X-RAY PHOTOMETER FOR CHEMICAL ANALYSIS

Independent of the physical or chemical state of the material, the X-ray photometer indicates the concentration of one chemical element in the presence of others. Typical applications include the determination of the sulphur content of oil, the ash content of coal, and the halogenated hydrocarbon content of plastics. Built for continuous use, the X-ray photometer operates on the principle of X-ray absorption between sample and reference. Write for further information.



IN ADDITION, G.E. BUILDS:

Coil testers
Coil-turn counter
Core-loss test equipment
Dew-point indicator
Dew-point recorder
Differential analyzers
Pressure gages
Thickness gages
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Insulation-resistance meter
Luximeter
Mass spectrometer
Mercury-vapor detector
Metal detectors
Magnetic comparator
Reflection meter
Repeated-scrape abrasion tester
Resistance comparator
Schlieren equipment
Sound-level meter
Spectrophotometer
Standard roughness specimens
Tachometers
Time-interval meter
Vacuum gages
Vibration-fatigue equipment
Viscosimeter
Winding-insulation tester
Nuclear research equipment

The products listed are only a part of the complete line of measuring and testing tools offered by the General Electric Company. Our engineers are specialists in adapting these devices to your individual needs. For help and advice, call or write the G-E office nearest you. SPECIAL PRODUCTS DIVISION, APPARATUS DEPT., GENERAL ELECTRIC, SCHENECTADY 5, N.Y.

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"Photrix" rapid print washer molded by W. and A. Company for Intercontinental Marketing Corp.

"practical and attractive material at lower cost"

THAT'S WHAT THE MANUFACTURER SAYS, and his statement speaks for a wide and increasing number of other manufacturers. This 12½ x 9½-inch photographic print washing tray and its distributing header are molded from chemical-resistant BAKELITE phenolic plastic, complete in one operation. Production costs are about 80 per cent lower than if metal with comparable chemical resistance were employed, and the tray's combination of serviceability and smart appearance has boosted sales far beyond the manufacturer's expectations.

Light weight, resistance to moisture and chemicals, adequate strength, good appearance, and low cost were the factors governing the choice of this particular BAKELITE plastic. The BAKELITE line, however, includes a great variety of materials. Each has an aggregate of properties that makes it the ideal selection for specific types of application. Whether your requirements call for a plastic that excels in dielectric strength, or one that's dimensionally stable, highly resistant to impact, or low in heat conductivity, there's a BAKELITE plastic that's *right* for the job.

Bakelite Corporation's field representatives and engineering service are always ready to help you apply plastics — practically and economically — to your own service. Write Department 82 for booklet G-8, "A Simplified Guide to BAKELITE Plastics."

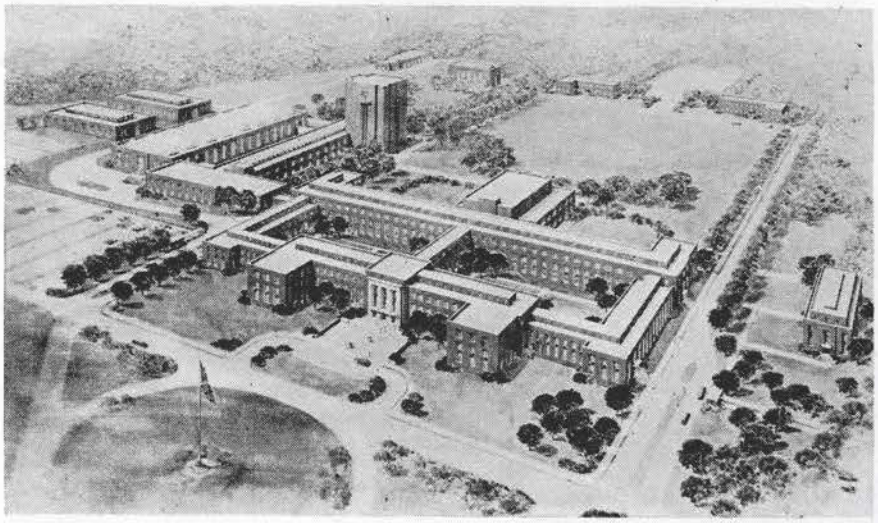
BAKELITE ® PLASTICS

TRADE-MARK

BAKELITE CORPORATION, *Unit of Union Carbide and Carbon Corporation* UCC 30 EAST 42ND STREET, NEW YORK 17, N.Y.

Industrial News

Cornerstone of fifteen million dollar Naval Ordnance Laboratory, to be largest research center of its kind, laid by Secretary Forrestal . . . Humble Oil Co. incorporates courses on a graduate level in its daily work schedule . . . General Electric takes charge at Hanford



Architect's drawing of Naval Ordnance Laboratory at White Oak, Md.

THE cornerstone of the fifteen million dollar Naval Ordnance Laboratory at White Oak, Md., was laid by Secretary of the Navy James Forrestal at a morning ceremony on Aug. 15. The laboratory, occupying grounds totaling 1,000 acres, will be the largest research center of its kind in the world, according to Secretary Forrestal.

Nearly 50 permanent buildings will be erected including the main administration and laboratory building, auditorium and cafeteria, magnetic laboratories, ammunition and explosives laboratory, mechanical testing laboratory, shops, power house, warehouses, and marine barracks. The new buildings will house eight to ten million dollars worth of equipment. To meet changing needs for space for the various administrative and laboratory units, the main building group is fitted with movable steel partitions which are prefabricated in sections and can be placed at 11-foot intervals perpendicular to the corridors. The nearly completed magnetics group, consisting of seven buildings of nonmagnetic construction, is located at a distance from the main laboratory; parts of it have been in use for over a year. The ammunition laboratory will be ready for occupancy by Sept. 15, and the main building is scheduled for occupancy by July 1, 1947.

The work of naval ordnance has in the past been carried on at the Naval Gun Factory in Washington, D. C. The new laboratory at White Oak will provide expanded facilities for research, development, design, and testing of mines, depth charges, fuses, torpedo mechanisms, pyrotechnics, and ammunition components.

The cornerstone ceremony was opened with introductory remarks by Captain F. S. Withington, USN, commanding officer of the Naval Ordnance Laboratory. Vice-Admiral George F. Hussey, Jr., USN, chief of the Bureau of Ordnance, reviewed the wartime accomplishments of the laboratory and presented it with the Bureau of Ordnance Development Award for Distinguished Service to Naval Ordnance. The dedicatory address was delivered by Merle A. Tuve, director of the department of terrestial magnetism, Carnegie Institution of Washington. He discussed the plan of equal partnership of naval officers and civilian technical men in the activities of the Naval Ordnance Laboratory and pointed out that the output of intangibles from this laboratory in the form of relationships and awarenesses can be a great deal more important for security and defense than any possible output of new ordnance devices

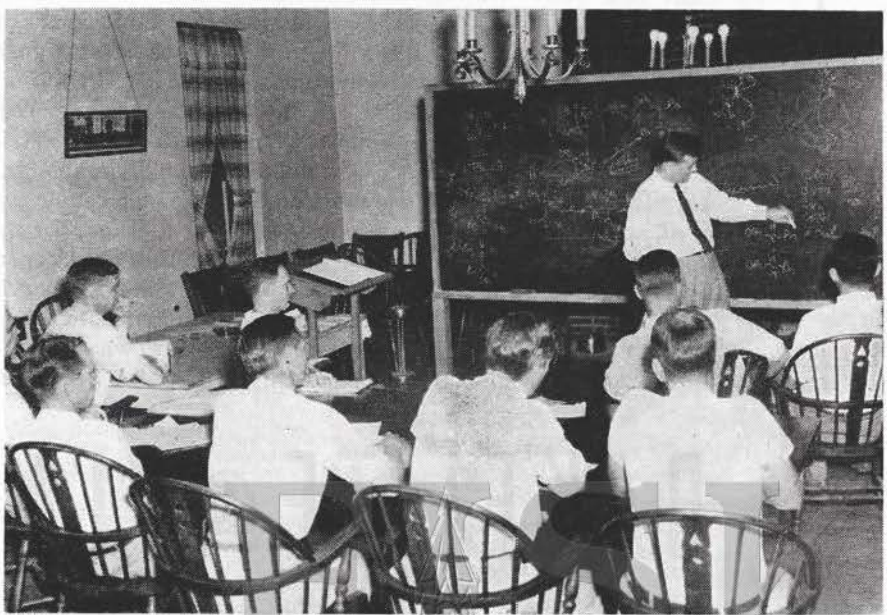
Humble Lectures in Science

Entitled "The Humble Lectures in Science", an advanced training program with a new slant is underway at the Baytown, Tex., refinery of the Humble Oil Co. Speaking lightly, the idea even in its infancy is anything but humble, and bids fair to become just what its originators hope it may—a program comparable to visiting lectureships in our best universities.

With representatives of the technical personnel of the Refining Technical and Research Division as a nucleus, the Humble Co. hopes to expand the program gradually into other divisions. Unique in several ways, the plan is to present general courses at the graduate level in the various fields of science related to the petroleum industry and specific lectures on advanced topics of highly specialized and limited content.

In announcing this new venture the Humble Co. is particularly emphasizing its high level and its inclusion as an integral part of the daily work schedule. Most indicative of the level which the company is striving to attain is the caliber

C. C. Price giving Humble lecture on high polymer chemistry



of the men of science who have agreed to inaugurate these lectureships. C. C. Price of Notre Dame is shown in the first of a series of intensive seminars, comprising lectures, discussion groups, laboratory demonstrations, and special consultations. Dr. Price's subject "High Polymer Chemistry" covered a full week in August and will be followed by another one-week series in late autumn in which E. R. Gilliland, of MIT, will have as his topic "The Transference of Processes from Small to Large Scale".

F. A. Matsen, flying from the department of chemistry, University of Texas, once each week, is presenting as opening series of lectures on general fields a 36-week period in physical chemistry. Substantially concurrent with Dr. Matsen's lectures will be a series in general organic chemistry, beginning about October 1 and conducted by H. L. Lochte, also of the University of Texas.

Following the plan of this inaugural series, the Humble Co. will issue invitations to nationally known scientists to take part in future series, lecturing on current topics in their respective specialized fields. Opening the 1947 series will be "Advanced Topics in Hydrocarbon Chemistry" conducted by R. C. Fuson, of the University of Illinois, in a full-time course of two weeks. In the following two-week course, K. S. Pitzer, of the University of California, will teach "Spectra as Related to Structure and Thermodynamic Properties of Molecules".

Participation in this venture is a privilege to be extended to only a small group of technical men at a time, and invitation will result from careful consideration of the technical interests of the individual as correlated with the best interests of the company. Since much of the material presented will be taken from recent and current technical literature and will not be available to the students in text form, it is finally the hope of the Humble Co. that from these lectureships a series of monographs may develop.

General Electric to Operate Hanford

On August 31 the Du Pont Co. turned over to the General Electric Co. all of the duties and activities in the performance of its contract with the Government in its atomic energy program. At that time General Electric took over operation of the Hanford Engineer Works at Richland, Wash. This transfer is in accordance with the request of Du Pont in 1942 that it be relieved of the task of producing plutonium as soon as practicable. Du Pont had also stipulated that all patent rights would be the property of the Government.

Operation of the $346,000,000 government-owned Hanford Plant will be carried on by the chemical department of General Electric. William H. Milton, Jr., assist-

ant general manager of that department, will continue as administrator of the Hanford Works, and David H. Lauder, assistant manager of the service engineering division of the apparatus department of GE, has been appointed manager of the plant.

Iron Powder to Be Made from Slate Wastes

Waste from slate that is present in great abundance in the rich Mesabi iron range of northern Minnesota, is to be converted into 99% pure iron powder in a modern plant now being constructed at Aurora at a cost of about $1,000,000. The contract, granting Continental Machines, Inc., a 10-year lease with option to purchase the plant from the state of Minnesota, calls for a royalty payment to the state of one cent a pound for the finished iron powder produced. The plant will have an estimated capacity of five tons of iron powder per day and will begin production in about six months. The waste slate overlies the Mesabi iron ore formation and is uniform in composition and easily available. The process has been tested in labororatories and is considered important because of the dwindling high-grade ore reserves.

The contract earmarks 50% of the finished product for use by Minnesota manufacturers.

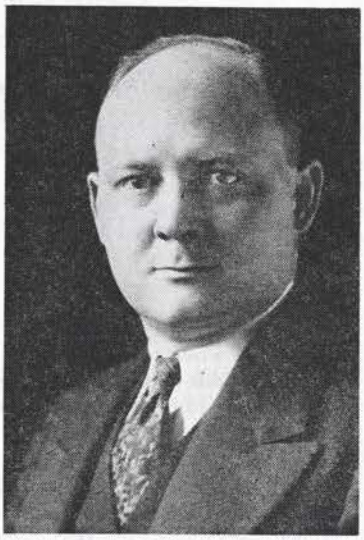
Benzedrine Patent Sustained by Court

The U. S. Court of Appeals for the Third Circuit has sustained Patent 1,879,003, covering amphetamine sulfate, owned by Smith, Kline & French Laboratories, Philadelphia. The suit involved patent infringement and unfair competition and was brought by Smith, Kline & French against Clark & Clark, Wenonah, N. J. The recent decision upholds the previous decision of the Federal District Court in New Jersey.

Pacific Division of Wyandotte Chemicals

Manufacturing and distributing activities in the Pacific States of the products of both the J. B. Ford and Michigan Alkali Divisions of Wyandotte Chemicals Corp., and of Natural Soda Products Co., will be directed from the new Pacific Division office, 502–14 Central Tower Building, San Francisco 3. The Pacific Division will also solicit business on organic specialties and fine chemicals.

Charles O. Chesnut became general manager of the new division on Aug. 1, as well as president of Natural Soda Products Co. on the retirement of Stanley Pedder, who had requested more time to devote to his law practice. The manufacturing operations of this organization are at Owens Lake, Calif.



C. O. Chesnut

Field sales activities of the former J. B. Ford Division (specialized cleaning compounds) will continue to be supervised by P. S. Spencer, who will be sales manager of the Pacific Division and will continue to supervise sales in Seattle, San Francisco, and Los Angeles.

U. S.–Bolivia Tin Contract

After a 5-month deadlock in negotiations between the U. S. Government and Bolivian mine owners, an agreement was signed Aug. 16 for the purchase of tin at a basic rate of 62½ cents per pound. Mauricio Hochschild, representing the owners, stated that the agreement contains two retroactive bonus clauses which will become effective when annual production reaches 17,600 tons—1 cent a pound from Jan. 1 to June 30 and 3 cents a pound from July 1 to the end of the year. The previous contract, which lapsed June 30, gave owners 63½ cents a pound. Hochschild estimated that under the agreement the United States will obtain 18,000 tons of tin in 1946; under last year's contract the United States received approximately 26,000 tons of tin concentrates.

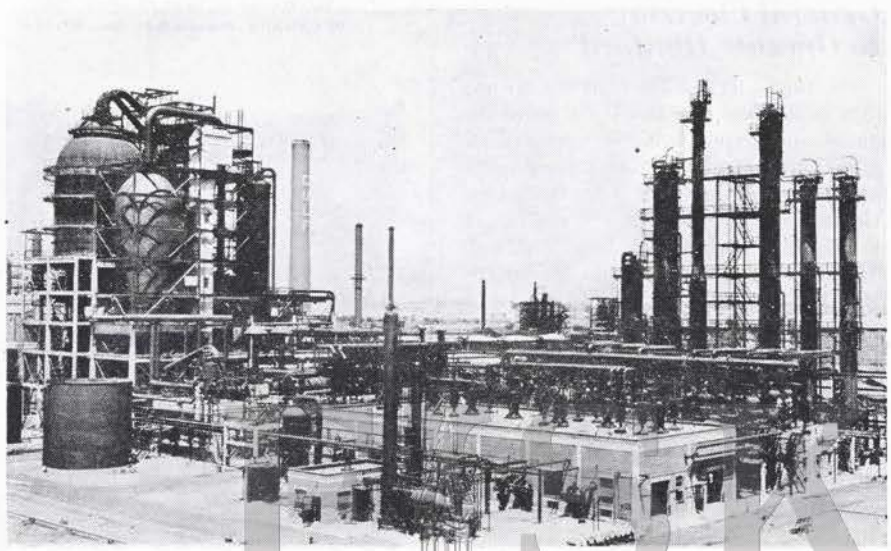
Fluid Cat-Cracker Begins Operations

One of the world's largest fluid catalytic crackers is now on stream at the Philadelphia refinery of the Gulf Oil Corp., and is operating at designed capacity. Embodying the latest improvements in the fluid process, it serves as the focal point of all refinery operations at the large Philadelphia plant.

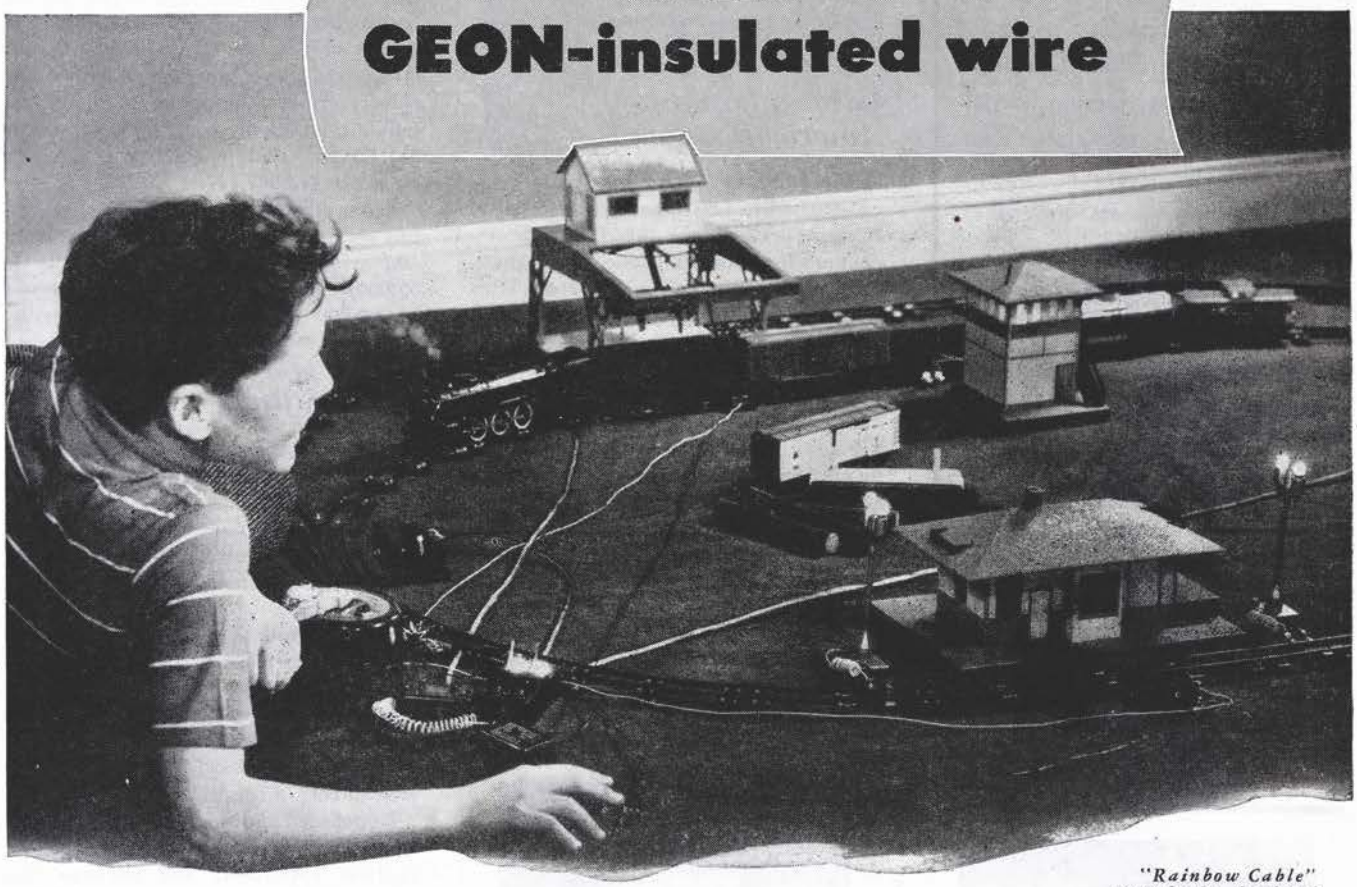
Located on Gallows Lane, Girard Point, Philadelphia, the new cat-cracker covers an area of more than 100,000 square feet. Among its new technical features are an improved arrangement of the reactor and the regenerator by which both are supported at approximately the same elevation, and a marked reduction (some 37 feet) in the elevation of the whole unit. The elimination of inside line pipe and the improved arrangement of piping are other features of the design. Economic advantages for the consumer accruing from the modern design and other improvements include higher quality and increased efficiency of fuel.

Developed just prior to World War II, the fluid process of oil refining helped meet wartime needs for high-octane gasoline and became the principal process used to provide fuel for the aviation program. Since termination of hostilities, it has been used for the refining of high quality commercial gasoline.

Gulf Oil fluid catalytic cracking unit



He runs his road with GEON-insulated wire



"Rainbow Cable" control wire developed and manufactured by Phalo Plastics Corp., Worcester, Mass.

Another interesting application for GEON *raw materials*

THE things that Bill used to do with his hands to keep his railroad running—coupling and uncoupling cars, loading and unloading, turning switches—are all done by electricity on the modern American Flyer that huffs and puffs and belches smoke just like its full-sized counterpart.

That calls for connecting wires that are easy to identify, that stand rough usage, that won't crack, get gummy or peel, that will keep fire hazards to a minimum. That's why the A. C. Gilbert Company selected wire with insulation made from GEON. It can be brilliantly colored in a wide range, it wears indefinitely, resists aging and ozone, and is self-extinguishing—won't support combustion.

Hundreds of other products made from GEON—raincoats, handbags, luggage, upholstery, tablecloths, tank linings, fly swatters, to name a few—have these properties plus resistance to foods, acids, water, oil, heat, cold, sun, air, mildew, and many other normally destructive factors. They may be extruded, pressure or injection molded, calendered or cast into sheet or film. GEON may be applied as a coating to fabrics, fibres, and papers of all kinds. There are applications for GEON in *every* home, in *every* industry.

While we make no finished products from GEON raw materials, we will be glad to work with you on any special product problems. Just write Department S-9, B. F. Goodrich Chemical Company, Rose Building, Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

Geon
Polyvinyl Materials
A TRADE MARK OF B. F. GOODRICH CHEMICAL COMPANY

B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

The new cat-cracker, engineered and constructed by The M. W. Kellogg Co., Jersey City, N. J., and New York, is a major unit in Gulf's expansion program at Philadelphia. Originally scheduled as part of the nation's aviation fuel program, work on the unit began early last year.

Latex Plant of American Anode

The American Anode, Inc., plant being constructed in Los Angeles is expected to be in operation late this fall, it is announced by Robert V. Yohe, Anode president. The plant will manufacture latex compounds and mixes for all purposes for sale in the area west of the Rocky Mountains. It will be the only plant of its kind in the Pacific Coast area. All synthetic latices and natural rubber latex will be available in the plant, and compounds for all purposes including dipped goods, metal coatings, paper and textile treatments, and adhesives will be manufactured there.

In full production the plant will produce approximately 4,000,000 lb. of finished latex compounds annually, with a complete testing laboratory for customers' problems included in the new plant. Storage facilities for 30,000 gallons of latex, equivalent to 150,000 lb. of dry rubber, are included in the plant.

Robert A. Lees

Robert A. Lees, manager of the plant, joined American Anode as a chemist in 1929, and has been production manager since 1935.

Alcoa Buys War Plants

The aluminum extrusion mills at Cressona, Pa., have been sold by the War Assets Administration to the Aluminum Co. of America, for $6,500,000 cash. Previously WAA had rejected all bids submitted by Aug. 1, the deadline, and then made its own counterproposal, which Alcoa accepted.

Besides the $6,500,000 for land, improvements, and buildings on a 116-acre tract, Alcoa is to pay 60% of the original cost for government machinery which has been removed but is still available and 60% of the cost of government-owned machinery still on the premises. Land and buildings originally cost the Government $11,479,157, and machinery and equipment cost $14,547,127.

Alcoa officials estimate that operations can be resumed in three or four months employing 1,000 at first. Capacity is 55,000,000 lb. of aluminum shapes and 14,000,000 lb. of finished tubing annually.

OPA Rulings

Butyl Alcohol. Amendment 7 to MPR 36 and Amendment 18 to MPR 37 revise maximum prices established for fermentation acetone and normal fermentation butyl alcohol for sales by Asociation Azucerera Cooperative Lafayette of Puerto Rico.

Copper Sulfate. Amendment 9 to MPR 354 corrects an error of omission in the preceding amendment whereby maximum prices of monohydrated copper sulfate in lots of less than 30,000 lb. were not adjusted upward to reflect the increased cost of copper.

Cottonseed and Soybean Oils. Amendment 45 to SO 132, issued Aug. 13, decontrols cottonseed and soybean oils sold to industrial users who require these oils in the manufacture of paints and other inedible products.

Lithopone. Amendment 5 to RPS 80 increases maximum prices for lithopone by 0.15 cent per lb. and incorporates an individual adjustment provision.

Plastic and Synthetic Resins. Amendment 11 to MPR 406 includes an adjustment provision by which price increases are based on the ground of maintaining supply of essential products. Amendment 12 provides for increases in the maximum prices for sales by manufacturers of plastic thermosetting laminates and vulcanized fiber in the form of sheets, rods, tubes, and preforms.

Nazi Gas Shells Unloaded

Picked troops in protective clothing have unloaded 600 tons of German mustard gas shells, some of them faulty, from the Liberty ship *Francis L. Lee* after four months during which the ship was shunted from port to port and about 85 longshoremen and Chemical Warfare Service personnel were injured. The shells are being taken to Edgewood Arsenal, Md., for test.

The ship was to have left Antwerp in April but was delayed there by a month's strike during which several Belgians were reported to have been burned when some of the shells leaked. Heading for Cape May, N. J., the *Lee*'s orders were changed in midocean, and she went to Mobile, Ala. When more leaks developed, she was towed to Charleston, S. C., and finally sent to Edgewood.

British Urge Free Market in Rubber

Because British rubber manufacturers are exhausting their stocks of synthetic rubber, the Rubber Growers Association will press the Board of Trade for a return to a free market in rubber as soon as the price agreement with the United States ends in December 1946. Sir Stafford Cripps, president of the Board of Trade, told the House of Commons that British supplies of natural rubber have improved and current allocations will enable British manufacturers to revert to natural rubber by the end of September.

Streptomycin Distribution to Civilians

Limited commercial distribution of streptomycin through designated hospitals for treatment of civilian patients began Sept. 1 under a plan similar to that used initially for penicillin distribution. More than 1,600 general hospitals have been selected as depots and will supply other hospitals in their areas.

New Diamond Plant in Houston

Diamond Alkali Co. has selected Houston, Tex., as the site for its new industrial chemical plant, which will eventually serve the Gulf Southwest with chlorine, caustic soda, and hydrochloric, acid. Construction is now getting under way, and it is expected that production of chlorine and caustic soda will begin upon completion of the plant in mid-1948.

Located on the Port Terminal Railway near Deer Park, the Diamond property occupies approximately 250 acres; the plant itself will cover about 40 acres. Construction will be of steel and concrete with cement asbestos roofing and siding. The company's original investment will be approximately $6,000,000 and initial production will require about 200 employees.

The chlorine-alkali operation will employ sodium chloride as the principal raw material, brought to the plant site via pipe from a near-by salt dome. The plant will produce its own electric power, using natural gas as fuel.

Volume Production of Monosodium Glutamate

Volume production of monosodium glutamate from proteins derived from the major corn processing operations will be commenced in Decatur, Ill., upon completion of an addition to its plant, A. E. Staley, Jr., president of the A. E. Staley Manufacturing Co., has announced. The ultimate cost of this development, including research expenditures, will be in excess of $1,000,000.

Staley has a patent on the process developed in its research laboratories and has manufactured it for a number of years in its pilot plant.

Contract for the building has been let to the J. L. Simmons Co., of Decatur, after approval of the project by the Civilian Production Administration. The steel and concrete structure, when completed and in operation some 18 months from now, will have a yearly output of more than 1,000,000 lb. of monosodium glutamate and other amino acid products.

The new Staley unit will be adjacent to a $250,000 pilot plant for testing new manufacturing processes on which work has already been started. It is the fourth project in a building program at Staley's which saw the completion in 1945 of a $2,000,000 hexane extraction plant for the processing of soy beans, and a $250,000 expansion this year of the firm's research laboratories here.

News of the Industry

Bausch & Lomb Optical Co. has announced the formation of a new company, **Aga-Bausch & Lomb Ab,** Stockholm, jointly owned by Bausch & Lomb and Aga-BalticAb, of Sweden.

American Smelting and Refining Co., New York, has consolidated the operations of its lead products division with those of its federated metals division. Alfred P. Knapp, general manager of the lead products division and president of American Smelting's subsidiary, the Andrews Lead Construction Corp., will acquire the operations of this subsidiary, with its manufacturing plant in Long Island City and the homogeneous bonding business of the lead products division. The operations will be conducted by two newly formed companies of which Mr. Knapp is president: Andrews-Knapp Construction Co. and Knapp Mills, Inc., 120 Broadway, New York.

New office of the Chicago branch of the **Calco Chemical Division,** American Cyanamid Co., Bound Brook, N. J., is located at 228 North LaSalle St., Chicago, Ill. Gerald J. Boyer, Kenneth A. Coate, and Paul J. Cuenot will be located there.

Clark-Babbitt Industries, Inc., West Hanover, Mass., is sponsoring a pharmaceutical division. It has purchased the Dr. J. F. True Co., Inc., business and plans to manufacture and distribute high-grade pharmaceutical items.

Six thousand pounds of photographic chemicals from the **Edwal Laboratories,** Chicago, were shipped to Detroit recently via Capital Airlines–PCA Skyshipper Service and reached their destination 5 hours after leaving the Edwal factory. Formerly three days were required for such a shipment by truck and rail.

Ethyl Corp., New York, has elected five new members to its board of directors Albert Bradley, John H. Schaefer, Percy L. Griffiths, Harry W. Kaley, and Stanley T. Crossland.

General Aniline & Film Corp., New York, N. Y., has announced a substantial reduction in the price of koresin, which imparts to synthetic rubber a tackiness that aids fabrication into finished products. Formerly selling at 52 cents per pound in drum lots or larger quantities, it is now priced at 42 cents per pound in single drums, 40 cents in lots of one ton or more.

International Paper Co. has purchased the entire capital stock of Single Service Containers, Inc., manufacturing paper milk containers at Philadelphia and Kalamazoo, Mich.

Merck & Co., Inc., has begun production of streptomycin at new plants in Rahway, N. J., and Elkton, Md.

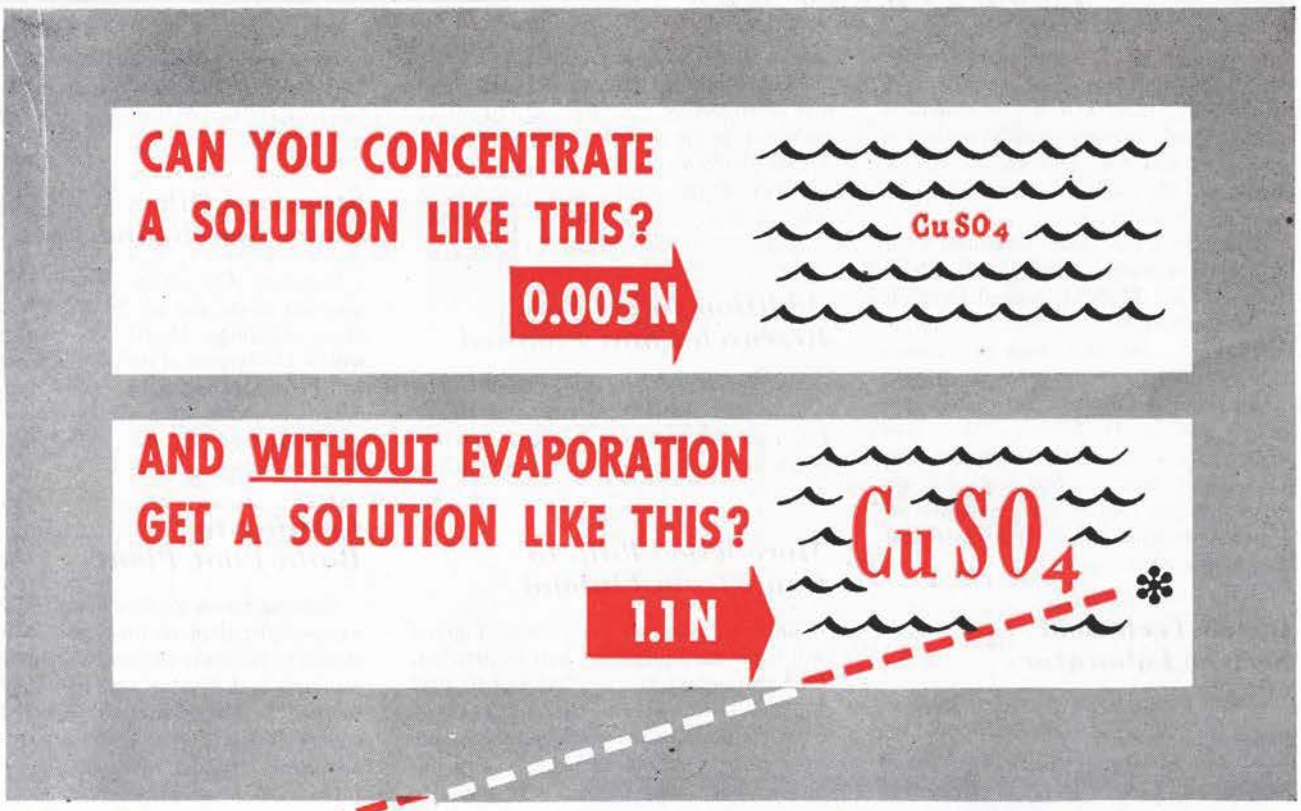
Philipp Brothers Chemicals, Inc., has moved into larger quarters at 37 Wall St., New York 5, N. Y.

Rayonier, Inc., has advised stockholders that aggregate salaries paid to officers and directors last year were $153,603, an increase of $11,558 over the previous year.

The name of the Rogers Chemical Co. was changed to **Rogers Chemical Corp.** July 1. Management and location at 9729 Conant St., Detroit 12, remain the same.

Standard Oil (New Jersey) has expanded its executive development program and appointed George B. Corless an adviser to coordinate the work of training future leaders for Standard and affiliated companies. Under the program executive training is based on a continuing analysis of executive functions and personnel by committees which have full responsibility in selecting personnel of the greatest promise for development. Men are also sent to educational institutions for special courses, particularly in general business and management methods.

Theodore A. Cohen has formed the **Taco Engineering Co.,** 2620 South Park



*AMBERLITE ION EXCHANGE RESINS

can do it — easily and economically!

If you are washing dollars down the drain by discarding rinse waters containing minute quantities of valuable metals, you'll find that Amberlite Ion Exchange Resins offer a practical and low-cost means of recovery. For example, in one case revealed by an independent study, a 220-fold increase in copper concentration was obtained from a dilute copper sulfate solution by the Amberlite ion exchange process.

This remarkable ability of the AMBERLITES to remove metallic ions from solution makes possible the separation and recovery of many special chemicals where precipitation or other usual means of concentrating solutions have proved ineffective or uneconomical. Among the many logical applications of the AMBERLITES in this field are: recovery of zinc from mine wastes; recovery of copper from brass mill and rayon wastes; recovery of noble metals such as gold, silver and platinum.

If you have a problem where the AMBERLITES would be of interest, our technical staff is ready to assist you without obligation.

For laboratory investigation, Analytical Grades of the Amberlites are available

*AMBERLITE *is a trade-mark, Reg. U.S. Pat. Off.*

THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA, PA.

Ave., Chicago, Ill., as a consulting, designing, and manufacturing organization specializing in electronic and electromechanical automatic control equipment for industrial process control and automatic machine processes. Mr. Cohen was formerly with the Wheelco Instruments Co.

The name of the **Taylor Chemical Corp.** has been changed to the J. T. Baker Chemical Co., Taylor Chemical Division. The general office is located at Phillipsburg, N. J., and the plant at Cascade Mills, Penn Yan, N. Y.

Sam Tour & Co., Inc., with offices and laboratories at 44 Trinity Place, New York 6, N. Y., has extended its facilities for research and for field tests for corrosion, erosion, liquid level, and dezincification. Alexander Gobus, vice president, is in charge of the service.

Witco Technical Service Laboratory

Witco Chemical Co. has opened a technical service laboratory at 719 First Ave., New York, under the direction of Leonard H. Cohan, formerly director of research for the Continental Carbon Co., Witco subsidiary. The laboratory is equipped with modern facilities for studies in rubber, plastics, paint, and general chemical work.

The rubber division contains several innovations. Physical testing is carried out in a room air-conditioned at 80 ± 2° F. and 40 ± 10% humidity the year round.

A separate publications department will prepare papers for scientific journals, manuals, bulletins, and technical service reports.

Lithaloys to Reorganize

Lithaloys Corp. ceased operations during May, and proceedings for reorganization have been filed in the U. S. Court for the Southern District of New York. John L. Flynn, trustee, 60 Wall St., New York 5, has given notice to creditors and stockholders of Lithaloys to submit proposals for a plan of reorganization by Sept. 15.

Substantial losses incurred by Lithaloys since Jan. 1, 1946, are attributed by the trustee to the termination of government war contracts, failure to reduce operating expenses, and a lack of sufficient market to sustain operations.

Property of the corporation is listed as real estate and plant at 221 Banker St., Brooklyn, unimproved real estate at 10th St., Long Island City, N. Y., and $299,511.82 cash on hand and in bank. Liabilities total $457,068.36 and include an $8,800 mortgage and a note payable of $116,053.01 secured by inventory valued at $151,547.91. Unsecured accounts payable of $230,439.06 are all past due.

Gross sales of the corporation during 1942 amounted to $365,720.62 with a net loss of $6,383.38; in 1943, $2,170,409.80 with net profit of $42,285.45; in 1944, $1,903,280.57 with net profit of $38,217.70; in 1945, $1,669.910.78 with net loss of $30,558.99; in 1946 until closure, $31,137.83 with net loss of $226,894.87.

Addition to Du Pont Research Plant Planned

Du Pont is planning a $17,000,000 addition to its research laboratories at Henry Clay, near Wilmington, Del., on a portion of the present Du Pont Country Club property.

More Wood Pulp to Come from Finland

Imports of wood pulp from Finland will triple during the last half of 1946, administration officials predict, and in 1947 Finland will be able to increase its newsprints imports, which at present are only a trickle. The Finnish Cellulose Corp. has notified CPA that Finland is prepared to increase wood pulp exports to the United States from about 35,000 tons in the first half of 1946 to 100,000 tons the last half, and 220,000 tons in 1947.

Standard Oil Plans New Refinery

Standard Oil (New Jersey) has announced plans for an $8,000,000 oil refinery at Billings, Mont. The plant, which will be the largest of its type in Montana, will have a capacity of 18,000 barrels of crude oil a day, and will include a fluid catalytic cracking unit. Operation will begin in 1948.

Corning to Build Pilot Plant

Corning Glass Works, Corning, N. Y., has completed plans for a pilot plant designed to facilitate the manufacture of new products and develop new manufacturing methods. The plant will cover 11,000 square feet of floor space and will be equipped initially with one continuous furnace.

Monthly Statistical Report on Business Conditions

WE are indebted to the Manufacturing Chemists' Association, 608 Woodward Bldg., Washington, D. C., for the following figures showing business conditions.

	Seasonally Adjusted			Without Adjustment		
(Base 1935–39 = 100)	June *1946*	May *1946*	June *1945*	June *1946*	May *1946*	June *1945*
Industrial production[a]	170[b]	159	220	171[b]	159	220
Chemical production[a]	399[b]	387[b]	412	399[b]	387[b]	412
Steel production	168	126	214	168	126	214
By-product coke production	...	75	155	...	75	155
Beehive coke production	270[b]	14	421	270[b]	14	421
Bituminous coal production	156[b]	60	153	156[b]	60	153
Freight carloadings	133	106	140	137	107	145
Department store sales, value	275[b]	256[b]	202	253[b]	248[b]	186
(Base 1923–25 = 100)						
Construction contracts						
Residential	...	179[b]	22	...	211[b]	24
All other	...	161[b]	73	...	196[b]	87

(Base 1939 = 100)	May *1946*	April *1946*	May *1945*
Index of wage earner employment[c]			
All manufacturing	137.0	136.0	159.8
Chemicals	169.6	169.6	164.1
Drugs	187.6	187.4	182.5
Fertilizers	131.6	155.2	126.2
Compressed gases	142.2	138.5	149.2
Index of wage earner payroll[c]			
All manufacturing	246.2	248.5	318.7
Chemicals	281.0	282.7	295.2
Drugs	304.5	301.8	282.0
Fertilizers	300.9	362.6	292.6
Compressed gases	234.1	227.5	268.1
Estimated number of wage earners (in thousands)			
All manufacturing	11,227.0	11,138.0	13,090.0
Chemicals	118.0	118.0	114.1
Drugs	51.4	51.4	50.0
Fertilizers	24.7	29.1	23.7
Compressed gases	5.6	5.5	5.9

(Base 1926 = 100)	June *1946*	May *1946*	June *1945*
Wholesale price indexes			
All products (except farm products and foods)	105.6[b]	103.9[b]	99.6
Chemicals	98.0	97.9	95.9
Drugs and pharmaceuticals	109.4	112.4	109.5
Fertilizer materials	82.7	81.9	80.4

	Av. Weekly Earnings			Av. Weekly Hours			Av. Hourly Earnings		
	May *1946*	Apr. *1946*	May *1945*	May *1946*	Apr. *1946*	May *1945*	May *1946*	Apr. *1946*	May *1945*
All manufacturing	$42.46[b]	$42.87[b]	$46.02	39.7[b]	40.5[b]	44.1	$1.071[b]	$1.058[b]	$1.042
Chemicals	50.43[b]	50.58[b]	54.03	40.7[b]	41.5[b]	47.6	1.230[b]	1.220[b]	1.141

[a] Federal Reserve Index. [b] Preliminary figures. [c] U. S. Department of Labor.

Aluminum Refrigerator Car

Assembly of the Illinois Central Railroad's experimental aluminum refrigerator car began at the McComb, Miss., shop on Aug. 12. Work is expected to be completed within two months after which extensive tests with various commodities will take place. The car is being made according to plans formulated by the Refrigerator Car Committee of the United Fresh Fruit and Vegetable Association, making extensive use of aluminum, fiber glass, and forced air circulation. Saving in net weight will be some 14,000 lb., nearly 25% of the weight of the usual refrigerator car.

Abrasives in 1945

Diatomite, pumice, and pumicite, and metallic abrasives rose to new records of production in 1945, according to reports of producers to the Bureau of Mines. Total output of natural abrasives in 1945 totaled 980,780 short tons valued at $9,801,988, an increase of 3% in tonnage and 2% in value compared with 1944. Artificial abrasives, however, declined 10% in tonnage and 12% in value compared with 1944, principally because of the 21% drop in output of aluminum oxide. Domestic production of natural abrasives in 1945 amounted to 74 and 31% respectively of the total tonnage and value of artificial and natural abrasives combined compared with 71 and 28% in 1944. Marketed production of emery in 1945 was the highest since 1918 and that of garnet the highest since 1928. Output of grindstones, pulp stones, and grinding pebbles also was larger in 1945 than in 1944.

Army Rations to Be Tested by Troops

Troops in mountain training in Colorado will test two new army rations in September, the War Department has announced. The rations are a new combat or E ration, which consists of six cans plus heat tabs for warming the meat, and a new ten-in-one, which includes five different menus and substitutes a hot meal for the K ration noon feeding.

Taylor Wins Patent Suit

The Federal Court of Appeals, Second Circuit, has reversed a decision of the Federal District Court and dismissed the bill of complaint made by the Foxboro Co., Foxboro, Mass., against the Taylor Instrument Co. The suit involved the Mason patent held by the Foxboro Co. which the Court declared ineffective inasmuch as it covered nothing patentable over the prior work of earlier scientists.

Phillips to Build Gas Cycling Plant

Phillips Petroleum Co. plans to build a $2,000,000 gas cycling plant at Chocolate Bayou, near Alvin in Brazoria County, Tex., as soon as materials are available.

Fertilizer Supplies for United States

The U. S. Department of Agriculture has announced the quantities of fertilizer materials which are expected to be available to farmers of the United States, including Puerto Rico and Hawaii, during the 1946–47 fertilizer year. These quantities are in line with recommendations recently made by the Combined Food Board (now replaced by the International Emergency Food Council), which were designed to result in as equitable a division as possible of available supplies.

In spite of increased production of fertilizer materials in many countries, the world shortage is so severe that the problem of obtaining a fair distribution has been even more difficult than during the war years. Estimated world requirements for nitrogen exceed world supplies by nearly 1,000,000 tons or approximately 25%. Estimated requirements exceed supplies by 16% in the case of phosphate rock and by 32% in the case of soluble phosphates. For potash, approximate balance can be achieved between world requirements and supplies only if exports from Germany reach prewar levels.

The U. S. production of fertilizer materials is expected to be maintained at the peak war level, with perhaps some increase. On a plant food basis this is nearly double the average annual quantity used during the period 1935–39. Supplies available for consumption, taking imports and exports into account, are expected at least to equal the record quantities used during the year ending June 30, 1946.

Who Makes It?

Chemicals wanted by the National Registry of Rare Chemicals, Armour Research Foundation, 33rd, Federal, and Dearborn Sts., Chicago 16, Ill., include:

Furane
Erythroidine
4-Nitropyrocatechol
o-Tolyl urethane
Uranyl formate
Indium telluride and selenide
1-Erythrulose
Perseitol
Perseulose
Xanthopterin
Butoxy acetic acid
Montanyl alcohol
Melissyl alcohol
3,5-Diamino toluene
Sodium sulfoxylate formaldehyde
Chloralose (500 grams)

Rebuttal by Parsons
(Continued from page 2335)

in spite of licensure. Locomotive drivers, stationary engine and boiler operators—indeed anyone "who has charge of and manages an engine"—use the term freely as well as draftsmen who call themselves designing engineers, management consultants who call themselves industrial engineers, and dozens of others not really professional engineers. No one thinks of enjoining them from doing so. It is of course true, especially in England, that pharmacists are called chemists and drug stores "chemist shops". Even in this country, especially along Park Ave., Madison and Fifth Ave., New York, pharmacies think they add to their appeal by labeling themselves "Chemists" in their windows and nobody tries to prevent them. Nor could they be prevented under any law that states, "The practice of professional chemistry within the meaning and intent of this act includes any professional service where such professional service requires the application of chemical principles and data", for under this definition any physician, veterinarian, dentist, nurse, or clinical technician could continue to "practice chemistry", call himself a chemist and, like real chemists or chemical technicians, could under the proposed Ohio Law obtain for 18 months after passage a license so to practice under the "grandfather clause" if he had been a resident of the state for one year and was engaged in the "practice of chemistry" at the time he applied. All this without examination or any other proof of competency and simply by paying the annual tax, he could continue to be a "licensed professional chemist" for life.

The idea of state control, even of the individual, may be tending in Europe toward that which exists today in Russia, but I cannot conceive of any free born American submitting voluntarily to more regimentation by the state.

Let's us remain free men as long as we can in this age of bureaucrats and dictators. Licensure is simply a chimerical objective.

Potash Reserves

Originally submitted as a report to the American Potash Institute, "Potash Reserves of the United States: Are Agriculture and Industry Threatened by Approaching Exhaustion of Domestic Reserves?" by Samuel H. Dolbear of Behre Dolbear & Co., New York 4, N. Y., has been published in a 20-page booklet. A summary and section on potash resources precede accounts of our potash reserves and developed, insoluble, and strategic reserves. A table of "The Potash Minerals" concludes the report.

News-Makers

Archie Raymond Ayres is to be an associate professor of chemistry and physics at the Memphis State College, taking the place of **M. Foster Moose,** who will be associated with the chemistry department of Southwestern University, Memphis, Tenn.

Robert H. Barth has been appointed research supervisor, and **Herbert B. Uhl,** assistant research supervisor of the Garfield laboratory, Heyden Chemical Corp.

German production of urea, methanol, and other chemicals are being studied by **William L. E. Dewling,** chemical engineer of the Solvay Process Co., Hopewell, Va., under auspices of the Technical Industrial Intelligence Branch, Department of Commerce.

John V. N. Dorr has returned from a five-weeks' tour of Europe. During this time he visited Germany on a special mission for FIAT accompanied by **Anthony J. Fischer,** who recently completed a special investigation on sewage treatment development in that country, for the same agency.

Norman H. Eason has been named assistant sales manager of the chemical division of Lion Oil Co., El Dorado, Ark., to have charge of ammonium nitrate fertilizer sales.

Algernon S. Ernest, chief of the physics and chemistry unit of the Civil Service Commission's Examining and Personnel Utilization Division, has retired after more than 28 years of continuous service there. Since 1924, he has had responsibility for all the commission's examinations in the fields of chemistry, physics, pharmacy, and geology, recruiting during World War II all federal employees in the two critical fields of chemistry and physics for all technical branches of government.

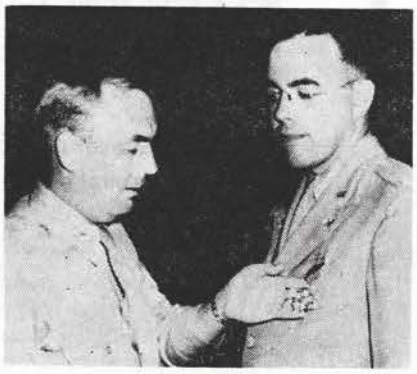
Alfred M. Ewing has been named associate professor of chemistry and physics at Memphis State College, Tenn., coming from Texas Wesleyan College, where he has been chairman of the division of sciences.

Adalbert Farkas has joined the Barrett Division, Allied Chemical and Dye Corp., Philadelphia, having formerly been with the Union Oil Co. of California.

Philip R. Fehlandt has been released from the Chemical Warfare Service and has returned to his former position as head of the chemistry department at the College of Puget Sound, Tacoma, Wash.

J. D. Fennebresque has been appointed general manager of the chemical division of the Celanese Corp. of America and **W. Ward Jackson,** sales manager.

W. B. Fortune was recently awarded the Legion of Merit by Col. Harold G. Hayes. The citation, in part, stated, "Lieut. Col. William B. Fortune rendered exceptionally meritorious service with the Army



Security Agency, Military Intelligence Service, War Department, from December 1942 to March 1946." He has returned to his former work as research chemist with Eli Lilly and Co.

Karl Freudenberg, former dean of the natural science faculty of the University of Heidelberg, has been acquitted by the primary military court, USMG, of Heidelberg. Dr. Freudenberg had been under detention since January, charged with withholding information on various questionnaires which would implicate him as a Nazi sympathizer, membership in several Nazi organizations, and other incriminating connections.

Wayland C. Fuller is now an instructor of general science at Garfield Intermediate School, Detroit.

After 35 years with the national adhesive division of National Starch Products, Inc., and its predecessor companies, **Albert C. Funk** has retired from active business life. He is cited as being instrumental in many progressive steps made by the adhesive industry, and also has been a director of many trade organizations allied to the industry.

R. C. Fuson, University of Illinois, was awarded an honorary degree of Doctor of Science by Montana State University at its commencement exercises June 10. Prof. Fuson received the A.B. degree from Montana in 1920.

Harold Garden, until recently with the Aluminum Ore Co., has joined the firm of E. H. Fischer, Inc., St. Louis. He will be in charge of development of new products.

Pat Gaskins is now representing the laboratory supply division of the A. S. Aloe Co., with headquarters in Houston, Tex., having left Eberbach & Son Co., of Ann Arbor.

Robert F. Gill, Jr., has been appointed Councilor of the Hawaiian Section, ACS, to take the place of Edward L. Cambell, of Punahou School, who has resigned.

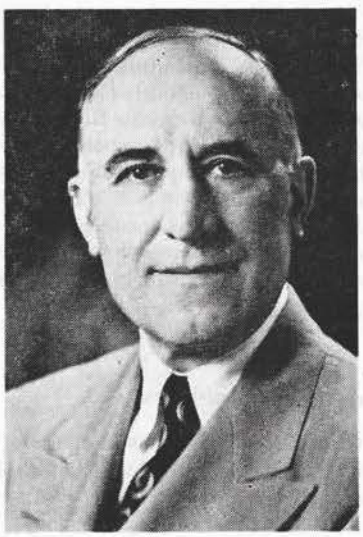
Nuodex Products Co., Inc., Elizabeth, N. J., announces the appointment of **George W. Gregg** as sales manager of the newly formed southern region with offices at 411 Bienville St., New Orleans, La.

Ralph S. Halford, formerly lecturer in chemistry at Harvard University, has been appointed professor of chemistry at Columbia University, where he will carry on research in the fields of atomic and molecular structures as well as teach advanced subject matter.

Frank Hamilton has been elected vice president of Nicaro Nickel Co., subsidiary of Freeport Sulphur Co. Prior to 1943 he served on the staff of the War Production Board.

Orton F. Hixson is now director of the Biological Division and will be responsible for all assays and research work conducted by animal methods at the Laboratory of Vitamin Technology, Chicago. **Lawrence Rosner** has rejoined the staff and is now director of the chemical division. For the past year he was head of the microchemical laboratories of National Oil Products Co., Vitamin Division. **Howard J. Cannon,** who organized the laboratory in 1932 and who has since directed all its operations, has become coordinator of activities in both divisions.

Leslie C. Hughes, consulting chemical engineer, has been appointed consulting engineer for the chemical and process in-



dustries by the H. K. Ferguson Co., Cleveland. He formerly had been with the Dorr Co., New York.

Lieut. Col. **Edward S. Hopkins,** Sn.C., was recently awarded the Army Commendation Ribbon by Maj. Gen. M. P. Eddy, "for outstanding and meritorious service

Davison

Gel Type

CATALYSTS

CATALYSIS
from the Greek
καταλύειν
κατά (Down) +
λύ-ειν (To Loosen)

Many bodies have the property of exerting on other bodies an action which is very different from chemical affinity. By means of this action they produce decomposition in bodies, and form new compounds into the composition of which they do not enter. This new power hitherto unknown is common both in organic and inorganic nature . . . I shall call it catalytic power. I shall also call catalysis the decomposition of bodies by force.

J. J. Berzelius (1779-1848)

Davison Gel Type Catalysts are important contributions to catalytic chemistry. The chemical composition of Davison Gel Type Catalysts, unlike that of natural catalysts, can be carefully controlled. Davison can cooperate with you in producing a catalyst "custom made" for your process.

Silica alumina, silica platinum and other synthetic catalysts are available for use in both organic and inorganic processes. These catalysts can be produced as finely divided powders (which under certain conditions flow like fluids), or as relatively large granules for fixed bed operations. In all cases the unusual pore structure assures vast surface area.

THE DAVISON CHEMICAL CORPORATION

Progress through Chemistry

BALTIMORE 3, MD.

as sanitary engineer, Headquarters Third Service Command from January 1944 to December 1945. He has returned to his former position as filtration engineer, Bureau of Water Supply, Baltimore, Md.

Victor E. Hovell has joined Advanced Cosmetics, Inc., New York, private brand manufacturers, as production manager in charge of operations at the plant in Long Island City. During the war he was superintendent in charge of TNT production at Keystone Ordnance Works.

Charles W. Hymer, manager of the sporting powder division of Hercules Powder Co.'s Explosives Department since 1919, retired September 1. **Henry N. Marsh,** manager of smokeless powder operations, will take over management of the sporting powder division as well, with the title of manager, smokeless powder division.

Turco Products, Inc., announces the recent affiliation of **Clarke E. Jackson** with its technical service department.

Mr. Jackson formerly served as assistant to the science department, Assuit College, Egypt, and during World War II was assistant laboratory officer at Mare Island Navy Yard.

Arne A. Jakkula, professor of engineering and executive at Texas A. & M. College for the past 10 years, has been named director of research of the Texas A. & M. Research Foundation, an independent organization serving industry and agriculture.

M. L. Jarboe, Hood Chemical Co., Inc., Pittsburgh, has been appointed chairman of the industry conference of chemical controllers at the fifteenth annual meeting of the Controllers Institute of America in New York in September. **George R. Rankin,** Artloom Corp., Philadelphia, is general chairman of the industry conference program.

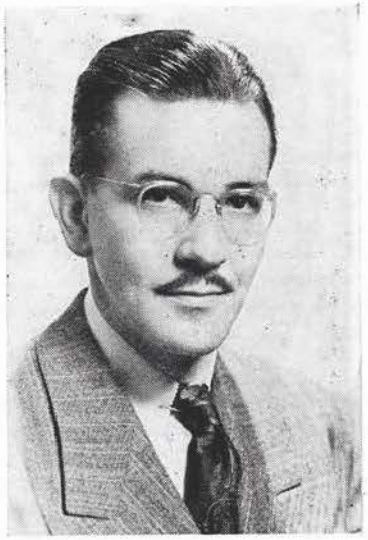
W. E. Jones who has been associated with Diamond Alkali Co. for 30 years, and who has been treasurer of the company for the greater part of that time, has announced his resignation.

Major Sidney Kaye, formerly toxicologist, U. S. Army Medical Department, has been released from active duty after five years of service, to assume the duties of toxicologist at the research laboratories, City of St. Louis Police Department, and to teach toxicology at the Washington University Medical School.

Eric Kneen has resigned his position as professor of milling industry at Kansas State College, and will become director of research for the Kurth Malting Co., Milwaukee, Wis.

Fred C. Kraatz has been placed in charge of laboratories and technical problems of the paint division, Pittsburgh Plate Glass Co., on the Pacific coast.

John Krueger has been appointed assistant professor in the graduate depart-



ment of applied science at the University of Cincinnati. He was formerly chief research chemist of the Edwal Laboratories.

During the war a research chemist at the Standard Oil Co. (Ind.), Whiting, Ind., **Robert C. Kuder** recently joined the staff of the department of chemistry at the University of Dayton and has been promoted to assistant professor.

Among those who joined the University of Colorado chemistry faculty recently is **John R. Lacher,** assistant professor of chemistry, formerly on the research staff of the Du Pont Co. **Karl Dittmer,** now assistant professor of chemistry and director of a research project on antivitamins, taught at Cornell University. Assistant Professor of Organic Chemistry **Stanley Cristol** was formerly research chemist in the U. S. Department of Agriculture at Beltsville, Md. **John S. Meek,** who is teaching and directing research in organic chemistry as an instructor, until recently was studying for his Ph.D. and teaching at the University of Illinois. **Orville J. Sweeting,** Cornell University, will be assistant professor of chemistry.

Alfred E. Laurence has recently returned to The Atlantic Refining Co. as a chemist in the research and development department. In the U. S. Army since 1943, he spent considerable time in the Judge Advocate General Section as an investigator of war crimes.

Frank H. Lawton has been appointed technical director of Hood Chemical Co., Inc., Pittsburgh, Pa., after seven years association as chemical engineer with the Diamond Alkali Co.

TEC TRIETHYL PHOSPHATE $(C_2H_5O)_3PO$

A valuable constituent of solvents for paint and lacquer formulations, paint and varnish removers, nail-polish removers, and perfumes

TABLE OF SPECIFICATIONS

Specific Gravity — 20/4 — 1.065 to 1.070

Chlorides — not more than 5 ppm

Sulphates — none

Acidity — not more than 3 cc N/100 NaOH per 5 cc sample

Per Cent Ester — not less than 97

TEC Triethyl Phosphate is very soluble in most common organic solvents and is completely miscible with water at room temperature. Hydrolysis does not occur except at elevated temperatures and is then quite slow. It is an excellent solvent for many polymeric and high molecular-weight materials. Therefore, it is indicated for use as a constituent of solvents for paint and lacquer formulations, paint and varnish removers, nail-polish removers, and perfumes. Write for free sample.

Now Available In Pilot Plant Quantities

TENNESSEE EASTMAN CORPORATION

(Subsidiary of Eastman Kodak Company)

KINGSPORT, TENNESSEE

NEWS-MAKERS

W. F. Leicester has been elected a vice president of the Borden Co., New York, in charge of the company's Casein Co. of

America division, with executive supervision of adhesives, including casein and related activities.

E. E. Lindsey and **Frank S. Riordan** have joined the staff of the department of chemical engineering of the University of Tennessee. Dr. Lindsey was with the Houdry Process Corp. and Yale University before his recent duty with the Navy. Frank S. Riordan has been a chemical engineer with the Bureau of Mines in Norris, Tenn.

Robert W. Little has joined the Ellicott Laboratories, Lawrenceville, N. J., as director of research. He was until recently serving with the Quartermaster Corps in conducting a research program on the flameproofing of cotton fabrics.

Lee B. Marshall has been employed by The Atlantic Refining Co. as a chemical engineer in the research and development department. After graduating from the University of Pennsylvania, he served two years as an ensign in the U. S. Navy.

Carl S. Marvel, University of Illinois, past president of the AMERICAN CHEMICAL SOCIETY, was awarded the honorary degree of Doctor of Science by Illinois Wesleyan University at its commencement exercises. Professor Marvel was graduated from Wesleyan in 1915.

Joseph J. Mattiello, vice president and technical director of the Hilo Varnish Corp., Brooklyn, has been elected honorary member of the Oil & Colour Chemist's Association of England.

A. Douglas McLaren, of Du Pont Co., has been appointed an assistant professor assigned to the Institute of Polymer Research at Brooklyn Polytechnic.

Henry C. Messman has been appointed General Purchasing Agent for Westvaco Chlorine Products Corp. and affiliates.

Leaving the Warren Petroleum Corp., **Ray E. Miller** is now sales director of the petroleum chemicals division of the organic chemicals department of the Du Pont Co., Wilmington, Del.

Noble L. Mooneyham, Chicago, has been appointed western district sales manager for Velsicol products.

Alexander Moore and **William Pearlman** have joined the research staff at Parke, Davis & Co. Dr. Moore was associated with Dr. Wiselogle at the Johns Hopkins University on the survey of antimalarial drugs. Mr. Pearlman served in the Army Air Corps since graduation from the University of Detroit.

Thomas W. Nale, formerly plant physician of the South Charleston works of Carbide and Carbon Chemicals Corp., has been appointed assistant manager of the company's industrial toxicology department, New York.

S. L. Neppe has been appointed manager of Gordon's Gelatine Corp., West Krugersdorp, Transvaal, South Africa, having left his position of chief chemist at S. A. Torbanite Mining and Refining Co., Ltd., Boksburg North, Transvaal.

Boyd L. O'Dell, leaving the Parke Davis research staff, will take up new duties as assistant professor of agricultural chemistry at the University of Missouri.

Detrex Corp., Detroit, Mich., has announced the appointment of **William L. McCracken,** recently discharged from the U. S. Army Engineers with the rank of

lieutenant colonel, to the position of administrative and technical assistant to **C. F. Dinley, Sr.,** vice president in charge of research and engineering.

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F. Faxon Ogden will be manager of special products sales development, and **J. J. McCarthy,** manager of chemical sales development in charge of new products for the paper and leather industries of Monsanto Chemical Co.'s Merrimac Division.

Donald C. Oskin, who joined Westvaco Chlorine Products Corp., New York, last year after four years as a major on the staff of General Doolittle, will be resident manager of the Westvaco office at 1900 East Jefferson St., Detroit 7, Mich.

Emil Ott, director of research of Hercules Powder Co., and **Eero Erkko,** his technical assistant, have left for Europe on a two-month tour which will include England, Sweden, Switzerland, Holland, Belgium, and France, for visits at various chemical plants and with noted scientists. They will attend the annual meeting of the Swiss Chemical Society and the Conference of Industrial Chemistry in Paris.

Charles W. Palmer, a vice president of Canadian Celanese, Ltd., since 1930, and a member of the board of directors, has been elected executive vice president and a member of the finance and executive committee. **William McC. Cameron** has resigned as vice president of the company but will continue as a director and member of the finance and executive committee. **William Ashworth** was named vice president in charge of sales.

The Dexter Chemical Corp. announces that **I. Peters** has joined the sales force of its textile chemical division and has been assigned to the New York and New Jersey area.

A. E. Philips has announced his resignation as vice president in charge of marketing of International Plastic Corp., Morristown, N. J.

The Calco Chemical Division, American Cyanamid Co., Bound Brook, N. J., announces appointment of **W. A. Raimond** and **T. H. Thelin** as chief chemists of the vat dyes and intermediates divisions, respectively. **G. S. Herrick, C. E. Lewis,** and **R. H. Ebel** have been appointed assistant chief chemists of the basic dyes, organic pigments, and rubber chemicals divisions, respectively.

A pioneer Standard Oil chemist, **F. M. Rogers,** chief chemist at Indiana's Whiting laboratories, retired September 1. He came to Standard Oil from the United States Geological Survey in 1908 as one of two chemists assisting R. E. Humphreys. Dr. Rogers was largely responsible for developing a number of new processes and products in refining, doing pioneer exploratory research in cracking. In 1914 he became chief chemist and was responsible for all the work of the research laboratories for a number of years. Under his direction, work which enabled Standard of Indiana to become the first producer of medicinal white oils from American crudes was done.

Felice Angelo Rotondaro, for eleven years a member of the research unit of the drug division of the Food and Drugs Administration, recently joined the staff of Bristol Laboratories, Inc., Syracuse, N. Y., to head the chemical control department.

Abb L. Scarbrough has accepted a position as National Lead Co. research fellow in chemistry at Lehigh University, Bethlehem, Pa., leaving the Westvaco Chlorine Products Corp.

W. M. Shafer, until recently a member of the research and metallurgical staffs of Fansteel Metallurgical Corp., North Chi-

cago, Ill., is now with the research department of the National Radiator Co., Johnstown, Pa.

Edward Schaar has been appointed managing editor of the *Chemical Bulletin* of the Chicago Section of the ACS to replace **Paul Wenaas,** who recently resigned.

Archie F. Shannon has resigned his position as metallurgist and superintendent of foundry and galvanizing at the National Iron Works, San Diego, to direct the operation of the Clarkson Chemical Co., San Diego, analytical and industrial chemists, the assets of which he has recently purchased.

William H. Shockley, Jr., has left the Celanese Corp. of America to return to the staff of the Institute of Paper Chemistry, Appleton, Wis., as assistant to Emil Heuser in the cellulose group.

Schwarz Laboratories, Inc., New York City, announces the appointment of **Richard R. Slater** to its executive staff as chief chemist. He will be in charge of the analytical and biological laboratories of the company. During the war, he was stationed at the New York Naval Shipyard in Brooklyn, as lieutenant commander.

J. H. Stewart, formerly chief chemist and assistant metallurgist of the Beau-

mont Iron Works Co., has opened the Industrial Radiography Laboratory, Beaumont, Tex., to serve the growing industries of that area.

Betty J. Sullivan, chief chemist, has been elected a director of Russell-Miller Milling Co., Minneapolis, the first woman ever elected a director of the company.

H. Gladys Swope has resigned her position as fellow of the Mellon Institute where she was studying the waste disposal problems of the pulp and paper industry sponsored by the National Council of Stream Improvement (of the Pulp, Paper, and Paperboard Industries) Inc., to accept the appointment as chief chemist for the Allegheny County Sanitary Authority, 4501 Center Ave., Pittsburgh 13, Pa.

Formerly research chemist with the Monsanto Laboratories, Dayton, Ohio, **Harry H. Szmant** has been appointed associate professor of chemistry at Duquesne University, Pittsburgh, in charge of organic chemistry.

Edwin R. Theis, professor of chemical engineering and head of the division of leather technology of the Institute of Research at Lehigh University, will represent the university before the Faraday Society at its meetings in September in London, England, and on the speaking programs of the International Society of Leather Trades Chemists and the British Leather Manufacturing Research Association.

Major Henry H. Thomas has joined the research and development staff of The Pemco Corp. He has been with the Army Ordnance Corps since 1941, having spent 23 months overseas.

A. L. Trumpler and **J. T. Brady** have been

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EXPORTERS

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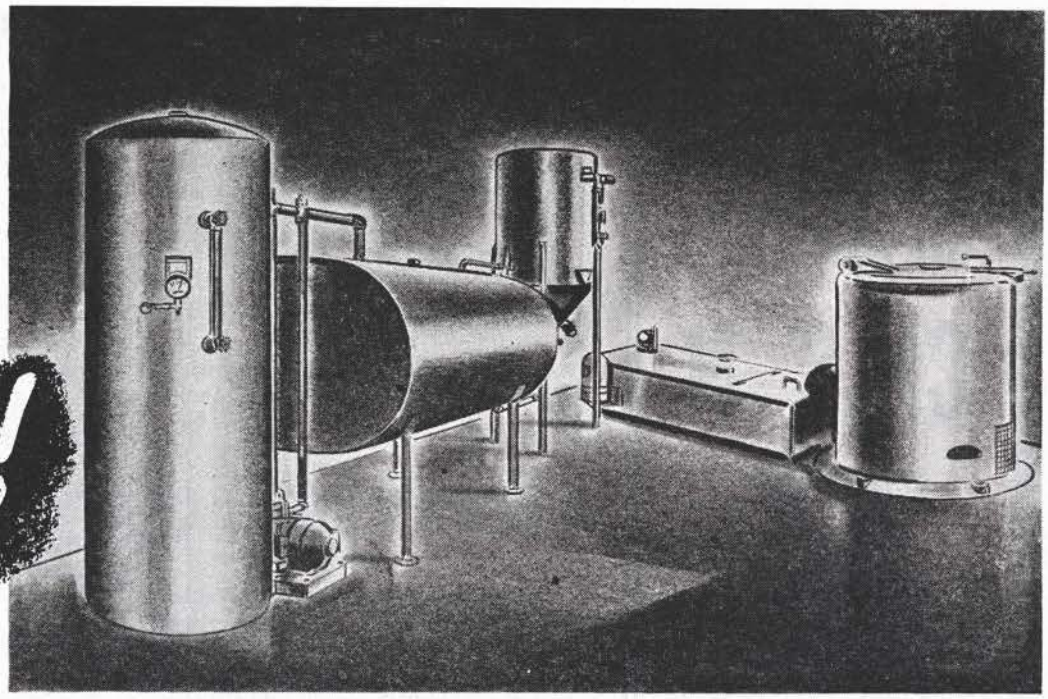

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appointed district engineers of the Dicalite Co.'s Buffalo and Pittsburgh offices, respectively. Mr. Trumpler, formerly a lieutenant in the U. S. Navy, had worked as design engineer for the Timken Roller Bearing Co. Mr. Brady left the Marine Corps early this year with the rank of captain.

Russell A. Wallace, formerly in charge of plastic and chemical exports for the Celanese Corp. of America, has resigned to become a partner in the firm of Dussi-Wallace and Co., 60 East 42nd St., New York. The new firm will act as American branch of several large enterprises in Southeastern Europe, the Near East, and Latin America, representing plastic, chemical, and electrical lines.

The appointment of **C. Richard Walmer** as medical director of Industrial Hygiene Foundation at Mellon Institute is announced by E. R. Weidlein, Institute Director. Dr. Walmer will hold the rank of senior fellow in Mellon Institute.

Carl J. Wessel has resigned his position at Gelatin Products Corp., Detroit, Mich., where he was associate director of control, to assume new duties at the National

Academy of Sciences, as research associate, prevention of deterioration center, National Research Council, Washington, D. C.

The National Research Corp., Boston, Mass., has announced the appointment of **Harold C. Weingartner** as chief engineer of the vacuum engineering division. Until recently Mr. Weingartner was engaged in research work at the University of Illinois under NDRC.

Vice Admiral E. L. Cochrane, Chief of the Bureau of Ships, recently presented **Theodore A. Werkenthin,** principal materials engineer, civilian-in-charge of the rubber and plastics section of Bureau of Ships, with the Meritorious Civilian Service award for outstanding service in connection with all research and technological problems on natural rubber, synthetic rubber, and plastic elastomers during World War II.

Dave Wetherly, chemical engineer who participated in a supervisory capacity during the design and construction program at Oak Ridge, Tenn., has been named contract engineer for the eastern district by the H. K. Ferguson Co.

Formerly stationed at the electromagnetic isotope separation plant, Oak Ridge, Tenn., **Donald D. Wright** has been released from the Army and has returned to the chemistry faculty of Brooklyn College where he will be promoted to assistant professor, effective Jan. 1.

L. Kent Wyatt has been appointed assistant district sales manager in the Detroit office of the Grasselli Chemicals Department, Du Pont Co. Formerly in the Cleveland plant, Mr. Wyatt was shifted to the explosives department during the war but rejoined Grasselli about a year ago.

Necrology

Morris S. Fine

Morris S. Fine, staff director of research at General Foods, died Aug. 15 after a short illness. He had been associated with General Foods since 1921 when he joined to head its first research department. From 1911 to 1917 he was instructor, lecturer, and adjunct professor at the New York Postgraduate Medical School, and was with the Calco Chemical Co. from 1917 to 1921. He had been a member of the ACS since 1907 and was valued as a good friend to the organization.

We announce with regret the deaths of the following members of the AMERICAN CHEMICAL SOCIETY:

Alexander Bruce, chemist and analyst for the city of Colombo, Ceylon, Feb. 11, 1946. Member since 1926.

Glyn William Arnold Foster, laboratory manager, British Aluminum Co., Ltd., May 26, 1945. Member since 1939.

Sam W. Thompson, graduate assistant at Minnesota Institute of Technology, June 17, 1946. Member since 1943.

John Read, 62, research chemist for the Beatrice Creamery Co., and former head of the physics and chemistry departments of the University of Arkansas, died August 20 in Chicago.

Associations and Meetings

Talks on Coal Technology

Except for November and December, monthly meetings concerned with developments in coal research and technology have been arranged by the Coal Technology Division, Pittsburgh Section, American Chemical Society, for September 1946 through May 1947. Divisional officers for the year are Norman C. Hill, chairman, Ralph E. Brewer, vice chairman (in charge of program), Norman W. Franke, secretary, and Philip J. Willson, Jr., membership chairman. The following program is scheduled.

Wednesday, September 25

The Coal-Burning Gas Turbine. John I. Yellott, Locomotive Development Committee, Bituminous Coal Research, Inc., Baltimore, Md.

Wednesday, October 23

Low-Temperature Reactions of Oxygen on Coal. Henry C. Howard, Coal Research Laboratory, Carnegie Institute of Technology, Pittsburgh, Pa.

Wednesday, January 22

Activated Carbon. J. William Zabor, Pittsburgh Coke and Chemical Co., Pittsburgh, Pa.

Monday, February 24

What Happens to Coke Ash and Coke Sulfur in the Blast Furance. Homer H. Lowry, Coal Research Laboratory, Carnegie Institute of Technology, Pittsburgh, Pa.

Monday, March 24

Trends in Coal Utilization. Frank H. Reed, Illinois State Geological Survey Division, Urbana, Ill.

Wednesday, April 23

Fischer-Tropsch and Related Syntheses. Henry H. Storch, Research and Development Division, Office of Synthetic Liquid Fuels, Bureau of Mines, Pittsburgh, Pa.

Wednesday, May 28

Modern Gasification Techniques for Coal. Louis L. Newman, Foreign Synthetic Liquid Fuels Division, Office of Synthetic Liquid Fuels, Bureau of Mines, Washington, D. C.

September, January, March, and May meetings will be held in the Mellon Institute Auditorium and October, February, and April dinner meetings in the College Club of Pittsburgh, Pittsburgh, Pa. Attendance at these meetings is opened to all interested persons.

Congress of Mining Engineering and Geology in Brazil

A group of five week-long tours of important centers for charcoal iron production and iron ore exportation; gold, manganese, and quartz; coal; bauxite and zirconium, and metallurgical industries of São Paulo; and geology of the Gondwanda region, respectively, have been planned by the committee of the Second Pan American Congress of Mining Engineering and Geology to be held from October 6 through 13 in Rio de Janeiro. Information can be obtained from the Secretaria Geral, Av. Almirante Barroso 91, Salas 907–8, Rio de Janeiro, Brazil (cable address: Agrigeo).

Chicago AIC Award

Ward Vinton Evans will receive the 1946 Honorary Scroll Award of the American Institute of Chemists at a dinner meeting of the Chicago Chapter on October 4. The program will include testimonial addresses by Franklyn B. Snyder and Gustav Egloff, presentation of the scroll by C. A. Johnson, and the acceptance address by Dr. Evans, who is being honored for his outstanding achievements in the field of chemistry as a great teacher, as an industrial consultant, and for his high civic spirit. A national authority on explosives, he retired in 1945 from Northwestern University where he was chairman of the chemistry department after having been a member of the faculty since 1916. For the past year he has been associated with the Army University in Europe.

Conference on Wood Utilization

The following is the program of the invitation conference on "New Developments in Hardwood Pulp" to be held in Syracuse, N. Y., on October 2, in cooperation with the New York State College of Forestry. Further information can be obtained from the Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn.

Hardwood Pulp Resources of the Northeast. V. L. Harper, Northeastern Forest Experiment Station.
Recent Developments in Scandinavia. Edwin C. Jahn, New York State College of Forestry.
German Work on Hardwood Pulping. Eduard Farber, Timber Engineering Co.
Problems in the Utilization of Hardwoods for Pulp. G. H. Chidester and John M. McGovern, U. S. Forest Products Laboratory.
Application of Neutral Sulfate Semichemical Process to Northern Hardwoods. M. W. Phelps, Technical Service, Solvay Process Co.
Research on Hardwood Pulp. C. E. Libby, New York State College of Forestry.
Mechanical Pulping of Hardwood.
Economies in Pulpwood Production. John A. Willard, Bigelow, Kent, Willard and Co.
Recent Developments in the Utilization of Sulfite Waste. Robert S. Aries, Northeastern Wood Utilization Council.

EMSA and ASXRED

The 1946 winter meeting of the Electron Microscope Society of America and the American Society for X-Ray and Electron Diffraction will be held in Pittsburgh, Pa., at the Mellon Institute of Industrial Research and the University of Pittsburgh, December 5, 6, and 7. Joint sessions of the two societies may be arranged if the programs so permit. Registration will take place at 9:00 A.M. December 5. Information concerning these meetings may be obtained by writing to S. S. Sidhu, local chairman of the ASXRED, University of Pittsburgh, Pittsburgh, Pa., or to Earl A. Gulbransen, local chairman of the EMSA, Westinghouse Research Laboratories, East Pittsburgh, Pa.

Canadian Textile Meeting

The annual convention of the Federation of Textile Technical Associations will be held in Toronto on September 21. Subjects and speakers on the program include "Fundamentals of Textile Research" by E. H. Schwartz, MIT; "Textile Research Program for Canada" by A. C. Goodings, Ontario Research Foundation; "Chemical Developments in Textile Finishing" by L. J. Sheps, Richards Chemical Co.; "The Economics of Research and Technological Change" by Ralph Presgrave, York Knitting Mills, Ltd.; and "Relationships of Textiles to Laundering and Dry Cleaning" by C. H. Bayley, National Research Council.

Engineering Societies Council of New York

In order "to enable the engineering profession to render in greater New York a better coordinated program in the interests of the public and the members of the participating organizations", the Engineering Societies Council of New York, with delegates from the local chapters of engineering, scientific, and technical societies, has been organized. Formation of the council was the outgrowth of cooperation during the war as the Engineering Societies Committee on War Production. Officers are H. C. R. Carlson, ASME, chairman; H.

P. Wall, ASSE, vice chairman; M. P. Davis, ASTM, secretary; and H. F. Dart, IRE, treasurer. W. F. O'Conner represents the AMERICAN CHEMICAL SOCIETY and serves as one of six directors.

Appraisal of Scientific Legislation

The American Institute of Physics has declared its stand against any national scientific legislation which will hamper dissemination of discoveries by American scientists in the name of military secrecy. Unless only specific technological details of application of science to weapons of war are kept secret, military preparedness may be jeopardized, it has declared.

Low-Pressure Plastics Conference

Industrialists of the low-pressure division of the Society of the Plastics Industry will hold their second conference, with a two-day symposium of technical papers, and exhibit at the Edgewater Beach Hotel, Chicago, from January 23 through 26. Large, contoured products now made under low-pressure methods will be on exhibit, such as boat-hulls, plane fuselage sections, and other reinforced products.

Packaging Exposition

The 1947 Industrial Packaging and Materials Handling Exposition is being planned for April 29 and 30 and May 1 by the Industrial Packaging Engineers Association of America. A. C. McGeath of the American Box Board Co. has been appointed general chairman. The Hotel Sherman, Chicago, Ill., is the location chosen.

Microchemical Society

The Metropolitan Microchemical Society of New York has elected the following officers: president, Freeman R. Swift, The Fleischmann Laboratories; vice president, Frank A. Meier, American Platinum Works; secretary, Bella Littman, Hoffmann-La Roche, Inc.; and executive committee members, Walter A. Hynes, Fordham University, Dorothea Mossman, Brooklyn College, and Leo K. Yanowski, Fordham University.

Industrial Hygiene Foundation

A series of three or four round-table conferences will be arranged in connection with the annual meeting of member companies of Industrial Hygiene Foundation. The general meeting will be held at Mellon Institute, Pittsburgh, on Nov. 7. Subjects of more specialized interest will be discussed in conferences to be held on Nov. 6 and 8. A conference for chemists and toxicologists is considered for Nov. 8.

American Council of Commercial Laboratories

The 1946 committees and council representatives of The American Council of Commercial Laboratories are:

Executive Committee. H. L. Sherman president, Skinner & Sherman, Boston; F. B. Porter, vice president, Southwestern Laboratories, Ft. Worth; G. J. Esselen, treasurer, Gustavus J. Esselen, Inc., Boston; B. L. Oser, secretary, Food Research Laboratories, Long Island City; R. R. Bowser, Bowser-Morner Testing Laboratories, Dayton, Ohio; I. F. Laucks, Laucks Laboratories, Seattle, Wash.; M. C. Wylie, Gulick-Henderson Co., Pittsburgh, Pa.; and W. P. Putnam, past-president, Detroit Testing Laboratories, Detroit.

Standing Committees. *Fair Practice.* M. L. Patzig, chairman, Patzig Testing Laboratories, Des Moines; W. P. Putnam; H. D. Imrie, Abbot A. Hanks, Inc., San Francisco; and G. J. Durant, Froehling & Robertson, Richmond.

Membership. R. R. Bowser, chairman; R. W. Truesdail, Truesdail Laboratories, Los Angeles; J. F. Carle, Southern Testing Laboratories, Inc., Birmingham; and G. J. Jasper, Twin City Testing & Engineering Laboratory, St. Paul.

To Further the Interests of Tax Paying Laboratories. A. R. Ellis, chairman, Pittsburgh; Testing Laboratory, Pittsburgh; J. H. Herron, J. H. Herron Co., Cleveland; F. B. Porter; P. S. Millar, Electrical Testing Laboratories, Inc., New York; and E. O. Slater, Smith-Emery Co., Los Angeles.

Standardization Developments. F. Malcolm Farmer, chairman, Electrical Testing Laboratories; L. F. Herron; and G. Worthen Agee, Barrow-Agee Laboratories, Inc., Memphis.

Special Committees. *Valid Certification.* Preston S. Millar, chairman; B. L. Oser; and W. P. Putnam.

Representatives A.S.A. Standards for Household Refrigerators. Gordon Thompson, E.T.L., Stds. Household Refrig. B-38; J. H. Herron, J. H. Herron Co., Sub-Com. Mech. Refrig.; Robert Christie, U. S. Testing Co.; and G. J. Jasper, Ice Refrigerators B-38.

Representative on American Standard Assoc. Council. F. Malcolm Farmer, E.T.L.; alternate—A. R. Ellis, P.T.L.

Representative N.B.S. Stdg. Committee on Standards for After Market Lamps and Signal Equipment. M. L. Patzig, Patzig Testing Labs.; and alternate—R. H. White, E.T.L.

Representative A.S.A. Sectional Committee on Household Electric Ranges, C-71. H. Koenig, E.T.L.; and alternate—L. K. Jones, P.T.L.

Representative A.S.A. Sectional Committee on Standards for Electric Water Heaters, C-72. Gordon Thompson, E.T.L.; and alternate—A. L. Brassell, U. S. Testing Co.

Representative A.S.A. Sectional Committee on Fastness of Colored Textiles, L-14. A. J. Kellner, U. S. Testing Co.; and alternate—M. H. Curley, G. J. Esselen, Inc.

Representative on National Bureau of Standards Standing Committee on Enameled Utensils. L. K. Jones, P.T.L.

Representative on National Bureau of Standards Standing Committee on Analyses of Textile Products CS-65-43. A. J. Kellner, U. S. Testing Co. Alternate—M. H. Curley, G. J. Esselen, Inc.

American Chemical Society

AMERICAN CHEMICAL SOCIETY. Chicago, Ill. September 9 to 13, 1946. 110th meeting.

AMERICAN CHEMICAL SOCIETY. Atlantic City, N. J. April 14 through 18, 1947. 111th meeting.

NATIONAL CHEMICAL EXPOSITION. Chicago, Ill. September 10 to 14, 1946.

MEETINGS FORESHADOWED

Local Sections of the ACS

SECTION AND PLACE	DATE	SPEAKER	SUBJECT
California, Claremont Hotel, Berkeley	Sept. 16	**Otto A. Beeck**	Catalysis
Chicago, Furniture Club of America	Sept. 27	**M. H. Arveson**	The Immediate Past Chairman Speaks
Detroit, E.S.D. Auditorium, Rackham Educational Memorial	Sept. 24	**Prentiss M. Brown**	Function of Government in Business
Indiana, Indianapolis	Oct. 4	**Robert O. Sauer**	Chemistry of the Methylchlorosilanes
Lexington, Kastle Hall, University of Kentucky	Oct. 3	**Robert O. Sauer**	Chemistry of the Methylchlorosilanes
Louisville, Speed School Auditorium	Oct. 2	**Robert O. Sauer**	Chemistry of the Methylchlorosilanes
Maryland, Remsen Hall, Johns Hopkins University	Sept. 27	**C. S. Fuller**	Interpretation of the Properties of Thermoplastics
Purdue, Purdue University, Lafayette, Ind.	Oct. 1	**Robert O. Sauer**	Chemistry of the Methylchlorosilanes
Southeast Kansas, High School Auditorium, Joplin, Mo.	Sept. 19	**E. J. Putzell, Jr.**	National and International Aspects of Atomic Energy
Texas-Louisiana Gulf, Goodhue Hotel, Port Arthur, Tex.	Sept. 19	**B. K. Lyckberg**	Synthetic Rubber
Washington-Idaho Border	Sept. 30	**Emil Heuser**	Cellulose
Western Connecticut, Stamford	Oct. 1	**Walter J. Murphy**	Operations Crossroads

MEETINGS

TENTH NATIONAL ORGANIC CHEMISTRY SYMPOSIUM, DIVISION OF ORGANIC CHEMISTRY. Boston, Mass. June 12 to 14, 1947.

THIRTEENTH CHEMICAL ENGINEERING SYMPOSIUM ON DISTILLATION, DIVISION OF INDUSTRIAL & ENGINEERING CHEMISTRY. Mellon Institute, Pittsburgh, Pa. December 30–31.

Other Scientific Societies

AMERICAN GAS ASSOCIATION, Atlantic City, N. J. October 7–12. Annual meeting.

AMERICAN INSTITUTE OF MINING & METALLURGICAL ENGINEERING, Petroleum Division, Ambassador Hotel, Los Angeles. October 24 and 25. Annual meeting.

AMERICAN OIL CHEMISTS' SOCIETY. Edgewater Beach Hotel, Chicago. October 30, 31, and November 1. 20th annual meeting.

ASSOCIATION OF OFFICIAL AGRICULTURAL CHEMISTS. Shoreham Hotel, Washington, D. C. October 14, 15, and 16. Annual meeting.

ELECTROCHEMICAL SOCIETY, INC. Royal York Hotel, Toronto, Ont., Canada. October 16 to 19. Fall congress.

ENGINEER'S SOCIETY OF WESTERN PENNSYLVANIA. William Penn Hotel, Pittsburgh, Pa. October 28, 29, and 30. Seventh annual water congress.

FEDERATION OF PAINT AND VARNISH CLUBS. Hotel Claridge, Atlantic City, N. J. November 4, 5, and 6. Eleventh annual paint industries' show.

INSTRUMENT SOCIETY OF AMERICA. William Penn Hotel, Pittsburgh, Pa. September 16 through 20. First national instrument conference.

NATIONAL LUBRICATING GREASE INSTITUTE. Edgewater Beach Hotel, Chicago. September 29 to October 2. 14th annual meeting.

NATIONAL PETROLEUM ASSOCIATION. Hotel Traymore, Atlantic City, N. J. September 18–20.

NATIONAL WHOLESALE DRUGGISTS ASSOCIATION, Hotel Traymore, Atlantic City, N. J. September 23–26.

NORTHEASTERN WOOD UTILIZATION COUNCIL. Syracuse University, Syracuse, N. Y. October 2.

REFRIGERATION AND AIR CONDITIONING EXPOSITION. Cleveland, Ohio. October 29 through November 1.

SOCIETY OF RHEOLOGY. Hotel Pennsylvania, New York City. October 25 and 26. Annual meeting.

SYMPOSIUM ON MODERN METAL PROTECTION, SPONSORED BY CLEVELAND SECTIONS OF AMERICAN CHEMICAL SOCIETY, AMERICAN INSTITUTE OF CHEMICAL ENGINEERING, AND ELECTROCHEMICAL SOCIETY. Cleveland, Ohio. September 21.

University News

Australian National University

The Australian National Universities Bill establishing a National University at Canberra, Australian Capital Territory, and providing for payments from revenue of sums not exceeding £325,000 (approximately $1,100,000) for each of five years beginning July 1, 1946, was passed by the Australian Parliament on July 6. The measure was sponsored by the Ministry of Post War Reconstruction and, in general, provides that the university should include a school of medical research, a research school of physical sciences, a research school of social sciences, a school of pacific affairs, and a school of diplomatic studies. Arrangements are being made to establish an interim council and to set up an organization for the payment of students' fees by the Commonwealth Government.

The Ministry of Post War Reconstruction has indicated that the first objective would be the establishment of a medical research center, to be followed later by the creation of a physics department and other sections. It is anticipated that at least £50,000 ($162,500) a year will be devoted to the physics department.

The Australian Government, officials state, is fully aware that the establishment of a national university will lose much of its value unless men of the very highest caliber can be induced to join its professional staff. Men of sufficient standing induced to come to Australia and put the university on a sound research footing will not only offer considerable encouragement to young Australians but might well attract students and teachers from other countries.

A representative of the Australian Council for Scientific and Industrial Research is attached to the Australian Embassy in Washington, and contact with the Australian National University's scientific faculties could be arranged through the Australian Legation, 1785 Massachusetts Ave., N. W., Washington 8, D. C.

Battelle Fellowships and Associateships

For the year beginning in the fall of 1946, Battelle Memorial Institute, Columbus, Ohio, is appointing a number of graduate research fellows and postdoctoral research associates to conduct investigations of a fundamental nature in the Battelle laboratories. This is part of a training program operating since 1931, the year's "interneship" having been designed to develop trained research men, primarily for careers in industrial research.

Fellowships are granted to those seeking master's ($1,000) or doctor's ($1,200) degrees; thesis research is conducted at Battelle after course work has been completed on the campus. Associateships are open to young men who have completed their academic training and have shown exceptional aptitude for research. Application may be made to J. R. Van Pelt, Battelle Memorial Institute, Columbus 1, Ohio.

Eyring Textile Fellowship

The Textile Research Institute now has eleven fellowships, of which the latest is "The Textile Research Institute Henry Eyring Fellowship in Scientific Textile Research". The announcement was made following a farewell luncheon for Dr. Henry Eyring, given for him by the Textile Research Institute and the Textile Foundation. Dr. Eyring has been the director of research for the Textile Foundation at Princeton, N. J., for the past two years, and in that capacity has supervised the research studies of nine of the Institute fellows appointed under him. His new post is with the University of Utah as Dean of the Graduate School.

Smith Collection

The Edgar Fahs Smith Memorial Collection in the History of Chemistry, University of Pennsylvania, announces the appointment of the following Advisory Committee to the Collection: C. A. Browne, Washington, D. C.; Henry M. Leicester, San Francisco, Calif.; Herbert S. Klickstein, Lt., USNR; and Claude K. Deischer, University of Pennsylvania

Kimberly-Clark Establishes Fellowships

The establishment for the first time of Kimberly-Clark fellowships has been announced by the Neenah, Wis., corporation, with grants offered to the University of Wisconsin, the University of Minnesota, and the Massachusetts Institute of Technology. It is expected that the fellowships will be arranged in time for 1946–47 terms, to be coincident with the opening of the new Kimberly-Clark Corp. research and development laboratories. The fellowships result from a policy of devoting more of the company's research budget in fundamental and background work. The field of study has been specified only to the extent that the subject shall be of interest and value to the pulp and paper industry, and in physics, physical chemistry, or chemical engineering.

X-Ray Diffraction

An introductory course in x-ray diffraction and spectrometry is being conducted throughout the week of September 16 by North American Philips Co., Inc., in its New York offices. The course will comprise "Basic Principles of X-Ray Diffraction" and "Applications of X-Ray Diffraction" by I. Fankuchen; "The Geiger-Counter X-Ray Spectrometer" by H. Friedman; "Applications of Geiger-Counter X-Ray Spectrometer" by Drs. Jellinek, Parrish, and Nielsen; and "X-Ray Diffraction Apparatus: Constitution, Operation, and Servicing" by H. Di Giovanni.

NYU Graduate Courses

Graduate courses in powder metallurgy, under C. G. Goetzel, in management of research and development, to be presented by various directors of research from industry, and in surface finishes, under M. A. Coler, will be offered this fall at New York University College of Engineering. Registration begins September 16.

Military Research at Wesleyan Continued

A military research organization at Wesleyan University has been created to continue the ordnance research program conducted at Wesleyan during the war. It is being started under a contract between the university and U. S. Army Ordnance, with the project being known as ORDWES. The new contract is considered recognition by the Army of the value of Wesleyan's contribution to wartime military research.

ORDWES will be operated by a full-time staff of scientists under the directorship of Richard G. Clarke, formerly assistant professor of chemistry at Wesleyan. Other officers of the group are William C. Nelson, assistant director in charge of applied science research; Herrick T. Wilson, business manager; Clinton B. Ford and William P. Senett, group leaders in the pure science research department; Robert W. Fabian, in charge of photometric measurements; and Raymond S. Kardas, physicist. A consultative board operating in a supervisory and advisory capacity has been established.

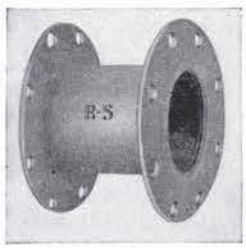
Under the plan several fellowships for research in pure science are available to candidates for the master's degree, with problems in chemistry, physics, and photographic technique available at present.

Clemson College Fire

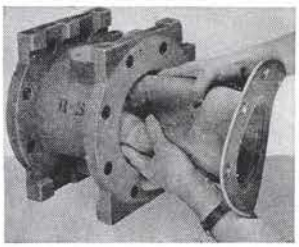
In spite of an estimated $100,000 damage done to its chemistry building and equipment by a recent fire, classes are being scheduled as usual at Clemson College, Clemson, S. C.

R-S valve values

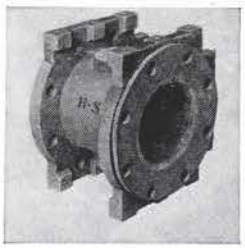
ISSUED PERIODICALLY BY R-S PRODUCTS CORPORATION, PHILADELPHIA 44, PA., FOR THOSE CONCERNED WITH FLOW CONTROL AND SHUT-OFF



Patented renewable replaceable rubber liner



Installing liner in valve body



Rubber liner in position

New Butterfly Valve gives 100% Complete Shut-off

Latest development in the valve field is the R-S rubber-sleeved Butterfly Valve, which for the first time in the history of Butterfly Valves gives a heavy duty 100%-effective shut-off.

The valve is currently available in sizes to handle 15 to 125 p.s.i., both using 125 lb. standard American flanges. Effective temperature range is —20° to plus 200° F.

Perfect closure is obtained from the wedge-like action of the butterfly vane closing within a one-piece flexible rubber spool which acts as a seat for the valve body and a gasket between body and pipe-flanges. A special composition of rubber and other materials has been developed to give the proper resilience while retaining long-wearing quality. A rigorously supervised test of the 125-pound valve embraced 10,000 complete movements from full open to full closed at the end of which ordeal the valve was still giving perfect shut off at 115 p.s.i.

Obviously, any ordinary use of a valve would require 10,000 closings in nothing less than a very long time. However, replacement of the rubber sleeve, if necessary, is unusually simple. After the valve body is cleared from the pipe-flanges the rubber replacement spool is folded up like an old fishing hat and thrust through the body. The flanges of the spool are patted down smoothly on the body flanges, and bolt-holes brought into alignment. "A child can operate it," as the old-time advertisers would say. The rubber spool flange takes the place of the usual flange-gaskets, a not inconsiderable economy. Patent is pending.

When Ordering Butterfly Valves . . .

1) State size of valve.
2) State type of flanges.
3) State nature of gas, liquid or other material to be controlled.
4) State line pressure.
5) State pressure loss in valve.
6) State operating temperature.
7) State rate of flow.
8) State method of control desired.
9) Get a copy of Catalog 14-B on R-S Butterfly Valves. (Write, R-S Products Corporation, Wayne Junction, Philadelphia 44, Pa.) It simplifies ordering by giving you pages of detailed diagrammatic drawings keyed to dimensional data, with illustrated descriptions of control methods.

* * *

New Tennessee and Texas Distributors

C. E. Johnson & Associate, who have handled R-S Valves in Georgia have now added Tennessee to their territory, with headquarters continuing at Atlanta.

Power Specialty Company is now the distributor for Texas and Louisiana, covering also Mobile, Alabama. Oke W. Muller is manager at headquarters in Houston, with a branch office at Corpus Christi in charge of Sam H. Young.

Mash Flow Control in Distillery

The new five stage Mash Cooler installation by Guardite Corporation for the huge Hiram Walker & Sons Distillery at Peoria, world's largest liquor distillery, is the only one of its kind in the world.

In the production of spirits, cooling of the mash is necessary after cooking. In this giant cooler an exhaust line leads from each stage to a steam jet vacuum producer in the next stage, then to a barometric condenser where cooling is accomplished by evaporation. Between each stage and the vacuum producer of the next stage the control of flow is effected.

After the first, second, and third stages, are R-S Butterfly Valves of 12-inch, 18-inch, and 24-inch sizes, respectively, operated automatically by Taylor #48 diaphragm operators and positioners; after fourth and fifth stages, are 36-inch R-S Butterfly Valves with Republic 5" by 12" cylinder operators. All are actuated by vacuum.

The success of the entire operation depends largely on the sensitive control of R-S Valves which maintain the proper vacuum without hunting or sticking.

Corrosion Chief Valve Problem

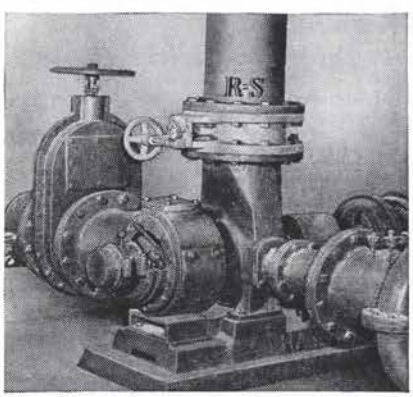
A survey by CHEMICAL & METALLURGICAL ENGINEERING in 59 plants showed that 28% of all plantmen interviewed considered corrosion problems their first concern in the maintenance of valves. In a subsequent issue of VALVE VALUES you will find a more extended discussion of valve-corrosion problems and something about how R-S Butterfly Valves are designed as an answer to the problem.

* * *

What Materials do you Pipe?

Everything that flows passes through R-S Valves. Air, other gases and vapors, catalysts, water and steam, paper-pulp, powdered fuel, sewage, soap, tars, asphalts, petroleums, synthetic rubber, acids, and many semi-solids are commonplace in R-S experience.

* * *

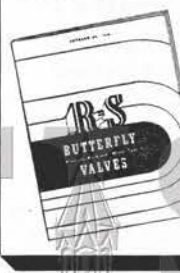


18" Heavy Duty R-S Butterfly Valve Type 432 for Pulp Chest Pump Isolation at Northwest Paper Company

* * *

Complete R-S Valve Installation Data

Engineers like the complete dimensional data supplied for R-S Butterfly Valves. Dimensions are tabulated by standard sizes under stock types and identified by letters corresponding to detailed drawings which accompany the tables. Six full pages of R-S Products' Catalog No. 14-B (copy on request to R-S Products Corporation, Wayne Junction, Philadelphia 44, Pa.) are devoted to this basic installation data.



JMLco J-3

Products and Processes

Continuous Process for Pigments

Installation of the first full-scale process for the continuous manufacture of precipitated pigment colors is planned by the Pigments Department of the Du Pont Co. at Newark, N. J. The company stated that the process represents the first fundamental change in the manufacture of chrome pigment colors in many years. It will reduce average processing time from a period of 4 or 5 days to a few hours.

The process will replace batch handling with a continuous flow of raw material and semifinished pigments through all processing stages. This is expected to improve quality as well as increase production. The continuous process will result in better control in the precipitation and drying operations in particular, both of which steps are vital in determining the tinctorial value and other qualities of the pigments.

Increasing Vegetable Oil Yield

A solvent extraction system which can increase the annual oil yield from cottonseed, linseed, castor, and most oil-bearing seeds, nuts, and beans by 20,000 tons, has been developed by the Sherwin-Williams research staff at the company's Cleveland linseed oil mill. The process can extract 98½% of the available oil from vegetable matter used in the production of soaps, salad oils, cooking oils, linoleum, paints, and other products.

A universal extraction plant is available for one plant can be used interchangeably for the extraction of vegetable oil from over 20 common sources. The system is said to require only two thirds the plant space needed by other processes. Patent applications are pending covering the processes used in the system and certain features of the equipment employed in carrying out the processes. The first of these new plants is being built in Cleveland.

Riboflavin Concentrates

Two natural riboflavin concentrates have been announced by U. S. Industrial Chemicals, Inc., 60 East 42nd St., New York 17, N. Y., to supplement its general line of livestock and poultry ingredients. These new concentrates, derived from a natural fermentation process, are available for the fortification of animal feeds. Mixture 1 contains 1 gram active riboflavin per ounce of material, and natural carriers containing vitamins of the B complex. Concentrate 85 consists of 85 parts per hundred active riboflavin along with a natural carrier and an important number of the vitamin B complex.

Copper Alloy Anticorrosive

A brass corrosion inhibitor is being developed by Johan Bjorksten, industrial research chemist, manufactured by the Bee Chemical Co., 63 East Lake St., Chicago, Ill., under the trade name of Brass Lyfe. It is furnished as a 10% solution of the active organic chemical in butyl Cellosolve. It is specific for copper, and is not effective on any other metal than copper alloys. It is miscible with oils, lubricants, and lacquers, and added to these it is said to stop completely the corrosion of copper containing alloys, whether this is due to oxygen, organic acids, or amines. Drawing compounds and soluble oils with the corrosion preventive are also available.

Color Developer

The Ansco Division of General Aniline and Film Corp. has announced a new color developing agent for color films and color paper.

The color developing agent presently used in current color photographic processes causes a minor skin irritation or dermatitis with certain individuals who are sensitive to it. The new developing agent, without any sacrifice in color quality, is free of this property as it is no more toxic than the developers used in ordinary black and white photography.

Owing to the great demand for photographic products resulting from the scarcity during the war years, there may be some delay before this improved color developer or developing kits containing it reach the public.

OTS Reports

Copies of the following reports can be obtained at the prices indicated from the Office of Technical Services, Department of Commerce, Washington 25, D. C. Orders should be accompanied by check or money order, payable to the Treasurer of the United States.

Plastics

German techniques for making Styroflex, a tough, flexible plastic film, used chiefly for underwater **cable insulation,** from the brittle plastic polystyrene, are being studied by a newly formed team of investigators. The film is highly uniform in thickness and quality, has excellent dielectric properties, and is resistant to water, acids, alkalies, and oils. Production costs promise to be lower than for similar American plastics. Preliminary descriptions of Styroflex are contained in PB-4308 (photostat, $1; microfilm, 50 cents; 9 pages), and PB-12,467 (photostat, $25; microfilm, $4; 374 pages; also available in book form, at $4.50, from DeBell and Richardson, P. O. Box 240, Springfield, Mass.).

Improvement of plastic films, such as cellulose acetate, for use as **capacitor dielectrics** was made in Germany by loading the films with ceramic powder. This process, together with a special technique for making extremely thin ceramic samples, production of high permittivity ceramics, and other developments, is described in a 29-page report (PB-497, on sale by OPB-photostat, $2.00; microfilm, 50 cents). A satisfactory, elastic film for capacitor dielectrics reportedly has been developed by combining 200 parts of a ceramic powder known as Lutz No. 105 with 100 parts of cellulose triacetate at a temperature of 160° C. Ceramic samples as thin as 0.3 mm. were produced by a German company.

Information on 19 major developments in the field of **plastics** in Germany, believed to be particularly adaptable by American industry, is offered in report PB-12467 (photostat, $25, or microfilm, $4). It is also available in book form ($4.50) from DeBell and Richardson, Springfield, Mass.

Among the 19 items are two new, tough, high-melting synthetic fibers (based on caprolactam and isocyanates), new magnetic fillers for plastics, cellulose water-soluble detergent ether-acids which should reduce fat usage in soaps, polyvinyl pyrrolidone for blood transfusions without regard to blood type, rot-resistant fiber from chlorinated polyvinyl chloride, and nonoil protective coats.

An unusual German process for production of **cellulose acetate flake,** requiring less acetic acid than is normally used, is described in report PB-6644 (photostat, $1; microfilm, 50 cents; 6 pages).

The process, used by the Alexander Wacker plant at Burghausen, involves acetylation of beechwood pulp in the presence of a large excess of zinc chloride. The mixture used for acetylation consists of 950 kg. of solid zinc chloride, dissolved in 1,780 kg. of 100% acetic anhydride and 1,000 kg. of glacial acetic acid. Sulfuric acid, commonly used as a catalyst, is not required.

There has been no apparent wartime growth in the German cellophane industry. Most of the film was used for food packaging and for the armed forces. In both the viscose and cuprammonium processes, German pulps were more or less satisfactorily substituted for linters and

Wyandotte invests

Twenty-five million dollars . . . in an expansion program designed to help meet ever-increasing demands for industrial chemicals.

It is an investment founded upon faith—faith in the American system of free enterprise and in the continued greatness of this nation.

This program, already begun, is scheduled to be completed within eighteen months. It will greatly increase Wyandotte's capacity to produce calcium carbonate, chlorine and soda ash. Improvements in the method of processing caustic soda will also increase production of this vital material.

Included in the plans are new plants for the manufacture of glycol and synthetic detergents. The erection of the glycol and synthetic detergent plants will mark a major move by Wyandotte into the field of organic chemicals.

In addition to the huge construction project, Wyandotte is enlarging its sales force, its research, technical and engineering staffs—the better to meet customer needs.

Wyandotte will continue—as it has throughout the period of shortages—to allocate its production fairly to its regular customers at all times. Meanwhile, Wyandotte looks forward to the day when all requirements can be met promptly and entirely.

Wyandotte REG. U. S. PAT. OFF. *OFFICES IN PRINCIPAL CITIES*

WYANDOTTE CHEMICALS CORPORATION • MICHIGAN ALKALI DIVISION • WYANDOTTE, MICHIGAN

Soda Ash • Caustic Soda • Bicarbonate of Soda • Calcium Carbonate • Calcium Chloride • Chlorine
Hydrogen • Sodium Zincates • Aromatic Intermediates • Dry Ice • Other Organic and Inorganic Chemicals

Scandinavian pulps, closely paralleling practices of the rayon industry. While no noteworthy changes of a chemical nature were found, other than the substitutions forced by circumstances, a few mechanical developments of the German industry warrant mention, particularly a simple but efficient coating tower. The development of polyamide films in Germany during the war has been rapid, and manufacture is described in report 480.

A **synthetic** substitute for **egg white** has been made from fish and used successfully for food and technical purposes in Germany since 1934, according to Report PB-17566; (photostat, $1; microfilm, 50 cents; 8 pages). The product is claimed to have excellent food value and to have only a faintly perceptible fishy flavor. Fresh fillets of codfish are preferred for the production process, though dried codfish were used during the war. Steam-dried shrimp also were used.

The preparation and physical properties of 15 **insect repellent compounds** are described in a report prepared by the researchers at the University of Minnesota under a wartime contract with the Office of Scientific Research and Development (PB-4247; photostat, $1.00; microfilm, 50 cents; 5 pages). The compounds comprise acetates and benzoates of allyl, propenyl, and propyl phenols, phenolic ethers, and a related coumaran. All but one of the compounds were derived from *p*-cresol.

An effective **shark repellent,** consisting of copper acetate and black water soluble dyestuff bonded with a wax binder, was developed by the U. S. Navy during the war, according to Report PB-12617; (photostat, $3; microfilm, 50 cents; 34 pages). Field tests conducted in shark infested waters, using bonita, mullet, and bloody fish as bait, revealed that copper acetate, diffused slowly into the water, repelled sharks.

The Japanese claim that a proprietary drug called "Migozai" improved **night vision** of soldiers 150–200%, according to U. S. Army Air Forces Report PB-16803; (photostat, $1; microfilm, 50 cents). The drug was administered as a yellow-colored pill, one centimeter in diameter. The pill contained 5,000 international units of Vitamin A in the form of cod liver oil, crucuron powder as a cholegogue, lecithin as a stabilizer, calcium phosphate, and sugar. A dosage of three tablets three times a day for two days was said to create a blood level of Vitamin A which lasted about three days. The drug was readministered on the fifth and sixth days.

An unusual method of preventing ferric chloride crystals from building up on the walls of the sublimation chambers in production of **anhydrous ferric chloride** has been developed by the I. G. Farbenindustrie, according to Report PB-22626 (photostat, $3; microfilm, 50 cents; 32 pages, illustrated). The report covers I. G. Farben production of aluminum trichloride, silicon tetrachloride, titanium tetrachloride, zirconium tetrachloride, and zirconium oxychloride, as well as ferric chloride. Formation of ferric chloride crystals is prevented by keeping the steel walls of the two interconnecting sublimation chambers clean and smooth and by maintaining a pulsating flow of vapors in and between the chambers.

Methods for generating **hydrogen** from a sodium borohydride compound and water, developed by the U. S. Army Signal Corps for filling meteorological balloons, are described in Report PB-6330 (photostat, $8; microfilm, $1.50; 114 pages).

Unusually strong, brilliant molybdate orange **paint pigments** have been developed by the I. G. Farbenindustrie, according to Report PB-22628 (photostat, $2; microfilm, 50 cents; 16 pages, including a schematic diagram of the processing equipment). The shade is so completely reproducible that no blending of the finished product is required to meet established standards. Molybdate orange, developed at the I. G. Farben plant in Uerdingen, Germany, is a mixed crystal of 70% lead chromate, 14% lead sulfate, and 9% lead molybdate. Each of the four grades produced was claimed by the Germans to be equal or superior to the best competitive products. While the pigments have exceptionally valuable properties, the investigator points out that, as manufactured in Germany, they have some deficiencies: (1) they are somewhat sensitive to light; (2) the paint film is sensitive to scratching; (3) the pigments are not particularly fast to either acids or alkalies, and their use therefore is limited to substantially neutral conditions.

American wartime research on **paints** revealed that the addition of aluminum powder to priming coats improved the fire retardant properties of paint used on the interior surfaces of Navy ships, according to Report PB-12140 (photostat, $1; microfilm, 50 cents; 14 pages).

Cellulose ethers were used successfully as **soap substitutes** in Germany during the war to save edible fats, according to Report PB-8007; (photostat, $1; microfilm, 50 cents; 9 pages, including three production diagrams). "Tylose HBR" was produced on a large scale, and the source was a pulp made from beech and sometimes pine. The investigators give details of manufacturing methods for six grades and types of Tylose. "Tylose HBR", used principally as a washing agent for fabrics, is still being made at the plant. It collects the colloidal dirt removed from the fabric by detergents, prevents it from settling in the fibers, and thus gives a brighter color to the washed materials. It cuts the use of soap in half

and thus saves fats for food. Tylose is used also in sizing rayon, in wetproofing fabrics, and as a constituent of printing solutions for printing cotton cloth. The purified "Tylose MGC" is used as an emulsifying agent in cosmetics and foodstuffs and in ice cream manufacture.

The Army-developed process for making **liquid soap** from surplus Napalm, a gasoline thickener used in flamethrower fuel during the war, is described in Report PB-19494 (photostat, $1; microfilm, 50 cents; 11 pages). The soap lathers easily and has no objectionable odor.

Some German methods for growing **quartz crystals** appear to have advantages over American methods and should be tested in the United States, according to Report PB-6498 (photostat, $1; microfilm, 50 cents; 7 pages). One German method involved use of alkali halide crystals, derived from specially purified salts, as prisms in the ultraviolet monochromators. Use of pure salts reduced the crystals' sensitivity to water vapor.

A process for making **fused quartz** of precision optical quality is described in Report PB-12637 (photostat, $1; microfilm, 50 cents; 3 pages). The fused quartz was used in making one-piece optical squares, which were an essential part of the Type R40 four-meter Zeiss rangefinder. It was made from standard Brazilian crystals; but instead of using the usual vacuum furnace process, special techniques of building up quartz rods and of welding these rods into integral blocks were developed. From these blocks, blanks of excellent optical quality could be cut.

Synthetic, **crystalline fluorine-mica** was developed on a laboratory scale by the Germans during the war in an effort to offset the shortage of natural mica, according to OPB reports. The synthetic product corresponded to natural muscovite (phlogopite) mica, widely used in the electronic industries. Experimental data on the laboratory production process are presented in PB-20530 (41 pages, including 7 plates). During crystallization, two forces are directed perpendicularly to each other, according to the report. They are: (1) a directed gradient of temperature (vertical direction) and (2) a magnetic field (horizontal direction). Owing to the paramagnetic qualities of the compound, the crystals are oriented in the plane of the magnetic field. This affects the horizontal growth of the mica and gives rise to the laminations characteristic of natural mica. Investigation of the crystallochemical and microscopic characteristics of the synthetic mica, and theoretical considerations of its structure, are discussed in PB-20531 (32 pages). A large number of melts in the phlogopite series are covered. The systematic synthesis of mica was made possible by earlier x-ray studies of its structure and by application of the fundamental laws of crystallography and chemistry, according to the report. The results of crystallographic studies of the synthetic mica and the derivation of the rules governing the intergrowth of synthetic phlogopite with hydrous mica are given in PB-20532 (34 pages). This report is in German. The individual reports are obtainable at $3 per photostat copy or 50 cents per microfilm copy. Purchased as a series, the three reports are available at $8 for photostats and $1.50 for microfilms.

German research on **fluorescent screens** for infrared telescopes, which may also have some application in medical research, is described in report PB-6653 (photostat, $1; microfilm, 50 cents; 73 pages). Much of the report deals with developmental research of a transformer. The research involves the use of albumen in forming the sensitive light screens for the image transformer. According to Dr. Bosch, some phenomena noted in the course of the research suggest a possible new approach to the problem of the source and coagulation of albumen in animal tissues.

German manufacture of a phosphate **fertilizer** by heating raw phosphate, soda ash, and sand in rotary kilns is described in two reports. German claims for the

product indicate that in many soils it is as good as superphosphate, and in acid soils it is even better.

A process for preparing black peat in a form suitable for use in improving mineral soils was developed in 1943. The process involves extruding the plastic peat in a thin sheet onto a belt passing through a kiln, drying the material to a moisture content of 60% and coarsely grinding the product.

A discussion of German fertilizer production and soil fertility research is contained in PB-18777 (photostat, $4; microfilm, 50 cents; 47 pages). The other report is PB-18913 (photostat, $2; microfilm, 50 cents; 19 pages).

Artificial tanning liquors have found a definite place in the German leather industry and have been used to good advantage to supplement and to improve blendings of natural tannins, according to Report PB-18934 (photostat, $1; microfilm, 50 cents; 5 pages). This report describes the Germans' use of by-products from waste sulfite liquor as artificial tanning agents.

A method for **pulping beechwood** with waste nitric acid, yielding an average of 36% dry pulp from dry wood, has been used for about 12 years in the Agfa film plant of the I. G. Farbenindustrie, near Leipzig, according to Report PB-18906 (photostat, $1; microfilm, 50 cents; 13 pages). The pulp was used for manufacture of cuprammonium rayon, staple fiber, and cellulose acetate, and the process involved cooking the wood chips in a digester with dilute nitric acid. The nitric acid used was waste acid from dyestuffs manufacture. Cooking was followed by a neutralization treatment with soda lye. The pulp was then removed from the digester for chlorination refining with strong soda lye, and bleaching. After passing the last filter, most of the pulp was brought to a 50% concentration by a high-pressure press and cut up into flocks.

A new method of preparing **iron powder** directly from pulverized iron ore by reducing the ore at low temperatures is described in a patent application filed in Germany by the Kaiser Wilhelm Institut fuer Eisenforschung, an iron research institute in Duesseldorf. The German process makes use of the discovery that the size of iron ore particles remains unchanged if the ore is reduced at comparatively low temperatures (600–750° C.). (Report PB-13827; photostat, $1; microfilm, 50 cents; 3 pages.)

Automatic dry pressing of intricate ceramic parts made of **steatite** was developed to a high degree by the Germans during the war, according to a 32-page report on German technical ceramic materials for high-frequency insulation. Other unusual German developments described in the report include production of ceramic spacers for vacuum tubes and a novel method of joining metal parts to ceramics. To make the spacers, prisms cut from a special kind of talc, mined at Goepfersgruen, Bavaria, were used. (Report PB-6494; photostat, $3; microfilm, 50 cents.)

Methods developed during the war for **controlling fungus growth** on binoculars, periscopes, telescopes, and other optical instruments are discussed in eight reports describing research carried out in 1944 and 1945 at the Universities of Pennsylvania and Pittsburgh under contract with the Office of Scientific Research and Development.

Following is a brief description of each of the eight reports:

PB-12007 (photostat, $1; microfilm, 50 cents; 4 pages) describes the development of formulas for five new sealing compounds, and contains tables showing test results of treated binoculars exposed to fungus growths.

PB-12009 (photostat, $1; microfilm, 50 cents; 5 pages) gives further details on the effectiveness of one of the compounds described in PB-12007.

PB-16418 (photostat, $2; microfilm, 50 cents; 27 pages) describes the use of meta cresol acetate in fungus fouled binoculars, tank sights, and other instruments. Sixteen photographs showing instruments before and after treatment are included.

PB-16448 (photostat, $2; microfilm, 50 cents; 24 pages) analyzes the relationship between fungus growth and mites found on deteriorated optical instruments returned from the topics.

PB-16449 (photostat, $2; microfilm, 50 cents; 17 pages) gives results of tests with protective compounds used under simulated tropical conditions. Tables are included showing the effectiveness of several compounds used experimentally on metals, fabrics, plastics, and other materials.

PB-16450 (photostat, $2; microfilm, 50 cents; 18 pages; 6 illustrations) gives formulas for compounds containing fenchyl thiocyanoacetate to prevent fungus growth in optical instruments without dimming the glass surfaces or accelerating corrosion.

PB-16451 (photostat, $6; microfilm, $1; 90 pages; 5 photographs) describes research on the entire subject of fungus fouling of optical instruments, including types and causes of fungus fouling. Recommendations for decontaminating instruments and fortifying them against reinfection are included.

PB-16453 (photostat, $1; microfilm, 50 cents; 9 pages) contains directions for building a portable "dry-chest" for storing optical instruments in the tropics.

MAKE IT A

Better

Liquid Wax Polish

WITH

ATLAS NON-IONIC EMULSIFIERS

Inherent properties of the Atlas non-ionic emulsifiers point the way to superior Carnauba and Candelilla dry-bright wax emulsions, in which problems of instability brought about by varying sources of water, difficulties of preparation and wide temperature variations in storage may be largely overcome.

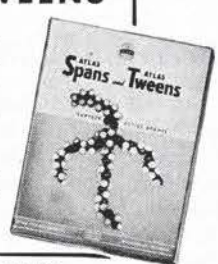
Atlas non-ionic emulsifiers, including Spans and Tweens, are compatible with each other and with most other industrial chemicals, so that such materials as paraffin, Congo Gum, linseed and mineral oils may be included, giving an emulsion that is compatible with shellac dispersions. Moreover, Atlas non-ionic emulsifiers are stable to extreme temperature conditions. They are generally non-toxic, too, a fact that is important in many cases.

Do you have a tough emulsification problem? If so, there's an answer in the wide list of Spans, Tweens and other Atlas non-ionic emulsifiers. Why not let us help you? As a starter, send for the booklet illustrated below.

ATLAS SPANS AND TWEENS

Atlas Spans constitute a series of technical long chain fatty acid partial esters of hexitol anhydrides. The hexitol anhydrides include sorbitans and sorbides, mannitans and mannides.

Atlas Tweens comprise a series of polyoxyalkylene derivatives of hexitol anhydride partial long chain fatty acid esters.



Spans and Tweens: Reg. U. S. Pat. Off.

ATLAS INDUSTRIAL CHEMICALS DEPARTMENT

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

New Equipment

Electroplating Control Table

The Hanson-Van Winkle-Munning Co., Matawan, N. J., announces the development of the Diggin electroplating control table, a complete miniature plating laboratory designed for either routine control of plating solutions or the most exacting research work on electroplating problems and processes. With this instrument, test panels can be plated under closely controlled conditions, so that the results of additions, impurity removal treatments, and variations in operating conditions can be observed. Only a few hundred milliliters of electrolyte are required to conduct these tests. The control table consists of a modern laboratory table of steel, with a working surface of Alberene stone.

Above the working space on the right side of the table is a 36 by 36-inch control panel on which are mounted all instruments and service outlets required for electroplating tests. Four pairs of jacks are connected through selector switches to an accurate, wide-scale ammeter and voltmeter. Each circuit employs a separate shunt.

An electric timer is provided. A 110-volt-a.c. convenience outlet is located at one side for operating motor-driven stirrers, electric hot plates, immersion heaters, and similar accessories. There are two compressed air outlets with needle valves. The cleaner control section consists of an ammeter, a carbon-pile rheostat, an on-off switch and a switch which shunts out the rheostat. Three of the 1,500-ml. cells are used for hot electrocleaners, hot pickles, and the final hot water rinse; the remaining three cells are unheated and are used for rinsing, pickling, cyanide dipping, or bright dipping.

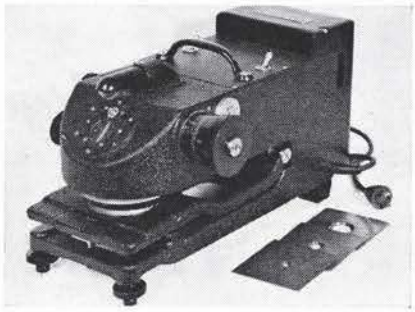
Recording Dilatometer

An automatic dilatometer for continuous recording of the thermal expansion and contraction of a wide range of materials including metals, glass, ceramics, and plastics has been announced by the Electronics Division, Sylvania Electric Products, Inc., 500 Fifth Ave., New York, N. Y. The equipment is designed to provide continuous graphic recording of the 12-hour expansion and contraction cycles of samples. Since the instrument provides a high degree of both sensitivity and accuracy and records automatically without the supervision of a laboratory assistant, it reduces time and labor required for specimen study. Measurements begun during the afternoon of one day may be automatically completed overnight. In addition, the recording densitometer is said to permit determination of true variations in length even when samples exhibit exceptions to the rule of elongation as a function of temperature.

The instrument is fully enclosed in a steel cabinet permitting ready access for setup of specimens. Recording meter and other instruments are flush-mounted for visual indication of operating temperatures and the progress of thermal expansion curve plotting elongation against temperature.

Permeometer

A Permeometer for the measurement of air permeability of textile fabrics, very porous paper, and other porous sheet materials differs from other apparatus in that it operates as a pneumatic bridge, with results not noticeably affected by motor speed variations or other variables. It will test most cloth in which air permeability is important. W. & L. E. Gurley, Station Plaza, Troy, N. Y., is the manufacturer.



Uses of the test include showing the efficiency of cloth used as a filter; predicting the penetration of various coatings into untreated cloth; measuring the retention of sizing, starch, and other filling materials after the cloth has been laundered and cleaned; and evaluating any process or treatment (such as napping), which affects the passage of air through cloth.

CO_2 Recorder

An instrument manufactured by Davis Emergency Equipment Co., Inc., 126 Halleck St., Newark 4, N. J., features high sensitivity to variations in the percentage of CO_2 in flue gas. It is claimed this sensitivity enables this instrument to record a change $3^1/_2$ seconds after the variation in CO_2 content has reached the analyzing cell, located close to the stack.

Employing the principle of thermal conductivity analysis, developments in cell construction permit the elimination of continuously operating suction pumps. The flow rate through the gas sampling line does not exceed 250 cc. a minute; the minimum flow required is 20 cc. a minute. This low rate of flow is said to eliminate need for extensive filtering trains and the necessity of employing dryers. By an arrangement in the sampling line, condensate and harmful acids are expelled automatically.

It is stated that errors in readings due to ambient temperature changes are eliminated through use in the analyzing cell of multiple wires having perfect thermometrical and resistance symmetry.

Rotameter Tube

The Bead-Guide rotameter metering tube developed by Fischer & Porter Co., Hatboro, Pa., eliminates the necessity for float guide rods, since the guiding of a float of any shape is accomplished by three ribs formed in the inner face of the tapered, corrosion-resistant glass metering tube. The float position in opaque liquids is read with ease. Corrosive liquids can be handled readily, since the float material can be selected without considering the need for drilling and without having to consider guide wire materials.

Measuring Storage Tank Contents

Oil Equipment, Inc., 718 West 63rd St., Chicago 21, Ill., has engineered a simple means of showing the liquid level in feet and inches on a dial mounted conveniently alongside the storage tank. It can be used with all types of storage tanks, for gasoline, oils, chemicals, and other liquids.

The Econo-Gauge has only a minimum of working parts. By means of a float inside the tank and a counterweighted cable, the rise and fall of the liquid level is transmitted to a grooved drum which actuates the dial recording mechanism. The manufacturer claims that this will indicate the slightest change in liquid level with no chance of error. The gage can be installed with a liquid seal at top to prevent evaporation of gasoline or similar volatile liquids. Such an installation will withstand up to 28 ounces of pressure.

All parts of the gage are treated to resist corrosion.

Low-Range Tester

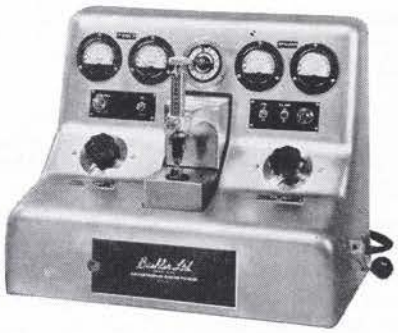
A low-range tester expressly built for lighter materials or small finished items has four separate capacities incorporated, each available instantly, and shown individually on its dial. These ranges are: 0 to 10 lb. in 1-ounce dial divisions, 0 to 25 lb. in 2 ounces, 0 to 50 lb. in 4 ounces, and 0 to 100 lb. in 8 ounces.

Its lower grip travel is continuously variable from 0 to 19 inches per minute. Accuracy of 0.5% pendulum action, maximum load reading, featherweight and swiveled upper grip, stroke limiting

switches, forward-reverse switch, elongation gage, stress-strain recorder, and other features are also listed for the tester.

Electropolisher

Greater polishing speed and simplicity of operation are claimed for the Buehler-Waisman electropolisher developed by Buehler, Ltd., 165 West Wacker Dr.,



Chicago 1, Ill., for polishing metallurgical specimens. It can be used with both ferrous and nonferrous metals, and accommodates a wide range of sample sizes. Operation requires only a small amount of nonexplosive solution. The specimen is made the anode of an electrolytic cell. Charged atoms or ions from the specimen enter the electrolyte, resulting in a polishing film which covers the surface of the specimen and offers resistance to the passing of the current. Since this film is thinner on the high spots, more current flows in these areas and consequently more material is removed. According to the manufacturer, this results in a uniformly flat surface.

Principal advantages of electropolishing are the freedom from disturbed metal on the surface of the sample and greater speed. Many samples, too, may be etched with the same solution.

Mechanical operation is simple. The electrolyte is contained in a stainless steel tank, hinged at the back. The specimen is fitted over a hole in this tank, and is brought into contact with the electrolyte by tilting the tank down. This action also operates a mercury switch which starts an agitating pump.

Stainless Steel Welding Fittings

A complete line of stainless steel welding fittings has been introduced by Tube Turns, Inc., Louisville, Ky. The line includes 180° long radius returns, 90° long radius elbows, 45° long radius elbows, straight tees, reducing outlet tees, caps, eccentric reducers, concentric reducers, lap joint stub ends, laterals and crosses, all in standard and extra heavy weights; and numerous types of flanges. Sizes range from $^3/_4$ inch through 12 inches.

The fittings may be had in three grades of stainless steel: type 304,18:8; type 347,

18:8 with 1% columbium; and type 316, 18:8 with 2% molybdenum. These grades are said to meet 95% of industry's standard requirements.

Precision Balance

An 0–500 mg. precision balance with large direct reading dial for rapid repeat weighing is announced by Roller-Smith, Bethlehem, Pa. It is suitable for production, production control, assaying, and analytical work, and used in lamp and radio tube manufacture, watchmaking, paint, chemical, mining, and textile manufacturing. There is choice of pans for weighing powders, liquids, ores, etc.

Bench Type Filter

The Alsop Engineering Corp., Milldale, Conn., announces a bench type filter designed for light manufacturing or pilot plant work. It is of the sealed disk type using asbestos disks which can be supplied in eight different grades for coarse or ultrafine filtration.

The filter is completely enclosed, preventing loss of liquid by dripping or evaporation, and so designed that the entire filter can be taken apart for easy cleaning. The positive pressure rotary pump is made with capacities from 1 to 6 gallons a minute and with filtration areas of from 40 to 1,200 square inches. When the liquid contains abrasives, carbon, filter aids, or acid a Centri-poise pump can be used, and all parts touching liquid can be made of stainless steel, Monel metal, bronze, iron, etc.

An outstanding feature is the large filtering capacity afforded by arrangement of the filter disks for greatest possible filtration area in a small space.

Electronic Timer

Its electronic timer, an automatic timer for intervals from $^1/_{20}$ second to 4 minutes, is recommended particularly for process control and machine timing for long-life, repeat-cycle operation, or precise accuracy by the manufacturer, Photoswitch, Inc., 77 Broadway, Cambridge 42, Mass. This timer is used to control such equipment as spot-welders, grinders, honing machines, conveyors, automatic filling machines, and photographic printers. It provides four basic types of timing: interval, delayed action, automatic repeat, and programming, as well as many variations of these. All of these timing combinations may be utilized by merely changing external connections to the terminal board. In addition, a maximum time interval, selector switch provides for five time intervals. Thus the timer is capable of timing for any interval between $^1/_{20}$ second and 4 minutes with an accuracy variation claimed less than 2%.

Extruded Rounds

Kennametal, Inc., Latrobe, Pa., is manufacturing a line of solid extruded rounds, available in two straight tungsten carbide grades with a Rockwell hardness of 89.0 and 91.0, respectively. These have been developed primarily for use as wear-resistant elements, and are suitable for such applications as guides, feeding fingers for automatic machines, rollers, guide rails, laps, scribers, points for engraving tools, thread checking wires, etc. Kennametal can also be extruded in other forms, such as flats, tubes, triangles, squares, and ovals.

Belt Conveyor Idler

The Chain Belt Co., 1600 Bruce St., Milwaukee 4, Wis., is manufacturing a belt conveyor idler built of a flat-bar steel helical spiral, covered with rubber. The spiral itself is composed of right and left hand sections to ensure centering the belt.

It retards ice forming on the roll in freezing weather and abrasive and corrosive action is reduced to a minimum by the rubber to rubber contact between the idler and the conveyor belt.

15-Lb. Extinguisher

Weighing only 15 lb., the carbon dioxide hand fire extinguisher of the B. F. Goodrich Co., Akron, Ohio, is claimed to put out flames of a blazing 4 by 4-foot pan of gasoline in $7^1/_2$ seconds. Operation is simple, since only an actuating button on the handle must be pressed. There are no waiting for chemical reaction, no valves, pump, or attachments to delay in emergency. It can be used to combat all classes of incipient fires, including flames caused by chemicals, flammable liquids, or electric currents. The CO_2, upon release, will carry approximately 10 to 15 feet.

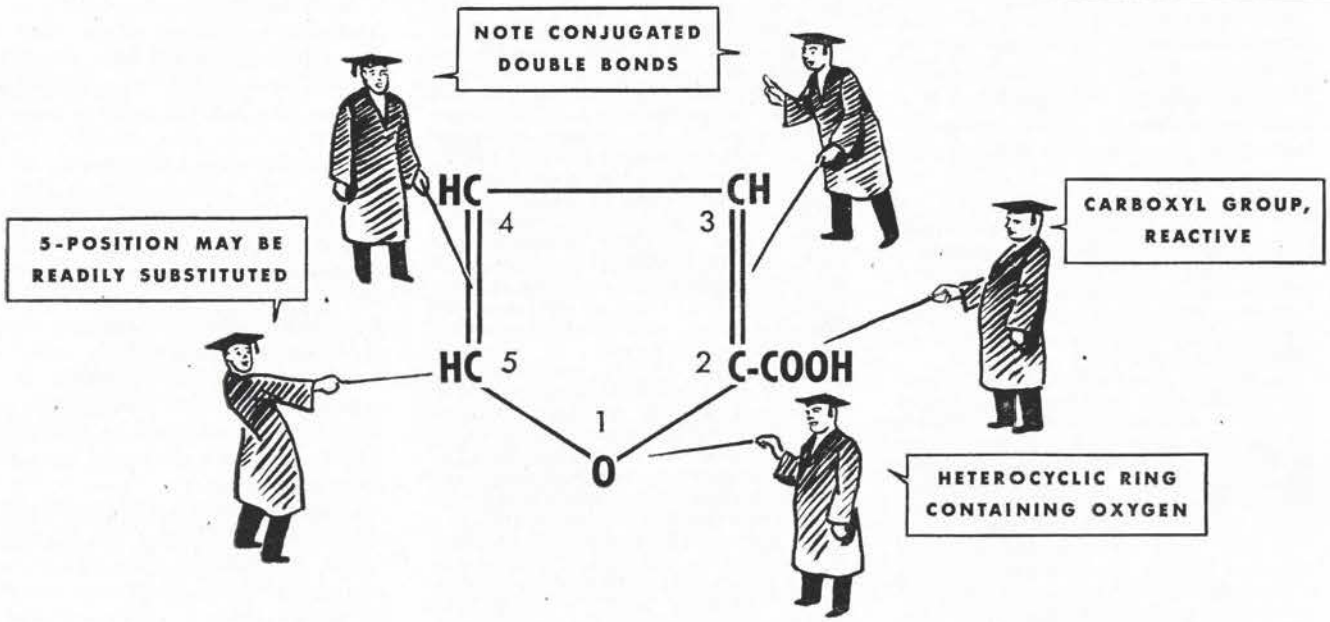
Single Container for Meal

A stainless steel container is being used by Mealpack Corp. of America, 152 West 42nd St., New York, N. Y., which combines sealed insulation and construction which permit packaging individual freshly cooked hot meals, including breads, pies, cutlery, and napery, at nearby or remote kitchens for delivery and serving up to three hours after packing.

Crystalline Furan Compound

Storage Stable, Chemically Reactive

FUROIC ACID



Here is a newly announced material that introduces a Furan nucleus in a notably storage stable form, yet the carboxyl group undergoes esterification smoothly and a variety of other reactions are equally successful. Substitution occurs readily in the 5-position. The conjugated double bonds and oxygen-containing ring present possibilities for other potentially interesting reactions.

Furoic Acid can be nitrated or sulfonated directly without appreciable decomposition. Furoyl Chloride, an important intermediate, may be made by treating the acid with phosphorus pentachloride, thionyl chloride or phosgene.

Uses are in their infancy. A very few have been uncovered. The literature mentions its use to enhance the gloss and drying qualities of paints and as a bactericide and preservative. A hair rinsing preparation, anti-scorch additive in rubber, and intermediate in preparation of esters are other uses which are reported. The esters are useful in perfumery and are claimed to have a strong repellent effect toward flies.

TYPICAL PROPERTIES

Acidity, as Furoic Acid	99%
Ash	0.5%
Moisture	0.5%
Melting Point	128-129°C.
Color	White to light cream

SOLUBILITY

It is very soluble in hot water, soluble in alcohol, sparingly soluble in cold water, and insoluble in paraffinic hydrocarbons. The ionization constant is reported as 7.1×10^{-4} at 25°C.

AVAILABILITY

Furoic Acid is available at present in limited quantities for research and development. Increased production is contemplated.

Let us help you evaluate Furoic Acid. Write for Typical Reaction Chart No. 3 which pertains to this acid. The chart is available in 2 sizes: 8½" x 11" file size and 18" x 24" wall size. Bulletin 101 describing Furoic Acid in greater detail and samples are available by request on your Company letterhead. If you have specific questions, ask us.

We invite you to visit us while in Chicago. Let us tell you what Furfural and its derivatives have done for others and help evaluate the possibilities for your use.

The Quaker Oats Company CHEMICALS DEPT.

1900 BOARD OF TRADE BLDG.
141 W. JACKSON BLVD., CHICAGO 4, ILLINOIS

FURFURAL • FURFURYL ALCOHOL • FUROIC ACID • TETRAHYDROFURFURYL ALCOHOL

Packaging

By Richard W. Lahey

ICC Amends Regulations for Transportation of Dangerous Articles

On August 19 the ICC approved certain amendments to its regulations for the transportation of dangerous articles. These amendments were published in a notice issued June 27. Those changes of interest to the chemical industry are summarized as follows:

1. Sec. 103, 110 Cyclohexane has been added to the list of inflammable liquids.

2. Sec. 103, 110 Vinyl Acetate has been added to the list of inflammable liquids.

3. Sec. 103, 110 Vinylidene Chloride, Inhibited has been added to the list of inflammable liquids.

4. Sec. 50 Desensitized Liquid Nitroglycerin has been included in the list of dangerous explosives which are forbidden for shipment by rail. This material may be shipped in Spec. MC 200 motor vehicles other than common carriers. A specification for this type vehicle, including individual containers, has been issued.

5. Sec. 105A Acrolein has been reclassified from a Class A poison to an inflammable liquid. It cannot be shipped uninhibited and must be packed in Spec. 5A metal drums not over 55 gal. capacity. Express shipments are prohibited.

6. Sec. 261A (G) Formic Acid. Spec. 1D boxed glass carboys of not over 6.5 gal. capacity have been added to the list of approved containers. Means shall be provided to prevent pressure in bottles exceeding 10 lb. per sq. in. gage at 130° F. by venting or other means.

7. Sec. 262 (A) Hydrobromic Acid of 49% strength may be shipped in containers as authorized. Shipments in these containers was formerly limited to acid of 48% strength.

8. Sec. 272 (F) (M) Sulfuric Acid of not over 1.4 sp. gr. (42° Bé.) may now be shipped in Spec. 103B, and Spec. 103B-W tank cars, and/or Spec. MC 310 tank motor vehicles in addition to previously authorized containers.

9. Sec. 303 (K) and (Q) (1) Methyl Chloride may now be filled to 84% maximum filling density (was 75%) in the presently authorized cylinders and tank cars. Containers must be equipped with approved safety devices.

10. Sec. 303 (Q) (7) Liquefied Gases except Crude Nitrogen Fertilizer Solution, Fertilizer Ammoniating Solution Containing Free Ammonia and Methyl Chloride. The regulation limits the loading to 60,000 lb. in tanks mounted on one car structure with the following exceptions:

Provided that for single-unit tank car tanks having water weight capacities not less than 86,240 lb. nor over 90,640 lb., lagged with 4 inches of corkboard, equipped with one or more safety valves set to open at a pressure of 225 lb. per sq. inch the total discharge capacity of which must be sufficient to prevent building up of pressure in the tank in excess of 225 lb. per sq. inch, mounted on one car structure, tank jackets stenciled ICC-105A300 if tanks are forge-welded and ICC-105A-300W if tanks are fusion-welded, and in all other respects constructed and maintained in full compliance with ICC shipping container specification 105A500 or 105A500W, the maximum quantity of liquefied chlorine gas loaded into such tanks must be at least 107,800 lb. and not more than 110,000 lb.

11. Sec. 346 (E) (H) Methyl Bromide. Outage must be sufficient to prevent cylinders or spheres from becoming entirely filled with liquid at 130° F. and when the vacant space (outage) is charged with nitrogen, carbon dioxide, or air the pressure in the cylinder or sphere at 130° F. must not exceed $^5/_4$ the marked service pressure of the cylinder or sphere.

12. Sec. 355 (A) Arsenical Dust, Arsenical Flue Dust and Other Poisonous Noncombustible By-Product Dusts from Metal Recovery Operations may now be shipped in sift-proof box cars of all steel construction only when said cars are assigned exclusively to this service.

13. Sec. 357 (A) (7) and (A) (10) Cyanides and Cyanide Mixtures can now be shipped in bulk in watertight container car metal containers in addition to presently authorized containers. In addition, the requirement that bulk shipments in metal-bodied covered motor vehicles be airtight was changed to "watertight".

14. Spec. 3AA Cylinders. A new Specification No. 3AA for cylinders fabricated from steel commercially known as 4130X, NE8630, 9115, 9125, 9115X, 9125X or intermediate manganese with yield point over 70% of tensile strength has been adopted.

15. Spec. 4D Inside Containers Welded Steel Spheres for Aircraft Use. A new specification modeled after Spec. 3A Cylinders has been adopted. The maximum size is 1,100 cu. inch capacity and the service pressure must be at least 300 lb. but not over 500 lb. per sq. inch. The minimum wall thickness is set at 0.040 inch and the wall stress minimum shall not exceed 24,000 lb. per sq. inch.

16. Spec. 10A Tight Wooden Barrels. The use of beech, sweet birch, yellow birch or sugar (hard) maple staves is approved for fabricating these barrels.

The order should be consulted for the complete details of these amendments.

OPA Prices on Barrels, Kegs, and Drums

Inquiries from trade sources dealing in used slack wooden barrels and kegs, used tight wooden barrels and kegs, and used steel drums concerning prices and status of contracts negotiated while price control was in abeyance, have prompted the following statement from the OPA.

All ceilings go back to where they were on June 30. All industries and businesses, buyers, and sellers covered by OPA price schedules, regulations, or orders on June 30, automatically became subject to those same regulations on July 25 as if the new act had become law on June 30.

Transactions completed between June 30 and July 25 at overceiling prices are not considered violations. Deliveries made after resumption of price control on July 25 at prices in excess of the seller's ceiling price at the time of delivery do constitute violations. Ceiling prices for these items are established under MPR 524, MPR 593, and RMPR 43.

Wax Flexibility Improved by Polybutene

According to a recent bulletin of the Technical Association of the Pulp and Paper Industry, it has been found that polybutene or "tervan" when blended with wax modifies its crystallinity to the extent that it becomes more flexible. It is a hydrocarbon which has rubberlike characteristics. Its amorphous form and lack of a definite melting point makes mixing difficult in paper-converting plants. It is therefore blended by Standard Oil Co., N. J., with wax on a large scale to produce commercial grades capable of extensive dilution with additional paraffin wax by the converter in the equipment now used for paraffin wax. It is used as a laminating medium for waxed paper and chipboard as well as other papers.

In asphalt-coated and laminated papers, the addition of paraffin wax to asphalt lowers its viscosity, permitting easier coating as well as improving its mvp. Its use was, however, always limited by poor compatibility; the paraffin wax tended to "bloom" out after coating. Tervan (349 or 449) added in required amounts with the paraffin wax corrects this and improves the water vapor resistance of the sheet.

Spray Web Packaging

A new method for preserving and storing industrial equipment by a plastic packaging process was demonstrated recently at Camden, N. J., by the R. M. Hollingshead Corp. Essentially, the process consists of enveloping the equipment by the application of several coatings of a sprayed plastic on a webbing enclosing the machine. The plastic is a modified film-forming vinyl resin carried in volatile solvents. In application, an initial spray operation bridges openings with long weblike filaments that completely enclose the object. Subsequent spray applications produce a package impervious to moisture and the elements, according to the company.

A large machine employed in canning operations was used for the demonstration. All sharp projections on the machine were covered with pads. Pressure-sensitive tape was applied in strips connecting the outer projections of the machine, first vertically, then horizontally. After the several spray coats had been applied, an aluminum spray final coating was used to reflect the sun's rays. Two weeks' submersion in water caused no apparent damage.

ALL THIS...*and quiet, too!*

The modern kitchen equipment now becoming available is a delight to the eye, no doubt about that. It's a delight to the ear, too, for "tinny" sounds from usual kitchen operations are reduced to a minimum through the use of "Witco vibration dampeners" — scientifically compounded asphalt compositions which are readily sprayed on the under surface of steel utility cabinets, dish washers, sinks, window ventilators and ventilating ducts.

Witco Research Laboratories have developed several grades of vibration dampeners to deaden sound, seal seams and give thermal insulation with protection against corrosion. These are also widely used in the manufacture of automobile doors, body panels and fenders, railway cars, office furniture, steel cabinets, portable steel partitions, air conditioning units and in many sheet steel products subject to mechanical vibration. From the manufacturing viewpoint, ease of spray application and improvement in cleanliness are advantages that promote their use on high-speed production lines.

Here, then, is yet another example of Witco's contributions to industrial progress in such fields as steel fabrication, rubber compounding, paper and ink-making, plastics, paints, cosmetics and drugs, ceramics and leather.

• • •

WITCO CHEMICAL COMPANY, 295 Madison Avenue, New York 17, N. Y.; Boston; Chicago; Detroit; Cleveland; Akron; San Francisco; Los Angeles.... London and Manchester, England

WITCO CHEMICAL COMPANY

MANUFACTURERS AND EXPORTERS

World Wide Chemistry

INDIA made a substantial contribution to war demands for aluminum, practically the whole coming from the reduction works at Alupuram, in Travancore State. Manufactured aluminum equipment was provided by the Aluminum Mfg. Co., Ltd., Jeewan Aluminum (1929), Ltd., and Hindustan Aircraft, Ltd., from sheet rolled at Belur, Calcutta. Recent developments at the Alupuram works compare favorably with those of the largest producers in Canada and the USA. New carbon electrode plant has been installed, but operation has been restricted somewhat by limited power supplies. Additions contemplated in the Travancore State hydroelectric schemes will result in substantial power resources; and output of aluminum ingot should be up to 5,000 tons by the end of 1946. Just recently, also, the rolling mills at Belur, Calcutta, have been equipped with plant for production of alloys of the Duralumin type, for which there should be a considerable demand in India. Research facilities and equipment have been extended.

Construction is now well advanced on an aluminum works on a site of about 180 acres at Muri Junction, Bihar, for dealing with Indian bauxite, which, on completion at the end of the year, will have an initial capacity of 10,000 tons of aluminum to be increased afterwards to 40,000 a year, using bauxite from the Ranchi district in Bihar. The necessary personnel is now under training at various aluminum plants in Canada.

During the past two years the alumina and reduction works of the Aluminum Corp. of India, Ltd., at Asansol, Bengal, with the aid of technical experts from Canada, have been working up to capacity, using bauxite from the Central Provinces. The reduction works began in July 1945 at the rate of 1,000 tons of ingot a year. Production of sheet and castings are on an experimental basis. Several other rolling mills have been established in Calcutta, Bombay, and Madras. These are equipped for rolling both brass and aluminum, but represent a considerable addition to the aluminum rolling capacity of India. Aluminum cable, paint, and foil will also be made. Mills used for lead rolling are being converted to aluminum foil manufacture for tea chests and other packaging. The demand for manufactured aluminum —in household utensils, etc.—is increasing rapidly in India.

The Indian aluminum industry will, of course, benefit largely from the numerous hydroelectric schemes for increased power supply throughout India—in which aluminum cable may largely be used—as well as from the establishment of many new industries: automobile manufacture, shipbuilding, aircraft, textile machinery, machine tools, chemical plant, distilleries, and paint works. The Indian Railway Board has lately decided on the construction of a number of aluminum passenger coaches by way of experiment.

Indian Mica

The committee appointed in 1944 has issued its report (Delhi, Government Printers, 1946) dealing primarily with production, distribution, research, and the desirability of setting up suitable machinery for watching the interests of the industry. Before the war over 70% of the world's supply of muscovite mica came from India, and exports considerably increased during the war, so that in 1944 mica worth nearly 27,500,000 rupees was sold. The industry employs nearly 250,000 workers in its mines and factories, many of whom are highly skilled through generations of experience, and are often called upon to split mica imported from Brazil and North America. Per contra, the industry suffers much from primitive methods and lack of proper organization. Mining methods are crude, labor underpaid, and marketing unregulated. There is little risk of exhausting present supplies, however, unless the present crude methods persist. The report urges compulsory adoption of systematic mining in the deep mines, and losses due to premature closing of mines must be reduced by stricter control through the Chief Inspector of Mica Mines and strengthening of the inspection staff. Micanite is produced within the country to a limited extent, but, although the quality has improved, there is room for further improvement. There are very few large-scale users of micanite, and these few do not use the Indian product. If this latter was improved, the committee would recommend a protective tariff against imports. Although ground mica has many and varied uses in industry, much of the Indian powder is exported and there is little indigenous use.

The need for research is imperative in view of the growing competition of cheap Brazilian mica into the USA and elsewhere. Large deposits, too, are being discovered and developed in Russia; also, to a lesser degree, in Australia and Tanganyika. Exploration is in progress in other countries, and there is the possibility of synthetic mica materializing on a larger scale. A German process for production of synthetic mica has been described [*Chem. Trade J.*, **117**, 670 (1945)] in which carefully purified silica, metallic oxides, sodium and potassium fluoride, and silicofluorides are fused together in graphite crucibles. The melt is carefully cooled, particularly within the critical range, 1270–1230° C., in a strong magnetic field at right angles to the vertical axis of the crucible—whereby mica blocks with the basal cleavage are obtained.

The Indian Mica Marketing Control Board suggests the financing of the much needed research by means of a levy of 6% on exports. These are estimated at about 10,000,000 rupees in value, and the levy could be supplemented by government grants.

W. G. Cass

PRINCES RISBOROUGH
ENGLAND

BAKELITE, Ltd., reports that, contrary to the expectation of a slight falling off in the demand for molding materials which would be quickly recovered, the demand has been sustained and rapidly increased to record proportions. The nature of the demand, however, has changed considerably from high-grade special purpose materials to general-purpose grades normally used for domestic equipment, and the company has had great difficulties in meeting the heavy demands. On the laminated plastics side, the position has considerably improved since the falling off immediately after the cessation of hostilities. Here, too, cheaper general-purpose types are in greater demand, but the necessary changes in production programs were carried through without undue interference with production. The manufacture of decorative laminated plastics has been resumed. The company is still seriously handicapped by the shortage of raw materials, including, in particular, phenol, which had to be imported from America. The company is in process of closing down the dispersal plants established during the war and reconcentrating at the main factory at Tyseley, Birmingham, at the Ware factory, and on a new 38-acre site at Aycliffe, County Durham, where new equipment for making vinyl plastics and urea molding materials will be installed.

Goodlass Wall Begins New Paint Factory

Goodlass Wall and Lead Industries, Ltd., handicapped by the destruction by enemy action during the war of one of its paint factories in Liverpool, has now begun the construction of a modern factory at Speke. Expansion schemes are also in hand for a number of associated companies, and new premises are being equipped

in Liverpool for research in the paint, pigment, and media fields.

New Factories Operated by Beecham

The Beecham Co., well known for its range of popular medical preparations, has prepared plans for the erection of a new factory at St. Helens, Lancashire, at a cost of £125,000, which it is hoped will be completed by the end of 1947. Another is being erected at Newcastle, and a factory near London which was used for war purposes has been acquired.

Boots Fine Chemicals Plant

Boots Pure Drug Co., Ltd., will erect a new factory on a site of over 100 acres at Airdrie, Glasgow, in view of difficulties in procuring female labor in the Nottingham district in which the firm's manufacturing activities were hitherto concentrated. At the shareholders' annual meeting the board mentioned a new insect repellent incorporating dimethyl phthalate as active principle and marketed under the trade name of Mylol. Heavy orders for mepacrine have been received from many parts of the Empire. A comprehensive study has been made of streptomycin. It is reported that the company is well advanced in its investigation, but the work has not yet progressed to a stage at which supplies can be made available for clinical tests. Among other new products is a tomato fruit-setting spray called Fulset which is now being introduced to the market.

Progress at Atomic Energy Research Station

J. D. Cockcroft, director of the Atomic Energy Research Establishment at Harwell, reported at a conference organized by the Ministry of Supply that the experimental graphite pile should be working by the end of the year, and a higher-powered plant is also under construction. This will provide intense sources of radiation and will produce on a large scale radioactive substances, with an activity equivalent to anything from 100 to 1,000 grams of radium, for scientific research and medical work. Between 80 and 90 of the British scientists who worked on atomic energy in North America are to be retained for the British research station.

More War Plants Allocated to Chemical Producers

Imperial Chemical Industries, Ltd., are likely to resume soon operations at the explosives factory at Powfoot, Dumfriesshire, which the company ran during the war; it has not yet been stated what products will be made there. Another Ministry of Supply factory in Scotland, at Barcaldine in North Argyle, has been handed over to the Scottish Seaweed Research Association. New plant has been installed for making alginic acid and sodium alginate, and may be opened in September; seaweed will be processed at a plant at Kames to prepare it for the fac-

tory at Barcaldine, and plans are in hand for another such plant at Balivanich. Three wartime magnesium plants have been idle for some time. One of them has been transferred to the Ministry of Works for temporary house production; the second one, erected at an estimated £4,350,000, is being used for storage; and the third has been notified as surplus to the Board of Trade.

Distillers Co. Delayed

Distillers Co., Ltd., leading British producer of potable and industrial alcohols, which intends greatly to increase its activities in the chemicals and plastics fields during the next few years, has so far made little headway in the practical implementation of these plans. At the annual shareholders' statement it was reported that "serious problems and delays are involved in the delivery of certain necessary raw and constructional materials, but nevertheless extensive development work is in hand, involving considerable financial outlay, with the view to covering the expansion of supplies for present-day and future market requirements". The company is preparing for alternative raw materials to take place of industrial alcohol, since the likely effect of the withdrawal of the excise allowance is difficult to measure under existing abnormal conditions. While no reference has been made by the company to the exact nature of these alternative materials, shareholders' attention was drawn to the formation jointly by Distillers Co. and B. F. Goodrich Chemical Co. of Cleveland, Ohio, of the British Geon Ltd., with a capital of £500,000 of which Distillers Co. holds 55%. This venture is considered to be of great importance and value and should, in time, prove successful.

G. ABRAHAMSON

THE BEND, NEAL'S LANE
WYFOLD NEAR READING, ENGLAND

APRIL nitrogen fertilizer production in Japan increased only 10% over March, according to the fourth report of the Military Government on conditions in Japan. Production was limited primarily by a shortage of coal for coke, equipment breakdowns, and sudden interruptions of electric power supply. Occasional difficulties in transportation, primarily of sulfuric acid, restricted increase in production. Capacity for ammonium sulfate production increased by one third, reaching 46,500 metric tons a month.

Salt production in April was 25% above March but because of unusually cold weather, the gain was less than anticipated. A much larger output of salt

will be reached in May. Imports of salt into Japan are being increased monthly.

Basic heavy chemical manufactures averaged about 25% of calculated minimum requirements in March, 26% in April, and an estimated 41% in May. The coal shortage is the chief obstacle to production.

Production of electrolytic caustic soda, hydrochloric acid, and bleaching powder increased in April. The caustic soda ash produced by the Solvay process decreased in April. The production of chlorine remains low, largely because of the continued shortage of containers for the product. Shortages of soda will probably continue despite increased production.

Investigation of the Oji paper company's research laboratory reveals that the direct electrolysis of caustic soda from sea water has been found to cost one fourth to one third as much as evaporation and subsequent electrolysis. Solutions of 21% have been obtained, which are sufficiently strong for the manufacture of α-cellulose pulps and rayon. A means of obtaining caustic soda by electrolysis is of potential wartime importance as a source of explosives, rocket propellants, rayon, plastics, and other war materials.

Other research work included manufacture of kraft pulp using calcium hydrogen sulfide but no caustic soda, since Japan has lime and sulfur but little sodium chloride; low-pressure pulping of wood by the kraft process to facilitate conversion of certain sulfite equipment to kraft; fertilizer production from ammonia-treated sulfite waste liquor concentrate; fertilizer production from nitric acid–treated rice hulls; extension of phenolic resin with sulfite lignin for paper laminates, adhesives, and plastics; utilization of sulfite turpentine; alcohol production from artichokes by fermentation of sugars obtained by hydrolysis with dilute acid; and a new apparatus for measuring the viscosity of rayon pulp solutions.

The Tokyo Imperial University Cellulose Laboratory is seeking substitutes for the dwindling supplies of spruce and fir generally used for rayon manufacture.

The shortage of kraft paper continues. Although Japan lost its major source of kraft pulp in Karafuto, the shortage of coal and chemicals is so acute that the wood supply for kraft pulp is not critical at the present low rate of pulp production.

• • •

THE following table is a summary of import-export figures for the period 1939–45, values in Palestine pounds (present quotation: one Palestine pound equivalent to $4.03):

	Imports	Exports
1939	14,632,822	5,117,769
1940	12,560,812	4,072,823
1941	13,324,983	4,216,256
1942	21,375,222	8,676,399
1943	27,202,900	12,752,351
1944	36,223,726	14,638,464
1945	40,691,327	20,395,991

According to the above table, the imports to Palestine in the year 1945 exceeded those in 1944 by 12.3%; exports in the same period increased by 39.3%. Broken down into principal products, imports, and exports in the latter two years were valued as follows:

Material	Imports		Exports	
	1944	1945	1944	1945
Food, drink, and tobacco	14,285,000	14,245,000	2,164,000	3,033,000
Raw materials	13,734,000	16,251,000	5,126,000	9,780,000
Manufactured articles	8,062,000	8,304,000	7,347,000	7,472,000

In a more critical examination of these figures it should be brought out that the diamond industry in Palestine has developed during the war years and that the petroleum industry at Haifa has an outlook much improved over that of former years. While during 1939 the main exports were to and from the United Kingdom, in 1945 it was the British Possessions, Iraq, and the United States which exported the greatest amount to Palestine, and Egypt and the United States which received the greatest imports from Palestine. In the chemicals, drugs, and dye and color fields the total value imported during 1945 was 1,158,371 Palestine pounds, and exports amounted to 1,623,400. Corresponding figures, all expressed in the same value, were: oils, fats, and waxes, 253,634 (import) and 3,013,324 (export); fresh fruits, nuts, and vegetables, 1,479,448 (import) and 2,225,444 (export); seeds, beans and nuts for oils, fats, gums, and resins, 10,941,107 (imports) 3,734,377 (export); and textile materials, 452,411 (import) and 35,359 (export).

Finally, in the following table are given figures for individual chemicals and related products for the year 1945, all values again in Palestine pounds:

Material	Imports	Exports
Flavoring essences	7,380	8,030
Olive oil, edible	...	36,998
Oils, edible	12	56,538
Salt	...	225
Starch	28,633	2,164
Sugar	551,104	...
Glucose	14,304	9,547
Asphalt	4,965	70,378
Silica	6,142	...
Sulfur	35,768	...
Copra	70,846	...
Castor oil	9,362	40
Linseed oil	5,118	...
Olive oil	...	4,830
Crude petroleum	9,498,416	...
Fertilizers of natural origin	184	5,550
Molasses (for distillation)	50,148	...
Diamonds		
Rough	2,810,696	...
Powder	23,636	...
Cut and polished	321,794	5,909,297
Cement		
White	297	...
Other	...	33,256
Wood (prepared for citrus cases)	371,970	...
Plywood	15,002	...
Acetic acid	864	121
Carbonic acid	...	106
Citric acid	3,949	601
Sulfuric acid	6	4,068
Other acids	11,629	4,563
Anhydrous ammonia	904	96
β-Naphthyl	499	...
Bromine	...	8,193
Calcium carbide	...	4,568
Calcium stearate	2,672	...
Chlorine	2,706	...
Fertilizers		
Nitrogen	279,874	...
Phosphate	28,408	103,824
Potassium	...	48,763
Others	11,672	1,325
Glycerol	339	1,859
Potash	...	896,760
Potassium chlorate	12	9,383
Sodium bicarbonate	3,059	715
Sodium carbonate	35,485	13
Sodium hydroxide	48,455	...
Sodium nitrite	2,756	...
Sodium sulfate	26	2,832
Butyl acetate	...	2,977
Calcium bromide	5	55,599
Calcium carbonate	393	20
Bleaching powder	4,277	...
Chromium sulfate	...	6,900
Magnesium chloride	...	1,568
Potassium bromide	...	761
Sodium bromide	...	177
Sodium hydrosulfate	992	...
Aluminum sulfate	...	17,766
Other chemicals	90,966	147,752
Disinfectants	2,820	1,500
Insecticides (orchard)	34,281	6,803
Drugs and medicines	418,688	186,875
Dyes		
Aniline	37,726	...
Indigo	1,774	...
Other	42,346	5,222
Ultramarine blue	2,856	287
Lithopone	5,455	...
Paints, varnishes, etc.	59,781	104,966
Soap		
Toilet	8	312
Other	7	109,879
Mineral oils	12,795	...
Glue	2,773	6,652
Casein	13,721	...
Matches	...	83,005
Artificial teeth	1,851	103,818

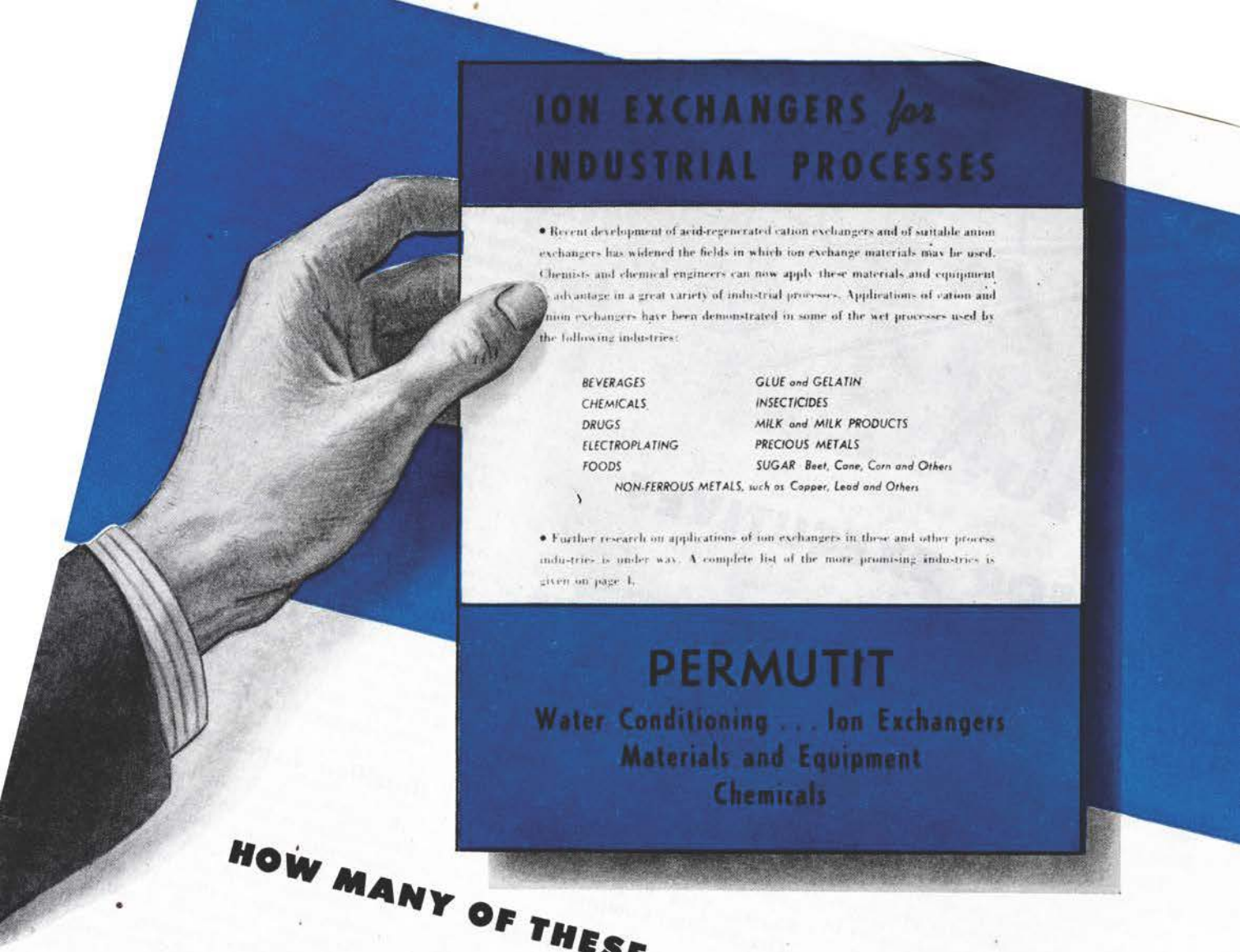
Values for imports are expressed c.i.f; those for exports f.o.b.

Walter Roth

P. O. Box 918
Jerusalem, Palestine

Demand for Insecticides in Norway

Commercial fumigation in Norway before the war was based exclusively on a German product known as "Zyklon B" (absorbed hydrocyanic acid—HCN) and on sodium cyanide (NaCN) from Germany according to a report to the Department of Commerce. During the past 5 years, however, the use of a powder method has been increasing, particularly in the Oslo area, and has reduced the demand for HCN, formerly 10 to 15 metric tons annually. It is generally used for fumigation of ships, flour mills, and other large installations. Two firms used this process exclusively, while others operated on a combined HCN and NaCN basis; use of the latter has been increasing, since it is cheaper. Considerable competition is expected by



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the trade between these products and DDT.

The supply situation eased with the arrival of shipments of NaCN from the United Kingdom, but British manufacturers had not been able to cover the demand for HCN, according to Norwegian importers. Besides the market for HCN, an active demand exists for DDT and other insecticides to correct conditions resulting from wartime shortages.

Uranium in India

Canadian sources report that the Atomic Research Committee of the Council of Scientific and Industrial Research has recommended an intensive geological survey of thorium-bearing minerals in Travancore. A subcommittee will draw up concrete proposals for carrying out a similar survey of the uranium-bearing minerals in India.

Tanganyikan Nickel

Large deposits of low grade nickel have been reported near Sibwesa in western Tanganyika, Africa. Representatives of the Falconbridge Nickel Mines of Ontario, Canada, are inspecting the deposits.

Brazilian Explosives

An explosives factory to be erected at Pombal, State of Rio de Janeiro, in combination with existing plant facilities, is expected to meet Brazil's entire needs for explosives based on nitroglycerin, according to a report to the Department of Commerce. Production of nitroglycerin, nitrocellulose, dynamite, and sulfuric and nitric acids will be undertaken in the plant the capacity of which will be approximately 2,500 metric tons of dynamite annually and 8,000 and 1,300 tons, respectively, of sulfuric and nitric acid. By-product ammonia from the steel mill at Volta Redonda may be used in making ammonium nitrate. Sulfur will probably be imported from the United States and saltpeter from Chile.

Equipment is being ordered in the United States and the project is believed to represent an investment of more than $500,000. Because of probable delays in the arrival of plant materials and the time required for construction, the factory is not expected to be in operation for possibly two years from the time work begins.

The annual consumption of explosives in Brazil, estimated at about 3,000 tons, has advanced considerably since 1939, principally because of increased mining activities and expanded programs of road and public works construction. A variety of explosives is produced both by private firms and in plants operated by the Brazilian War Department. Before the war

these materials were imported chiefly from the United Kingdom, Germany, and Norway. The United States has been the leading supplier during the war.

Italian Glue

Output of the Italian glue industry was sufficient to meet requirements in early 1946. Larger slaughterings made available more bones for the industry's use so that production recently has been at the rate of approximately 200 metric tons monthly. After early spring, supply prospects are not so good, since it is expected that sufficient forage and feed will be available to maintain more cattle and fewer will be slaughtered.

There were 19 plants producing glue in 1938, with capacity to convert approximately 60,000 metric tons of bones. Total production of glue in 1938 amounted to 8,388 tons—6,756 from bones and 1,632 from hides. In that year 325 tons of glue were exported and 853 tons imported.

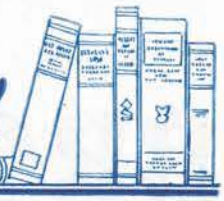
Geological Survey of Alaska

An up-to-date map of Alaska, the first of its kind ever to be issued, has been completed by the Geological Survey, under William E. Wrather, in the Department of the Interior. Compiled from data secured by careful ground surveys and by aerial photographs, the new map depicts the exact locations and patterns of all main mountain ranges, streams, geographic boundaries, settlements, roads, railroads, coastlines, islands, lakes, and other common map features. The map is designated Alaska Map E and measures 50 inches east-west by about 33 inches north-south. Copies may now be purchased at 50 cents each from local agents or from the Geological Survey, Washington 25, D. C.

Indian Import Restrictions Lowered

Import licenses will be issued more liberally in India for a limited number of products to facilitate the supply of raw materials to Indian industries and relieve the needs of consumers, according to reports received by the Office of International Trade, Department of Commerce. Licenses for a specified list of commodities will be issued at the four principal ports to new as well as established importers on applications supported by definite offers from suppliers. Items to be freely licensed include stearine, tallow, vegetable nonessential oils, saccharine, natural and synthetic essential oils, tanned or dressed hides and skins, several kinds of paper, raw and waste silk, artificial silk yarn and thread, cotton twist and yarn, and x-ray films.

Beyond the Flyleaf



Advancing Fronts in Chemistry. Vol. II. Chemotherapy. *Wendell H. Powers,* editor. 156 pages. Reinhold Publishing Corp., 330 West 42nd St., New York 18, N. Y., 1946. Price, $3.25.

THIS book is based on the lectures sponsored by Wayne University under the direction of Neil E. Gordon. The editor mentions in the preface the ambitious dual aim of the book: "being easily understood by the lay reader without depreciating its value to the research worker who is familiar with the field".

The chapters on "Chemotherapy in Experimental Tuberculosis" by W. H. Feldman, as well as the chapter on the "Chemotherapy of Parasitic Diseases" by W. H. Wright, give an excellent cross-sectional picture of the state of our knowledge with respect to these important problems from both the biological and the chemical points of view. The review on "Anti-Spasmodics" by F. F. Blicke, and on "Chemistry of the Sulfa Drugs" by E. H. Northey are excellent although briefer than one might wish.

W. A. LOTT

Currents in Biochemical Research. *David E. Green,* editor. viii + 486 pages. Interscience Publishers, Inc., 215 Fourth Ave., New York 3, N. Y., 1946. Price, $5.

THIS collection of 31 essays successfully presents condensed and up-to-date outlines of some particular fields of biochemistry by experts in those fields, together with stimulating speculations on possible paths of future progress. Space permits only a brief summary to indicate the scope of the work.

Genes and biochemistry are discussed by G. W. Beadle; viruses and the importance of their structural and chemical modifiability, by W. M. Stanley. General quantitative methods are reviewed by D. D. Van Slyke, viscometry by H. A. Lauffer, isotopes by D. Rittenberg and D. Shemin, and x-ray diffraction by I. Fankuchen and H. Mark. L. Michaelis discusses oxidation-reduction and H. M. Kalckar, the concept of mesomerism and free radicals in relation to enzyme action. Photosynthesis is covered by H. Gaffron from both the economic and biochemical standpoints, and plant biochemistry, by D. R. Hoagland. The salient features of the structure and properties of bacterial cells are presented by R. J. Dubos. C. A. Elvehjem treats the biological significance of the vitamins and K. Folkers, the analytical and synthetic problems presented by them. J. S. Fruton contributes a discussion of peptide bond hydrolysis, while F. Lipmann discusses the significance of phosphate bonds in metabolism patterns and D. E. Green, enzyme activity mechanisms. There are three articles on hormones: a general discussion by B. A. Houssay, steroid hormones by G. Pincus, and plant hormones by K. V. Thimann. Possible mechanisms of action of chemical analogs are reviewed by D. M. Woolley; A. D. Welch and E. Bueding present a pharmacological viewpoint. Other articles are by S. Ochoa on enzyme mechanisms of carbon dioxide assimilation, Karl Meyer on mucolytic enzymes, David Nachmahnsohn on chemical mechanisms of nervous action, C. L. Hoagland on problems encountered in studies of muscle diseases, M. Heidelberger on immunological problems, and C. H. Best on the interrelations of biochemistry and physiology. The last two articles, by W. H. Sebrell and L. C. Dunn, respectively, survey the social implications of nutrition and the present and proposed organization of science in the United States.

It is hoped that this volume will be followed in due course by another as this has followed "Perspectives in Biochemistry".

F. P. CHINARD

Organic Reagents for Organic Analysis. Staff of Hopkin and Williams Research Laboratory. 175 pages. Chemical Publishing Co., Inc., 26 Court St., Brooklyn 2, N. Y., 1946. Price, $3.75.

THIS small volume is concerned entirely with the conventional procedure of the organic analyst, who, in addition to ascertaining certain physical data, seeks his conclusive chemical proof in the following sequence:

Unknown Compound + Reagent ⟶ New Compound (Derivative) with derivative recognition achieved by its melting point.

The text is divided into three categories. In the first section the authors present a brief classification and discussion of the monofunctional compounds—i.e., alcohols, amines, etc., together with a tabulation of the common reagents (compounds) commonly employed for the preparation of derivatives, the latter being solids with sharp melting points.

The second section is devoted to a consideration in alphabetical order of the most important substances (reagents), customarily employed in the preparation of solid derivatives. There is some comment on the physical and chemical characteristics of each, and instructions on how to employ them in the laboratory. In many instances a list of some substances which react abnormally or not at all is included; also, in some cases suggestions and possibilities for quantitative application are incorporated.

Finally, in the third section, is the usual sequence of tables of melting points (amplified and authenticated by authors).

Even though the experienced organic analyst will be familiar with the general content, nevertheless, he will find useful information here and there, and a helpful bibliography. It is to be regretted that the authors did not include one good method for the preparation of each reagent. Many otherwise well stocked laboratories will be found to lack many of these compounds.

W. F. WHITMORE

Economics in One Lesson. *Henry Hazlitt.* xi + 222 pages. Harper & Bros., 49 East 33rd St., New York 16, N. Y., 1946. Price, $2.

THERE is much in the book appealing to the chemist and still more revealing to him. He will be attracted by the simplicity and sincerity with which the author stakes and analyzes complicated problems, and by his universalistic method of presenting not merely the immediate effects but also the long-run consequences of economic acts, and this not only for special economic groups but for the total economy of nations. What will especially appeal to the realistic thinking chemist is the fact that the author, unlike other economists, dissects and dissolves economic fallacies and illusions and penetrates the veil of money to the essence of economic life—that is, the purposeful transformation of matter and energy to higher levels of serviceability.

On the other hand, the chemist will find it revealing that the author's concept of economics is basically the same as that developed by Adam Smith in 1776. This explains the strange and dangerous fact that, while science and technology have made tremendous progress since that date, social and economic thinking has never shown corresponding advances. This is mainly due to the high degree of consistency of the classical school of economics to which the author rigidly adheres and the high degree of inconsistency of the various opposing doctrines, neither one succeeding in integrating human society into an ethical, social, cultural, and economic unit. Thus, there is small wonder that the author, in spite of his commendable insistence upon the interdependence of economic developments, fails to consider the driving forces beyond the realm of abstract and pure economics. While his

thoughts are directed towards maximization of production, and, in fact, Adam Smith's "Wealth of Nations", we think of economic endeavors as one but not the only factor in what the founding fathers called "the pursuit of happiness". In spite of these shortcomings, the book is very readable and can be well recommended.

FRANCIS JOSEPH WEISS

Our Atomic World. *Robert E. Marshak, Eldred C. Nelson, Leonard I. Schiff,* and all staff members of Los Alamos Atomic Bomb Laboratory. 58 pages. University of New Mexico Press, Albuquerque, N. Mex., 1946. Price, 50 cents.

"OUR Atomic World" is a small booklet which treats an important and highly technical subject in a manner easily intelligible to those with little or no scientific backgrovnd.

Beginning with a simplified discussion of the atom and its constituents, the authors proceed with a discussion of nuclear fission and its importance as the operating principle of atomic bombs. All new concepts are explained as they are introduced, and the reader will have little trouble in obtaining a qualitative understanding of the size and power of an atomic bomb.

The "secret" of the atomic bomb is made clear, and defenses against the bomb are discussed, including the technical possibilities of international control of atomic energy and weapon production.

In the concluding chapters the vital peacetime uses of atomic energy and radiations in medical, chemical, and industrial applications are shown to overshadow the military applications of this new force.

Several interesting photographs of the Alamogordo test shot accompany the text, along with scenes of the damage at Hiroshima and Nagasaki.

CARROLL A. HOCKWALT, JR.

Lincoln's Incentive System. First edition. *James F. Lincoln.* **McGraw-Hill Industrial Organization and Management Series.** ix + 192 pages. McGraw-Hill Publishing Co., Inc., 330 West 42nd St., New York, N. Y., 1946. Price, $2.

ACCORDING to the author, incentive management is a philosophy of industry and life, and success is dependent on developing the individual latent abilities of each worker (worker referring to all employees whether labor or management). The main purpose of the team of management and labor is to better the product and reduce the cost so that the market may be extended. It points out that the worker's idea of restricted output to protect his job must be changed, and also,

that piece work is the proper method of measuring the accomplishments of the worker for the purpose of properly remunerating him.

Lincoln only makes two products—welding machines and welding rods. The substantial lower cost of producing the Lincoln welder is compared to a competitive machine. It is interesting to note that Lincoln's raw material and overhead are lower in almost the same proportion as is labor, which makes one wonder if a well-designed job involving less material is not largely responsible for the lower cost rather than incentive management. Other examples cited leave doubt in the mind of the reader whether the economics have been thought through.

The writer is not adverse to labor organizations for cooperation but opposes collective bargaining laws as encouraging war between management and labor. It is also stated that as the stockholder does no useful work, he should be considered last after labor is rewarded and prices are reduced.

While anybody reading this book will undoubtedly disagree with many parts of it, the basic principles set forth appear to be worthwhile. Any reader will stop frequently to consider both sides of certain questions raised by the writer.

C. L. GABRIEL

Spectrochemical Analysis

The Ohio Valley Spectrographic Society has published "Collected Abstracts Published in 1945 on Spectrochemical Analysis" in a 64-page booklet compiled by Edwin S. Hodge, arranged according to topics and citing over 80 references. It is available from the Ohio Valley Spectrographic Society, Engineers Club Bldg., Dayton, Ohio, for $1, or for $1.25 when billing is required.

Objective Tests

The availability of the new, 1946–47 series of Objective Tests in Organic Chemistry has been announced by Ed. F. Degering, department of chemistry, Purdue University, Lafayette, Ind. This is the seventh in the series, each of which contains 27 subject examinations on various topics of organic chemistry arranged for manual or machine grading. The tests are priced at 60 cents for the first set and 20 cents for each additional set, plus postage.

Papermaking Bibliography

A collective bibliography of articles and books relating to pulp and paper manufacture covering the years 1936–45 is in preparation by the Technical Association of the Pulp and Paper Industry, 122 East 42nd St., New York 17,

N. Y. A limited number of copies will be available to nonmembers, libraries, etc., at $10.00 a copy. Orders should be sent to the association without delay. The compilation was made by Clarence J. West, now of the Institute of Paper Chemistry.

"Inorganic Syntheses"

"Inorganic Syntheses", Vol. II, is scheduled for publication early this autumn. The reading of proof has been completed for some time, but publication is delayed because of the unprecedented demand on the technical presses. The editorial board responsible for the compilation consists of L. F. Audrieth, J. C. Bailar, Jr., H. S. Booth, W. C. Johnson, R. E. Kirk, and W. C. Schumb, with W. C. Fernelius as editor-in-chief and Janet D. Scott as consultant on nomenclature and indexing. The volume contains directions for the synthesis of 78 chemical substances.

The number of syntheses submitted for Volume II exceeded the number which could be included. Hence, they have been held over for consideration for inclusion in Volume III. Additional contributions to this volume which should appear early in 1948 are desired at the present time. All communications should be sent to the editor-in-chief, L. F. Audrieth, Department of Chemistry, University of Illinois, Urbana, Ill.

Federal Specifications

Federal Standard Stock Catalog, Section IV, Part 1, Federal Specifications Index, has been revised to February 1, 1946, and is for sale by the Superintendent of Documents, U. S. Government Printing Office (30 cents). It contains alphabetical and group lists of Federal specifications, list of changes, emergency alternate Federal specifications, and cancelled emergency alternate Federal specifications.

The report of specifications work in progress by the 77 technical committees of the Federal Specifications Board as of July 31 lists new specifications for 15 chemical products including phosphoric acid, acetylene, ethyl alcohol, aluminum sulfate, ammonium dichromate (photographic), carbon dioxide, duplicating liquid, commercial mixed fertilizer, laundry sour (fluoride type), peat (moss, reed, and sedge), potassium chloride (for fertilizer), salt (rock and evaporated), sodium nitrate (for fertilizer), superphosphate, and toluene. Also listed are five revisions of specifications: for bleaching material (chlorinating), oxygen (tech.), sodium silicate (liquid), natural sponges, and laundry starch; and three amendments to specifications; acetic acid (tech.), soda ash, and carnauba wax. New and revised specifications are also listed by their respective technical committees for detergents, lubricants and liquid fuels, packaging materials, paints and varnishes (including synthetic gloss enamel, diamyl phthalate, dibutyl phthalate, methyl ethyl ketone, nonradioactive luminescent materials, heat-polymerized linseed oil, thinner for synthetic enamels, and shellac), photographic supplies (including potassium ferricyanide, hydroquinone, and prepared x-ray developer powder), organic plastics (including cellulose acetate and acetate butyrate, ethyl cellulose, melamine formaldehyde, methacrylate, phenolic, polystyrene, urea formaldehyde, vinyl chloride acetate, and vinylidene chloride molding compounds), thermometers (chemical and industrial), and wood preservatives (pentachlorophenol and water-repellent). Monthly supplements to this report will be issued.

Detailed information concerning any of the projects enumerated in the report may be obtained by addressing the respective technical committee, Procurement Division, Treasury Department, 7th and D Sts., S. W., Washington 25, D. C.

September Analytical Edition

Contents of the September issue of the *Analytical Edition* of *Industrial and Engineering Chemistry* include:

General Method of Color Grading. R. H. Osborn and W. C. Kenyon

Fluorometric Determination of Aluminum in Steels, Bronzes, and Minerals. Alfred Weissler and C. E. White

Quantitative Determination of Some Inhibitors in Polymers by Ultraviolet Light Absorption. F. W. Banes and L. T. Eby

Analysis of Binary Mixtures of Normal Aliphatic Dibasic Acids and Esters. Use of Composition–Melting Point Relations of Acids. D. F. Houston and W. A. Van Sandt; also Use of Refractive Indices of Dimethyl Esters. D. F. Houston and J. S. Furlow

Volumetric Determination of Magnesium in Magnesium Carbonate Ores. L. R. Williams

Analysis of Oil-Soluble Petroleum Sulfonates. Francis Brooks, E. D. Peters, and Louis Lykken

Composition of Cellulose Esters. C. R. Fordyce, L. B. Genung, and M. A. Pile

Determination of Cyclopentadiene and Dicyclopentadiene. Karl Uhrig, Eleanor Lynch, and H. C. Becker

Rapid Photometric Determination of Iron and Copper in Red Phosphorus. J. A. Brabson, O. A. Schaeffer, Anthony Truchan, and Laverne Deal

Simplified Determination of Manganese in Caustic Soda. R. F. Moran and A. P. McCue

Determination of Total *Beta*-Carotene in Sweet Potatoes and Sweet Potato Products. R. T. O'Connor, D. C. Heinzelman, and M. E. Jefferson

Study of Millin Technique for Determination of Carbon and Hydrogen in Coal. R. J. Grace and A. W. Gauger

Estimation of Oxygen in "Oxygen-Free Atmospheres". E. H. Winslow and H. A. Liebhafsky

Volumetric Determination of Aluminum. M. N. Hale

Activated Glycerol Dichlorohydrin. A. E. Sobel and Harold Werbin

Amperometric Titration of Cyanide with Silver Nitrate. H. A. Laitinen, W. P. Jennings, and T. D. Parks

Vapor-Liquid Equilibrium Still for Miscible Liquids. D. T. C. Gillespie

Microscopical Method for Determination of 2,2-Bis-*p*-chlorophenyl-1,1,1-trichloroethane in Technical DDT. W. C. McCrone, Annette Smedal, and Victor Gilpin

Notes on Analytical Procedures

September Industrial Edition

Contents of the September issue of *Industrial and Engineering Chemistry* include:

Polytetrafluroethylene. Heat Resistant, Chemically Inert Plastic. M. M. Renfrew and E. E. Lewis

Valve Characteristics in Automatic Control. S. D. Ross

Projection of Laboratory Reaction Velocity Data into Commercial Design. Joel H. Hirsh, C. L. Crawford, and Clark Holloway, Jr.

Madison Wood Sugar Process. Elwin E. Harris and Edward Beglinger

Fermentation of Douglas Fir Hydrolyzate by *S. cerevisiae*. Elwin E. Harris, George J. Hajny, Martha Hannan, and Sedgwick C. Rogers

Apparent Specific Gravity of Refined Sugar. George P. Meade

Hydrogen Sulfide from Sulfur Dioxide and Methane. Scott W. Walker

Recovery of 2,3-Butanediol Produced by Fermentation. Murray Senkus

Preparation of Technical DDT. Harry S. Mosher, M. R. Cannon, E. A. Conroy, R. E. Van Strien, and D. P. Spalding

Change of Latent Heat of Vaporization with Temperature. Gouq-Jen Su

Color Stability of Olive Drab Infrared-Reflecting Camouflage Finishes. E. E. Jukkola and Roy Cohen

Action of Antifouling Paints. Bostwick H. Ketchum, John D. Ferry, and Arthur E. Burns, Jr.

Gel Lacquer Technique for Protective Coating. Carl J. Malm and Harold L. Smith, Jr.

Processing Penicillin. F. C. Whitmore *et al.*

Effect of Polymolecularity on Deformation of Butyl Polymers. R. L. Zapp and F. P. Baldwin

Styrene-Diene Resins in Rubber Compounding. A. M. Borders, R. D. Juve, and L. D. Hess

Relation between Specific Refractivity of Polymers and Atomic Structure of Polymer Unit. Richard H. Wiley

Properties of Lactoprene EV. T. J. Dietz, W. C. Mast, R. L. Dean, and C. H. Fisher

Humidity Measurements in Presence of Water-Soluble Salts. G. C. Williams and R. O. Schmitt

GR-S Emulsified with Rosin Soap. G. R. Cuthbertson, W. S. Coe, and J. L. Brady

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Letters to the Editor

Pause for Reflection

DEAR SIR:

Few articles of a scientific nature that I have read in the last few years excited my admiration as intensely as the recent forum "Science and Life in the World" [CHEM. ENG. NEWS, **24**, 1324–77 (1946)]. It is a very healthy sign when a group of able investigators and educators takes the trouble soberly to ask the question "why" in connection with the madly onrushing course of research and development, not to speak of the by-no-means ideal practical results of man's handiwork as affecting actual human welfare. I hope that this pioneering effort on the part of a technical magazine will signalize a movement on the part of scientists to dedicate their future efforts to human welfare—not to the snap-judgment definition of such welfare which has motivated social and industrial action in the past, but to a coherent, ethically sound concept of what shall bring mankind to the fullest possible realization of its potentialities.

Perhaps the struggle for world survival is at present too critical to allow much time for "niceties", but I feel that man must step back a pace or two and treat with himself before further meddling with the atom will give him anything more than a world full of Operations Crossroads.

WILLIAM B. PRESSMAN

Philadelphia, Pa.

Enslave Germany?

DEAR SIR:

As a person who took an active part in World War I against Germany and who lost a number of his close relatives in the conflict, I consider myself in a position to answer D. A. Rappoport's letter published in the NEWS, May 10, 1946, because it would require a long stretch of imagination to consider me a "Germanophile" or a "Hitlerite".

Mr. Rappoport condemns the German nation as a whole for atrocities committed before and during World War II. Every nation as well as every organization contains persons whom we like or dislike and who may have different ideas about honesty. However, if we disagree with such persons we have no right to blame a country or a society for acts committed by their leaders. In modern civilization a person disagreeing with those in power has no way of extricating himself from the surroundings without being executed, jailed, or starved to death for free expression. Apparently Mr. Rappoport never lived under such conditions.

Neither a nation nor an individual can afford to remain ruthless and intolerant against a conquered enemy unless he wishes to invite another war. We can either exterminate our opponents or assimilate them, treating them as equals, but we cannot turn them into perpetual slaves and that is exactly what Mr. Rappoport intends to do with the German nation. Mr. Hitler failed in an exactly similar attempt to enslave Europe.

Let us hope that the old law "eye for eye, tooth for tooth" will finally be supplanted by the high ideals of Christianity which are, unfortunately, foreign to many of us.

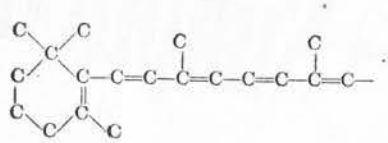
V. A. KALICHEVSKY

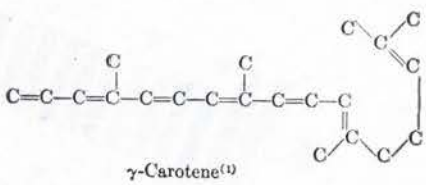
Beaumont, Tex.

Carotene

DEAR SIR:

I should like to join the perhaps lengthy list of those who have taken issue with the structure of carotene as pictured on page 1236 of CHEM. ENG. NEWS, **24** (1946). γ-Carotene has been shown to be monocyclic since it contains 12 double bonds and analyzes for $C_{40}H_{56}$ The structure, as proposed by Kuhn and Brockmann [*Ber.*, **66**, 407 (1933)], is that of β-carotene but monocyclic, i.e., schematically.





γ-Carotene[1]

S. C. SPALDING, JR.

New Haven, Conn.

International Language

DEAR SIR:

If the suggestion made by your correspondent, G. W. Thiessen, in your January issue were adopted, so many benefits to mankind would follow that man would wonder why he never took this step earlier! The proposal is definitely not new. That we shall have an international language eventually is certain.

One difficulty is that while so many people wish for an international language, they are either too busy or too lazy to push hard enough and consistently enough in the right quarters. Another difficulty would be to get all nations to agree on the form of the international language, even though it be an entirely new one, especially designed, and free from exceptions to the

rules of the grammar. These and other difficulties are not insuperable, of course, but one would come up against an almost insuperable one where the financial side of establishing such a language is concerned.

My own view is that there are two general ways of approach. The first would be by international legislation; the second would be by an international professional group undertaking the task voluntarily. A successful start by the second of these ways would probably lead to the quicker and more satisfactory one being considered.

The first essential step is to design the language. In addition to the grammar, dictionaries the size of Webster, Oxford English, etc., would have to be prepared. If the world's chemists and engineers were to start the ball rolling by, say, publishing all their work in the international, as well as their own, language, first they would have to learn the language proficiently. Who will teach them? No doubt this problem can be solved, given time. And so perhaps could the one of finding publishers who would publish all chemical papers in two languages, until it could be safely assumed that all chemists could read and write the language—and also the one of finding readers who would pay the additional cost of such publications.

Although my time is very fully occupied, I would gladly set aside some of it to further such a grand cause if I could be of service. But one man, or even a hundred, could do little. I think CHEMICAL AND ENGINEERING NEWS could assist in many ways, primarily by obtaining views from its readers on what they consider to be practical ways whereby chemists could establish, or cause to be established, an international language. The world owes so much to the chemist. Why not increase this indebtedness?

FRANK TOTNEY

Johannesburg, South Africa

Punnotations

DEAR SIR:

The following irrelevant fancies occurred to me while scanning the ACS Chicago meeting program in the August 10 issue.

The "Symposium on Fluorine Chemistry" has a paper by Church (G. L.) followed by one by Priest (H.F.).

The Friday morning session of the Division of Organic Chemistry throws together Wolfe (John K.) and Wolff (Hans). Bear (R. S.) and Bull (H. B.) speak in Biochemistry at the same session.

The "Vitamin Requirements of the Chick" are to be discussed, appropriately, by Bird (H. R.).

Great names are represented by the military, Caesar (P. D.), Patton (A. R.), and Cromwell (N. H.); science, Newton (E. B.) and Planck (R. W.); music, Verde (L. S.); and literature, Shakespeare (Nancy).

A CONTRIBUTOR

The Wall Street of Chemistry

Abbott Laboratories has called for redemption on October 15 of all outstanding 4% cumulative preferred stock. Of the 169,991 common shares offered to present stockholders, 97% has been subscribed.

Central Soya Co., Inc., filed with the Securities and Exchange Commission a registration statement covering $4,000,000 of 3% sinking fund debentures, due on September 1, 1966, and 90,000 shares of no par value common stock to be offered at the rate of one share for each seven and one-third shares now held.

On August 31, 1946, **Koppers Co., Inc.,** will redeem all shares of its cumulative preferred stock, 4¾% series then outstanding at the sum of $107.50 per share, plus the accrued and unpaid dividends thereon from July 1 to August 31, 1946, amounting to $0.80 per share.

Stockholders of **Merck & Co., Inc.** approved charter amendments authorizing 150,000 shares of a new cumulative preferred stock and waiving pre-emptive rights to 120,000 shares of the new cumulative preferred stock and to 100,000 shares of common stock to be issued.

Newport Industries, Inc., is offering 40,000 shares of 4¼% cumulative preferred stock, $100 par value, at a price of $103. Net proceeds of the financing, together with any necessary additional funds, will be applied toward cost of a new wood naval stores extraction plant at Oakdale, La.

Standard Oil Co. of California has announced plans for acquisition of an interest in the Barber Asphalt Co.'s petroleum refinery and marine terminal near Perth Amboy, N. J. Under the terms of an agreement now awaiting approval by Barber stockholders, a new corporation, the California Refining Co., has been organized. Standard of California and Barber will be stockholders of the new company which will operate the terminal and other facilities.

	First Half Earnings		Per Common Share		Prices[a]
	1945	*1946*	*1945*	*1946*	
Anaconda Copper Mining Co.	$14,297,196	$2,643,744	$1.65	$0.30	41⅜
Armstrong Cork Co.	1,884,671	1,987,617	1.22	1.19	55
Celanese Corp. of America	3,799,718	7,444,401	1.55	2.68	63½
Eastman Kodak Co.	11,043,307	15,992,956	4.39	6.39	230
Gair, Robert, Co., Inc.	393,115	1,106,037	0.21	0.57	9½
General Aniline & Film Corp.	2,168,000	2,482,000	2.96	3.38	
B. F. Goodrich Co.	5,621,544	12,470,390	3.52	8.74	77½
Goodyear Tire & Rubber Co.	7,509,868	15,088,189	2.90	6.59	65
Intercontinental Rubber Co.	372,482	90,304	0.62	0.15	7¾
Merck & Co., Inc.	1,342,179	3,513,584	1.10	2.97	66¾
Revere Copper & Brass, Inc.	1,359,915	1,122,506	0.87	0.68	26
Standard Oil Co. of Indiana	27,609,156	35,089,551	1.81	2.30	43½
Standard Oil Co. of Ohio	3,041,252	5,154,885	1.07	1.75	28¼
Texas Co.	26,884,363	29,568,730	2.39	2.63	62½
Unexcelled Chemical Corp.	122,350	261,548	0.72	1.17	
United Carbon Co.	822,812	1,369,671	2.32	3.44	74⅝
U. S. Gypsum Co.	2,356,216	5,447,921	1.74	4.32	116⅝
	Fiscal Year Earnings				
American Agricultural Chemical Co.	1,741,198	3,015,061	2.77	4.80	49½
Pennsylvania Salt Manufacturing Co.	1,454,931	1,441,022	1.94	1.92	46½

[a] Asked stock quotations as of Aug. 30, 1946.

	Period	Dividends	Payable
Abbott Laboratories, pfd., irreg.		$1.00	Sept. 15
Aluminum Co. of America		0.50	Sept. 10
Aluminum Co. of America, pfd.	Q	1.50	Oct. 1
American Cyanamid Co.	Q	0.25	Oct. 1
American Cyanamid Co., pfd.	Q	0.12½	Oct. 1
Consolidated Chemical Industries, A	Q	0.37½	Nov. 1
Diamond Alkali Co.		0.50	Sept. 10
Du Pont Co., interim		1.75	Sept. 14
Du Pont Co., pfd.	Q	1.12½	Oct. 25
Gair, Robert, Co., Inc.	Q	0.30	Sept. 30
Goodrich, B. F., Co., pfd.		1.00	Sept. 30
Goodrich, B. F., Co., $5 pfd.	Q	1.25	Sept. 30
Eastman Kodak Co.	Q	1.50	Oct 1
Eastman Kodak Co., pfd.	Q	1.50	Oct. 1
Industrial Rayon Corp.	Q	0.50	Sept. 11
Kimberly-Clark, new		0.25	Oct. 1
Kimberly-Clark, pfd.	Q	1.12½	Oct. 1
Parker Rust Proof Co.	Q	0.87½	Sept. 2
Standard Oil Co. (Ky.)	E	0.15	Sept. 14
Standard Oil Co. (Ky.)	Q	0.35	Sept. 14
Standard Oil Co. (Ohio)		0.25	Sept. 13
Standard Oil Co. (Ohio), pfd.	Q	0.93¾	Oct. 15
St. Joseph Lead Co.	Q	0.50	Sept. 10
Texas Gulf Sulphur Co.	Q	0.50	Sept. 16
Texas Gulf Sulphur Co.	E	0.50	Sept. 16
West Virginia Pulp & Paper Co.		0.25	Oct. 1

E, extra; Q, quarterly.

B. F. Goodrich Co. paid a common dividend on June 29 of 75¢, and in the two preceding quarters similar payments were made.

Industrial Rayon Corp. paid a quarterly dividend of 37½¢ in June following a 2-for-1 split of the shares. Current declaration matches the 50¢ paid on the stock before the split.

Parker Rust Proof Co. paid 37½¢ in three previous quarters this fiscal year bringing the total to $2 compared with $1.50 in the previous fiscal year.

Standard Oil Co. of Kentucky on June 15 paid a quarterly dividend of 25¢ plus 25¢ extra.

Industrial Literature

Listed publications should be requested directly from the company concerned. Use business stationery, mention bulletin numbers, and refer to this journal. Publications will be sent free unless otherwise noted.

Boilers. A standardized sectional boiler featuring self-supporting construction, simple erection, choice of 12 capacities and of firing, etc., described in folder. *Bulletin 746 CEN-9-10.* SPRINGFIELD BOILER CO., 1900 East Capitol Ave., Springfield, Ill.

Compressors. 16-page booklet on fundamental principles of turbo-blowers, rotary compressors, and vacuum pumps, with graphs depicting pressure volume, etc. *Booklet 677 CEN-9-10.* ALLIS-CHALMERS MFG. CO., Milwaukee 1, Wis.

Coating, Protective. Charts of properties, application, and industrial uses of the several Amercoat coatings for protection against corrosion and contamination. *Booklet CEN-9-10.* AMERICAN PIPE & CONSTRUCTION CO., Amercoat Division, P. O. Box 3428, Terminal Annex, Los Angeles 54, Calif.

Electrical Equipment, Inspected. May 1946, edition of Underwriters' Laboratories, Inc., "List of Inspected Electrical Equipment" with 449 pages. *List CEN-9-10.* UNDERWRITERS' LABORATORIES, INC., 161 Sixth Ave., New York 13, N. Y.

Filters. 45-page handbook on filtration in internal combustion motors and compressors, in generating station machinery, in air conditioning, in the chemical and food industries, etc., of air, gas, and liquids. *Booklet CEN-9-10.* DRICO INDUSTRIAL CORP., 29 Broadway, New York 6, N. Y.

Flow Indicators. Folder on rotary-, distillate-, and flapper-type high pressure flow indicators and applications. *Bulletin 18w CEN-9-10.* SCHUTTE & KOERTING CO., 12th & Thompson Sts., Philadelphia 22, Pa.

Gaskets. 30-page catalog of gaskets of both standard and special construction for industrial, marine, chemical, petroleum, power plant, etc., use including spiral-wound metal asbestos, plain and corrugated metal, metal washers, stampings, and die cut soft materials. *Catalog 303 CEN-9-10.* UNITED STATES GASKET CO., 680 North Tenth St., Camden, N. J.

Heating and Sealing, Electronic. Description of use of industrial electronic heat generators for preheating and sealing of plastics, rubber, plywood, and other dielectric materials in 8 pages. *Bulletin 7005 CEN-9-10.* RADIO RECEPTOR CO., INC., Thermatron Division, 251 West 19th St., New York 11, N. Y.

Hose, Fire. Bulletin describing water-repellent, mildew-resistant, clean, white "all-weather" fire hose, double-jacketed for durability and flexible. *Bulletin CEN-9-10.* AMERICAN-LA FRANCE-FOAMITE CORP., Elmira, N. Y.

Insulation, Magnesia. Quarterly news bulletin published by the Magnesia Insulation Manufacturers Association to bring information about the product to its users. *Quarterly CEN-9-10.* MAGNESIA INSULATION MANUFACTURERS ASSOCIATION, 1317-F St., N. W., Washington, D. C.

Motor, Induction. Bulletin covering construction, features, and some typical applications of protected type standard squirrel cage induction motor. *Bulletin 720 CEN-9-10.* LOUIS ALLIS CO., Milwaukee 7, Wis.

Organic Chemicals, Synthetic. 72-page catalog of 150 commercial, semicommercial, and laboratory-stage synthetic organic chemicals including alcohols, alkyl chlorides, substituted amides, amines, dithiocarbamic acid derivatives, ethers, esters, hydrocarbons, mercaptans, organic sulfides, phenols, and substituted ureas. *Catalog CEN-9-10.* SHARPLES CHEMICALS, INC., 123 South Broad St., Philadelphia 9, Pa.

Pumps. Bulletin on SCV pumps for hot or cold water circulation, brine circulation, sprinkler systems, pressure boosting, air conditioning systems, boiler feed, etc. *Catalog D-246 CEN-9-10.* ECONOMY PUMPS, INC., Hamilton, Ohio.

Pump, Centrifugal. Folder on single stage, double suction centrifugal pump with capacity and dimension tables. *Bulletin 240 CEN-9-10.* WARREN STEAM PUMP CO., Warren, Mass.

Presses, General Purpose. Bulletin with specifications explaining construction and work features of general purpose presses, 20 to 200-ton capacities, to handle diversified metal working and plastic molding operations. *Bulletin 370-C CEN-9-10.* WATSON STILLMAN CO., Roselle, N. J.

Resin Finishes, Textile. Booklet on finishes designed to give durable crispness and shrinkage control to all types of sheer fabrics and to Nottingham laces. *Bulletin 103 CEN-9-10.* AMERICAN CYANAMID CO., Textile Resin Dept., Bound Brook, N. J.

Tachometer Recorders and Indicators. Description of potentiometer-type tachometer, and of the millivoltmeter-type indicating, and strip-chart recording tachometers, in 12 pages. *Bulletin S1400 CEN-9-10.* BRISTOL CO., Waterbury 91, Conn.

Window Unit. Folder on single, self-contained window unit for visibility of liquid level or flow, and of internal moving parts. *Bulletin 4B CEN-9-10.* BIJUR LUBRICATING CORP., Long Island City 1, N. Y.

Small Business

"Financing Small Business—Its Economic Position and Financial Requirements" is the title of a 32-page booklet published by the National Association of Manufacturers, 14 West 49th St., New York 20, N. Y. Discussion of problems and facts compiled are illustrated by graphs.

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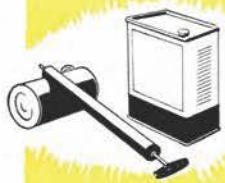

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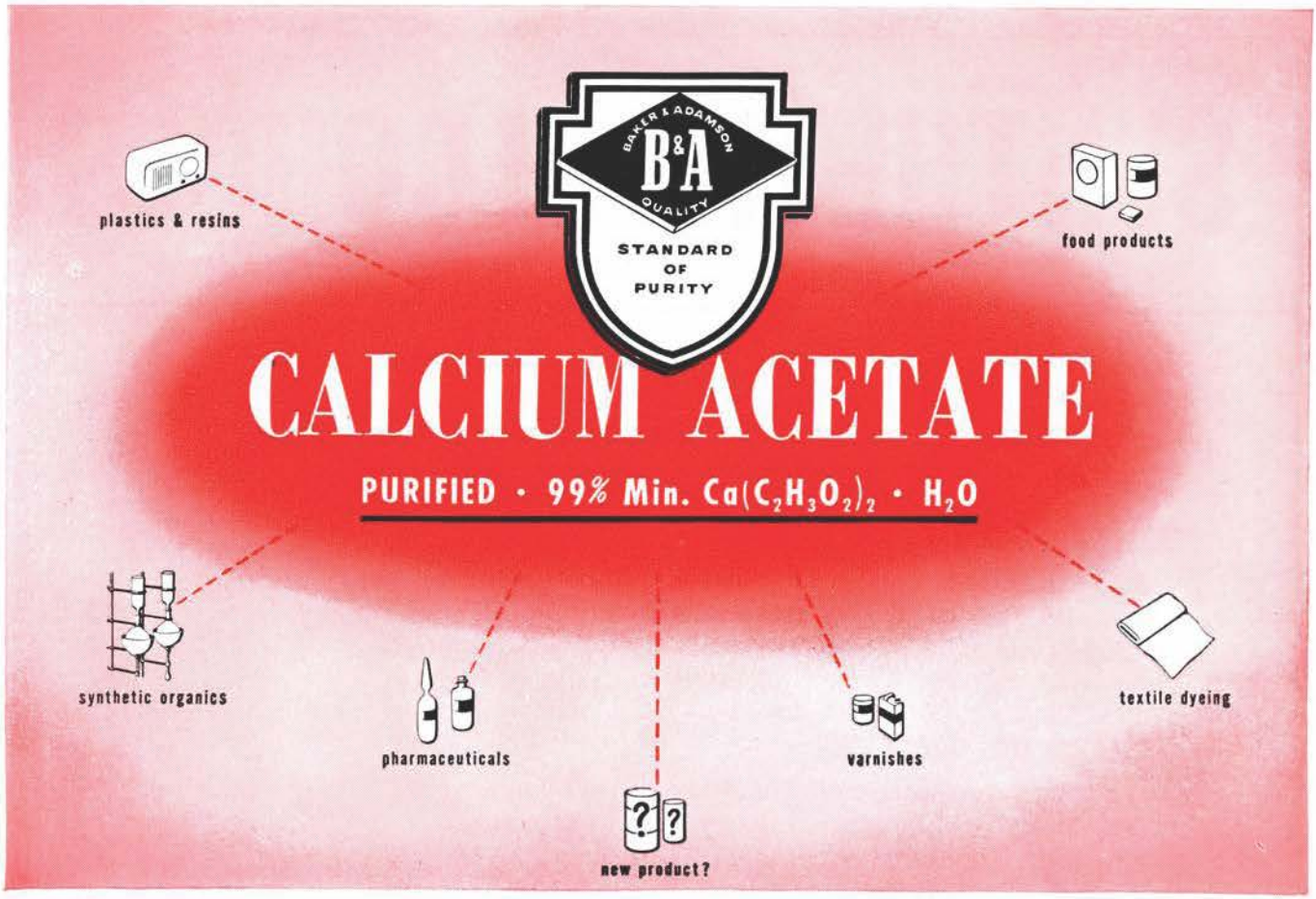

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In Canada: The Nichols Chemical Company, Limited • Montreal* • Toronto* • Vancouver

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Behind the Markets

by HARRY STENERSON

Consuming pattern is changing for important chemicals . . . New outlets figure in postwar production of butyl alcohol, formaldehyde, and acetone . . . More price upturns effected for wide list of products

CHEMICAL manufacturers find that many of their products are slow to return to their former end-use patterns, and it is possible that some may not return at all to their prewar status. Newer outlets, of course, supply the answer. The CPA and the Bureau of the Census have been issuing reports on wartime end uses for chemicals, which the industry should file away for reference. A more valuable study would contrast present chemical consumption, by industries, with similar data for 1935–39.

Three recent wartime chemical studies, in butyl alcohol, acetone, and formaldehyde, reveal certain end-use patterns which point to new, permanent outlets for these basic organics even if scaled down to civilian peacetime needs. In butyl alcohol, for example, it is reasonable to assume that more is going into dibutylphthalate than before the war owing to its expanded use as a plasticizer. There has also been a considerable rise in phthalic anhydride capacity, and manufacturers of dibutylphthalate rose to seven in number during the war.

During the allocations period dibutylphthalate accounted for 21.6% of the total, and in view of the heavy postwar plastics and plasticizer demands that figure may be representative today of the normal butyl alcohol–use pattern. The amount of butyl alcohol entering aircraft coatings, 10.1%, is now considerably less, but while some 6½% went into cellulose lacquer solvents and 3.2% into resins other than as a plasticizer, it is not unreasonable to assume that civilian demands in these two latter categories are now greater.

Formaldehyde in War and Peace

The wartime end-use pattern for formaldehyde shows that 28.4% entered phenolic resins, 21.0% urea and melamine resins, 16.3% "other chemicals", while 11.4% entered the newer use of pentaerythritol. Much of the hexamine and pentaerythritol was allocated to explosives. Peacetime uses have been established for both, and the polyhydric alcohol is serving research-developed needs in the coatings field that were unheard of before 1941. It would not be surprising if the postwar use pattern for formaldehyde showed increased industrial uses for all of these categories especially in resins, with some reductions in the pattern percentages for hexamethylenetetramine and pentaerythritol from their heavy explosives requirements. Yet, both should find greater postwar industrial application than was the case in 1935–39. Formaldehyde producers report that pentaerythritol production of the technical grade is sizable, but not up to the output of the nitration designation during the war. Hexamine has picked up its former outlets in the resins industry, but its 13.3% share in wartime allocations will have to be reduced considerably. The government study was based on the allocation of about 500,000,000 lb. of 37% formaldehyde. Some 240,000,000 lb. entered phenolic, urea, and melamine resins.

Acetone and Acetone Recovery

Chemical manufacture accounted for the bulk (42%) of wartime acetone, with 15% going into solvents, 11% to coated fabrics and rayon, 7% for exports, 6% to drugs and pharmaceuticals, and 5% to resins and plastics. Export demand was considerable during the war, and the patterns for acetone have changed for both foreign and domestic uses. Britain took a fairly large part of our acetone production in both world wars for cordite manufacture, and explosive based on nitrocellulose and nitroglycerin. France is now the principal foreign user of American acetone. If the 42% "chemical manufacture" category includes military explosives in the domestic wartime-use pattern, that percentage obviously has been trimmed greatly, while the 11% allocated for coated fabrics and rayon will have to be increased, probably to 30 or 35%.

The use of acetone for rayon, where it is employed in the extrusion of acetate yarn, constitutes an important normal outlet for the solvent, even if recovery techniques have been developed to a high degree in this industry. At many acetate rayon plants the acetone recovery runs as high as 90 to 100%. Activated carbon is the basis of the process and, oddly enough, acetone manufacturers are responsible for present-day recovery techniques as well as for the erection of the recovery units. In the absence of these operations, the use of acetone for acetate yarn manufacture would run considerably higher.

Price Movements

Extensive upward revisions were effected in crude and refined material prices during the latter half of August, mostly in products derived from metals. Rising production costs in chemicals were also reflected by upturns of ¾¢ in phenol, normally one of our most stable chemical raw materials. The 90 to 92% grade (8 to 10% cresol) is now 9¾¢ per lb. in tank cars, and the 82 to 84% phenol (16 to 18% cresol) is also 9¾¢ in tanks. Cresol moved up ½¢, and orthocresol the same amount.

Adjustments were finally made in silver salts following the recent generous upturn to western metal producers. The nitrate was moved up 11½¢ per oz., and the cyanide, 33.36¢ per oz. White arsenic rose 1 to 5¢ per lb. in carlots, while lead arsenate moved up ¼¢ for the powder and 1¢ per lb. for the paste. Paris green advanced a full cent per lb. Lead naphthenate prices were increased ¾¢ per lb. and resale quotations for lead pigments were permitted to reflect the recent increase granted to manufacturers. Chrome green moved up ½¢, and chrome yellow, ¼¢ per lb. Unbleached shellac, which has been staging spectacular advances in the Indian market, moved up about 3¢ for the basic grade, TN, to a range of 71 to 75¢ per lb. A new formula was also issued for determining ceilings on bleached shellac in producers' sales.

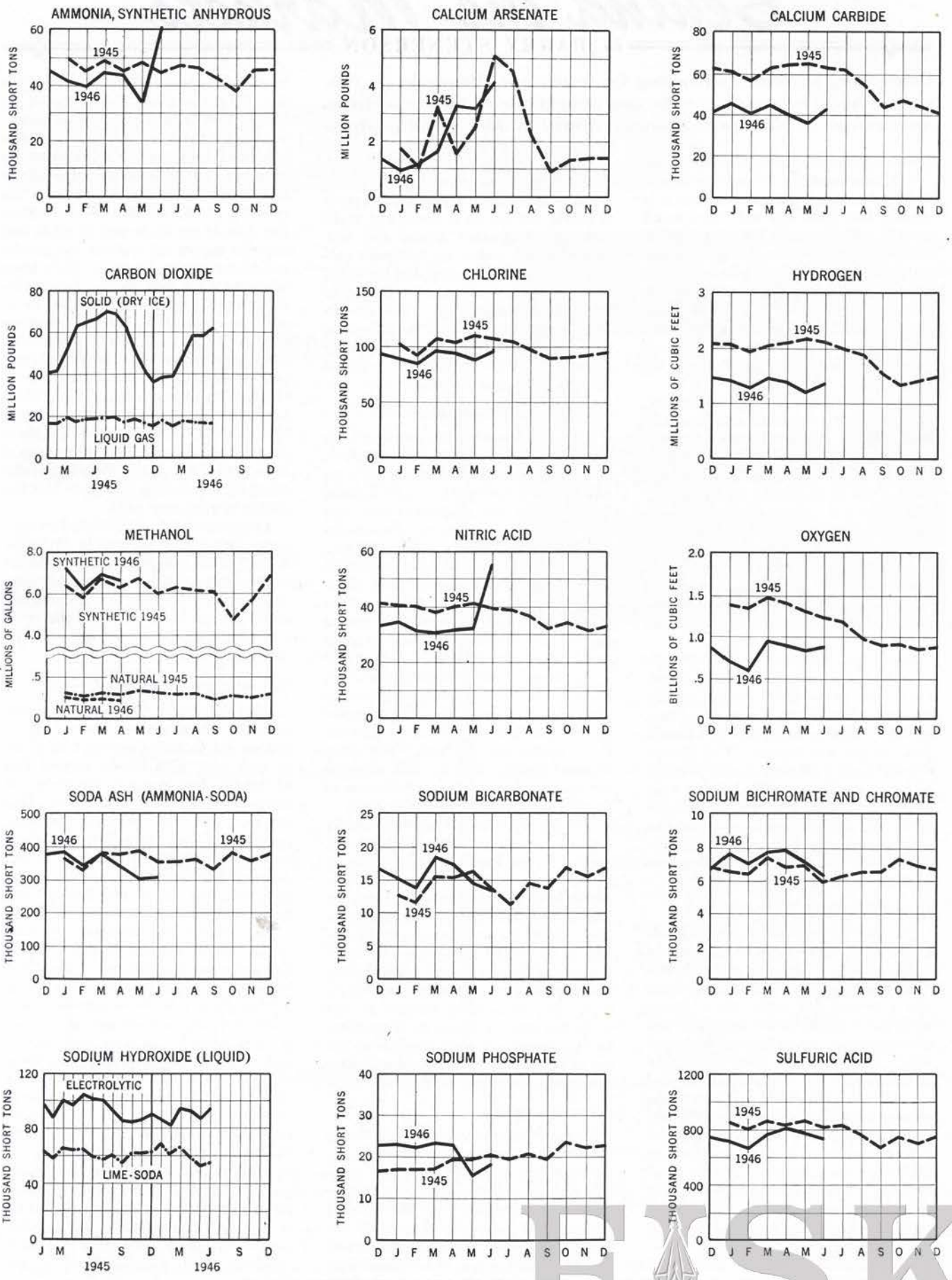
An increase of 1¢ was effected in amyl acetate made from pentane to 15½¢ per lb., in tanks. Quicksilver rose $2 to the range of $98 to $100 per flask. Advances of 2¢ per lb. took place in carnauba and crude African beeswax, but both crude and refined grades of ouricury were reduced 4¢ per lb.

Solvent Naphtha Lowered

Price reductions were led by solvent naphtha, which refiners lowered 4¢ to 27¢ per gal. in drums, carlots, and to 22¢ in tank cars, with freight allowed east of Omaha. Potato starch was given two successive reductions aggregating 1½¢ per lb. With new arrivals of menthol reported due from China, that commodity was off 15¢ to $8.10 per lb. Natural degras came off 2¢ per lb., while cottonseed meal was cut $5 and linseed meal, $2 per ton.

Railroad car and container shortages threatened to increase postwar market difficulties for the industry. The ODT looked for a serious deficiency of box cars as the grain movement increased, and drums were urgently needed for the shipment of solvents and other liquid chemicals. It was reported that the movement of carbon tetrachloride was impeded for this reason. The traffic movement this fall undoubtedly will be very large, probably the largest in history, but some traffic executives in the chemical industry do not believe that it will lead to an emergency situation. Fine chemical manufacturers report no great difficulty so far in moving their production, and in other sections of the industry more concern is expressed over container and supply shortages.

Production Trends for 15 Leading Industrial Chemicals



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FEATURED CHEMICALS in the PFIZER FAMILY

- Acetyl Tributyl Citrate
- Acetyl Triethyl Citrate
- Ammonium Oxalate
- Ascorbic Acid
- Bi-Cap Flour Enrichment Mixtures
- Bismuth Preparations
- Calcium Gluconate
- Citric Acid
- ✔ Citrate Esters
- Cream Tartar
- Fumaric Acid
- Gluconic Acid
- Glucono Delta Lactone
- Iron and Ammonium Citrates
- Iron and Ammonium Oxalate
- Iron Gluconate
- Iron Oxalate
- Itaconic Acid
- Niacin
- Niacinamide
- Oxalates
- Penicillin
- Potassium Iodide
- Potassium Oxalate
- Riboflavin
- Rochelle Salt
- Sodium Citrate
- Sodium Gluconate
- Tartaric Acid
- Thiamine
- Triethyl Citrate
- *—and many other chemicals*

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PFIZER

Manufacturing Chemists Since 1849

Chemical Market Prices

SEPTEMBER 3, 1946

Compiled from weekly current price listings in the *Oil, Paint and Drug Reporter* with permission of the publisher under its copyright. These prices, unless otherwise specified, are those prevailing in the New York market for technical grades in usual large commerical quantities.

Acetaldehyde, drums, c/l., wks.	lb.	.11
Acetamide, tech., fiber drums, wks.	lb.	.30
Acetanilide, tech., powd., bbls.	lb.	.27
Acetic anhydride, drums, c/l., frt. allowed	lb.	.11½
Acetone, c. p., drums, c/l., dlvd.	lb.	.07
Acetonitrile, drums, c/l., wks.	lb.	.35
Acetophenetidin, bbls., 1,000 lbs.	lb.	1.00
Acetophenone, drums, 100 lbs.	lb.	1.50
Acid, abietic, drums, c/l.	lb.	.07½
Acetic, 28%, bbls., c/l.	100 lbs.	3.38
56%, bbls., c/l.	100 lbs.	5.58
Glacial, synth., 99.5%, bbls., works	100 lbs.	9.15
Glacial, synth., U. S. P., drums, works	100 lbs.	10.50
Acetylsalicylic, U. S. P., bbls.	lb.	.45
Anthranilic, tech., bbls.	lb.	.95
Battery, cbys., c/l., E. wks.	100 lbs.	1.60
Benzoic, tech., bbls.	lb.	.43
Boric, tech., gran., bags	ton	99.00
Butyric (99%), drums, c/l., wks.	lb.	.29
Chloroacetic, mono-, tech., bbls., wks.	lb.	.16½
Chlorosulfonic, drums, c/l., wks.	lb.	.03
Chromic, 99%, drums, c/l.	lb.	.17
Cinnamic, bottles	lb.	3.00
Citric, cryst., bbls., c/l.	lb.	.20
Cresylic, H. B., 210–215°, drums, c/l., wks. frt. equal	gal.	.81
Formic, 90%, cbys., f. o. b. works, c/l.	lb.	.10½
Gallic, tech., bbls.	lb.	1.10
Hydriodic, 57%, 5-lb. bot.	lb.	2.90
Hydrobromic, 34%, cbys.	lb.	.35
Hydrochloric, 20°, carboys, c/l., wks.	100 lbs.	1.75
Hydrofluoric, 30%, wks.	lb.	.08
60%, rubber drums	lb.	.13½
Hydrofluosilicic, 30%, bbls., wks.	lb.	.08
Hypophosphorus, U. S. P., 30%, 5-gal. demis	lb.	.75
Lactic, dark, 22%, bbls.	100 lbs.	2.90
Light, 22%, bbls., wks.	100 lbs.	3.90
Maleic, powd., drums	lb.	.30
Mixed, tanks, wks. N unit,	lb.	.05
S unit,	lb.	.0085
Naphthenic, 210–220, drums	lb.	.10¾
Nitric, c. p., cbys.	lb.	.13
36°, cbys., c/l., wks.	100 lbs.	5.00
Oxalic, bbls., wks.	lb.	.11¼
Phosphoric, U. S. P.	lb.	.10½
Picramic, kegs	lb.	.65
Picric, bbls.	lb.	.35
Pyrogallic, tech., bbls.	lb.	1.45
Salicylic, tech., bbls.	lb.	.26
Stearic, d. p., bags, dlvd.	lb.	.15⅞
Sulfanilic, tech., 250-lb. bbls.	lb.	.17
Sulfuric, 66°, cbys., c/l., E. wks.	100 lbs.	1.50
66°, tanks, E. wks.	ton	16.50
60°, tanks, E. wks.	ton	13.00
Oleum, 20%, tanks, E. wks.	ton	19.50
Tannic, tech., bbls.	lb.	.71
Tartaric, U. S. P., cryst., bbls.	lb.	.62½
Tungstic, pure, 100-lb. pkg.	lb.	2.86
Alcohol, ethyl, 190 proof, from molasses, tanks	gal.	17.65½
Amyl, from pentane, tanks	lb.	.131
Butyl, normal, tanks, frt. allowed in East	lb.	.188
Cinnamic, bottles	lb.	3.00
Denatured, C. D. 14, drums, c/l., dlvd., E.	gal.	.613
Diacetone, tech., drums, c/l.	lb.	.11
Furfuryl, tech., drums, c/l., wks.	lb.	.19
Isobutyl, ref., drums, works	lb.	.0860
Isopropyl, ref., 91%, drums, c/l., f. o. b. dest.	gal.	.38
Wood, *see* Methanol		
Aldol, 95%, drums, c/l., wks.	lb.	.13
Alpha-naphthol, bbls.	lb.	.52
Alpha-naphthylamine, bbls.	lb.	.32
Alum, ammonia, lump, bbls., wks.	100 lbs.	4.25
Chrome, -chrome	lb.	.12½
Potash, lump, bbls., wks.	100 lbs.	4.50
Soda, bbls., wks.	100 lbs.	3.25
Aluminum, metal, 98–99%, drums, c/l.	lb.	.15
Chloride, anhyd., commercial, drums extra, c/l., wks.	lb.	.08
Stearate, bbls., c/l.	lb.	.23
Sulfate, comm'l, bags, c/l., wks. frt. equal	100 lbs.	1.15
Iron-free, bags, c/l., wks.	100 lbs.	1.75
Ammonia, anhydrous, fertilizer, f. o. b. wks., frt. equalized	ton	59.00
Pure, cyls.	lb.	.14½
Aqua, 26°, tanks (on NH_3 content), f. o. b. wks	ton	65.00
Ammonium bicarbonate, drums.	lb.	.0564
Bifluoride, bbls.	lb.	.15
Bromide, bbls.	lb.	.28
Carbonate, tech., bbls.	lb.	.08½
Chloride, gray, bbls.	100 lbs.	5.50
U. S. P., gran., bbls.	lb.	.13
Iodide, 25 lb. jars	lb.	3.65
Linoleate, 80%, anhyd., bbls.	lb.	.12
Nitrate, tech., bags, c/l., wks.	100 lbs.	4.35
Oleate, bbls.	lb.	.14
Oxalate, kegs	lb.	.25
Persulfate, cases	lb.	.25½
Phosphate, dibasic, tech., bbls.	lb.	.07–.07¾
Sulfate, bulk, c/l., f. o. b. cars, producing ovens	ton	30.00
Sulfide liq. 40–45%, basis 100%, tanks, dlvd.	lb.	.07½
Amyl acetate, from pentane, tanks, frt. allowed	lb.	.14½
Chloride, mixed, tanks, wks.	lb.	.06
Mercaptan, drums, l. c. l., wks.	lb.	1.10
Anilin oil, drums	lb.	.12
Anthraquinone, subl., bbls.	lb.	.70
Antimony, chloride, soln., cbys.	lb.	.17
Needle, Bolivian, 67%	lb.	.16¼
Oxide, bags, c/l.	lb.	.17
Salts, 65%, bbls.	lb.	No stocks
Argols, min. 70%, bags, basis 100%,	100 kilos	46.00
Arsenic, metal, kegs	lb.	No prices
White, c/l., kegs	lb.	.04
Arsenous chloride, cans	lb.	1.55
Barium carbonate, natural, 99%—200 mesh, bags, c/l., wks.	ton	43.00
Chloride, tech., cryst., bgs., c/l., works	ton	73.00
Dioxide, drums, wks.	lb.	.10
Hydroxide, bbls., wks.	lb.	.15
Nitrate, bbls., c/l.	lb.	.09½
Barytes, floated, 350-lb. bbls., wks.	ton	27.65
Benzaldehyde, tech., drums	lb.	.45
Benzidine base, bbls.	lb.	.70
Benzol, tanks	gal.	.15
Benzoyl chloride, cbys.	lb.	.20½
Benzyl acetate, F. F. C., drums.	lb.	.55–.60
Beta-naphthol, tech., bbls., l. c. l.	lb.	.23
Beta-naphthylamine, tech., kegs	lb.	.51
Bismuth, metal, ton lots	lb.	1.25
Nitrate, cans	lb.	1.41
Oxychloride, kegs	lb.	3.10
Subnitrate, powd., barrels	lb.	1.20
Blanc fixe, dry, bags, c/l.	ton	60.00
Bleaching powder, drums, wks.	100 lbs.	2.50
Bone black, 4 bbls., c/l., frt. allowed E	lb.	.08¼
Borax, tech., gran., bulk, c/l., frt. allowed	ton	41.50
Bordeaux mixture, drums	lb.	.11
Bromine, cases, 1,000 lb. lots	lb.	.23
Bromoform, cbys.	lb.	1.42
Butyl acetate, synthetic drums, c/l., frt. allowed East of Mississippi	lb.	.11¼
tanks	lb.	.10¾
Alcohol, synthetic, drums, c/l.	lb.	.11¾
tanks	lb.	.10¾
Aldehyde, drums, l. c. l.	lb.	.16½
Lactate, drums	lb.	.26½
Stearate, drums	lb.	.31½
Cadmium, metal, ingots, cases	lb.	1.30
Bromide, 25-lb. jars	lb.	1.65
Sulfide, boxes, kegs	lb.	1.10*
Caffeine, 100-lb. drums, 10,000 lbs. or more	lb.	2.80
Calcium acetate, bags	100 lbs.	3.00
Arsenate, bgs., c/l.	lb.	.07½
Carbonate, precip., bags, 500 lbs., c/l., wks.	lb.	.02¾
Chloride, bags, flake, c/l., dlvd.	ton	18.50
Gluconate, U. S. P., bbls., 150 lbs.	lb.	.52
Phosphate, feeding grade, bags, works	ton	75.00
Tribasic, bbls.	lb.	.0635
Calomel, bbls., kegs, 50 lbs. or more	lb.	2.4
Camphor, synthetic, dom., tech., gran., powd., drums, ton lots	lb.	.442
Carbazole, 95%, drums, ton lots, wks.	lb.	.70
Carbon bisulfide, drums, c/l.	lb.	.05
Black, reg., uncomp., bgs., c/l., works	lb.	.03625
Dioxide, liq., cyl.	lb.	.06
Tetrachloride, drums, c/l., frt. allowed	gal.	.73
Casein, dom., acid-precip., 100 bg. lots, shipping point	lb.	.33
Cerium oxalate, U.S.P., bbls., wks.	lb.	.35
Charcoal, willow, powd., bbls.	lb.	.06
China clay, bulk, c/l., wks.	ton	7.60
Chloral hydrate, drums	lb.	.90
Chlorine, liq., c/l., cyl., dlvd.	lb.	.05¼
tanks, wks., frt. equal.	100 lbs.	1.75
Chlorobenzene, mono-, drums	lb.	.05½
Chloroform, tech., drums	lb.	.20
Chromium acetate, 24%, powd., bbls.	lb.	.32
Coal, crude, bbls., c/l., wks.	bbl.	8.25
Cobalt oxide, black, kegs	lb.	1.84
Copper carbonate, 52–54%, bbls.	lb.	.19½
Chloride, cryst., bbls.	lb.	.14¾
Cyanide tech., bbls.	lb.	.34
Metal, elec.	lb.	.12
Oxide, black, bbls., tons, wks.	lb.	.19
Sulfate, bags, c/l., wks.	100 lbs.	5.00
Copperas, cryst., bulk, c/l., wks.	ton	14.00
Cream of tartar, bbls.	lb.	.51½
Cresol, U.S.P., drums, c/l., wks.	lb.	.11¼
Crotonaldehyde, 97%, c/l., wks.	lb.	.15
Cyanamide, 21% N, pulvd., works, contracts	unit-ton	1.52½
Diamyl phthalate, tanks	lb.	.2070
Diatomaceous earth, dom., purif., bags, c/l., Atlantic Seaboard	ton	55.00
Dibutylamine, l. c., drums, wks.	lb.	.66
Dibutylphthalate, drums, c/l., wks.	lb.	.2000–.2359
Dibutylsebacate, drums, c/l., wks.	lb.	.50
Tartrate, drums	lb.	.92
Dichloroethyl ether, drums, c/l., wks.	lb.	.16
Diethylamine, l. c. l. drums, wks.	lb.	.46
Diethylaniline, drums	lb.	.40
Diethyleneglycol, drums, c/l., frt. alld. E	lb.	.14½

Monobutyl ether, drums, wks.	lb.	.22
Monoethyl ether, drums, c/l., wks.	lb.	.15½
Diethyl phthalate, drums, c/l.	lb.	.21½
Sulfate, tech., drums, wks.	lb.	.14
Diglycol oleate, light, bbls.	lb.	.17
Dimethylaniline, drums	lb.	.23
Dimethyl phthalate, drums, c/l., dlvd.	lb.	.20
Dinitrobenzene, tech., drums	lb.	.18
Dinitrochlorobenzene, drums	lb.	.14
Dinitronaphthalene, bbls.	lb.	.35
Dinitrophenol, bbls.	lb.	.22
Diphenyl, bbls., c/l., wks.	lb.	.15
Diphenylamine, bbls.	lb.	.25
Diphenylguanidine, drums, ton	lb.	.35
Epsom salt, tech., bags	100 lbs.	1.80
Ether, concn., drums	lb.	.11
Nitrous, bots., 100 lbs.	lb.	.93
Ethyl acetate, 85–90%, tanks, frt. allowed	lb.	.1175
Acetoacetate, drums, c/l., wks.	lb.	.37½
Bromide, drums	lb.	.50
Chloride, drums	lb.	.18
Formate, drums, wks.	lb.	.26
Methyl ketone, drums, E. of Rockies	lb.	.09
Ethylene dichloride, drums, c/l., wks., frt. allowed	lb.	.0842
Glycol, drums, c/l., frt. alld. E.	lb.	.10
Monobutyl ether, drums, wks.	lb.	.17½
Monoethyl ether, drums, wks.	lb.	.16½
Monomethyl ether, drums, wks.	lb.	.16½
Feldspar, 20 mesh, bulk, wks.	ton	9.75
Film scrap colors, dk., cs., 1000 lbs., E. wks.	lb.	.13½
Fluorspar, washed gravel, 70% or more CaF_2, mines	ton	33.00
Formaldehyde, tanks	lb.	.0320
Fuller's earth, bags, c/l., mines	ton	8.50
Furfural, tech., tanks, f. o. b. works	lb.	.09½
Glauber's salt, bbls., c/l.	100 lbs.	1.05
Glycol boriborate drums	lb.	.22
Stearate, drums	lb.	.26
Hexamethylenetetramine tech., drums	lb.	.24
Hydrogen peroxide, 100 vol., cbys., c/l.	lb.	.15½
Hydroquinone, drums	lb.	.90
Indigo, synth., paste, bbls.	lb.	.16½
Iodine, resubl., jars	lb.	2.00
Iodoform, drums, 100 lbs.	lb.	3.95
Iron acetate soln., N. F. IV, cbys.	lb.	.17
Iron chloride, tech., cryst., bbls., wks., frt. allowed	lb.	.05
Isopropyl acetate, tanks, frt. allowed E. of Rockies	lb.	.10
Lead acetate, white broken, bbls.	lb.	.12½
Arsenate, basic powder, bags, c/l.	lb.	.14
Metal, N. Y.	lb.	.0825
Oxide, litharge, bbls., c/l., N. E.	lb.	.1025
Peroxide, powd., tech.	lb.	.23
Red, bbls., c/l., N. E.	lb.	.1125
Sulfate, bbls., c/l., N. E.	lb.	.0720
White, basic carb., bbls., c/l., N. E.	lb.	.0975
Lecithin, edible, drums, c/l.	lb.	.24¼
Tech., dms., c/l.	lb.	.25¼
Lithopone, ordinary, bbls., c/l.	100 lbs.	.0465
Magnesite, calcined, bags, mines	ton	58.75
Magnesium carbonate, tech., bags, c/l.	lb.	.06¼
Chloride, drums	ton	32.00
Fluosilicate, cryst., bbls.	lb.	.18
Oxide, light, bbls.	lb.	.26
Maleic anhydride, drums, c/l.	lb.	.25
Manganese chloride, bbls.	lb.	.15
Dioxide, 85–90%, bbls., c/l., wks.	ton	74.00
Manganese sulfate, indus., bags., wks.	lb.	.05
Mannitol, commercial, bbls., wks.	lb.	.35
Menthol, synthetic, U.S.P., racemic, cans	lb.	6.10–6.20
Mercury, flasks, 76 lbs.	flask	98.00–99.00
Mercury bichloride, gran., powd., drums, 50 lbs. or more	lb.	2.01
Meta-phenylenediamine, kegs	lb.	.65
Meta-toluylenediamine, kegs	lb.	.70
Methanol, synthetic, drums, frt. allowed, c/l.	gal.	.31
tanks, frt. allowed	gal.	.24
Methylacetate, 97–99%, tanks	lb.	.10½
Chloride, cylinders	lb.	.32
Formate, drums	lb.	.89
Hexylketone, drums, tech., wks.	lb.	.60
Salicylate, drums	lb.	.35
Monoamylamine, 100% basis	lb.	.61
Monoethanolamine, drums, frt. alld. E.	lb.	.24
Monoethylamine, l. c. l. drums, wks., 100% basis	lb.	.18
Naphthalene, crude, dom., 74 deg., bags, c/l., frt. equld.	100 lbs.	3.00
Nickel salt, single, bbls.	lb.	.13
Niter cake, bulk	ton	16.00
Nitrobenzene, drums	lb.	.08
Nitrocellulose, ester-sol., 30–35, ¼, ½ sec., bbls., wks.	lb.	.26
Nitromethane, drums, l. c. l., wks.	lb.	.25
Octanol, normal, drums, dlvd.	lb.	.85
Oil, castor, No. 3, tanks	lb.	.14
Coconut, crude, tanks	lb.	.0841–.0885
Cod, Newf., drums	gal.	.88
Corn, crude, tanks, mills	lb.	.12¾
Cottonseed, cooking, drums, l. c. l.	lb.	No prices
Linseed, raw, tanks	lb.	.1680
Menhaden, crude, tanks, f. o. b. Baltimore	lb.	.0890
Neat's-foot, pure, bbls.	lb.	.22
Oiticica, drums	lb.	.25½
Oleo, No. 1, bbls.	lb.	.18½*
Olive oil, edible, Calif., drums	gal.	4.30
Palm, Niger, bbls.	lb.	.0865
Peanut, crude tanks	lb.	.12⅞
Perilla, drums	lb.	No stocks
Rapeseed, bulk	lb.	.13
Red, dist., dms., dlvd.	lb.	.13¼
Soybean, crude, tanks	lb.	.11¾
Sperm, 45°, drums	lb.	.1310
Tung, tanks	lb.	.38⅜
Whale, natural, refined, drums.	lb.	No stocks
Ortho-dichlorobenzene, drums	lb.	.07
Ortho-nitrochlorobenzene, drums	lb.	.15
Ortho-nitrotoluene, drums	lb.	.09
Ortho-toluidine, drums	lb.	.19
Para-dichlorobenzene, drums, c/l.	lb.	.11
Para-formaldehyde, drums	lb.	.21
Paraldehyde, tech., drums	lb.	.12
Para-nitraniline, kegs	lb.	.43
Para-nitrochlorobenzene, kegs.	lb.	.15
Para-nitrotoluene, kegs.	lb.	.30
Para-phenylenediamine, bbls.	lb.	1.25
Para-toluidine, bbls., wks.	lb.	.48
Paris green, dealer, drums, c/l., freight allowed	lb.	.26
Perchloroethylene, drums, c/l., frt. alld.	lb.	.0782
Phenol, U. S. P., drums, c/l., wks.	lb.	.10½
Phenolphthalein, yellow, drums, ton lots	lb.	.80
Phenylethyl alcohol, bottles	lb.	2.30
Phloroglucinol, tech., fiber drums.	lb.	12.00
c. p., fiber drums	lb.	13.75
Phosphorus, red, cases	lb.	.40
Oxychloride, dms., c/l.	lb.	.10½
Trichloride, dms., l. c. l.	lb.	.12½
Phthalic anhydride, bags, c/l., frt. alld. E.	lb.	.13
Platinum, metal, solid	oz.	36.00
Potash, caustic, solid, drums	lb.	.06¼
Potassium acetate, U. S. P., bbls.	lb.	.28
Bicarbonate, gran., bbls.	lb.	.19
Bichromate, casks, c/l., wks.	lb.	.09¾
Bromide, U. S. P., gran., bbls.	lb.	.25
Carbonate, 98–100%, calc., casks	lb.	.06½
Chlorate, cryst., bags	lb.	.11
Chloride, tech., cryst., bgs.	lb.	.08*
Cyanide, drums	lb.	.55
Meta-bisulfite, bbls.	lb.	.19
Muriate, fet., bulk	K_2O unit	.53½
Permanganate, tech., drums	lb.	.19¾
Prussiate, red, bbls.	lb.	.50
Yellow, bbls.	lb.	.16
Pyridine, denat., drums	gal.	1.55
Pyrocatechin, c. p., drums	lb.	2.15
Quinine, sulphate, 100-oz. cans	oz.	.80½
Resoreinol, tech., drums, works.	lb.	.64
Riboflavin, bots.	kilo	150.00
Rochelle salt, powd., bbls., 5000 lbs.	lb.	.42½
Saccharin, drums	lb.	1.30
Salt cake, bulk, wks.	ton	15.00
Saltpeter, gran., bbls.; 10–20 tons	100 lbs.	8.20
Silica, amorph., 96%, 325 mesh, bags, c/l., wks.	ton	17.00
Silver nitrate, bots., 2,500 oz. lots	oz.	.58¼–.59
Soda, ash, 58%, light, paper bags, contract, wks.	100 lbs.	1.05
Caustic, 76%, solid, drums, contract, wks.	100 lbs.	2.30
Sodium acetate, flake, 60%, bbls.	lb.	.05½
Alginate, drums	lb.	.79
Antimoniate, bbls.	lb.	.15
Benzoate, U. S. P., bbls.	lb.	.46
Bicarbonate, U. S. P., gran., bbls., c/l., wks.	100 lbs.	2.10
Bichromate, bbls., c/l., wks.	lb.	.07⅜
Bisulfite, bbls.	100 lbs.	3.00
Bromide, U.S.P., bbls.	lb.	.25
Chlorate, cryst., bags	lb.	.06¼
Chloride, bags	ton	15.70
Cyanide, 96–98%, dom., drums	lb.	.14½
Fluoride, 90%, bbls., c/l., wks.	lb.	.07
Metasilicate, gran., bbls.	100 lbs.	2.50
Naphthionate, bbls.	lb.	.50
Nitrate, crude, bulk, works	ton	27.00
Nitrite, bbls.	lb.	.06¾
Perborate, bbls.	lb.	.14¾
Phosphate, disodium, cryst., bags, c/l., wks.	100 lbs.	2.55
Phosphate, trisodium, bags, c/l., wks.	100 lbs.	2.70
Picramate, kegs	lb.	.65
Prussiate, yellow, bbls.	lb.	.10
Silicate, drums, c/l., 40°	100 lbs.	.80
Silicofluoride, dom., bbls., c. l., works.	lb.	.06½
Stannate, drums	lb.	.32½
Sulfate, anhyd., bags	100 lbs.	1.70
Sulfide, cryst., bbls.	100 lbs.	2.40
Solid, 60%	100 lbs.	3.15
Sulfocyanide, c. p., bbls.	lb.	.55
Thiosulfate, reg., cryst., bgs.	100 lbs.	2.25
Tungstate, tech., kegs	lb.	1.35
Solvent naphtha, tanks, c/l.	gal.	.22
drums.	gal.	.27
Strontium carbonate, tech., bbls.	lb.	.14
Nitrate, bbls.	lb.	.07¾
Sulfur, bulk, mines	ton	16.00
Chloride, drums	lb.	.05
Dioxide, commercial, cyl., c/l., wks.	lb.	.07
Tetrachlorethane, 50-gal. drums	lb.	.08
Thiamine hydrochloride, bots.	kilo	160.00
Thiocarbanilid, drums	lb.	.24
Tin, Straits	lb.	.52
Crystals, bbls.	lb.	No stocks
Oxide, bbls.	lb.	.54
Tetrachloride, anhydrous, drums, works.	lb.	.31
Titanium dioxide, bags, c./l.	lb.	.14½
Toluol, tanks	gal.	.22
drums.	gal.	.27
Triamylalcohol from pentane, frt. allowed	gal.	1.31
Triamylamine, drums, c/l., wks.	lb.	.98
Tributylamine, drums, c/l., wks.	lb.	.78
Trichloroethylene, drums, wks., frt. allowed	lb.	.08
Tricresyl phosphate, tech., drums, c/l.	lb.	.25
Triethanolamine, drums, c/l., frt. alld. E.	lb.	.19½
Triethylamine, drums, l. c. l., 100%, wks.	lb.	.36
Triphenyl phosphate, barrels	lb.	.31
Tungsten, tech., powder, drums, wks.	lb.	2.60
Urea, dom., 46% N., bags, wks.	ton	68.00
Vanillin, ex guaiacol, 25-lb. tins	lb.	2.35
Whiting, comm., dry-grd., bags, c/l., wks.	ton	18.00
Xylidine, drums	lb.	.35
Xylol, coaltar, indust., E. of Omaha, tanks.	lb.	.26
drums.	lb.	.27
Zinc ammonium chloride, drums, c/l.	lb.	.0565
Chloride, tech., fused, drums.	lb.	.05
Metal slabs, at N. Y.	lb.	.0866
Oxide, Amer., bags	lb.	.0725
Stearate, tech.	lb.	.34½
Sulfate, cryst., bgs., c/l., wks.	100 lbs.	3.40

* Nominal.

EMPLOYMENT INFORMATION

RATES to be paid in advance. Standard setting 10c a word, minimum charge $2.00 each; include 8 words for box address. Exceptions as noted below. Display, 3 inches maximum, $20.00 per column inch; larger units at regular display rates. No discounts or allowances.

SEND advertisements with remittance to CHEMICAL and ENGINEERING NEWS, 332 West 42nd St., New York 18, N. Y., to reach there not later than the deadlines of 10:00 A.M. on the 17th preceding the date of publication for the issue of the 10th, and on the 2nd for the issue of the 25th. Correct remittance must accompany instructions and copy and advertisements will be inserted in sequence of completed orders.

EMPLOYERS are requested to mention in their announcements the section of the country in which the open position is located to ensure replies only from those who are geographically available.

In printing these advertisements the SOCIETY assumes no obligations as to qualifications of prospective employees or responsibility of employers.

Those replying to announcements should send copies and not original documents. Advertising circulars will not be forwarded and to that end all letters will be opened at the forwarding office.

UNEMPLOYED members of the AMERICAN CHEMICAL SOCIETY seeking employment for themselves are allowed in one calendar year 3 standard announcements* free (one per issue) and 3 more at 50% of regular rate. Excess words and further announcements at full rate.

EMPLOYED members of the SOCIETY seeking new positions are permitted 8 standard announcements* (one per issue) during the calendar year at 50% of the regular rate.

Courtesy demands that those seeking positions acknowledge receipt of communications they receive from employers even if not interested in the offer made.

EMPLOYERS are permitted 3 standard announcements* (one per issue) during the calendar year without charge (excess words 10c each) provided they agree in writing to acknowledge all replies, otherwise full rate applies.

* Standard announcement — 42 word text plus 8-word box address.

The AMERICAN CHEMICAL SOCIETY has no information concerning the position advertised, or in regard to those seeking employment.

The AMERICAN CHEMICAL SOCIETY is vitally interested in the welfare of its members and in seeing that the chemical industry is manned with competent chemists and chemical engineers. These pages are part of our service in that connection. In addition, many of the local sections of the AMERICAN CHEMICAL SOCIETY have employment committees.

REGIONAL EMPLOYMENT CLEARING HOUSES—(1) 3rd Floor, 1155 Sixteenth St., N.W., **Washington 6, D. C.**; (2) Room 153, Chemistry Annex, Georgia School of Technology, 3rd and Fowler Sts., **Atlanta, Ga.**; (3) Room 503, Boston University, 84 Exeter Street, **Boston 16, Mass.**; (4) Room 541, 410 So. Michigan Ave., **Chicago 5, Ill.**; (5) Room 212, Chemistry Department, Rice Institute, **Houston 1, Texas**; (6) Room 93, 50 E. 41st St., **New York 17, N. Y.**; (7) 585 Howard St., **San Francisco 5, Calif.** Files in all repositories are duplicates; employers should visit whichever is most convenient. Members and student affiliates wishing to register can do so by mail; write to the Washington office for forms.

SITUATIONS OPEN

Those announcements in which the letter "p" is part of the box number have paid in full and are not committed to acknowledge replies. The SOCIETY regards acknowledgment by employers of all applications as an act of courtesy but can assume no responsibility for their failure to do so.

PHYSICAL AND INORGANIC CHEMISTS

Wanted for responsible positions in research program. Should have Ph.D. or equivalent in research experience. Send outline of personal data, education, work history and salary expectation to: Carbide and Carbon Chemicals Corporation,

Employment Department,
P. O. Box P.,
Oak Ridge, Tennessee

ORGANIC CHEMIST: Attractive openings for several young Ph.D.'s current graduates, to conduct research on new products in field of chlorinated hydrocarbons, plastics, insecticides, specialties, etc. Permanent positions in enlarged research program of established Middle-East chemical manufacturer. Opportunity for advancement according to ability. Supply complete data on training and experience and include recent snapshot.
Box 39–NP–6, Chem. & Eng. News, Easton, Pa.

BACTERIOLOGIST: A.B. or M.A., needed by upstate New York pharmaceutical manufacturer for research work. Send résumé with photograph.
Box 51–TP–7, Chem. & Eng. News, Easton, Pa.

BIOCHEMIST and nutritionist to supervise and plan animal nutrition research in poultry and small animals. Replies will be kept confidential. Write
Ralston Purina Company, 835 South 8th St., St Louis 2, Missouri.

EXECUTIVE ASSISTANT

Well trained man with few years of broad research experience for attractive position as assistant to major executive in established company with large research organization. Must be energetic, resourceful, have good judgment.

Box 54–TP–8, Chem. & Eng. News, Easton, Pa.

CHIEF CHEMIST: Mature organic chemist with industrial experience in colloids; also, if possible, thermoplastic resins and plasticizers; as chief chemist for large plant in New England. Attractive salary and incentive bonus. In replying, please furnish complete information including education, experience, salary, and a recent photograph.
Box 17–TP–7, Chem. & Eng. News, Easton, Pa.

FOR DISCERNING PLACEMENT in the Midwest write:
Tom Coffer, Employment Counsellor, 20 W. Jackson Boulevard, Chicago 4, Illinois.

ORGANIC CHEMIST trained in dye stuffs and intermediates to engage in organic research work. Experience desirable, not necessary. Steady position — post war — with company doing essential work. State whether Ph.D., Masters or equivalent, age, experience and salary expected.
Box 127–TP–8, Chem. & Eng. News, Easton, Pa.

CHEMIST OR Bacteriologist, B.S. or M.S. for literature and patent searches, midwestern Pharmaceutical house, young woman preferred. In answering please give data pertaining to courses in chemistry especially organic. Knowledge of organic chemistry is essential for this position.
Box 31–N–8, Chem. & Eng. News, Easton, Pa.

WOMEN CHEMISTS
with Secretarial Training
and
TECHNICAL SECRETARIES

Connecticut industrial research laboratory within commuting distance of New York City has openings for permanent positions in patent work; in report writing, abstracting, and making literature searches; and in administrative offices. Please give details of education and experience and include a recent photograph.

Box 33–TP–8, Chem. & Eng. News, Easton, Pa.

MAJOR OIL company requires the services of six to eight experienced chemical or mechanical engineering graduates for its process engineering department. Applicants should be thoroughly familiar with the design of all types of refinery equipment, including pipe stills, thermal and catalytic cracking equipment, lubricating oil refining equipment, etc., with from four to ten years' experience in this type of work. Plant experience desirable. Salary commensurate with experience. Furnish complete outline of technical education, experience, previous employers, salaries received, references, and photograph.
Box 36–NP–8, Chem. & Eng. News, Easton, Pa.

EXECUTIVES, CHEMICAL ENGINEERS AND CHEMISTS with exceptional backgrounds of experience should use our confidential and individual method of contacting responsible employers. No limit to territory. We negotiate all overtures. Established 1915.
The National Business Bourse, 20 W. Jackson Blvd., Chicago, Ill.

LIBRARIAN: Young woman with college training in both chemistry and library science to handle abstracting, indexing, compilation of bibliographies and conduct of literature and patent searches of organic and inorganic chemicals. Ability to translate German desirable. In first letter give full details of education, experience, include salary expected, references, and recent photograph.
Box 19–NP–8, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMISTS

Two men required for research in the chemistry of solvents. No experience necessary.

BURGESS BATTERY COMPANY
Freeport, Illinois

ASSISTANT PROFESSOR: Christian College in Eastern Pennsylvania has a position for an Assistant Professor qualified to teach undergraduate course in Physical Chemistry—assist in General and Qualitative. Work to begin in September.
Box 44–NP–8, Chem. & Eng. News, Easton, Pa.

DEVELOPMENT WORK: B.S. or M.A. chemist with experience in scientific organic preparations. Nationally known, pharmaceutical manufacturer in pleasant upstate New York community has an opening. Send résumé and photograph.
Box 59–TP–7, Chem. & Eng. News, Easton, Pa.

WANTED: Chemical Engineer or Chemist for development and research in phenolic laminates and cellulose products. Excellent opportunity for advancement. Location: East. In your reply please give a résumé of your experience and education. Please include salary range expected.
Box 37–NP–8, Chem. & Eng. News, Easton, Pa.

WANTED: Analytical Chemist for position in Development Laboratory of an established company engaged in the manufacture of resinous products, paper, and converted cellulose products. Location: East. In your reply please give a résumé of your experience and education. Please include salary range expected.
Box 21–NP–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEERS

Development and pilot plant manufacturing of electrical insulating materials. Unusual aptitude for original work required, coupled with mental alertness and high order of initiative. Prefer Ph.D. or M.S. degree, or experience equivalent. For application address

WESTINGHOUSE ELECTRIC CORPORATION
Manager, Technical Employment,
306 Fourth Avenue,
Pittsburgh, Pennsylvania

(Continued on page 2432)

PHYSICAL CHEMIST
OR
CHEMIST
ELECTRON TUBES

WANTED—for development work on electron tube processes and materials involving investigations on cleaning, plating, metallurgy, phosphors screen applications and similar problems associated with development of new types of Cathode Ray tubes, phototubes, thyratrons, transmitting tubes, etc. Good starting salary with excellent opportunities; new air conditioned laboratory with excellent development facilities. 40 hours, 5 day week.

Applicant should have a Bachelor's degree with additional education or industrial experience desirable. Location: RCA Tube Department, Lancaster, Pa.

Write to National Recruiting Office, RCA Victor Division, Camden, N. J.

CHEMISTS: Middle-Atlantic manufacturer of heavy inorganic and organic chemicals has openings as assistants in an expanding research program for several recent or current graduates. Excellent opportunity for capable young B.S. degree men interested in this field. In replying supply details of training and experience, and include non-returnable photograph.
Box 11–NP–6, Chem. & Eng. News, Easton, Pa.

FORMULATOR

Experienced in printing inks, industrial finishes, and various types of consumer products such, perhaps, as bleaches, detergents, cleaners, etc. Excellent working conditions.
Please submit full vitae and cheap non-returnable photo to

MIDWEST RESEARCH INSTITUTE
Attn.: C. M. Marberg
4049 Pennsylvania Ave.
Kansas City 2, Missouri

FOR RESEARCH, Control, Production, Sales Service and Executive positions in the Chemical and related Industries, Register with Chemical Department, Position Securing Bureau (Agency), 45 John Street, New York.

WANTED: Recent graduate in chemistry for position in Research Laboratory in Division of large organization located in Northern New Jersey. Experience in physical chemistry and phase rule essential. Some knowledge of microscopy desirable. Permanent.
Box 58–TP–8, Chem. & Eng. News, Easton, Pa.

DESIGN ENGINEER

Prominent chemical manufacturing company desires competent mechanical or chemical engineer experienced in plant design and layout. Applicant must be capable of taking direct charge of design group located in New York City, and must have resourcefulness and ability to visualize engineering problems involved in a major midwestern inorganic chemical industry in initial stage of development. Unusual opportunity to advance as operations expand. Please furnish complete details of education, experience, availability and salary.

Box 63–NP–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER with experience in pharmaceutical production and engineering—especially penicillin and anti-biotic materials—needed immediately—substantial salary plus royalty—opportunity for right man.
T.E., 31 South Street—New York 4, N. Y.

CHEMIST: Responsible position, experienced with resins, elastomers, adhesives, including pressure sensitive types, surface coating & impregnation experience on paper & cellulosis films desirable. Location, Metropolitan New York area.
Box 57–TP–8, Chem. & Eng. News, Easton, Pa.

PHYSICAL CHEMIST with sound training in the theory and practical application of spectroscopy including infra-red and x-ray diffraction. Responsible position as group leader in research division of large organization. Reply in full indicating salary requirements and include recent photograph.
Box 68–TP–8, Chem. & Eng. News, Easton, Pa.

CHEMIST FOR research department of major producer of heavy chemicals in metropolitan Detroit. Position requires a man of research caliber with good background of education and some experience in inorganic chemistry, including special knowledge of paper chemistry with emphasis on paper coatings. Opportunity for fundamental research and practical application of results. Reply in full indicating salary requirement and include recent photograph. Applications will be held in confidence.
Box 76–TP–8, Chem. Eng. News., Easton, Pa.

TECHNICAL LIBRARIAN

Competent librarian wanted to take charge of new library and expand technical library services. Chemistry major with formal library training, age 22–35, preferred.

Southern Research Institute, Birmingham, Alabama.

CHEMICAL OR Process Engineer: Age about 35. With diversified experience who leans toward small company operations. This man should have a fundamental background of chemistry and chemical engineering and at least 10 years of active work in the chemical industry. Must be able to get along with both theoretical and practical personnel, and be able to lead a group and work with this group in the improvement of chemical processes. Salary commensurate with qualifications and experience. Plant located in Virginia.
Box 84–TP–8, Chem. & Eng. News, Easton, Pa.

TWO GRADUATE industrial fellowships for men, leading to Ph.D., in soil, fertilizer and plant chemistry. Annual stipend, $1,000 plus tuition and fees. Full time available for study and research. Applicant should hold Master's degree. Begin immediately. Send personal data, transcript, photograph and recommendations to T. F. Buehrer, Dept. of Agricultural Chemistry, University of Arizona, Tucson, Arizona.

ORGANIC CHEMISTS: Openings for Ph.D.'s in Research and Process Developments of expanding, progressive firm. Intermediates, dyestuffs, pigments. Northern New Jersey location.
Box 17–TP–8, Chem. & Eng. News, Easton, Pa.

DESIGN ENGINEER: Experienced Plant Layout—Piping layout Permanent—Bklyn, N. Y. Manufacturer. State full particulars.
Box 18–TP–8, Chem. & Eng. News, Easton, Pa.

WANTED: Chemist or Chemical Eng. for position with Veneer & Plywood Plant in Northern Wis. Some knowledge of glues and wood technology desired but not necessary. Good opportunity for ambitious man. In reply please give training, experience & personal information.
Box 14–TP–8, Chem. & Eng. News, Easton, Pa.

EXPERIENCED METALLURGIST and inorganic analytical chemist. Industrial research laboratory within commuting distance of New York. Please describe experience, education, and salary desired.
Box 21–TP–8, Chem. & Eng. News, Easton, Pa.

INDUSTRIAL CHEMICAL Engineer to study chemical and packaging problems in fine chemical and pharmaceutical plant. Location near New York in New Jersey. Give all necessary data.
Box 39–TP–8, Chem. & Eng. News, Easton, Pa.

WANTED: Organic Chemist. Young Ph.D. current graduate for development work in plastics on special type resins and related analytical methods. Knowledge and training organic technology and theoretical physical chemistry desired—location Northern New Jersey. Supply full personal data on training, experience and salary desired.
Box 40–TP–8, Chem. & Eng. News, Easton, Pa.

MICROANALYST: Midwestern pharmaceutical company wishes to employ immediately a microanalyst. Salary commensurate with training.
Box 45–TP–8, Chem. & Eng. News, Easton, Pa.

CHEMIST OR CHEMICAL ENGINEER: For pilot plant (Oconomowoc, Wis.) development work on dairy products. Write
Carnation Company, Research Laboratories, 2344 N. Oakland Ave., Milwaukee 11, Wis.

ENGINEERING DESIGNERS

Men experienced in preparation of engineering design drawings in one or more of the following:

STRUCTURAL STEEL
PRESSURE VESSELS
PIPING
REINFORCED CONCRETE

This engineering work is in connection with OIL REFINERY PLANTS.

5-day, 40-hour week, with time and one-half over 40 hours. Holiday pay.

State your qualifications, experience, age and salary expected. Write for application or apply in person.

Arthur G. McKee & Co.
2300 Chester Ave.
Cleveland, Ohio

BIO-CHEMIST or ORGANIC CHEMIST: Age 25 to 30: to conduct research in amino acid and vitamin analysis. College graduate, plus post-graduate training and research experience. Send qualifications and snapshot to:
Ralston Purina Company, 835 S. 8th St., St. Louis, Missouri.

CHEMICAL ENGINEERS: Several young men with B.S. or M.S. degrees for pilot plant and design work in Research Department of long established chemical manufacturer. Current graduates or men with year or two of industrial experience will be considered. Attractive openings for high caliber men with opportunity for advancement commensurate with ability. Location in Middle-Atlantic area. Supply full personal data with particulars on training and experience, and include non-returnable photograph.
Box 20–NP–6, Chem. & Eng. News, Easton, Pa.

PHYSICAL CHEMISTS: Several openings are available in the research organization of an established manufacturer of organic and inorganic chemicals. Attractive opportunity for young Ph.D. men with recent graduate training. Location in Middle-Atlantic area. Supply full particulars, including training and experience, and include recent snapshot.
Box 54–NP–6, Chem. & Eng. News, Easton, Pa.

WANTED: Chemists and Chemical Engineers for position in Process Control Work in Pigment Manufacturing division of a large organization, plant located in Central New Jersey. Position permanent.
Box 10–NP–9, Chem. & Eng. News, Easton, Pa.

CONSULTING SERVICES ON VINEGAR: Well established eastern company wants consulting services on 120 grain distilled vinegar. In reply please state vinegar experience and give your ideas on consulting arrangements, fees, and so on. All replies will be acknowledged and held strictly confidential.
Box 11–NP–9, Chem. & Eng. News, Easton, Pa.

NEW ENGLAND college invites applications for instructorship in General Chemistry. Master's degree. Salary depends on qualifications. Applications should give references, training, experience, salary expected, and include recent photo. Work begins in September.
Box 12–NP–9, Chem. & Eng. News, Easton, Pa.

PHARMACEUTICAL CHEMIST: Ph.D. or equivalent training required. Permanent research position with well-known pharmaceutical house in Connecticut. Submit details of education, experience and salary.
Box 14–NP–9, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMISTS

A newly organized High Polymer Research Division planning rapid expansion requires a number of organic chemists, preferably with advanced degrees. Positions offer excellent opportunities. Experience in addition and condensation polymerization preferred but not required. Position also available for organic analytical chemist. Address complete details to:

Manager, High Polymer Research, Industrial Rayon Corp., W. 98th and Walford Ave. Cleveland, O.

(Continued on page 2433)

RUBBER TECHNOLOGIST

Graduate Chemist or Engineer with experience in either rubber processing plant or laboratory to work in Technical Sales organization of large Eastern Chemical Manufacturer. Prefer man 25 to 30 years old. Will involve limited foreign travel in future. Personality suitable for technical sales contacts necessary. State age, marital status, details of education, experience, draft status, present salary and salary expected.

Box 38-TP-8,
Chem. & Eng. News, Easton, Pa.

VARNISH MANUFACTURER desires services of two intelligent and ingenuitive chemists. Varnish experience not necessary. Opportunity for advancement. Send full details, photo and salary expectation to
Box 15-NP-9, Chem. & Eng. News, Easton, Pa.

CHEMIST OR CHEMICAL ENGINEER: Young man with a B.S. degree or higher, preferably from a southern college or university, for development work on leather manufacture. Should enjoy living in the south. State details of training, experience, salary expected, etc.
Box 16-N-9, Chem. & Eng. News, Easton, Pa.

ELECTRON MICROSCOPIST

Ph.D. degree and minimum of two years' research experience essential. Location metropolitan area. Please apply by letter, stating experience and salary requirements to Technical Personnel Department.

Celanese Corporation of America
180 Madison Avenue, New York 16, N. Y.

PROJECT ENGINEER: Capable of handling all phases of chemical engineering work on new development projects. Excellent opportunity in new division of a New Jersey chemical company.
Box 18-NP-9, Chem. & Eng. News, Easton, Pa.

EXPERIENCED physical chemists or chemical engineers to work on the Atomic Energy Research Project. Applicants should have a Ph.D. degree and should be interested in doing research on nuclear chain reacting pile problems. In reply, please submit college transcripts, reference letters from past research supervisors, list of technical publications, personal data, and salary desired to
Personnel Department, Argonne National Laboratory, 5200 Cottage Grove, Chicago, Illinois.

LIBRARIAN WANTED: Female — experienced in literature searches. Ph.D. or M.A. degree preferred. Research laboratory of plant manufacturing organic chemicals located metropolitan Detroit. Ability to type desirable. Permanent position. Write giving education, experience, references, salary desired.
Box 29-NP-9, Chem. & Eng. News, Easton, Pa.

AMMONIA PRODUCTION ENGINEERS

Needed for large ammonia plant in West Virginia. Only men with considerable experience in operation of ammonia plants, gas generation, purification, compression synthesis required. Must be able to take charge of the operation of any or all of the above departments and the training of personnel. Salary commensurate with experience and qualifications.

CHIEF CHEMIST

To take charge of control analyses in ammonia production. Also,

ANALYTICAL CHEMISTS

With or without experience in control analyses for this facility. Replies should include complete résumé of past experience and salary expected.

Box 59-NP-9, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST: For position in Research Department of large well-known eastern plastics concern. Excellent opportunity for man of good training and exceptional ability. Applicant preferably under 30 years of age. In reply give age, degrees, approximate scholastic standing, experience, references, salary desired, and attach recent photograph. Interviews can be arranged for Chicago A.C.S. meeting.
Box 21-NP-9, Chem. & Eng. News, Easton, Pa.

PHYSICAL CHEMIST: Recent Ph.D. graduate work with background of nuclear physics, mathematics, organic chemistry—to assume responsibility for research and development work adapting new type powerful ultrasonic generating equipment for industrial scale petroleum depolymerizations, acceleration of intermolecular reactions, etc. Substantial salary for qualified man. Location Cambridge, Mass.
Write: Ultrasonic Corp., 61 Rogers Street, Cambridge, Massachusetts.

PHYSICAL AND ANALYTICAL CHEMISTS

Opportunities open for position with prominent chemical research organization connected with large fine chemical manufacturer located in Northern New Jersey.

Now considering applications of college graduates with master or bachelor degrees, with or without practical experience, to do research work in physical chemical measurements, microanalysis and microscopy.

Include résumé with reply.

Box 67-NP-9, Chem. & Eng. News, Easton, Pa.

UNUSUAL OPPORTUNITY available for Technical Liason men for work between the National Research Council and the Armed Forces, in bio-chemistry, biophysics, organic chemistry, corrosion and electronics. Reply with full details of training, experience and state salary requirements. Photograph desirable.
Room 202, National Academy of Science, 2101 Constitution Avenue, Washington, D. C.

WANTED: Analytical Chemist — preferably with some experience in the analysis of clays or ceramics. Philadelphia vicinity. Send full details regarding age, education, experience, salary expected, draft status. Enclose photograph (not returnable).
Box 27-NP-9, Chem. & Eng. News, Easton, Pa.

RUBBER CHEMIST: Calendering, coatings, adhesives. Compounding. Elastomers and resins. Permanent. New York City. Our staff knows of this opening. Please write in detail.
Box 28-NP-9, Chem. & Eng. News, Easton, Pa.

MICROBIOLOGISTS

Several openings available with prominent research and development organization of large antibiotic and fine chemical manufacturer located in Northern New Jersey.

Applicants must be college graduated with doctorate, master or bachelor degrees. Experience desirable but not essential. Work consists of studies of the mechanism of various microbiological fermentation processes. Vacancies exist in research, development and operation fields.
Include résumé with reply.

Box 66-NP-9, Chem. & Eng. News, Easton, Pa.

DESIGN ENGINEER, Mechanical or Chemical Engineer: Experienced in design and procurement of chemical process equipment. Excellent opportunity in new division of a New Jersey chemical company.
Box 30-NP-9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: To supervise pilot plant and process design work. Several years' experience and M.S., Ph.D., or D.Sc. Degree required. To be responsible for the development of synthetic organic chemical processes and products which have been developed in the laboratory. Submit complete information on training, experience and other qualifications. State salary desired. Large organic chemical manufacturer. Location, Eastern U. S.
Box 31-NP-9, Chem. & Eng. News, Easton, Pa.

GRADUATE ASSISTANTSHIPS available for study toward the Ph.D. degree. Stipend $70 per month for either nine or twelve months. Living quarters are available on the campus for graduate assistants.
Chas. E. Waring, Head, Department of Chemistry, University of Connecticut, Storrs, Connecticut.

CREOSOTE & PITCH
TECHNICAL CONSULTANT
TO SALES DEPT.
Must be Ph.D. ORGANIC CHEMISTRY
Thoroughly experienced in
CREOSOTE & PITCH INDUSTRY
Required by
NATIONALLY-KNOWN CORPORATION,
LOCATION: NEW YORK CITY
Write fully, giving experience, education, age and previous earnings.
Box CEN 8631, 113 W. 42nd St., N. Y. 18.

MIDWEST RESEARCH INSTITUTE

4049 Pennsylvania
Kansas City 2, Mo.

invites

inquiries about openings for individuals with interest and accomplishments in various fields, as follows:

BIOLOGY, particularly in the field of plant pathology, the methods of control, testing, and evaluation of materials used for both oily and aqueous sprays.

ENTOMOLOGY, with special attention to the preparation and evaluation of products for insect control.

BIOCHEMISTRY, with emphasis in organic chemistry. A background in amino acids, proteins, and metabolic systems would be helpful, as well as work with sterols and sterol derivatives.

FUELS AND FUEL TECHNOLOGY, in connection with the development of mid-western coals.

CHEMICAL ENGINEERING, with emphasis on training in fluid flow.

FORMULATION, with experience in compounding a wide variety of products, including perhaps some items from the following groups: detergents and antiseptics, paints, printing inks, and coating compositions, household aids.

LIBRARY SCIENCE, to supervise library, prepare bibliographies, abstract bulletins, etc.

EXPLOSIVES, with experience particularly in the compounding of charges for small arms ammunition. A good understanding of the whole field of explosives, and the safe handling of them under laboratory conditions is essential.

Our facilities and equipment are modern and complete. We offer unusually good working conditions, with unique facilities for the professional advancement of our employees.

If you are interested in a change, and believe you might qualify for one of these positions, please send a brief résumé of your personal data, including a small non-returnable photograph and your salary requirements to our

PERSONNEL DEPARTMENT

NUTRITIONAL CHEMIST: Experienced in animal and poultry nutrition to take charge of Research and Production Control Laboratory of Mid-western Feed Manufacturer.
Box 32-NP-9, Chem. & Eng. News, Easton, Pa.

OPPORTUNITY for a Mechanical Engineer with manufacturing and mechanical-production experience. Large manufacturer in smaller eastern Pennsylvania city. Write, giving age, experience, etc.
Box 33-NP-9, Chem. & Eng. News, Easton, Pa.

Developmental Research Chemists

Openings in developmental and research departments of prominent fine chemical and antibiotic manufacturing company located in Northern New Jersey. College graduates with doctorate, master, or bachelor degrees with backgrounds suitable for work in vitamins, antibiotics, and synthetic medicinals are particularly desired. Industrial experience desirable but not required. Include résumé with reply.

Box 23-NP-9, Chem. & Eng. News, Easton, Pa.

CHEMICAL PATENT AGENT: Chemical engineer with 15 years' experience in the fields of petroleum refining, food technology, plastics, paper and textile processing, pharmaceuticals and organic synthetics, seeks a part-time affiliation with a patent law firm or a manufacturer in the Midwest. Prefer a manufacturer desiring the initial organization and maintenance of a patent department.
Box 43-NP-9, Chem. & Eng. News, Easton, Pa.

INDUSTRIAL SOAP MANUFACTURER requires CHEMIST

For development and evaluation of industrial cleaning agents, devising original use tests and assisting in preparation of sales bulletins and manuals. Experience essential. Masters degree desirable. Cincinnati location. Give references, salary requirements and detailed experience in first letter.

FISCHER INDUSTRIES, INC.
Box 96, Station I Cincinnati 29, Ohio

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RUBBER SALES

Nationally known manufacturer of organic chemicals and supplier of the industry is expanding its Rubber Sales Division. Permanent situations are open for men operating out of territorial offices. Only experienced men need apply. Salaries open. All replies confidential. Present Sales and Laboratory personnel know of this advertisement.

Box 56-TP-8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Young man with mechanical ability familiar with operation of roasting and grinding machinery or having several years of experience in the production of heavy chemicals for plant located in the Middle West. Give details of education, experience, salary expected, and enclose recent photograph.
Box 36-NP-9, Chem. & Eng. News, Easton, Pa.

PHARMACEUTICAL PRODUCTION MANAGER: Southern California ethical pharmaceutical firm requires pharmacy graduate with adequate experience in general line of products. Good future. In reply outline education, experience and salary desired. All replies confidential.
Box 38-N-9, Chem. & Eng. News, Easton, Pa.

SPECTROSCOPIST

Spectroscopist to work on emission, absorption, ultraviolet, infra-red, raman and fluorescence spectra; analytical applications and fundamental research.

ARMOUR RESEARCH FOUNDATION
35 West 35rd Street
Chicago 16, Illinois

CEREAL CHEMIST wanted by a large national cereal manufacturer for research, product development and product control work. Age 25-35. B.S. in Chemistry or Food Technology required, prefer M.S. or Ph.D. Five years' experience in food analysis or research desired. Location in mid-west. Splendid opportunity for a capable man. Please send complete details together with snapshot.
Ralson Purina Company, 835 South Eight Street, St. Louis 2, Missouri.

PAINT CHEMIST

For responsible position on product development. Previous well grounded experience in formulation of automotive finishes essential.

CHEMICAL ENGINEERS

For training in product development work with opportunity for promotion to important production engineering or supervisory positions. Previous experience desirable but not necessary.

Replies will be held confidential and must include personal information, education, experience, salary required and small photo.

M. G. Bell, Technical Director,
Ditzler Color Division,
Pittsburgh Plate Glass Company,
8000 West Chicago,
Detroit 4, Michigan

RESEARCH CHEMIST: For Wood Utilization in Vermont. Salary $2500-$3000 depending upon qualifications. Apply
Vermont Bureau of Industrial Research, Norwich University, Northfield, Vermont.

INSTRUCTOR WANTED: Immediately, for general chemistry, possibly other courses with Southwestern State University. Salary $2400 for nine months. M.S. and experience required. Send full details with recent non-returnable photograph.
Box 42-NP-9, Chem. & Eng. News, Easton, Pa.

LACQUER CHEMIST with broad formulating background and research ability wanted by Eastern manufacturer. Knowledge of synthetic enamels desirable. Excellent opportunity for high calibre man. In reply give age, references, salary expected, and summary of past experience. Enclose photograph if available. Replies confidential.
Box 40-N-9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: For pilot plant and process design work. M.S. degree desired. To handle projects for the development of synthetic organic chemicals. A thorough knowledge of the technical phases of chemical engineering is necessary. Good opportunity for advancement. Submit complete information on training, experience and other qualifications. State salary desired. Large organic chemical manufacturer. Location, Eastern U. S.
Box 46-NP-9, Chem. & Eng. News, Easton, Pa.

INORGANIC OR PHYSICAL CHEMIST, B.S. or M.S. Experience in high vacuum technique and in handling of highly purified chemicals desirable. Fundamental research, excellent working conditions, N. Y. area. Please state education, experience, availability, expected salary, etc.
Box 47-NP-9, Chem. & Eng. News, Easton, Pa.

RUBBER AND RESIN CHEMISTS

Academically qualified organic or physical chemists, chemical engineers, or physicists to conduct research in rubbers, resins, and allied fields. Research experience desired but not necessary. Excellent future for properly qualified applicants. Write today to

Battelle Memorial Institute
505 King Avenue Columbus 1, Ohio

ANALYTICAL CHEMIST: Research laboratory in New England investigation water-repellents, dyes and dyeing, textile printing and finishing, requires competent man for development of analytical procedures, product evaluation, photomicroscopic work, etc.
Box 50-N-9, Chem. & Eng. News, Easton, Pa.

PHYSICAL CHEMIST: Recent Ph.D. preferred. Post-doctoral fellowship for study of physical chemistry of sucrose solutions, including process of crystallization. Send qualifications, including references and recent photograph, to: Dr. Frank T. Gucker Jr., Department of Chemistry, Northwestern University, Evanston, Illinois.

SEVERAL OPENINGS for well qualified Physical Chemists in exceptionally well equipped low temperature laboratory. Fields of research in which openings exist immediately include: Superconductivity; absorption and Raman spectra; computation of thermodynamic data from spectra; thermodynamic properties of gases under pressure, and also high temperature thermodynamics. Other openings likely. Openings include Post-Doctorate Fellowships at $3200 to $3600 per year; Pre-Doctorate Fellowships at $1200 to $1600 per year; and project appointments at various salary levels. Apply to
Professor H. L. Johnston, Department of Chemistry, Ohio State University, Columbus, Ohio, giving age, personal history, training and experience. Include photograph.

CHEMIST: Agricultural background, to investigate the role of minor elements in soils, plants and animals. Full time research at Experiment Station. Salary range $3600 to $4000. Experience in animal and plant nutrition desired. Give details concerning training and experience.
Box 54-NP-9, Chem. & Eng. News, Easton, Pa.

RESEARCH WORK: B.S., M.A. chemist, recent graduate, experience desirable but not essential. Electrochemistry. Nationally known electrical manufacturer has an opening in New Jersey. Send résumé of education and experience; expected salary.
Box 56-NP-9, Chem. & Eng. News, Easton, Pa.

POSITIONS AVAILABLE in Jet Propulsion Research for Physical and Organic Chemists, Physicists, Research Engineers, Mechanical Designers. Several openings exist in the research staff of the Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California. The program includes experimental and theoretical investigations concerned with the chemistry of propellants, combustion, heat transfer and cooling, and problems in mechanical design, all related to rocket and Jet Propulsion. Doctor's degree or equivalent in research or development experience desired. Write to
Personnel Director, California Institute of Technology, JPL—GALCIT, Pasadena, California, giving biographical data, education, experience in research, etc.

CHEMICAL ENGINEERS

Large eastern chemical manufacturer has openings for several outstanding Chemical Engineers, recent college graduates or graduates with industrial experience not exceeding 5 years, who are technically proficient for engineering and process development work. Must have B.S. or M.S. Degree from recognized technical school and personality suitable for varied contacts. Work involves studies and investigations of processing, materials handling, plant equipment, plant layout and cost reduction.

State age, education, experience, marital status, draft status, present salary and salary expected.

Box 38-TP-8
Chem. & Eng. News, Easton, Pa.

RESEARCH ENGINEER: Responsible position with small Corporation engaged in development engineering on aircraft instrumentation and control systems. Background of mechanical engineering or applied physics required.
Address inquiries to Box 388, Richmond, Virginia.

WANTED: Engineer with experience in handling and processing of rubber latex — vicinity New York.
Box 57-NP-9, Chem. & Eng. News, Easton, Pa.

STAFF MEMBERS wanted by chemical engineering department of north eastern state University openings for permanent positions with opportunities for industrial research salary and rank dependent on qualifications.
Box 61-NP-9, Chem. & Eng. News, Easton, Pa.

CHEMISTRY TEACHERS needed for instructing veterans at an extension campus in Brunswick, Maine. Salary open. Describe qualifications fully and give references and state salary expected in first letter.
Address Head of Dept of Chemistry, University of Maine, Orono, Maine.

OPPORTUNITY for man under 27, B.S. in chemistry, who wants to advance with growing research organization. Energy, ambition, intelligence and persistence are needed to solve our difficult but interesting problems in inorganic chemistry. Northern New Jersey. Describe education, experience and expected salary.
Box 64-NP-9, Chem. & Eng. News, Easton, Pa.

Organic Research Chemists

Research Laboratory of national manufacturer of construction materials and allied products has two positions open in its organic chemistry section in the vicinity of New York City. Applicants should be capable of planning and carrying out studies related to the application of organic materials to the Company's products. Knowledge of resins would be useful, but a good background in organic chemistry is more important.

We believe the opportunities in these positions for both research and advancement to be unusual. Please reply with detail on educational background and experience.

Box 26-NP-9, Chem. & Eng. News, Easton, Pa.

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3 GRADUATE ASSISTANTSHIPS: Permit 12 quarter hours of graduate study. Require 15 hours of laboratory and quizz instructions per week. Stipend $600—1 academic year.
Department of Chemistry, Utah State Agricultural College, Logan, Utah.

METALLURGICAL ENGINEER: Duties will involve teaching and research. New modern building and equipment. Salary and rank commensurate with qualifications. Submit small photograph and personal data to:
W. A. Koehler, Department of Chemical Engineering, West Virginia University, Morgantown, W. Va.

SITUATIONS WANTED
(A.C.S. MEMBERS)

COLLEGE or UNIVERSITY POSITION: Ph.D. Physical Chemistry. Ten years' experience teaching general physical, analytical, in Liberal Arts colleges. Publications. Sigma Xi. Desires teaching position with larger opportunities, leading to promotions.
Box 354–T–8, Chem. & Eng. News, Easton, Pa.

INDUSTRIAL RESEARCH & Development Chemist: Qualified for and interested in position as laboratory manager—chemical service—assistant to executive—high calibre organic research—or correlating laboratory and production. Seven years' industrial experience includes manager of research and development laboratory isolation and purification of coal tar products, commercial organic syntheses, plant start-up and catalyst development. B.S. Age 30, Married. Available very short notice.
Box 357–T–8, Chem. & Eng. News, Easton, Pa.

COLLEGE OR UNIVERSITY TEACHING: Ph.D. organic, minor general, including 19 credits in physical. Good background in biology, bacteriology and agriculture. Thirteen years' teaching experience in general, qualitative and organic. Desire better position. Age 45. Health good. Middlewest preferred. Expect to attend Chicago meeting.
Box 353–T–8, Chem. & Eng. News, Easton, Pa.

CHEMIST: M.A.—6 years' fundamental and applied research in physical and inorganic chemistry. Experience includes radiochemistry, radioactive tracer methods, chemical kinetics, equilibrium studies, inorganic synthesis, process development work. Patents, Phi Lambda Upsilon. Age 31. Desires permanent research position. $4000.
Box 303–T–8, Chem. & Eng. News, Easton, Pa.

TEACHING OR RESEARCH: Ph.D. 6 years of teaching biochemistry, organic, inorganic, analytical chemistry, clinical laboratory methods. 9 years of industrial research. Experience in animal hematology and biochemistry. Numerous publications. Permanent position in Greater Boston Area.
Box 307–T–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER; 28. Married. Bachelors Degree 1942. One year's experience in distillation, drying processes. Desires position with good chemical company. Salary of secondary importance to opportunity. Location — anywhere.
Box 308–T–8, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.S. 1944. Age 24, Protestant, married. Summer months, experience in industrial chemistry. Two years Army, assigned to field of electrical engineering. College record gives indication of research ability. Desire position in South. Good references. Available on short notice.
Box 310–T–8, Chem. & Eng. News, Easton, Pa.

MATURED ANALYST seeks conversion from limited specialization to general usefulness. Offers doctorate, teaching, industrial staff, supervisory, professional writing, editorial, and professional organization experience. Exceptionally successful in sustained human contacts. Southwest preferred.
Box 313–T–8, Chem. & Eng. News, Easton, Pa.

RUBBER CHEMIST: Desire research or production position. Considerable experience in development of pressure sensitive adhesives, impregnatives, coatings on papers, and other cellulosic webs. Experienced with synthetic and natural resins and elastomers. Have had charge of moderately sized laboratory. Minimum salary $5200.
Box 315–T–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER AND CHEMIST: B.Sc. in chemistry Sc.D. in chemical engineering from M.I.T. Three years' experience in process design and consultation in organic industry and three years' teaching experience. Seeking post of assistant professor in chemical engineering or chemical engineer either in research or development work.
Box 326–T–8, Chem. & Eng. News, Easton, Pa

ORGANIC CHEMIST: Ex-captain, 3½ years' chemical warfare. 27, married. M.S. pending completion of thesis; desire position in organic research or development. N.Y. or N.J. Available immediately.
Box 330–T–8, Chem. & Eng. News, Easton, Pa.

SALESMAN: Graduate chemical engineer desires technical sales work New York area. Thirteen years' experience organic chemicals, solvents, equipment and minerals. Age 36 years, two years' graduate work organic chemistry. Minimum salary $4800.
Box 342–T–8, Chem. & Eng. News, Easton, Pa.

PLASTICS CHEMIST: B.S. in Ch.E., graduate courses; 15 years' varied experience cellulose and methacrylate plastics; some rubber pressure-sensitive adhesives; process development; supervising; physical testing and chemical control. Prefer New York area.
Box 348–T–8, Chem. & Eng. News, Easton, Pa.

CHEMIST: A.B. in chemistry 1943—2 years' experience in metal analysis and complete analysis of insecticides and fungicides. Desires position in insecticide analysis or research. Location immaterial. Woman, age 23: available immediately.
Box 365–T–8, Chem. & Eng. News, Easton, Pa.

YOUNG WOMAN — college graduate, A.B. mechanical aptitude. Two years' technical training in research department. Desires position in experimental or research work. New York metropolitan area preferred.
Box 368–T–8, Chem. & Eng. News, Easton, Pa.

ORGANIC RESEARCH CHEMIST: Sc.D., 1946. 37, Protestant, married. Sigma Xi, Phi Lambda Upsilon; well-grounded in both physical and organic. Experience government work and teaching. Post-doctorate research, teaching, or industrial job considered. East or northeast location preferred, but not essential.
Box 370–T–8, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.S. 1941. Columbia University. Graduate student, with 2 years' industrial and research experience seeks responsible position with firm in Metropolitan New York. Available immediately.
Box 372–T–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.S.Ch.E., Purdue '42, Tau Beta Pi, 2 years' industrial experience pilot plant development including shift supervisor semicommercial solid detergent plant; 2 years officer in Navy; age 25, single. Desire development work with medium-sized midwestern company.
Box 351–N–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B. Chem. Eng. '38. Two years' development, organic synthesis. Two years' Engineer devising procedures for materials testing. In Army, one year as Officer-in-Charge of large group of engineering personnel Prefer New York City vicinity for proximity to graduate schools. Available September.
Box 317–N–8, Chem. & Eng. News, Easton, Pa.

BIOCHEMIST: Experienced in production of enzymes and other bacterial by-products, desires position with firm in East. Married. Administrative ability.
Box 383–T–7, Chem. & Eng. News, Easton, Pa.

PRODUCT DEVELOPMENT and Research chemist, organic Ph.D. and pharmaceutical training, 6 years' experience research and development, 5 years' sales experience, 3 years' analytical work in miscellaneous fields. Translate German and French. Age 48. Single.
Box 317–T–5, Chem. & Eng. News, Easton, Pa.

DIRECTOR or RESPONSIBLE POSITION: Research, development, consulting, material, process or equipment; Northern location. 25 years' experience: Plastics, hydrocarbons, chemicals, general. Versatile, scientific, practical; good health; well employed.
Box 389–N–3, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.S. in Ch.E. 1941. Five years' diversified experience inorganic processes in control, operations, development, design and construction. Desire responsible position with progressive concern. Location Midwest Now employed. Age 30. Family.
Box 366–T–7, Chem. & Eng. News, Easton, Pa.

TEACHING OR RESEARCH: Ph.D., 1939. Organic Chemistry. College teaching experience. Experience in petroleum acids, dyestuffs, soils and soil stabilization, synthetic rubber intermediates, naval chemical ordnance, commercial analytical and consulting. Age, 38.
Box 306–N–8, Chem. & Eng. News, Easton, Pa.

CHEMIST: Ph.D. extensive research and industrial experience here and abroad in the field of Insecticides, Waxes and other Sanitary Chemicals desires executive position. Age 43. Single. California or New York area preferred.
Box 314–N–8, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST: Desires permanent college position. B.S. M.S. in science. Major—Organic. Minors—inorganic and physics. Near Ph.D.—Complete six years of college work this summer. Fifteen years' successful teaching and supervisory experience. Three years' industrial experience. Excellent laboratory technique.
Box 324–N–8, Chem. & Eng. News, Easton, Pa.

CHIEF CHEMIST and Metallurgist for large railroad available for position in industry. Capable executive. 29 years' experience in Chemical and Physical Testing and Inspection of Materials. Member ACS–ASTM and ASM.
Box 325–N–8, Chem. & Eng. News, Easton, Pa

CHEMICAL ENGINEER: 31, B.Ch.E. 1940. 5 years' experience as superintendent of construction, development, and operations in commercial and military explosives, sulphuric and nitric acids. Also familiar with gypsum calcination, wallboard manufacture and dye industry. Desires work in operations or production. Available now.
Box 327–N–8, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST: Six years' market development and now head of department with large organic chemical company, also four years' technical sales and several years' research desires position in research administration or market development position.
Box 329–N–8, Chem. & Eng. News, Easton, Pa.

EXPERIENCED REFINER of corn starch & syrup, dextrin, dextros, oil, feed, wheat starch syrup and gluten, malt syrup, seeks substantial position in laboratory or factory. Familiar with fermentation of alcohol. Production sorghum syrup.
Box 331–N–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.S. 1943, B.A. in Chemistry, three years' in service as Naval Officer, 1 year as student laboratory instructor. Desire position in development or production work. Age 25, married, available.
Box 340–N–8, Chem. & Eng. News, Easton, Pa.

TECHNOLOGIST WITH Sales Ability, age 33, Ph.D. (chemistry), 7 years' experience in natural rubber production methods both here and in the Far East, desires position, not necessarily in rubber, offering opportunity and where executive ability counts. Location immaterial. Health excellent. Married, both having had European as well as Far Eastern experience. Working knowledge of French. Willing start moderate salary provided possibilities for advancement good.
Box 346–N–8, Chem. & Eng. News, Easton, Pa.

LITERATURE CHEMIST: B. Chem. and M. Chem., Cornell, with ten years' varied experience in chemical libraries wants job as head librarian, reference clerk, literature and patent searcher, or executive secretary.
Box 331–T–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.Ch.E. 1941, desires position in electrochemical or metallurgical field. 3 years' experience in tin, copper and bronze electroplating. 1½ years' experience in high vacuum techniques, diffusion process, Manhattan District (army status) 22 months' service armed forces. Good supervisory background. Age 26. Married. Northeastern states preferred. Available immediately.
Box 375–N–8, Chem. & Eng. News, Easton, Pa.

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(Situations Wanted Continued)

PHYSICAL CHEMIST: Ph.D., 28, three years' research experience. Available for position in metropolitan New Jersey area.
Box 373–N–8, Chem. & Eng. News, Easton, Pa.

DIRECTOR of PLASTICS DEVELOPMENT: B.S., graduate work, eleven years' experience in synthetic resins and varnishes. Supervisor of laminate development. Plant application in laminates, adhesives, resins, surface coatings and plastics. Patents. Teaching experience. Family.
Box 387–N–8, Chem. & Eng. News, Easton, Pa.

SALES PROMOTION: Chem. Eng., MIT. Age 30, desires connection in administrative sales or advertising. Offers seven years' varied experience in field sales and service to process industries, handling chemicals and equipment.
Box 300–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Six years with major oil refinery in technical service, process development and design. Specialty catalytic cracking. Now research supervisor. Seeks firm where ability, energy, and experience will be more efficiently used. Available housing imperative. Must better present salary of $5,000.
Box 302–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST: Ph.D., 25 years' experience industrial research and development, all phases, desires connection with small or medium sized company with definite fields and interests. Salary open, will consider part ownership. Contacts invited.
Box 304–N–9, Chem. & Eng. News, Easton, Pa.

COMMERCIAL ANALYST: Age 39, 17 years' Industrial experience, desires opportunity in analytical aspect of research. Experience in development of analytical methods, especially colorimetric and optical. Philadelphia area. Salary required, $3600.
Box 305–N–9, Chem. & Eng. News, Easton, Pa.

PH.D., ORGANIC: Long experience in industrial field — research, supervision, direction, organization, reports, patents. Can fill gap between busy officer or exective and research group. Salary, high, open. Moderate sized company preferred.
Box 307–N–9, Chem. & Eng. News, Easton, Pa.

RESEARCH SUPERVISOR: Organic chemist, Ph.D. Extensive experience in planning and conducting research programs in field of synthetic medicinals. Desire supervisory position or assistant to executive. Experience in laboratory and pilot plant development studies.
Box 315–N–9, Chem. & Eng. News, Easton, Pa.

PATENT AGENT: Ph.D. Organic chemistry, six years' experience in Patent Department of large chemical company. Desires responsible position in New York area.
Box 303–N–9, Chem. & Eng. News, Easton, Pa.

TEACHING: Organic chemistry with opportunity for research. Ph.D. Four years' industrial research. Publications. Age 29, married, children.
Box 313–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: M.A. 1939, Age 29, married. Now employed in research electro and physical chemistry. Primary interest research with connection to production. Honorable discharge from chemical warfare service.
Box 314–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC PH.D.: Age 33, desires research or development work in plastics, polymerization, or straight organic chemistry. Nine years' experience with rubber, latex, synthetics, and emulsion polymerization. Married. Prefer New York City vicinity.
Box 316–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.S. 1946. Desires position in Heat Transfer processes and equipment. Age 28, married, veteran. Available September 1, anywhere in U. S.
Box 317–N–9, Chem. & Eng. News, Easton, Pa.

METALLURGICAL CHEMIST, veteran, degrees in Chemistry, Chemical Engineering, four years' experience in inorganic chemical and metallurgical research desires research or engineering position. Age 27, married. Location immaterial. Available 15 October.
Box 318–N–9, Chem. & Eng. News, Easton, Pa.

BIO-ORGANIC RESEARCH CHEMIST, recent Ph.D., leading university. Experience in chemistry of natural products, especially essential oils and rubber. Physiological studies on guayule. Experience and new developments in microtechniques and apparatus. Ozonization. Precision Fractionation. Position must permit adequate research opportunity.
Box 319–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST: Ph.D. Well employed in east. Desires midwest or southwest location. Eight years' industrial research. Numerous patents and publications. Married. Protestant. Available on short notice.
Box 330–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC RESEARCH: Ph.D. Several years of experience on hormones, antibiotics, heart-glucosides. Independent worker. Languages. Metropolitan area. Woman.
Box 331–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST: Ph.D. 1940. Six years' research and development experience closely associated with production of diversified organic chemicals. Supervision of laboratory and pilot plant development of new products. Desires similar position with progressive concern with future. New York City—N. J. area preferred.
Box 320–N–9, Chem. & Eng. News, Easton, Pa.

ACADEMIC POSITION: Chemical Engineer, Ph.D.; Experience in teaching Unit Operations, Chemical Engineering Calculations, Thermodynamics, Plant Design, Physical Metallurgy, Fuels. Twelve years' industrial experience in research, development and production. Desire teaching position with research opportunities.
Box 321–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: Woman, A.B. in chemistry 1943. 3/4 of credits towards M.A. in analytical. 1 1/2 years' experience as control chemist in pharmaceutical and 1 1/2 years as laboratory instructor, read German and French. Desires position as assistant in medical research or as library chemist. Available immediately. Salary $3000. Locate in Philadelphia, Baltimore or New York areas.
Box 322–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Eight years' mechanical, chemical plant engineering experience, economic studies, product development, equipment design, installations, purchasing. Married, 31, family. Resourceful, capable, energetic, responsible. Present salary $4275. Position with opportunity desired. Denver location preferred.
Box 323–N–9, Chem. & Eng. News, Easton, Pa.

UNIVERSITY OR COLLEGE POSITION. Ph.D. Biochemistry. Background in organic and inorganic chemistry. Seven years' teaching experience. Two years' industrial research in fats and oils. Prefer Western location. Age 33 — married. Publications. Sigma Xi.
Box 324–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Two years' pilot plant research and development, production control, supervision on atomic bomb project. Industrial finishes experience organizing testing procedures, developing new formulations. Desires pilot work or research in Chicago area concern.
Box 325–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Pilot plant, process development, production supervisor. Army assignment — Manhattan District. Two degrees. Societies. Age 27. Present salary $4000. East or Midwest. Available reasonable notice.
Box 329–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.S. 1943. Three years' industrial research and development experience. Interested in production and/or development work. Desire permanent position in South. Salary $3,300–3,600. Age 25, married. Available immediately.
Box 326–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST, M.S., completing Ph.D. Six years' experience in synthetic, analytical, and pilot plant research in detergents, dyestuffs, pharmaceuticals, and fine chemicals. Desires responsible research position. Sigma Xi, age 26, married, 4F, N. Y., N. J.
Box 328–N–9, Chem. & Eng. News, Easton, Pa.

UNIVERSITY TEACHING position with research opportunities desired by experienced Physical Chemist, Ph.D. Especially interested in graduate work: Thermodynamics, Reaction Kinetics, Electrochemistry, Quantum and Statistical Mechanics, Valence. Highest reputation as teacher and lecturer. Numerous publications. Some industrial experience. Available immediately. West coast preferred.
Box 332–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER — Physical Chemist: Thirteen years' industrial research and development experience, chemical manufacture, petroleum, laboratory and building design, laboratory supervision, specification and report writing. Present salary $4500. Desire Colorado or Northwest. Age 37, married, two children.
Box 333–N–9, Chem. & Eng. News, Easton, Pa.

ASST. TO RESEARCH DIRECTOR: M.S. Chem. Engineering. Naval Officer during last 4 1/2 years during which time 1 year was spent in graduate work at Cornell; 1 year in technical charge of important research; remaining 2 1/2 years training and administration of technical service school. Organizing ability; talent for report writing. Age 29, married.
Box 335–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL PATENT ATTORNEY: Woman, member New York and Patent Office Bars, diversified experience in organic and pharmaceutical chemical fields, experienced in all phases of patent prosecution and negotiation of contracts and license agreements, desires responsible position with corporation patent department.
Box 336–N–9, Chem. & Eng. News, Easton, Pa.

BIOCHEMIST: B.S. Penna. State. '45. Capable and ambitious single woman desires permanent position with progressive concern in biochemistry, preferably food chemistry. Six months' bacteriological and analytical experience in food laboratory. Eastern or Midwestern United States preferred.
Box 337–N–9, Chem. & Eng. News, Easton, Pa.

NUTRITIONIST: Ph.D. Desires research position with reputable poultry feed ingredient concern. Extensive experience in nutritional biochemical research. Capable of direction. Salary $5600.
Box 338–N–9, Chem. & Eng. News, Easton, Pa.

TECHNICAL SERVICE or SALES ENGINEERING position desired with equipment manufacturer by chemical engineer. B.S. degree, Tau Beta Pi, age 29. Seven years' diversified engineering experience in Research Department of chemicals manufacturer.
Box 339–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: Organic; B.S. '41; age 27, married, two years college teaching, three years organic development oils, greases, raw materials, specification writing. Presently employed Rubber Laboratory. Desire new connection utilizing full ability in Technical Service and/or Technical Sales. Present salary $3500.
Box 340–N–9, Chem. & Eng. News, Easton, Pa.

INDUSTRIAL CHEMIST: Ph.D., four years' experience in research, research direction, and development. Familiar with plastic laminating and molding, electrical varnishes, textile finishes and coatings, emulsion formulations, and chemical synthesis. Available soon. California location preferred.
Box 341–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER, B.S. Desires executive position in small western or midwestern plant. 5 1/2 years supervisory experience in rag felt and asbestos papers, asphalt roofing, asphalt floor tile, smokeless powder, phenol, cresols, toluene, naphthalene, lime, carbon dioxide, and caustic soda. Familiar with evaporation, extraction, extrusion, filtration, fractionation, gas absorption, and mixing.
Box 342–N–9, Chem. & Eng. News, Easton, Pa.

WEST COAST LOCATION desired by Organic Chemist Ph.D. with four years' experience in synthesis and product development of thermoplastic and thermosetting resins. Compounding, molding, extrusion, sheet casting, low pressure laminations. Publications, patents pending. Family man. Available on short notice. $5,000.
Box 348–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: Young woman, 24 years old, married, four years' industrial experience; organic syntheses; research assistant; some graduate work; seeks position in Metropolitan area of New York.
Box 343–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.S. 1941 Univ. of Illinois, engr. minor; Graduate study. Recently discharged Ordnance Officer. Five years' experience in administrative and chemical production work. Desire permanent position with progressive firm. Age 26. Married. Prefer Mid-west location.
Box 344–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.S., age 27, year graduate study in organic chemistry; five years' experience in food, paper, analytical, and starch chemistry, desires laboratory or non-laboratory position with future. Prefer Chicago area, but willing to travel.
Box 345–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: Woman, B.S. 1944, 2 1/2 years' analytical and product development including some bacteriology and library research. Desires position in Honolulu, available February 1947.
Box 346–N–9, Chem. & Eng. News, Easton, Pa.

ANALYTICAL SUPERVISOR: ten years' experience quality control and analytical research supervision fine chemicals, dyes, pharmaceuticals and polymers. Plant supervisory experience. Desire executive or supervisory position analytical department. Age 35, married, M.Sc.
Box 347–N–9, Chem. & Eng. News, Easton, Pa.

TECHNICAL REPRESENTATIVE: Graduate chemist with 12 years' varied experience desires sales connection with progressive concern.
Box 349–N–9, Chem. & Eng. News, Easton, Pa.

TEXTILE CHEMIST: B.S. 27, married, experience in textile finishing and dyeing procedure. Research and industrial background. Formerly connected with known dyestuff firm and leading mill.
Box 350–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.S. desires position as research assistant in New York City area. Opportunity to continue graduate studies desirable. Graduate work and five years' varied experience. Excellent scholastic record, references. Honor graduate, Phi Beta Kappa. Age 26. Salary $3600. Available for interviews.
Box 352–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.S., 26, married, recently discharged; six years' experience, including development textile coatings, engineering in production poison gases, clinical biochemistry, army laboratory. Desire position with future in development and/or production. Metropolitan N. Y.–N. J preferred. $3000.
Box 353–N–9, Chem. & Eng. News, Easton, Pa.

COLLEGE or UNIVERSITY POSITION: Woman chemist Ph.D. masters degree pharmacy, many years' experience in research. German, Spanish, French.
Box 356–N–9, Chem. & Eng. News, Easton, Pa.

(Continued on page 2437)

(Situations Wanted Continued)

SPECTROCHEMIST: M.A. 36 years old. Three years' analytical and nine years' spectrographic experience in industry and as Naval officer. Position desired in production control and research. Within 100 miles N. Y. C. preferred.
Box 354–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Electrochemist with 18 years' extensive experience research and development in electrodeposition, metal finishing and allied fields; commercial etching; diversified consulting laboratory experience; several outstanding developments; prefer part time position in N. Y. area.
Box 355–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST, 23, B.S. 1943, veteran, seeking responsible, interesting position in field of chemistry, preferably not laboratory work. Two years' laboratory experience, including one year of full professional work on atomic bomb while in Army. Minimum salary, $3900.
Box 357–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC CHEMIST, Ph.D., 12 years' experience developmental research. Successful record conducting new processes fine and heavy organic chemicals from laboratory through pilot plant into commercial production, desires position fully utilizing ability. Age 36, married.
Box 358–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: 3½ years' operating experience sulfuric acid manufacture, 2 years' technical service in large butadiene plant. Age 27, capable, industrious, agreeable personality. Desire development, design or sales position of promise.
Box 359–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.Ch.E. 1944. Age 23. Married. Slight research experience before two years in Navy. Good scholastic record. Interested in development and production. Mid-west preferred but not essential. Available immediately.
Box 360–N–9, Chem. & Eng. News, Easton, Pa.

ORGANIC Ph.D., nine years' experience in rubber, latex, and polymerization, desires responsible position in research or development. Married. Age 33.
Box 369–N–9, Chem. & Eng. News, Easton, Pa.

RESEARCH and DEVELOPMENT CHEMIST: 14 years' experience in supervision and research in cellulose and derivatives, explosives, oleum, water and tobacco; development of quality control programs. Bachelor degree in chemistry, age 37, married. Desires connection in east; present salary $4000.
Box 361–N–9, Chem. & Eng. News, Easton, Pa.

PRODUCTION CHEMIST: B.S. '42. 3½ years' production supervision, year research and development work. Mechanical aptitude and capable leader. Desire production supervision with administrative and executive future. Any location. Married, 26, one child. $4500 minimum.
Box 362–N–9, Chem. & Eng. News, Easton, Pa.

CHEMISTS: B.A. Major: Organic chemistry. Age 26. Deaf oralist. 5½ years' varied experience in industrial, biological chemistry, general analytical and research work. Desire position in analytical field or as research assistant. Location immaterial.
Box 363–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER-EXECUTIVE: Twelve years' experience in research, labor relations and management: chemicals and petroleum products, essentially all supervisory level. Thorough, precise, executive ability, pleasing personality. Desire responsible place management of plant. Available on reasonable notice. Prefer Southwest.
Box 364–N–9, Chem. & Eng. News, Easton, Pa.

PATENT and LITERATURE searches, drafting patent applications and amendments, translations from and into German and French. Widely experienced chemist, Ph.D., available part-time or as consultant.
Box 365–N–9, Chem. & Eng. News, Easton, Pa.

JUNIOR CHEMICAL ENGINEER: B.Ch.-E. '46, scholarship student, student leader, can write well; reliable references. Desires position with research and development department of small organization; large organization considered. Opportunity for development of primary consideration.
Box 366–N–9, Chem. & Eng. News, Easton, Pa.

RESEARCH CHEMIST: Ph.D. 10 years' experience in non-ferrous metals, alloys, including light and alkali metals, also metallurgical, adhesives, desires permanent position with well established concern in supervisory capacity. Location Metropolitan New York preferred but not essential. Tel. Flushing 3-7663.
Box 367–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST GRADUATE 1942. B.A. Married, 4 yrs. varied experience industrial, laboratory control, research; heavy chemicals, organic and inorganic; fine chemicals. Presently attached to food organization. Desire work near University or college. Minimum $3500.
Box 372–N–9, Chem. & Eng. News, Easton, Pa.

F. RUSSELL BICHOWSKY, Ph.D.
announces
that, having left the Army Air Forces he is once more in position to undertake his well known
PERSONAL CONSULTING PRACTICE
in
Physical Chemistry, Chemical Engineering
Thermodynamics, Refrigeration,
Air Conditioning and
RESEARCH MANAGEMENT
Box 379–N–9, Chem. & Eng. News, Easton, Pa.

RUBBER CHEMIST: An Organic Chemist with a M.S. and eleven years in the rubber industry. Experience in basic synthetic research, development, compounding, laboratory management, sales development, technical sales, technical direction and management of small company. Thoroughly familiar with costs and the engineering possibilities of all types of rubber or synthetics. Widely known to the rubber trade. Interested in a technical sales or management position either in the rubber trade or suppliers or consumers of rubber products.
Box 368–N–9, Chem. & Eng. News, Easton, Pa.

UNIVERSITY POSITION: Physical Chemist, Ph.D., 1942; experienced instructor of physical chemistry, now engaged in academic research under national fellowship. Publications, honorary and professional societies. Age 27, single.
Box 373–N–9, Chem. & Eng. News, Easton, Pa.

B.A. in Chemistry, 1946. Age 22, single-resides Brooklyn. Desires position as research assistant in metropolitan New York area. No experience, available immediately.
Box 374–N–9, Chem. & Eng. News, Easton, Pa.

UNIVERSITY POSITION: Ph.D., Physical chemistry, Chemical Engineering 25 years' teaching and industrial experience. Well known Author, Lecturer and Scientist, desires teaching position in a University with adequate research facilities.
Box 375–N–9, Chem. & Eng. News, Easton, Pa.

TECHNICAL SALES, or manufacturer's representative, graduate School of Science and Technology of Pratt Institute 1934. Ten years of varied chemical sales and laboratory supply experience.
Box 376–N–9, Chem. & Eng. News, Easton, Pa.

INDUSTRIAL CHEMIST: B.S. 1943. Harvard. 1½ years' development photomechanics, color photography. 1½ years' formulation, testing, production lubricants, greases. Experience study viscosity of glass at high temperatures. Knowledge colloids, asphalts, terpenes. Family. West coast, South preferred.
Box 377–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: Ph.D. Woman, pharmaceutical, organic, literature research. German, Spanish, French. Desires responsible position.
Box 381–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: Desires responsible position, preferably as group leader, where education and experience will be fully utilized. Graduate courses beyond that required for doctorate. Interested and trained in both organic and physical including organometallics, catalysis, high-pressure, plastics, low-temperature, and others. Capable and experienced as a leader in both research and development. Location immaterial. Salary open.
Box 380–N–9, Chem. & Eng. News, Easton, Pa.

INDUSTRIAL RESEARCH and DEVELOPMENT chemist, organic Ph.D., experienced in DDT, 2,4-D, chlorinated compounds, synthetic waxes, aromatics, specialties. Substantial background in synthetic medicinals and pharmaceuticals. Age 36, married.
Box 384–N–9, Chem. & Eng. News, Easton, Pa.

SITUATIONS WANTED
(NONMEMBERS)

INDUSTRIAL FERMENTATIONS: Spanish Firm desires contact United States manufacturers or consultant chemists for licenses to produce compressed yeast, yeast extract and fermented citric acid in Spain. Reply to:
Luis Ricart, Via Layetana, 13 Barcelona (Spain).

CHEMIST: (organic) with Swiss doctor degree and 4 years of experience in foodstuffs field and technical products as fats, oils, washing powder, etc. desires position in research laboratory or factory.
Box 619–N–8, Chem. & Eng. News, Easton, Pa.

INSTRUCTOR: General chemistry, Spanish, Chemist, Cuban, age 30, married, two children, U. S. college graduate, 9 years' industrial production and laboratory experience desires teaching position while working towards master's or Ph.D. in Chemistry or Engineering anywhere U. S.
Box 606–T–8, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Sc.D., M.I.T., Experienced in fuel technology and high pressure technique desires responsible position in research or development.
Box 600–N–9, Chem. & Eng. News, Easton, Pa.

B.S. IN CHEMICAL ENGINEERING: 4 years, 1st Lt. in Chem. Warfare Service — prefer plastics production or position leading to technical sales.
Box 601–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: A.B. 1946. Age 22. Desire laboratory position in organic or physical chemistry.
William Hayden, 531 Newbury St., Springfield 4, Mass.

SECRETARY, female, executive abilities, initiative, dependable, long standing experience with scientists and commercial houses, foreign languages. Steno-typ, bookkeep, desires responsible position. References.
Box 603–N–9, Chem. & Eng. News, Easton, Pa.

YOUNG BACTERIOLOGIST-CHEMIST desires position in control or research lab, food or pharmaceutical concern. Opportunity to learn production.
Box 604–N–9, Chem. & Eng. News, Easton, Pa.

SALES — GRADUATE CHEMIST: Six years' production and development experience in chemical and process industries, desires to apply background to industrial sales with progressive company. 27, single, free to travel, fair Spanish.
Box 605–N–9, Chem. & Eng. News, Easton, Pa.

TECHNICAL LIBRARIAN experienced in indexing, editing, abstracting, literature searching, bibliographical work, patents, German, French, typing, and library supervision. Desires part-time employment in Pittsburgh.
Box 606–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: Veteran, age 24, B.A. 1943 University of Pa. Experience pharmaceuticals, inorganic analysis refractories. Accept foreign service.
Box 607–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.Ch.E., age 30, single. Two years' production, operation, and shift supervision experience, in chlorinated organic compounds. Desires position in production or development.
Box 610–N–9, Chem. & Eng. News, Easton, Pa.

ANALYTICAL SUPERVISOR: B.S. Chemistry. Ten years' experience supervising a large analytical laboratory. Broad analytical background including research. Analysis of ferrous and nonferrous metals, alloys, ores, slags, water, gas, and a wide variety of miscellaneous materials. Executive qualifications. Prefer position of a supervisory character in the analytical or some closely related chemical field.
Box 616–N–9, Chem. & Eng. News, Easton, Pa.

INSTRUMENT ENGINEER: Eleven years' experience on Process Control. Qualified for supervisory position. Good references.
Box 608–N–9, Chem. & Eng. News, Easton, Pa.

PACKAGING ENGINEER: B.S. in pulp and paper chemistry. Ten years' experience in well-organized food packaging research with all flexible packaging materials — waxes, resins, plastics. Desire responsible position in technical or production in related industry. Average ability and personality, conscientious. Age 31. Married, Protestant.
Box 609–N–9, Chem. & Eng. News, Easton, Pa.

PHYSICAL METALLURGIST: Age 31, four years' teaching experience, two years in modern research laboratory, involving the investigation of failures in ferrous alloys, desires position with progressive firm, preferably California. References provided.
Box 611–N–9, Chem. & Eng. News, Easton, Pa.

RESEARCH CHEMIST: Three years' experience inorganic pigment chemistry. Desires position with future. Age 28, single. B.S. Columbia.
Box 612–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: Alert, congenial, 24, B.Ch.E., 1944. Two years with major oil refinery. Pilot plant work, technical service, design calculations. Desires permanent position New York area; prefer design and development. Married, Tau Beta Pi.
Box 613–N–9, Chem. & Eng. News, Easton, Pa.

PROCESS ENGINEER: B.Ch.E. 1938, M.S. 1939. Experienced in chemical processing equipment and plants, including heat and material balances, mechanical design, and engineering sales work. Desires sales or design work in East or Midwest.
Box 614–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEERING: Veteran, married, 27. B.Ch.E. 1941. Experienced electro chemistry, electro forming, electro plating, electronics and plastic forming. Adaptable and cooperative. No aversion to travelling.
Box 620–N–9, Chem. & Eng. News, Easton, Pa.

(Continued on page 2438)

(Situations Wanted Continued)

CHEMICAL ENGINEER: B.A.Sc. Toronto University, 1942, presently employed government technical information engineer, six months inorganic analysis, four years captain Canadian army engineers, 26, married; desires job with future in industry.
Box 615–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.A., 1942, some bact. and biochem. Wide Army radio experience overseas. Interested electronic and electrical applications to chem. research, instrumentation. Plan further studies in Phys. Chem. Live L. I., will go wherever interesting work leads in U. S.
Box 617–N–9, Chem. & Eng. News, Easton, Pa.

WOOD WASTE Utilization, New Building Materials, Prefabricated Units: Chemist-chemical engineer offers services as consultant or project director for practical, profitable program. Willing to settle in rural community with suitable climate.
Box 618–N–9, Chem. & Eng. News, Easton, Pa.

CHEMIST: B.S. 1939 desires position leading to responsibility in production and management. Experience paint industry, petroleum research laboratory, mass spectometer. Ex-army officer. Age 28. Present salary $3600.
Box 619–N–9, Chem. & Eng. News, Easton, Pa.

WOMAN CHEMIST: B.A. Chem., 1945. 23. Desires job in organic research lab. Analytical and synthetic experience with paint firm: latter preferred. Intelligent, careful worker. Location: Northeast or Northwest.
Box 624–N–9, Chem. & Eng. News, Easton, Pa.

MATHEMATICIAN, Ph.D. Eight years' experience Thermodynamics, Internal Combustion Engines, Petroleum Industry, General Chemical and Engineering Research, desires affiliation with industrial research organization in administrative executive capacity. Present location New York. New York or West Coast preferred.
Box 628–N–9, Chem. & Eng. News, Easton, Pa.

PHYSICAL CHEMIST: M.S., Phi Beta Kappa, 2½ years' experience industrial and fundamental research. Industrial development in metropolitan area, $3900.
Box 622–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: 34, B.S., Ch.E., desires permanent position in plant operation or development work. Experience includes about seven years supervision in connection with plant upkeep and construction, repair and maintenance of research and development units used for petroleum and mineral research; and about three years' supervision in connection with the extraction of alumina. Available about October 1.
Box 623–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.Ch.E. 1944. Veteran. Army pilot plant, food research experience. Desires position development or production. Prefer food or pharmaceutical industries. Work more important than salary.
Box 625–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.Ch.E. 1944, cum laude. 2½ yrs. civilian and army experience on Manhattan Project. Process research and development. Age 23, single. Available immediately. N. Y. Metropolitan area preferred.
Box 635–N–9, Chem. & Eng. News, Easton, Pa.

BROAD EXPERIENCE in manufacture of diazo and azo dyestuffs. Qualified for research or production. Desires position with progressive firm. Graduate chemical engineer.
Box 627–N–9, Chem. & Eng. News, Easton, Pa.

CHEMICAL ENGINEER: B.S. 1943. Desires position overseas. 2 years' industrial experience, development and production. Age 24, married, one child. Presently employed as production engineer. Former naval officer.
Box 630–N–9, Chem. & Eng. News, Easton, Pa.

SALES or BRANCH MANAGER—Distributor seventeen years' diversified background technical sales and general management. Several years' responsible OSRD administration. Experience in systems, cataloguing, procurement, personnel, advertising. Well connected and excellent references in New York, Chicago, Pittsburgh. Chicago area preferred.
Box 629–N–9, Chem. & Eng. News, Easton, Pa.

INTERESTED in chemical analysis sea foods. Wish connection laboratory metropolitan New York area.
Marjori Breen, 464 Sixth Avenue, New York 11, N. Y.

EX-CAPTAIN Chemical Warfare Service, former Analytical Chemist, age 30, married with two children, desires position with a reliable firm.
Box 633–N–9, Chem. & Eng. News, Easton, Pa.

TEACHING—CHEMICAL ENGINEER: Ph.D. Two years as instructor in chemical engineering at midwestern university. Three years' industrial experience. Now employed in process development laboratory of major oil company.
Box 634–N–9, Chem. & Eng. News, Easton, Pa.

MISCELLANEOUS

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Ten cents a word, minimum charge $2.00; display available at $20.00 per inch to be paid in advance. No discounts or allowances

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"4th Generation of Service and Integrity"

CHEMICAL MANUFACTURER desires to retire. Willing to exchange active old established plant for seashore or country home.
Box 913–N–8, Chem. & Eng. News, Easton, Pa.

FOR SALE: Digitonin (cholesterol number 330) and other digitalis glucosides in commercial quantities.
Box 108–N–5, Chem. & Eng. News, Easton, Pa.

NOW AVAILABLE: Digitoxin—Digitonin—Histidine—dl Serine—dl Threonine—Phloridzin—Glucuronic & Galacturonic Acids. Amino Acids.
Box 917–N–9, Chem. & Eng. News, Easton, Pa.

MICRO-ELEMENTARY ANALYSES: C, H, N, S, P, Halogens, Mol. wt., etc., U. S. P. and other official tests, Purity tests, Microinorganic essays, Spot tests. Micro-distillations. Toxicological investigations and typical microchemical research work. Dr. Carl Tiedcke, 366 Fifth Avenue, New York, N. Y.

LABORATORY HIGH PRESSURE AUTOCLAVES: Alberger One Gallon Autoclaves for 1000 lbs. pressure; jacketed or direct fired; agitator; thermo-well; ball safety valve, weighted type or rupture disc safety head; belt driven or with self-contained motor drive. Constructed of iron or stainless steel alloy 304 or stainless steel alloy 316 or Monel Metal or Pure Nickel or Carbon Steel. Standard apparatus prompt shipments. Our other sizes 85 cubic inch to 2 gallon capacity on reasonable delivery. Bulletins 50 and 52; experienced technical service; inspection our shop invited.
Industrial Machinery Company, Bloomfield, New Jersey.

CHEMIST PARTNER: With $3500 on part time basis for active chemical business with excellent future, located in New York. State your background.
Box 916–N–8, Chem. & Eng. News, Easton, Pa.

RHENIUM: Potassium perrhenate and rhenium metal. Reduced rates. Price scale on request.
Department of Chemistry, University of Tennessee, Knoxville, Tennessee.

AVAILABLE: Facilities and personnel for research and production of fine chemicals.
Box 912–N–7, Chem. & Eng. News, Easton, Pa.

TECHNICAL TRANSLATIONS: Made from or into any language. We translate manuscripts, articles, patents, books, catalogs and descriptive literature.
TRANSLATION & RESEARCH BUREAU, 7 East 42nd Street, New York, N. Y.

WE WILL place orders immediately for Special Organics and Inorganics with competent chemists who have access to equipped laboratories.
Box 921–N–9, Chem. & Eng. News, Easton, Pa.

FACILITIES AVAILABLE: Wide variety of liquid mixtures recovered at nominal cost for drum and tank-car quantities. We handle simple and difficultly separable mixtures. We are also interested in purchase of all types of crude mixtures. Inquiries solicited. All correspondence treated confidentially.
Box 924–N–5, Chem. & Eng. News, Easton, Pa.

FINE ORGANIC PHARMACEUTICALS and Aromatic Products. Complete Approach to Problems of Research and Production. Inquiries solicited for known and new Compounds.
Arlinco Research Laboratory, Inc., 333 West 52nd Street, New York 19, N. Y.

FOR SALE: Chemical and Scientific Periodicals, sets, volumes and back copies.
B. Login & Son, Inc., est. 1887, 28 East 21st St., New York 10, N. Y.

FERROUS CHLORIDE, Anhydrous; Aluminum Bromide, Anhydrous; all alkali and alkaline earth Dithionates; Iodine Tri-chloride. These are a few examples of our special inorganic products. Our business is the manufacture, to order, in large or small quantities, of unusual inorganics.
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(Continued on page 2439)

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Scrap Iron and Steel

Industry, faced with a shortage of steel scrap quite as drastic as at any time during the war, is appealing for a repetition of the effort that made wartime scrap drives so successful. Scrap normally makes up 50% of the charge in open hearth furnaces from which by far the greatest proportion of all steel comes, and the shortage has slowed down production.

The present scrap shortage is due to a number of factors including strikes in consuming and fabricating industries, scarcity of auto "graveyard" and other scrap which depends on replacement with new equipment, and the slow return of battlefield scrap. During the coal strike a larger percentage of scrap than normal was used in furnace charges because there was no coal to make pig iron. Consequently, already low supplies of scrap were brought to rock bottom.

As a result of these conditions, 25 to 30 open hearth furnaces were idle Aug. 1 for lack of scrap against 12 idle for the same reason July 1. Meanwhile, during July receipts of scrap by steel mills fell from an average of 60% of requirements to approximately 40%. If the flow of scrap remains at its present poor rate, mill inventories of scrap will vanish in four to six weeks.

Much usable scrap is again lying dormant in industrial plants, warehouses, and bull pens, and it is urgently desired that this industrial scrap be moved to market.

Voice of the Scientist

The readers of C&EN will be greatly interested, we believe, in the following comments on atomic energy, taken from the Whaley-Eaton Service:

The agreement between Senate and House conferees, that the proposed Atomic Energy Control Commission should be composed entirely of civilians, draws attention to the greatly increased power which the scientists now exercise in national affairs. Their concession that the director of military application be an armed-forces member was insignificant—without them, he would have nothing to apply. Military control of atomic weapon development, though inevitable during the war, was badly mishandled. True, the bomb was developed, manufactured and successfully used—but at the expense of alienating virtually every scientist and technician from Army sympathy. One of the top men responsible for the bomb said recently: "Army control delayed the bomb's use by at least 18 months." To the lay mind an exaggeration with undertones of pique, this nevertheless represents the majority scientific opinion; and with so much of the national (and world) safety in their hands, the scientists are now aware that they just have to be listened to.

Apparently the voice of the scientist is gaining respect in Washington and elsewhere. With this new power comes new responsibilities and the scientist and technologist must be absolutely certain that when he does speak on nontechnical matters, he is discussing them with the same degree of objectivity that he employs discussing technical subjects.

Sodium 24

A slip on our part in the issue of August 10 resulted in confusing statements that sodium 24 has a half-life of 5 and 14.5 hours. Both Bradley Dewey and James M. Crowe, in their articles on Operation Crossroads in that issue referred to the half-life of this radioactive isotope. Actually, the 14.5-hour half-life is correct, but through an error in transcribing Mr. Crowe's radiogram the 14 and the decimal were lost.

This mistake has been called to our attention by two readers, Alban C. Sorensen, of Bristol, Pa., and R. W. Harrison, of Coral Gables, Fla. Priority for this discovery, however, must go to an artist who occasionally does work for us, S. F. Perkins, Jr., and who surprised us by the thoroughness with which he reads the magazine. By way of explanation, he said that he felt that the newspapers had been doing a poor job of reporting Operation Crossroads and had decided to follow it from the scientist's viewpoint in CHEMICAL AND ENGINEERING NEWS. We appreciate Mr. Perkins' confidence and hope that we will not betray it again.

Cherry Blossom Time

Cherry blossom time in Washington is usually in April. We hear that a new type of cherry has blossomed, not along the Tidal Basin, but just as one more worry to add to the ever-increasing complexities of Patent Commissioner Ooms' life.

Anyway, score another one for chemistry—in the form of an English patent for artificial cherries. For eating, too. Sodium alginate is the base, the fruit (?) is molded, colored, sweetened, and, what with hardening in a calcium chlorate soak, is supposed to look the part. Better things for better living?

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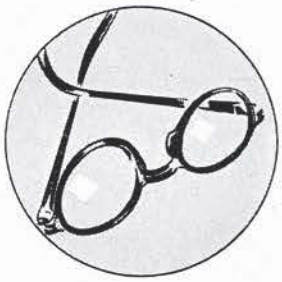

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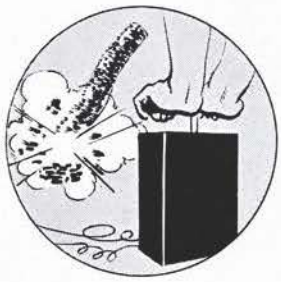

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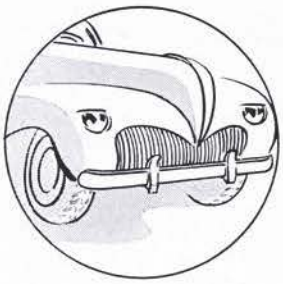

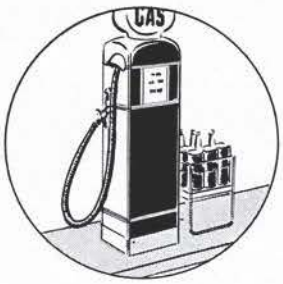

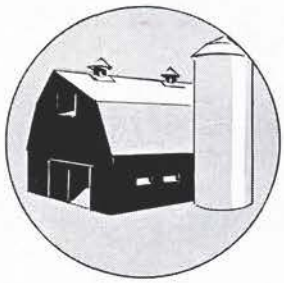

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