A. O. C. S. Commentary

The Independent Laboratory

THE relation of the commercial laboratory to laboratories maintained by industry can be very simply defined as both parallel and analogous to the relation of the independent legal firm to the legal staff of a company. The company furnishes its requirements for professional service with its salaried employees up to a point; beyond that point outside professional services are preferable. This is best established by illustrations.

In the purchase of oils, cottonseed, and many other materials the price is based on oil content, protein content, free fatty acid, etc. The seller in many cases would be unwilling to have the buyer make the



F. D. Snell

analysis and pay on the basis of this analysis. The buyer would be equally averse to having the seller determine the quality of the product being sold. Large commercial laboratories are devoted almost entirely to the furnishing of data in response to such needs.

Firms abroad are making large purchases of chemical materials in the United States. The purchase contracts usually call for the chemical to be sampled at the point of shipment by a specific commercial laboratory and certified to be of the quality specified. Mistakes can occur, such as a shipment of caustic soda grossly contaminated with sodium chloride, or a shipment of an organic chemical which contained none of the material specified. The material is sampled at the dock under the control of the laboratory.

Management of a company recognizes the need for research at a given stage in their development. The company is still small. They do not feel able to invest an initial \$10,000 or much more in a research laboratory and equipment. They retain the services of a commercial laboratory for one year or five or 10 years before installation of their own research laboratory is justified. Thereafter the commercial laboratory often serves as advisors for a period of years. An association runs a cooperative program for its membership. It can install a research laboratory. More commonly the funds available for such research are allocated to a commercial laboratory. An outstanding example is the glycerine program which has been conducted by a commercial laboratory for at least two decades. But there are many others less well-known.

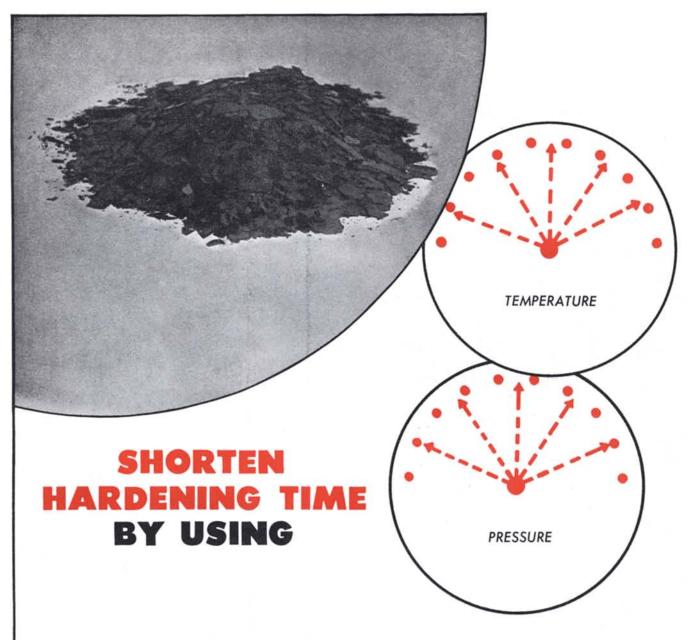
A large company has no bacteriological department and is not sure that it needs one. A new product which they are bringing out requires bacteriological research and control. A commercial laboratory conducts that for six months or several years. If the field grows with that company, it then installs a bacteriological laboratory. If it does not grow—perhaps the product is abandoned—they have not invested a substantial sum in a type of laboratory which they no longer need and made the concomitant investment in fitting into their organization personnel which will now have to be released.

A company, large or small, needs occasional use of specialized equipment. The use is not sufficient to justify the space and investment to own the equipment and training personnel to operate it. Samples are sent out. The General Electric Company has Norma-Hoffman bomb tests on greases done by a commercial laboratory.

A company with both control and research laboratories has a temporary overload. Rather than to equip for short-term use, such work is sent out. A company has a knotty problem which its personnel have not the experience to solve. It is sent to a commercial laboratory known to have specialized knowledge in the field. A company requires ideas for guidance and amplification of its research progrem. It calls in a mature person from a commercial laboratory to attend its research conferences. There are many other specialized cases.

REFERENCE has been made to parallelism between the chemical and legal professions. At the next stage they approach each other very closely. Litigation arises, as it will. Perhaps the matter is a claim for product liability, perhaps it relates to the cause of a fire or explosion, perhaps it is concerned with the allegation either that the company is infringing a patent or a claim that a competitor is infringing one of theirs. It is the almost universal practice in such cases to use a commercial laboratory because of its dissociation from the management of the company. The outside laboratory is remote enough from the problem to get a more disinterested point of view. Courts give more weight to results from the commercial laboratory.

This is not the place for detailed discussion of costs. The commercial laboratory is managed and operated with the highest efficiency of which its owners are capable. In a competitive field it must render reasonably prompt service and be competitive in price. So taking it by and large, the services of the commercial laboratory cost no more for results obtained than to procure the same service inside an organization. Many companies have recognized that. Some companies have even control checks on company products done by a commercial laboratory at no greater cost than it would involve if they were to do them themselves and always with the possibility that if controversy arises, they are then prepared with an independent report. For these reasons and others some 1,500-2,500 laboratories scattered throughout this country range in staff from one to multihundred in personnel to perform an essential and useful function. Foster Dee SNELL, Foster D. Snell Inc., New York City.



RUFERT NICKEL CATALYST FLAKES

Whatever your hydrogenating conditions may be, you will find more activity proportionately with Rufert Nickel Catalyst Flakes. As a result of many years of research, the Rufert Chemical Company has made available a catalyst which will simplify plant processes by eliminating the catalytic "variable". For consistent activity, use Rufert Nickel Catalyst Flakes.



RUFERT CHEMICAL COMPANY

DIV. OF THE SEYMOUR MANUFACTURING COMPANY SEYMOUR, CONNECTICUT ★ For Direct Heating of Liquids and Vapors

Indirect Heating Systems
Using Circulating Medium

Struthers Wells FIRED HEATERS for the Process Industries

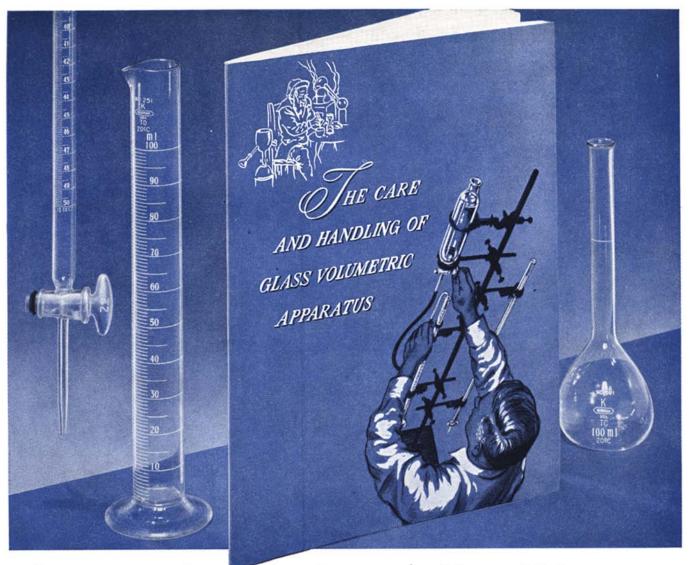
A complete line of direct fired heaters is available in standard sizes from 100,000 to 25,000,000 BTU per hour. These units are in wide use in services such as heating gasoline, oils or asphalts, superheating steam or gas, and for indirect heating systems. The heaters are shipped shop assembled except for the largest sizes.

Struthers Wells indirect heating systems, utilizing either a vapor or liquid heat transfer medium, such as Dowtherm, are giving economical and trouble free operation at temperatures to 750° F., or above this.

Equipment is ordinarily supplied with instruments and safety controls to give a complete installation. Large installations in service for many years testify to the correct design and quality of this equipment.

If your process requires temperatures above those of existing steam supply, if steam is not readily available, or if the process can be improved by higher temperatures, this economical and simple equipment will be of interest. We can also supply smaller equipment, electrically heated, as package units.

Write on your letterhead for our new Bulletin B-45, describing a complete line of equipment for high temperature process heating. STRUTHERS WELLS CORPORATION Warren, Pa. PLANTS AT WARREN, PA. • TITUSVILLE, PA. Offices in Principal Cities



How to get best results with Glass Volumetric Apparatus...described in this new book

As a service to scientific and clinical laboratories, Kimble Glass after months of development and research has prepared a new and informative book, "The Care and Handling of Glass Volumetric Apparatus."

Some of the subjects of vital interest to

laboratories are: a short history and explanation of the metric system of weights and measures; how to clean apparatus; how to read the meniscus; how to fill and empty flasks, cylinders, burettes, pipettes; gravimetric calibration; calculation of

volume of a glass vessel from apparent weight of liquid; volumetric calibration.

If you will mail the coupon below, Kimble will be happy to send you, without cost or obligation, your copy of this informative book.

SEND TODAY!	Kimble Glass, Division of Owens-Illinois Glass Company Toledo 1, Ohio Please send my copy of the new Kimble book, "The Care and Handling of Glass Volumetric Apparatus." Name	AO-12
	CityState_State_S	K
	Division of Owens-Illinois Glass Company	

The Outstanding Spectrophotometer FOR OIL CHEMISTS

THE BECKMAN MODEL "B"

accuracy . . . speed . . . simplicity



Ideal for OIL COLOR measurements

Exact spectrophotometric color analysis can be made only by using very pure monochromatic light over the visible spectrum . . . and this new Beckman Spectrophotometer has been precision-built

to provide the requisite narrow bandwidths. Extended bandwidths, of course, are also readily obtainable with the Model "B".

The instrument is ruggedly constructed . . . designed for hard usage by unskilled operators in plant and field. Can be used in the presence of severe vibrations . . . covered cell compartment guards against dust and fumes.

The new Beckman Model "B" Spectrophotometer, with its sturdy construction, speedy operation, simplicity, and low price is the outstanding routine COLOR-MEASURING instrument available.

Moreover, the Model "B" has better ultraviolet performance . . . better resolution . . . better wavelength and photometric accuracy . . . and more freedom from stray light than any other instrument in its field. Its versatility, range and accuracy make it a powerful research tool, as well as a reliable instrument for routine work.

Write for descriptive literature:

BECKMAN INSTRUMENTS, INC. South Pasadena 41, California

Factory Service Branches: NEW YORK . CHICAGO . LOS ANGELES



ADVANCED FEATURES DESIGNED INTO THE MODEL "B" INCLUDE . . .

SIMPLE, RUGGED

• •

•

٠

•

٠

• •

•

.

.

٠

.

.

.

•

٠

•

.

•

•

Direct-reading wavelength scale . . . 320 to 1000 millimicrons . . . readings reproduci-ble to great accuracy. 320

Direct-reading transmittance and absorb-ance (optical density) scales on large, easily read meter . . instantaneous readings absorbance values may be correlated with Lovibond Red units, if desired.

Sturdy construction . . . reliable wavelength scale . . . strong and accurate meter . . . cast aluminum case.

Test tube measurements . . . adjustable test Tube holder accessory accommodates round tube holder accessory accommodates round cuvettes of path length from 10 to 25 mm (1 inch). Cuvette adapters not required. Rectangular sample cells are supplied as standard equipment for highest precision in colorimetric analysis.

VERSATILE

VERSATILE For light oils ... various path length cells —up to 50 millimeters—accommodated in its wide cell compartment ... test tubes or sample cells of corex, silica, or plastic can be used for measurements ... mono-chromatic light easily brought outside in-strument for longer cells or other uses.

For dense oils . . . a convenient stepwise sensitivity control allows readings to be made on most advantageous portion of the scale . . . gives greater measurement accu-racy . . . extends range of measurable ab-sorbancies, avoiding unnecessary dilutions and increasing analytical accuracy.

cusuy-attached accessories . . . soon avail-able, an Integrating Sphere Reflectance Accessory for accurate color analysis by reflectance measurements on opaque solids or powders . . . also, a Flame Attachment for emission analyses.

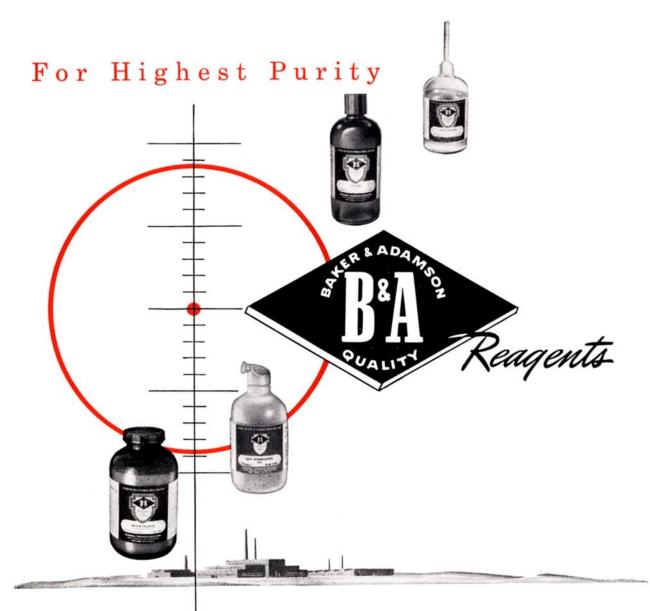
ACCURATE Wavelength accuracy—within 5 millimicrons. Photometric accuracy to 0.5% transmit-tance or 1% absorbance.

Negligible stray light—less than 1½% at 320 millimicrons.

Permanent instrument calibration restandardization of wavelength or absorbancy cales with filters or solutions unnecessary.

BECKMAN INSTRUMENTS control modern industries

🜟 Beckman Instruments include: pH Meters and Electrodes ° Spectrophotometers — Radioactivity Meters — Special Instruments



...A Name You Can Trust

FOR YOUR ANALYTICAL WORK, you are always assured of dependability when you "specify B&A Quality Reagents". This is because Baker & Adamson makes no compromise on the purity of its reagents. Each is precision-made to meet the rigid, *predetermined* specifications of the American Chemical Society itself!

WITH REAGENTS not covered by A.C.S. specifications, Baker & Adamson establishes its own exacting standards of purity-comparably high . . . equally dependable.

OVER 1,000 high purity products bear the familiar B&A Shield of Quality. They are available from B&A's own nation-wide chain of distributing points to save you time and money in laboratory operations. For your needs, *specify B&A Reagents*... first choice of American chemists since 1882.





GENERAL CHEMICAL DIVISION

* Complete stocks are carried here.

for FLUORIMETRIC ANALYSIS

Suggested uses for the new Cenco-Friedemann-Liebeck Fluorimeter include quantitative determinations of adrenaline in blood, estrone and estradiol, folic acid, nicotinamide, benzopyrene in urine of mice, pamaquine in blood plasma, porphyrins, thiamine, riboflavin, and many other analytical procedures. It is useful also in colorimetry and nephelometry. This new multiple-range instrument is designed to fulfill the following requirements: Linear sensitivity over a wide range in which the relative sensitivity is changed by means of a dial switch which expands the meter readings to 1, 2, 5, 10, 20, 50 and 100. High sensitivity to permit the assay of microquantities even though highly selective optical filters might be used. Good calibration, stability and freedom from zero drift. A readily removable holder for the test tube cuvettes can be fitted with optical filters for each type of assay.

Write for descriptive Circular 1203

CENTRAL SCIENTIFIC COMPANY

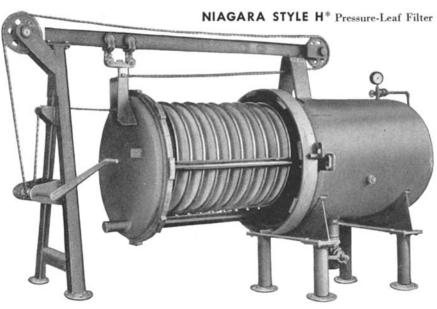
Scientific Instruments • Laboratory Supplies

Newark Boston Chicago Washington Detroit New York Los Angeles

San Francisco Santa Clara Toronto Montreal Vancouver

New

Miagara Filter Gives



MORE PRODUCTION WITH LESS LABOR

on filtrations involving high % of solids

Here at last is a clarifying filter with high solids capacity (up to 150 cu. ft. per unit) that gives you production rates 2 to 3 times as fast as conventional presses-plus quickest, easiest cake discharge ever known! One man, operating several Niagaras, can easily produce as much as three men on conventional presses!

CUTS CLEANING TIME TO MINUTES! Gives you far more productive filter time per day! One operator easily discharges up to 150 cu. ft. of filter cake, in minutes instead of hours. Cakes are discharged in semi-dry state, ready for disposal or recovery.

ENDS COSTLY CLOTH REPLACEMENT AND WASHING! Press cloths are completely eliminated with Niagara all-metal leaves, proved in use in Niagara vertical filters. You save every penny you now spend on cloth replacement-plus every minute now used to wash and handle press cloths!

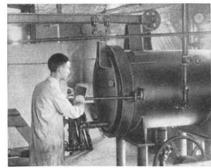
Check these advantages-Flow rates to 1000 GPM per unit . . . Solids capacity to 150 cu. ft. per unit . . . All-welded, leakproof construction-safe for handling volatile, flammable, explosive materials ... Easily steam-jacketed ... Excellent cake washing characteristics ... Sharpest filtrate clarity ... Interchangeable leaves.

FOR MORE FACTS-mail the coupon or write us today!

LEAVES ROLL OUT as a single unit, for quick easy cleaning. Monorail and windlass assembly are a permanent integral part of the filter. Windlass is hand operated, can be motorized on large filters.



are CAKE DROPS OFF when Terves tapped with rubber mallet. Air-blown cakes separate readily from the stainless steel leaves.

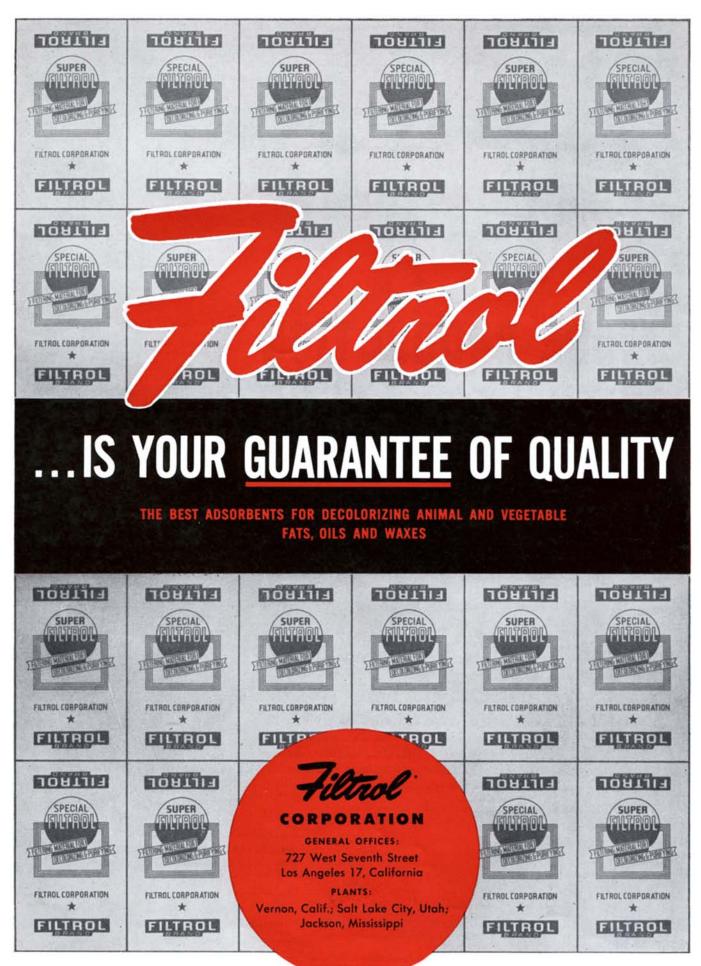


COVER LOCKS and unlocks with one fast, easy motion. A girl can operate the Niagara Q/O^* cover. No handwheels, eyebolts, spokes or spiders. *Trade Mark Pat. Applied for.

		NI
with .		Pl. H
B-	Niagara Filter_	N
1 SUIVE	rungun rueL	Ti
STR	CORPORATION	Ce
-		Ac

NIAGARA FILTER CORP., 3089 Main St., Buffalo 14, N.Y. Please send me Bulletin H-1051 on the Style H Filter.	
Name	25
Title	
Company	
Address	
CityZoneState	

IN EUROPE-NIAGARA FILTERS EUROPE, 36 Leidsegracht, Amsterdam-C, Holland



*T.M. REG. U.S. PAT. OFF.

One of the production lines for Dixie Margarine at Capital City Products Co., Columbus, Ohio. Automatic VOTATOR Margarine Manufacturing Unit (at right) saves the labor as well as eliminates the product variations inherent in batch processing.

"Flavor-guarding" STARTS WITH FAST PROCESSING

LIKE LOCKING the barn door after Dobbin hits the road, there's little value in carefully packaging and code-dating food products if the flavor has been lost in processing.

That's why efficient producers, like the makers of popular Dixie Margarine, use Girdler's modern VOTATOR Margarine Manufacturing Apparatus.

This equipment takes the refined oils and other ingredients used for Dixie, and chills, emulsifies, and crystallizes them in a continuous, closed system. Oxidation or other contamination is impossible, and freshness is safeguarded at all times.

Then too, there's no *time* for flavor to be lost. Processing takes place in a matter of seconds—since the VOTATOR Heat-Transfer Mechanism is the most effective application of basic heat-transfer theory yet devised. Thus, in addition to improved quality control, substantial savings in labor, time, and space are made.

When processing is completed, the makers of Dixie Margarine continue the "flavor-guarding" in which they take just pride. Each quarter is aluminum-foil-wrapped to seal in flavor, and each package is automatically code-dated for subsequent check-ups.

If you process any liquid or viscous materials requiring heating or cooling, sterilizing, plasticizing, emulsifying, crystallizing, quick-freezing, or aerating, it will pay you to investigate VOTATOR Heat-Transfer Processing Apparatus.



WRITE FOR FREE BOOK

UNARTERS

This 32-page book gives you the complete story on VOTATOR Heat-Transfer Apparatus. Describes the processing of an amazing variety of food and industrial products. Contains 12-page technical section with valuable reference data and charts. Write for your free copy today! The Girdler Corp., Votator Div., Louisville 1, Kentucky.

VOTATOR-T. M. Reg. U. S. Pat. Off.



Fatty Acid Distillation

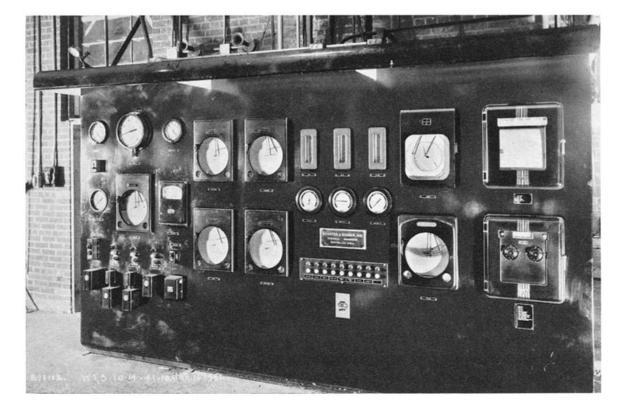
Process

Designed by WURSTER & SANGER, INC. with

10 IMPORTANT FEATURES

No. 8, Fully Automatic Control

The uniformly HIGH QUALITY of the distilled fatty acids, and the high operating efficiencies characteristic of our continuous plant are dependent upon the automatic control of all the critical process variables. The automatic recording of the key points provides a convenient check on the operation of the plant, and an automatic warning system signals any serious departure from normal conditions.



Write for data sheet so that specific recommendations can be prepared by us for YOUR project.





the can with

a thousand labels

Rigid quality controls at DPi's great new plant for continuous, large-scale molecular distillation make it unexcelled among natural materials for blandness, stability, and biological effectiveness.

million U.S.P. XIV units. It's the same type and quality you can also get in containers ranging from small bottles to

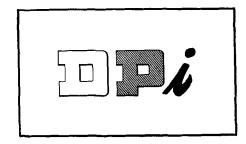
NE thing never changes on this label-the trade-mark "Myvapack". Yet it's your individual label. Why? Because you specify the exact number of vitamin A units for a batch of your product-and this figure is printed

"Myvapack" signifies DPi's sealed can of the finest natural vitamin A concentrate you can use for food fortification, premeasured to any total potency from 20 to 200

right on the label for fool-proof identification.

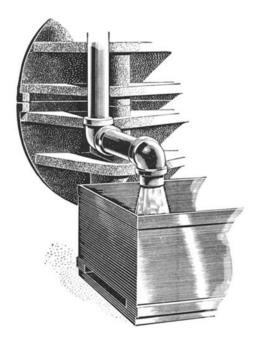
55-gallon drums.

DPi Distilled Vitamin A Esters are now available for prompt shipment at current competitive market prices. For further information and quotations write Distillation Products Industries, 759 Ridge Road West, Rochester 3, N. Y. (Division of Eastman Kodak Company). Sales Offices: 570 Lexington Avenue, New York 22, N.Y. • 919 North Michigan Avenue, Chicago 11, Ill. • W. M. Gillies & Company, Los Angeles and San Francisco • Charles Albert Smith, Ltd., Montreal and Toronto.



leaders in research and production of

both vitamin A and vitamin E



INCREASE FILTER PRESS CAPACITY





I S filtration a "bottleneck" in your production? There's probably no need for it to be. One of the modern high-speed Celite Filter Aids may enable you to increase the capacity of your present equipment . . . help you filter more fluid in less time by lengthening filtration cycles and reducing frequency of shutdowns. Celite Filter Aids come in nine grades of particle fineness to provide efficient, fast removal of all types and sizes of suspended impurities. You can get brilliantly clear filtrates at maximum rates of flow simply by selecting the Celite grade that's right for your conditions. A Celite filtration engineer will be glad to assist you. Address Johns-Manville, Box 290, New York 16, N. Y.

*Celite is a Johns-Manville registered trade mark

Johns-Manville Celite Filter Aids



HYDROGEN... pure and low cost for Lever Brothers Company at Los Angeles

FOR THEIR NEW Los Angeles plant, Lever has again installed a Girdler HYGIRTOL* plant to assure a dependable source of high-purity hydrogen for hydrogenation of vegetable oils used in Lever products. This plant, shown above, is the second Girdler hydrogen plant purchased by Lever Brothers Co.

Hydrogen purity with this process generally exceeds 99.8%. Instruments control the plant, which is practically automatic. Just one man is needed to supervise operation and to maintain hydrogen production at the desired rate.

Process material costs, as well as labor costs, are low. HYGIRTOL plants use natural gas, propane or butane for

THE

process materials. These hydrocarbons are reasonable in cost, are readily available and easy to handle.

HYGIRTOL plants are built outdoors to save the cost of a building.

For planning and construction of your gas processing facilities, call on Girdler. You can do so with confidence. The Girdler Corporation. Gas Processes Division, Louisville 1, Kentucky.

Write for bulletin describing our services. The Girdler Corporation designs and builds plants for the production, purification, or utilization of chemical process gases; the purification of liquid or gaseous hydrocarbons; the manufacture of organic compounds.



Entrance to Lever Brothers Company new Los Angeles plant reflects modern design of all facilities and equipment. This plant will supply a variety of soap and shortening products to Western market areas.

* Hygirtol is a trade mark of The Girdler Corporation

OLER CORPORATION Gas Processes Division

