

**CHEMIST COTERIE
INDEX IN PROGRESS**

500 Leaders in This Science
Listed in and Near Philadelphia

TOUCHES ALL ACTIVITY
Industry, in All Its Branches,
Requires Now the Services of Experts

Years ago it used to be drilled into school-boys that the production and use of sulphuric acid formed the test of a nation's civilization. That test no longer holds but it is generally admitted nowadays that the test of a nation's material civilization depends upon its progress in chemistry and the use it makes of trained chemists. On that basis, it is certain that Philadelphia and its tributary industrial districts are advanced.

This city and its environs contain something like 500 chemists who are holding important posts in the educational or manufacturing world. It would be hard to compile an exact census, but the above figure is representative, since it is taken from the list of the Philadelphia section of the American Chemical Society and represents the men connected with the local branch. The Philadelphia section is headed by Abraham Henwood, professor of chemistry in the Drexel Institute, and it meets monthly in the Engineers' Club, when papers of interest in modern industrial practice are submitted.

These men are actual workers in almost every field of endeavor which touches on human life. Any live chemist will assure you that chemistry is the queen of sciences for down at bottom it concerns itself with the ultimate constitution of all things. It is particularly enthusiastic, he will tell you, in answer to deauntly questions about "the chemical industry," that there is no chemical industry, properly speaking, or chemical industry, as every one knows, is that everything is a chemical industry. "The chemist is necessary in every process which takes some material with an idea of making something out of it," was the way one bright young member of the Philadelphia section recently phrased it.

FIELDS FOR CHEMISTRY

This seems true. One would hardly look upon a locomotive as a chemical product, but the Baldwin plant keeps a very respectable force of chemists at work right along. Medicine, as every one knows, is intimately related to chemistry, but the ordinary laymen hardly ever thinks of vaccine virus as the product of a chemist. Should you be a dissipated person who dabbles with the seductive cocktail in the wretched quarter of an hour before dinner you can rest assured that a chemist, as well as alcohol, is at the bottom of it somewhere, just as the chemist has scanned the whole of the catnip which may follow the cocktail.

Explosives, coal tar, drugs and dyes and patent fire extinguishers have been heralded almost to exhaustion as the fruits of chemistry—but how many think of the talking machine as the work of chemists? Perhaps it isn't, strictly speaking, but the Victor people pay out considerable amounts each year to chemists who look after their lines with the seductive cocktail in the wretched quarter of an hour before dinner you can rest assured that a chemist, as well as alcohol, is at the bottom of it somewhere, just as the chemist has scanned the whole of the catnip which may follow the cocktail.

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SIDE INDUSTRIES

Apart from medicine, instruction, public inspection of various sorts, these business activities are represented in the membership of the Philadelphia section of the American Chemical Society: Cotton bleaching, glass manufacture, explosives, metallurgy, textile manufacturing in all branches, water treatment for industrial purposes, sugar refining, starch manufacture, paints and varnishes, soaps, catsup, gas manufacture, artificial board manufacture, metal cleaners, vegetable, animal and mineral oils, fertilizers, vegetable dyes, mineral dyes, gas mantles, rubber manufacture and rubber reclaiming, manufacture of acids and heavy chemicals, gas, vanishing, soap, talking machines, spice grinding, extracts, cements, tanning, wheat flour, sheepskin picking, wool scouring and carbonizing, brickmaking, biological products and bacteriology, storage batteries, iron ore reduction, cellulose other than explosives, steel, locomotives, distilling, ceramics, photoengraving apparatus, saws, files and rasps, magnesia and asbestos products, boiler compounds, artificial silk, air products, hydro extracts and condensed milk.

**OIL AND CHEMICALS FORM
BIG PHILADELPHIA ITEM**

Magnitude of Business Unknown Outside of Trade Shown by Impressive Figures

Oils and chemicals constitute a very respectable proportion of the export business done through this port. It is known, in a general way, that Philadelphia is a large manufacturer of chemicals and a large exporter, but the magnitude of the business is hardly appreciated outside of the trade. The following figures, giving the chief exports in chemicals, oils and their allied lines for 1916, give a good basis for estimating the volume of the oil and chemical industry, though allowance should be made for the fact that great volumes of chemicals originating in the Philadelphia district figure in the export figures for New York and not for this port:

Commodity	Quantity	Value
Chemicals, lbs.	24,178	12,321
Acids	2,512,288	2,512,288
Wood alcohol, gals.	477,735	811,992
Mineral extracts	21,992	21,992
Time and dyes	208,865	208,865
Mineral oil, lbs.	452,170	28,450
Petroleum jelly	30,785	30,785
All other drugs and chemicals	523,977	523,977
Pharmaceuticals	1,653,222	5,978,872
Explosives, lbs.	218,281	218,281
Other explosives	96,088,218	77,500,200
All other explosives	2,065	44,638,907
Explosives, tons	30,942	30,942
Lubricating grease	357,609	357,609
Mineral oil, gals.	28,450	28,450
Gas oil, lbs.	4,882,115	615,088
Tallow, lbs.	481	40
Resin, lbs.	1,154,061	144,240
Paraffine, tar and pitch	14,968	25,375
Alumina, gals.	37,810	37,810
Gas and fuel oils, gals.	30,581,478	1,218,422
Mineral oil, gals.	20,480,335	8,230,688
Mineral oil, gals.	144,200,869	8,454,999
Mineral oil, gals.	87,652,982	9,727,197
Mineral oil, gals.	24,178,018	4,357,147
Mineral oil, gals.	2,988,928	344,702
Other vegetable and animal oils	17,509	17,509
Mineral oil, gals.	2,856	2,856
Mineral oil, gals.	72,856	72,856
Mineral oil, gals.	6,778	7,044
Mineral oil, gals.	6,778	6,778
Mineral oil, gals.	2,871,419	222,898
Mineral oil, gals.	1,117,300	119,650
Mineral oil, gals.	47,428,300	1,173,478
Mineral oil, gals.	2,600	84
Mineral oil, gals.	6,451,286	823,947

Seven Italian Ships Sunk

ROME, April 10.—Seven Italian vessels were sunk during the week ended April 15, according to an official statement. The most recent: The week ended April 15, 1917, all nationalities of a gross tonnage of 641,915, entered Italian ports.

**AMERICAN CHEMISTS
EXCEL IN INVENTIONS**

Have Originated and Developed Many Important Industries, U. S. Official Says

"What is the Matter With the American Chemist?" says the Drug and Chemical Markets, in the title of an instructive article in Harper's for April, and the question is answered by L. K. Barkeland, member of the Naval Consulting Board of the United States, who tells of some of the American chemists' achievements. He says they have built up the greatest sulphuric acid industry in the world. They originated and developed the largest aluminum industry, largest calcium carbide industry, which furnishes a new chemical for producing acetylene light and which, mixed with oxygen, permits the welding and cutting of metals by means of a burning jet of oxyacetylene, melting the metal like butter.

The American chemist is credited with the development of the largest electrolytic soda industry in which the electric current is used in the trenches, and also caustic soda. Chlorine gas has its use in making an antiseptic and bleaching agent, and mercurized cotton goods and of soda pulp for paper supplies.

The industries which owe their existence to the researches of American chemists are so numerous that one knows hardly where to draw the line, but there are still others deserving special attention. They were instrumental in providing the great sulphite pulping industry, petroleum refining, synthetic graphite, the industry for the better utilization of corn and cotton seed, the photographic film, which is the base of the motion picture industry, processes for the rapid tanning of leather, improved and cheapened the making of paints and varnishes, modernized the cement industry and improved processes in the rubber trade.

MARKET FOR COLORS

Under war pressure the American chemists' activities have ramified through an endless network of other industries, and chemical plants have quadrupled in size and new chemical plants and dye industries developed.

**PHILADELPHIA BIG
CHEMICAL CENTER**

Trade and Work in Coal-Tar Chemistry Highly Important

MART FOR COLOR DYES
Metropolitan District From Chester to Camden Makes Many Drug Products

Philadelphia as a chemical town holds high place in American industry, and the metropolitan district today is a vastly important section in coal-tar chemistry. This is as it should be, for Philadelphia, as America's leading textile city, is a large consumer of coal-tar dyes, and her pharmaceutical firms handle large quantities of coal-tar drugs, like aspirin, phenolphthalein and acetanilid, not to mention such staples as carbolic acid and salicylic acid. Moreover, Philadelphia was an early leader in coal-tar development, for Dr. D. Jayne more than a generation ago not only made anthracene in this city, but sold the product abroad.

By a combination of patent laws, which work to the advantage of foreign formula holders and tariff laws designed to favor importers of coal-tar chemicals at the expense of the United States manufacturers, the coal-tar industry was early undermined and the ambitious attempts of Doctor Jayne and others to develop intermediate manufacture in this country were brought to an end. So far as the coal-tar color industry was concerned only one intermediate—anthracene—was made in America when the war began in 1914. How America has progressed in this one line can be seen by looking at market reports. One trade paper, which quoted thirty-one coal-tar colors in November, quotes sixty-nine this month, and all are of American manufacture.

Coal-tar colors, though of prime importance in such great Philadelphia industries as textiles, glazed kid and paints, do not sum up Philadelphia's interest in coal-tar chemistry. This city is a market for colors rather than a maker of colors. But in other directions Philadelphia is a leader in coal-tar exploitation. In the development of coal-tar products, such as roofing, paving and wood-preserving materials, the city has a long and honorable record. Byproduct recovery has been in practice for years in the Philadelphia district, notable examples being at hand in Camden and Chester coke works. The United Gas Improvement Company, by its cyanogen recovery and other processes, has taken a part in this development, and the Benzol Products Company, at Marcus Hook, is one of the great new plants which are demonstrating what can be done with coal-tar products. The great powder companies, preparing for peace, frankly state their purpose of getting into the coal-tar field in lines other than explosives.

Since the war began Philadelphia has leaped into prominence as a producer of phenol, and for months has been producing at a rate which exceeds the whole national production before the war. One laboratory is credited with fifty tons of synthetic phenol daily and this alone is as great as the total American production prior to 1914. Perhaps the best part of this here in the Philadelphia field a shorter process has been discovered, so that American chemists can maintain phenol production in the face of foreign competition when the war is over.

FINE CHEMICALS TRADE

In the train of things like these has come the development of fine chemicals and drugs. Salicylic acid, a phenol derivative, is being turned out and acetylsalicylic acid, called aspirin by some, is being manufactured in considerable amounts. Phenolphthalein is likewise being made, notably in Camden, and the whole list would read like a few pages from the U. S. P. Everybody knows that potash compounds have been soaring since Germany's incomparable deposits are no longer available for world supply. High prices have stimulated American production, though, of course, this war-born industry will cease when Germany is once more in condition to export. Meanwhile there are certain chemical firms utilizing the green marls of New Jersey as sources of potash, and they are getting good prices. Depending on

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Jute and Linoleum
The London Jute Association and the Dundee Chamber of Commerce have agreed on a plan to recommend that an export duty be placed on all jute leaving Calcutta after the war, with a rebate of 100 per cent to the British Empire. Such a plan would directly affect the American linoleum industry by riveting its dependence upon British mills.

Failures in Chemical Industry
According to R. G. Dun & Co., the number of failures in drugs and chemicals in the United States during March was twenty-seven, against forty-two in the same month of last year and forty-five in 1915. The number of failures among manufacturers of drugs and chemicals was four, as compared with three in March last year and one in 1915. The liabilities of the failed traders in March this year amounted to \$225,428 and of the manufacturers to \$111,183, a total of \$336,611.

Soda Ash to Be Made in Japan
As a result of the experiments made in the manufacture of soda ash in Nagoya, Japan, a joint stock company, with a capital of \$500,000, has been formed to manufacture this product, and land has been acquired at Nagoya harbor to erect factories.

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