



PITTSBURGH SECTION
AMERICAN CHEMICAL SOCIETY
Golden Anniversary, 1903-1953





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A HISTORY OF THE SECTION
50 YEARS OF CHAIRMEN
BY-LAWS
ORGANIZATION

PITTSBURGH SECTION AMERICAN CHEMICAL SOCIETY

Golden Anniversary, 1903-1953

This record, in word and picture, of the evolution of the Section from its founding to the present day, is an official part of the commemoration of the first 50 years of the Pittsburgh Section of the American Chemical Society. It is still another service of a member who has served the Section in many ways in the past half century, Chester G. Fisher, chairman of the board of the company that bears his name.

The Executive Committee also wishes, at this time, to add to the public understanding of the role of research in American institutions, and to recognize outstanding achievements in the Pittsburgh area in all branches of science. These two additional aims will furnish the subjects for afternoon and evening programs, September 17, 1953, under the direction of a special committee headed by John C. Warner, president, Carnegie Institute of Technology.

Our thanks go out to these men, and to all our fellow workers, in this Golden Anniversary Year.

—THE EXECUTIVE COMMITTEE
1952-1953

FROM CARBON TO CARBON-14

[A History of the Pittsburgh Section
American Chemical Society]

By CHESTER G. FISHER

MEMBER, 1908—PAST CHAIRMAN AND COUNCILOR
PITTSBURGH AWARD, 1947

IT ALL BEGAN with those strange clouds of smoke over the little settlement at the head of the Ohio almost 200 years ago. Travelers heading West found them strange enough to note in their journals, those clouds of coal smoke in a country where the only common fuel still was wood.

Who could know that those coal fields were the Pittsburgh Seam that underlies parts of four states, the most valuable single mineral deposit in the world? But because it was the City of Coal, Pittsburgh could become the City of Iron . . . of Steel . . . and subsequently the world center of Analytical Chemistry.

Today, the era of mining, metallurgical and chemical activity ushered in with those clouds of smoke has yielded place to a new era, one ushered in with another cloud of smoke, this time over Alamogordo. The Pittsburgh Section of the American Chemical Society spans the years between the two eras, between carbon and carbon-14.

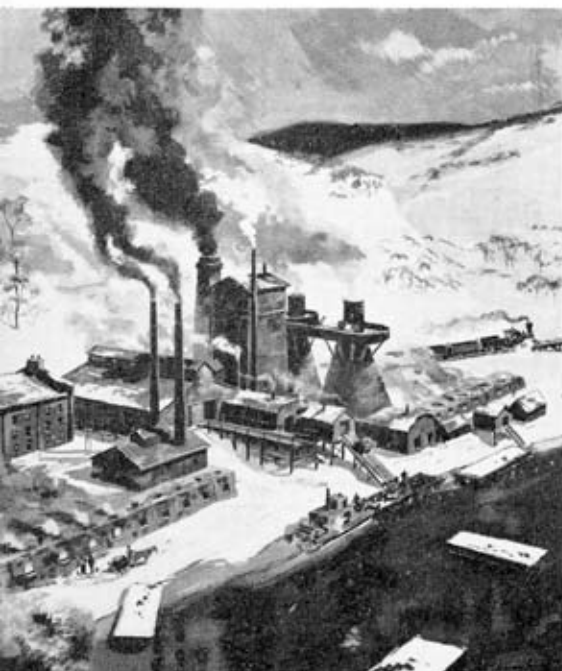
In its early days the Section was the after-hours forum in which the

pioneer mill chemists swapped shop-talk and evolved the analytical methods later to be adopted throughout the world. The "Carbon, Sulphur & Silicon Section," we called it then.

Soon, the Section became a gadfly in civic affairs, bringing pure drinking water to the city, driving home the need for recognizing the professional status of that little-understood creature called the chemist.

Finally, with the dawn of the Atomic Age, and the chemist suddenly thrust into the role of spokesman and arbiter, the Section became at times almost a civic forum, bringing in the best of the nation's researchers to give the area first-hand insights into contemporary science. It carried the word to the high schools by radio and—in a unique departure—by personal visit as the problem of technically-trained manpower became more urgent in the cold war than that succeeded the hot one.

Today, with the Section entering its second half century of service, a brief look at where it's been might not be amiss in throwing light on where it's going . . .



WHEN STEEL CAME TO TOWN (here are the homely little Eliza Blast Furnaces, circa 1861), steel chemists weren't far behind. Their first professional group was the Engineers Society.

P. C. & P. S. — A Forerunner

The Pittsburgh Section was the seventeenth of the 139 that now comprise the world's largest scientific body. But Pittsburgh chemists can be equally proud of that forerunner of the Section, the quaint Pittsburgh Chemical & Physiological Society, re-discovered in 1916 by the indefatigable Irishman who was *THE CRUCIBLE*'s first editor, John O'Connor, Jr.

This pioneer organization of Pittsburgh chemists, formed down on Market Street in 1813 when Pittsburgh was a frontier borough of 7000, was one of the first *three* in America, preceded only by Philadelphia's Chemical Society, that James Woodhouse started in 1792, and Columbian Society, founded in 1811.

Pittsburgh's first society grew out of the well-attended lectures of Dr. Christian Aigster, "physician and chymist" residing "in the Diamond." He packed 'em in three days a week,

Dr. Aigster did, in "the Laboratory" of the red-brick Pittsburgh Academy (which later evolved, through several turns, into the University of Pittsburgh), corner of Smithfield and Second.

The subject of Aigster's lectures: "the appplication of Chemical Knowledge in private & social Life" (including agriculture, brewing, clothmaking, glassmaking, mining, papermaking, tanning—and even cookery).

The Society had to disband when many of the group's chemists began to be busy with the laboratory they opened for manufacturing "lead, alcohol, ether, sweet spirits of nitre, aqua fortis, muriatic acid, red precipitate and calomel." At any rate, chemical industry—of sorts—had been established in Pittsburgh.

Then Came Steel

It was the rise of the steel industry that really attracted professional chemists to the area; a landmark was the first steel laboratory established in 1875 in conjunction with the opening of the Edgar Thomson works by the Carnegie interests, with Dr. A. Julius Preusse as chief chemist. In the same year Professor John W. Langley (brother of aviation's Samuel P.) was appointed chemist at the Crescent Steel Company's Crucible works.

(In industries other than iron and steel, to be sure, the works managers still had little use for chemistry. Confronted by a chemical problem they relied first on rule-of-thumb; then on the shop foreman; and, as a final authority, the *bookkeeper*. Someone might do a monograph

some day on "The Bookkeeper in Industrial Chemistry.")

By 1880, Pittsburgh scientists were able to set up the Engineers Society of Western Pennsylvania, with a foundation broad enough to include chemists and everyone else interested in the natural sciences. Of the 450 members in 1892, 34 organized a chemical "section" with Langley as chairman.

It is noteworthy that at the very first meeting of this section, member James Otis Handy (later a Chairman of the Pittsburgh Section) talked about the determination of phosphorus in steel. Then and there he proposed "solution of the phosphomolybdate precipitate in sodium hydroxide and titration of the excess alkali," a method still found in steel laboratories.

The meetings, naturally enough, were devoted to metallurgical questions, especially the analysis of furnace products and raw materials. Pittsburgh chemists seemed to have

developed a special talent for cooking up accurate and rapid methods of analysis, and the methods discussed at the meetings were published in book form in 1899 with the no-bones-about-it title of "Methods for the Analysis of Ores, Pig Iron and Steel As Used by the Chemists of the Pittsburgh Region." A best-seller, too.

By now, however, the American Chemical Society, at first pretty much a New York City organization, was expanding nationally. When Pittsburgh was selected host to the Society in 1902, there were no fewer than 57 ACS members within 70 miles of the town; sentiment favoring a local organization strictly for chemists came to a head.

The Year Was 1903

Thus it was that on a snowy evening in February—the third—1903, 18 chemists got together in the rooms of the Southern Society at 1809 Fifth Avenue to draw up plans

THEY WERE "Daddy" and "Mother" Phillips to Pitt chemistry students and teachers from 1875 to 1915. When Francis Phillips sparkplugged formation of the Section, he taught Pitt's inorganic, organic, physical chemistry and gas-analysis classes; did research in natural gas. Below: the ACS Medal that arose from his lifelong championship of one Joseph Priestley.





SOUTH SIDE CHEMISTS got to meetings of the "Carbon, Sulphur & Silicon" Section in style.

for a Pittsburgh Section. Included were the dean of Pittsburgh chemists—the Western University of Pennsylvania's Dr. Francis Clifford Phillips—and a kid: Alexander Silverman, a rosy-cheeked Bachelor of Philosophy from the University, to-day still busy practicing chemistry in town.

The others: O. I. Affelder, L. L. Arnold, H. C. Beggs, G. M. Berry, J. M. Camp, P. H. Conradson, C. H. Davis, N. H. Finley, Abraham Gross, Philo Kemery, G. P. Maury, A. G. McKenna, H. E. Meyers, Robert Miller, G. B. Murray, C. H. Rich, H. E. Walters (who is still very much alive, and a loyal Pittsburgher), and F. J. Wilson.

February 3, 1903 . . . the news that night, as the Section's Founding Fathers traveled to the meeting, was that the Kaiser was preparing to send battleships to Venezuela. In Washington the Senate was in heated debate over the question of statehood for Oklahoma; in St. Petersburg the Russian Government prepared for war with Turkey. Eggs were 22 cents a dozen; coffee, seven cents a pound, and beef, six; men's quality shoes were \$1.52. Gay blades on Fifth Avenue were whistling such

hit tunes as "I Can't Do That Sum," "Under the Anheuser Bush," and "Hamlet Was A Melancholy Dane."

In chemistry the world had just seen the first work on X-rays, radioactivity and the general structure of the atom, and in Stockholm Svante August Arrhenius received the Nobel Prize for his theory of ionization . . .

That evening in 1903, temporary officers and a by-laws committee were elected and the group was invited to hold its future meetings at the house of the Engineers Society of Western Pennsylvania at 416 Penn Avenue, meetings to be held jointly with the chemical section of the Engineers Society, the two chairmen alternating. (The old chemical section did not finally disband until 1907 and the Engineers Society is still, of course, very much alive.)

At the first meeting, the by-laws were adopted. The group's area was fixed as "all members in Good Standing of the American Chemical Society residing within a radius of Seventy (70) miles of Pittsburgh, and in Blair County, Pa. [but] any member, in Good Standing, of the American Chemical Society, residing outside the above territory, may, upon application, become a member of this Section."

We were in business.

At once, Dr. Karl Friedrich Stahl (the German-born chemist who had brought over, inside an orange peel, a choice variety of Europe's finest yeasts—and so through the years could offer his Section friends some of Pittsburgh's finest wines) presented an important communication from the Society of Chemical Industry:

Would we entertain the distinguished foreign chemists and technologists who were coming over next year in connection with the St. Louis Exposition? We would.

The first of fifty years of papers was read by Harry Walters: "The Analysis of Bronzes and Bearing Metals." The meeting broke up after a barrage of questions and note-taking only because tomorrow was another day, and the men had to journey into the night, back to Wampum and Leetonia and Youngstown and Avalon—and East Liberty . . .

Trolley Cars, Gas Stoves, Typhoid

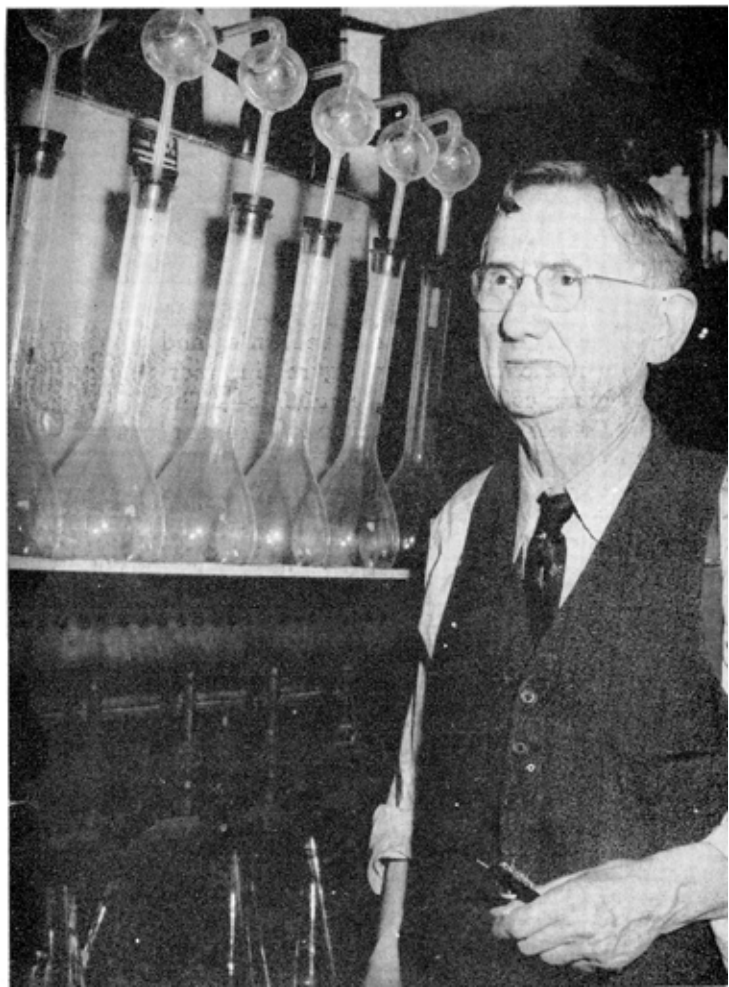
Membership mushroomed. Soon, there were 135 men and—horrors, or bravo!, depending on the commentator of that early day—one girl chemist (Miss Emma L. Stuart of 5448 Hay Street).

True, iron and steel still remained a major interest of the Pittsburgh Section. Historians of American tech-

nology would probably give a great deal to have a tape recording of that historic meeting in 1903 when Howard Hunter Craver, of the Pittsburgh Testing Laboratory, read a paper on the "Early Analysis of Iron," and then, hour after hour, members got up to give *their* early experiences too, the great names like Charles Morris Johnson, chief chemist of the Park Steel Company, who pioneered the determination of carbon in steel via combustion in the electric furnace, and Lincoln Foundry's Walters, who gave America the persulfate method for manganese in iron and steel.

But the Section's interests were broadening. In October, at its sixth regular meeting, Alexander Silverman made his first address: "Carbon

LAST DAY in the laboratory—July 1, 1950—for Charles Morris Johnson, who for 60 years was one of the steel world's great chemists. He gave the Section his pioneer methods for the control of alloys of steel (but is also proud of his cure for poison-ivy rash, hives).





THE MAN-ON-THE-STREET wouldn't believe what sand filters could do for drinking water, but on an Oakland lot our Handy showed 'em.

Dioxide in Allegheny Schools" and announced that a study of Pittsburgh street cars "would reveal some interesting figures, too." He was followed by Dr. Phillips on "The Gas Stove Considered from a Sanitary and Chemical Standpoint" and "The Chemical Status of Bread Making" by David Chidlow (so enthusiastically received, that he invited the whole Section, on the spot, to visit the Ward-Mackey Bakeries—which they did).

Via their Section, the information-hungry chemists roamed from the *earthly*—"The Art of Pottery Making" (by ceramics expert Harrison E. Ashley—then the Section's, and America's, leading figure in inorganic colloids) to the *sublime*—"The Ultimate Constitution of Matter" (by Washington and Jefferson's Dr. H. E. Wells). Chautauqua never had it so good.

One night, when less than a year old, the Section took up arms against the contaminated water supply that was giving Pittsburgh and the City of Allegheny (today Pittsburgh's North Side) the highest typhoid death rate in the civilized world.

For some years now, chemists had been spending their own money, their own time to alert the two cities

to the danger. It was our Handy, chief chemist of Pittsburgh Testing Laboratory, who suggested the radical measure of using Allegheny River sand to purify its own water.

("Imagine," the 1903 man-on-the-street was saying, "some danged fool says you take *dirty* sand from the bottom of the *dirty* river and squeeze *clean* water out of it!")

Handy wrote a series of articles for the press, lectured every spare moment, collected funds, and finally, in the vacant lot at the corner of Craig and Fifth in Oakland (where St. Paul's Cathedral now stands), he and some fellow chemists set up a miniature filtration plant. A year was spent running the river water through its own river sand, but they got bacteria-free water.

Hence the resolution that Dr. Phillips presented on November 19, 1903 before the Section:

"Whereas, the question of the purification of the water supply of Pittsburgh has been made the subject of a thorough investigation . . . conducted by experts of ability and experience, and . . .

Whereas, it is a matter of common knowledge that the community is suffering from a continuous epidemic of Typhoid fever, resulting from the use of polluted Drinking Water, be it therefore resolved

That it is the sense of the Pittsburgh Section of the American Chemical Society that the councils of the City of Pittsburgh give the matter immediate consideration with a view to the establishment of a system of *sand filters*!"

Twin resolutions were dispatched to the mayors and councils of the cities of Pittsburgh and Allegheny. And although, next moment, the versatile chemists switched over to a paper on "The Jellies of Pittsburgh" (delivered by, of all people, a chemist from the Union Spring Steel Company of New Kensington) they had made history.

The resolutions read that night led to the adoption of filtration by

the two cities, and, within four years, the entire water supply had become acceptable. Typhoid, needless to say, vanished.

It is only fitting that it should be a Section chemist who catalyzed still another revolutionary treatment of the water supply in the years ahead—fluoridation to prevent tooth decay—which got into motion as a research project when Aluminum Research Laboratories' Harry Van Osdall Churchill got interested in the determination of trace fluorides in water as an analytical problem. (A curious instance of *serendipity*, this, "the finding of that which is not sought . . .")

Lucius Allen's Big Bag

In those early days the Section was still a work-place, too. When members questioned the wide range in analyses published by cement scientists in a national journal, Lucius Allen of the Crescent Portland Cement Company opened up a big bag and passed around samples of cement.

Members took them home to try to get more concordant results and, next meeting, marched in clenching their notebooks.

It was in these early meetings, too, that Alexander Silverman gave his first paper on a subject on which he was to become an authority in the next half century, glass, and exhibited a number of exotic samples, while Joseph E. Babb, inventor of the Babb stopcock (and George Westinghouse's personal chemist), announced an improved portable gas analysis apparatus.

A precedent was started in 1905 with the arrival of the first out-of-town speaker, Charles S. Bradley of New York, dusty but undaunted, who spoke on industrial electrochemistry. He was the forerunner of the Nobel Prize winners and other inter-

national experts who would one day come before the Section. The Section still remained a shirtsleeves forum, however, and an address by the National Bureau of Standards' distinguished Dr. William Albert Noyes might be followed, next meeting, by a spirited discussion set off by Dr. Phillips' query: "How do I open a plugged cylinder of liquid chlorine?"

By now the Section was meeting hither and yon . . . once in the Fulton Building, Sixth Avenue and Duquesne Way; sometimes at the new Carnegie Technical Schools in Schenley Park; or the Central Turnverein (somewhat linguistically mis-located

SEEING'S supposed to be believing. Here is "Hank" Kohman in his pioneer baking-laboratory in the wooden Industrial Research Laboratory of the University of Pittsburgh. Below him, high-collared earnest researcher Edmund O. Rhodes.



at the corner of Thackeray and O'Hara Streets); or Thaw Hall; or even the Colonial Annex Hotel.

The moving started when a secretary of the Engineers Society one night refused to allow the meeting of the Section to proceed unless an officer of the old chemical section was in the chair . . . and there wasn't an officer in the house.

Some of the chemists wanted to meet with the Engineers Society directors and appeal the secretary's unilateral decision; others said absolutely no overtures. It's characteristic of the early Section that the tempestuous meeting was restored to order only when chemist Harry Walters called attention to a new method for the separation of tin and antimony based on the precipitation of tin as phosphate. (*What did a roof over your head matter as long as you could hear news like that?*)

The dispute was amicably settled, and for the rest of 1907, meetings were held with the chairman of

either group present. Thereafter, the Section met at the other places mentioned until it found its final home in the new Mellon Institute's auditorium (it was to provide a meeting-place for the Pittsburgh Section, which could also be used by others, that the planners of the new building included the large auditorium with its own entrance on Bellefield Avenue).

If the Gentleman Doesn't Object

In 1908 the Section decided to become more financially robust (the parent Society was then undergoing the financial strains of the *Journal* and of *Chemical Abstracts*). It decided to advertise itself more effectively by printing "the name and occupation of the speaker together with any interesting facts concerning the nature of his paper (providing the gentleman has no objection) in the cards announcing the regular meetings of the Society." **THE CRUCIBLE** (if you grant ten years) was on its way!

An Entertainment Committee reared its head, too, and soon the chemists were having their first informal dinners together at the German Club, 222 Craft Avenue—five full courses for \$1.00—then walking en masse through Schenley Park to the Carnegie Technical Schools to hear the evening's address. Chemistry under the elms, you might say.

They'd hear a brilliant chemical engineer from way down East, Dr. Arthur D. Little, tell about "The Opportunity of the Division of Industrial Chemists and Chemical Engineers," or Mr. Earl Blough, chief chemist of the Aluminum Company of America that Section members George Hubbard Clapp and Captain



PRE-WORLD-WAR-I glimpse of Pittsburgh's first aluminum skyscraper was given us by Earl B.



FAMILIAR SIGHT to many chemists in 1912 was the reception room-&-office of Mellon Institute. The custom was for each new Fellow to hang up his pennant.

Roy Hunt had started in a 24-by-70-foot shed on Smallman Street, discuss "Aluminum in Engineering" (what did they make of Blough's prediction that "one day you'll see aluminum buildings rise up from the streets"?)

Through the years, coal and mining and the thermochemistry of explosives also held the interest of the Section, and on May 19, 1910, it felt justified in dispatching a document to William Howard Taft, President of the United States, pointing out

"That the Pittsburgh Section, American Chemical Society, recognizing the ability shown by Dr. Joseph A. Holmes of the technological branch of the United States Geological Survey as a practical chemist, and being familiar with his able work as a chief engineer of the Government Testing Station at Pittsburgh do

Hereby unanimously endorse him for appointment to the directorship of the newly created United States Bureau of Mines."

Next meeting they reaffirmed the resolution and urged the President to act at once. He did.

R.K.D. Meets the Section

By 1911, still other institutions were joining the iron and steel laboratories as centers of research, and an enthusiastic address on "Industrial Fellowships" was given the Section by young Robert Kennedy Duncan, Professor of Industrial Chemistry and Director of Chemical Research at the University of Pittsburgh and the University of Kansas, from whose work the world-famous Mellon Institute of Industrial Research would come.

One of Dr. Duncan's pioneer fellows at the then "Industrial Research Laboratory of the University of Pittsburgh," Dr. Henry A. Kohman (a chemist who could tell his wife *he'd* spent a hot day over a kitchen stove, too) spoke on his unique work with salt-rising bread.

In September of 1912, the first scheduled meeting was called off as the members rushed about after laboratory hours to prepare for the impending visit of the Eighth International Congress of Applied Chemistry; everything came off splendidly.

And early in the following year, the public got its first chance to meet with the chemists, when the Section invited everyone to hear Dr. Arthur L. Day, Director of the Geophysical Laboratory of Washington's Carnegie Institution, talk on the



R.K.D.—he burned with a gem-like flame.

"Chemistry of Kilauea," the Hawaiian volcano, in the large lecture hall of Carnegie Institute in Oakland.

An earnest young student of Dr. Duncan's, one Edward R. Weidlein, came by train from Kansas to give his first paper before the Section: his work on the preparation of adrenalin from the suprarenal glands of whales. This was in January, 1914. In February, at the age of 46, tireless Dr. Robert Kennedy Duncan, "one of the Section's best known and most respected members, a worker whose broad vision of industrial research has greatly advanced the ap-

plication of chemistry," was dead.

For five days in March of 1914, Pittsburgh chemists had a field day listening to the great Dr. Wolfgang Ostwald of Leipzig talk on colloid chemistry to joint meetings of the Section and the Mellon Institute staff.

But the horizons were already dimming . . . and on June 28, 1914, an Austrian archduke, Francis Ferdinand, and his wife, Sophie, were murdered in the cobbled streets of Sarajevo.

In September we find the Section voting to send a circular to all manufacturers in the area, offering "immediate assistance in overcoming the difficulties arising from the stoppage of chemical imports brought on by the War in Europe."

The first of the many wartime meetings of the Section began: on December 17, 1914, Dr. Harold Hibbert spoke on the freezing of nitroglycerine and its detonation by shock, and even, at the group's insistence, performed experiments on the same!

One interesting little bit of Section business took place at this time. Caught by the rising prices, the Section had begun to print an advertisement on the back of its monthly announcement. This permitted it to issue a four-page leaflet instead of the usual postal card. At the January 1915 meeting, one Founding Father vigorously protested this, observing that "such a method of securing funds to meet the expenses of the Section is unnecessary and undignified." The Section vetoed *his* veto, however, it being the opinion of the group that advertising in the United States "was probably here to stay..."

A Rally for Priestley

On October 21, 1915, Professor Phillips sounded another of his calls

to the Section. "The old Priestley home at Northumberland," he warned, "is threatened with destruction. The chemical societies must take action to preserve the home of this great 18th Century chemical investigator."

A committee was set up to arouse the nation's chemists. Thirty-four Sections answered the call; today there is a permanent Priestley restoration, a shrine for all American chemists.

But the immediate job before the Section was the war. (And war nerves ran high. There was a \$12.35 deficit for tobacco at the annual Smoker!) Columbia's Dr. Marston Taylor Bogert, new chairman of the Chemical Committee of the National Research Council, trained into Pittsburgh to set forth the "research and development work expected of chemists in war time," and laid specific problems before the Section, such as the combatting of poisonous gases. As we shall see, he came to the right place.

It was in this year, incidentally, that a pioneer Pittsburgh radium researcher, Dr. Charles H. Viol, proposed that the Section found a medal to be awarded for meritorious service . . . A harbinger of the Pittsburgh Award, this, although the ill-fated Dr. Viol would not himself live to see his idea converted into bronze.

During these early war years, too, the Section kept an interested eye on the old arsenal grounds, corner of 40th and Butler Streets. Here was the National Bureau of Standards, and here our Albert Bleininger was making tests on every European clay he could get his hands on to discover just what their magical powers were and what we could do now that imports were stopped. What he learned: those lowly U. S. clays, if properly mixed, would work as well!

Dr. Bleininger's work on spark-plug porcelains, so vital to the army of that day, is still standard, and he was the first to see that alumina would some day revolutionize the spark-plug industry. On a homelier level—if any one man is responsible for the advance of American tableware, that again was the Section's A. V. Bleininger.

Today, the Bleininger Memorial Award, named for the frail boy who waded through icy water in winter below the Willow Junction kilns as a firer to support his fatherless family, is the nation's highest award for achievement in ceramics. In the years, it was to go to *three* Pittsburgh Section researchers: S. R. Scholes, E. Ward Tillotson and Stuart Phelps.

The Crucible is Born

"Greeting! members of the Pittsburgh Section of the American Chemical Society. THE CRUCIBLE greets you out of its heart of hearts and hopes that you are glad to see it . . . It knows that it is one of the signs of the times—the dawn of a new day for the chemist. It hopes to play a small part as the interpreter of that glo-

WHAT THE WELL-DRESSED CHEMIST wore in '17. Bill Hamor helped start the Chemical Warfare Service, thought up its retorts & benzene ring.



rious new day to the people of the Pittsburgh District."

The year was 1918, the month February. Volume 1, number 1 of a new publication was off the presses, the labor-of-love of John O'Connor, who was not a chemist at all but who was so imbued with the brave-new-world spirit of the young Section that he worked to build a publication of value to his city's chemists.

O'Connor was assisted by another non-chemist, his secretary Miss Jennie Herron, who valiantly kept *THE CRUCIBLE* alive month after month when her boss left Mellon Institute on leave-of-absence to work for the government in Washington; she saw to it that the newly-created voice of Pittsburgh chemists did not meet an untimely end.

History's Muse can shrink from nothing; her eyes are wide. It must be recorded that a joke also appeared in an early *CRUCIBLE*—the second issue, in fact.

"Ruth is an alchemist I know,
And so I'll have to drop her.
For every time I'm out with her,
My silver turns to copper."

Its innocuousness deceives; it was the opening wedge for hundreds of variations on the archetypal theme of the Battle of the Sexes, especially the influence of money and domesticity on the mysterious thermodynamics of love.

Colonel R. F. Bacon, director of Mellon Institute and faithful counselor of the Pittsburgh Section, returned from France on November 17, 1918 after ten months of active service as chief of the Technical Division of the Chemical Warfare Service, AEF, and gave the Section an inside picture of the new gases.

Actually, the Chemical Warfare Service began in the Pittsburgh Section (its very insignia came from the hand of Mellon Institute's Major

William Hamor). The first German mustard gas attacks had been, psychologically, not unlike the Hiroshima bomb. General Pershing burned up the cables to Washington; the military looked to laboratory science to counteract the new horror.

At once, the General Staff asked Bacon to assemble the personnel for a "front-lines" AEF research laboratory in France and they deputized C. G. Fisher to equip it.

(That was a time when emergency knew no law. The Pittsburgh chemists ran off impressive letterheads—"Chemical Warfare Service, U.S.A."—*this* was their "priority number.")

Contents of German mustard duds were analyzed on the spot and the data rushed back to America to Colonel William H. Walker (formerly Professor of Chemistry at Pittsburgh High School), in charge of the Edgewood Arsenal. Thanks to this three-way play, we were soon producing in *drums* what the Germans had made only in *flasks*.

Operation Gas Mask

Not only were Pittsburgh Section men the initiators of the Chemical Warfare Service of the United States, but the first gas masks used on the Western Front (April 22, 1915) by the *British* forces were made from models created in Pittsburgh by Mellon Institute's James Bert Garner.

In addition, the Gas Defense Division of the Medical Department, *in one year of war*, developed a gas mask equal to that of any belligerent, so that American troops soon were supplied exclusively with American masks. This, as it later came out, was largely due to the enterprise and initiative of two other Section members: Bradley Dewey of the Sanitary Corps and George A. Burrell of the Bureau of Mines.

PITTSBURGH SECTION OF THE
AMERICAN CHEMICAL SOCIETY

G. D. CHAMBERLAIN, CHAIRMAN
CARNEGIE STEEL CO., BRADDOCK, PA.

IRVING C. ALLEN, SECRETARY
U. S. BUREAU OF MINES, PITTSBURGH, PA.

The 99th regular meeting of the Pittsburgh Section of the American Chemical Society will be held in Room 302, Thaw Hall University of Pittsburgh, Grant Boulevard, Thursday, June 19, 1913, at 8 p. m.

PROGRAM

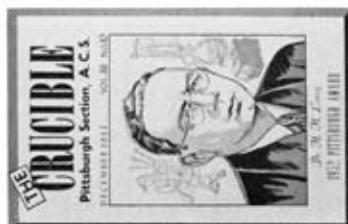
The Oxidation of Mercury. Prof. G. A. Hulett, Chief Chemist,
U. S. Bureau of Mines.
Notes on Carbon Combustion Tubes. C. S. Johnson, Crucible
Steel Co. of America.

IRVING C. ALLEN, SECRETARY

1



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41

UNIQUE in the annals of world chemistry are the local section papers of the ACS. And unique among these is THE CRUCIBLE: it's the only one to have come out as a daily during the national conventions of 1922 and 1936. It grew from a postal card in 1908 (fig. 1) to a 4-page leaflet in 1914, to an 8-page journal in 1918 (fig. 2). Today (fig. 3), it's a crisp, handsome 32-page journal, one of the Section's largest, but it still has time for a good-natured parody of a TIME cover as in announcing a Pittsburgh Award for the coal world's H. H. Lowry in 1952 (fig. 4).

The Crucible

Published Monthly
by the
PITTSBURGH SECTION OF THE
AMERICAN CHEMICAL SOCIETY



VOLUME I.

FEBRUARY, 1918.

NUMBER I.

THE 142nd MEETING

Pittsburgh Section
AMERICAN CHEMICAL SOCIETY
Thursday, Feb. 21, 1918, at 8:15 P. M.
Mellon Institute, University of Pittsburgh

"OPTICAL GLASS"

BY
A. E. WILLIAMS
of the United States Bureau of Standards.

Mr. Williams is a graduate of the Department of Ceramic Engineering, Ohio State University. Since his graduation he has been actively engaged in various commercial plants and in conducting researches not only in the domain of the glass industry, but also in other ceramic fields. These latter researches were carried out principally at the University of Illinois, where he was an instructor in the Department of Ceramic Engineering. Some of this work included the manufacture of barium and ruby glasses. For the past two years, Mr. Williams has been connected with the United States Bureau of Standards. At the Bureau, he has developed an optical glass laboratory and also a small plant capable of supplying a certain amount of the needs of the United States Government for various uses.

Members of the Section should welcome the opportunity to hear Mr. Williams tell of the great strides made in America in the development of the optical glass industry, both from the manufacturing and laboratory standpoint.

2



NOT MEN FROM MARS—only Oakland—wearing Jim Garner's pioneer gas masks of World War I.

The General Staff had asked Burrell to set up a research laboratory at Washington University and gave him shiny eagles to wear on his high-collared uniform.

Thus it was to *THE CRUCIBLE* that a doughboy-chemist naturally sent the following gem from "Somewhere in Germany," signing it merely "Poetic License 67-449":

My gas mask, 'tis of thee,
Sweet air of purity,
Through thee I breathe.
I love thy cocoa C,
Formin and alkali;
O'er top I try to see
And spit beneath.

Let gas pollute the breeze
And shells bounce off the trees;
Their power is gone.
With K-permanganate
And soda-calciate
I sneer at Fritz's hate
And carry on.

Another of Colonel Burrell's achievements came to light after the war's end as well. It was he who had initiated helium work at the Bureau of Mines early in the war. In his work with natural gas (from which he was the first to extract gasoline) he found that gas from the Petrolia field in Texas contained 35% nitrogen, reasoned the helium content must be high as well.

It was. Over 0.90%, in fact. And by the time the armistice was signed, 45,000,000 cubic feet of the precious non-flammable stuff was available for kite balloons and dirigibles.

In this early "battle of the laboratories," the Section lost several of its most loyal members. Men like Lieutenant H. C. Engelbrecht, who succumbed while experimenting with phosgene in the American University Experiment Station gas tests at Washington. And S. H. Diehl, who rushed into the blazing inferno of the "dynol" plant at Oakdale to pull out workers and lost his own life when the nearby TNT building exploded—the outstanding hero of the catastrophe that leveled the Aetna Chemical Works on May 18, 1918.

Theme Song

Pittsburgh Section accomplishments in the war had given the chemist a prestige heretofore unknown by him, and in May, 1919, when biochemist Elmer V. McCollum came in from Johns Hopkins to discuss those strange new "vitamines" (leave that "e" on, it was 1919), the record crowd included for the first time even more visitors than chemists, despite the transportation strikes sweeping the city.

Thus it was in this period that the Section, through its *CRUCIBLE* and the newsreleases it placed in the Western Pennsylvania press, began to hammer upon a theme: the professional status of the chemist. Hundreds of now-yellowed clippings from the *Chronicle Telegram*, the *Dispatch*, the *Gazette Times*, the *Leader*, the *Press*, the *Sun*, with headlines like "Pittsburgh May Retain World Trade Through Its Chemists," "Section Foresees Everyday Uses for Radium—Pushbuttons that glow in the dark," and full-page signed articles by the Section publicity com-

RAISING the salaries of post-World-War-I chemists was one Section objective. Section artist called this "Suggested Coat-of-Arms for Chemists."

mittee's Charles Skeele Palmer, point to an almost unbelievably successful campaign.

The battle for the *economic* recognition of the chemist by management was still an uphill one, however. (Nice wartime-salary for an analyst in a rubber factory was \$1,200 a year.) As late as 1925, the Section took cudgels editorially after reading a National Preservers Association announcement that the Association was considering getting a chemist for its new program, estimating "We could get a mighty good one at \$1500 or \$1800."

"Chemists," **THE CRUCIBLE** pointed out, "should be quick to resent such misuse of their name!"

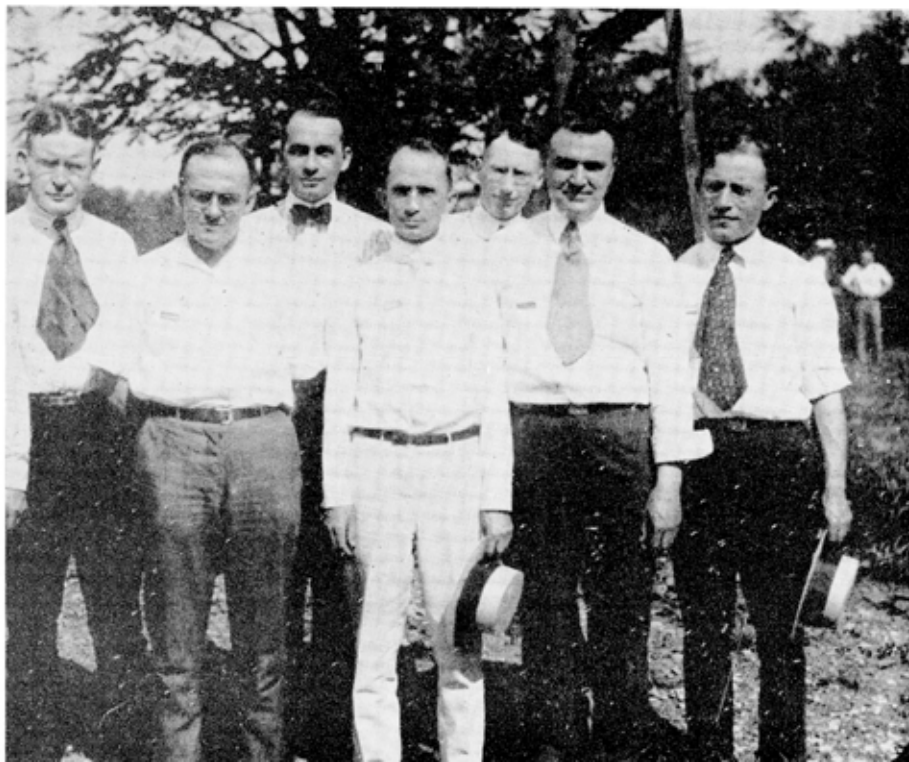
Especially underpaid was the *analyst*, and it was a Pittsburgh Section member, who, unable to forget



this, would in later years establish an annual award to be administered by the American Chemical Society specifically to honor and encourage work in the United States and Canada in *analytical* chemistry.

But to go back to the post-World War I scene. With most of the region's chemists back from service, the Section staged a huge affair,

AT THAT MEMORABLE 1919 picnic—William Hamor, Charles Nesbitt, Rufus Zimmerman, Earl Blough, Albert Bleininger, Chester Fisher, Arno Fieldner. Industrial research, steel, aluminum, ceramics, instrumentation, fuels research—all are here.



marking, in a way, the emergence of the group as a large, active civic organization now taking its place alongside the other associations of professional men in the district.

The hot July sun beating down on the grounds of The Pines on Perrysville Road . . . the crack of a bat, as the Steels played the Mines . . . the pungency of a chicken-and-waffle dinner . . . the sarcastic guest speaker, a pompous be-monocled "Austrian" scientist who scoffed at American chemists ("ach, disch-vaschers!") and worked the group up to a murderous pitch until he pulled off his moustaches and revealed himself as the local mimic, Luke Barnett: this was the first Annual Outing of the Pittsburgh chemists in the year 1919.

On January 15, 1920, Dr. Phillips, too ill to attend the Section meeting ("Where's Doc Phillips tonight?"), sent a blistering letter to the members, moving that . . .

"WHEREAS, many essential branches of manufacture in this country are dependent for their success or even for their existence upon a fully developed dyestuff industry, and

WHEREAS, during the period previous to and during the war, legislation wholly unfavorable to an American dyestuff in-

... PLUS MacTavish, 124 pounds of fire from the Jones & Laughlin steel laboratories. "Fisticuffs" was a perennial feature of the outings.



dustry has necessitated our dependence upon foreign lands for a meager supply of dyestuffs, and

WHEREAS, it is an established fact that in promoting the manufacture of dyes in the United States we should at the same time give encouragement to that branch of chemistry to which we owe the discovery and production of high power explosives so necessary to future national defense . . .

THAT the Pittsburgh Section of the American Chemical Society urge our Senators and Representatives the need of such laws as will fully and permanently protect the industry . . .

This was Dr. Phillips' last service. A month later, at the 162nd meeting of the Section he had helped father, it was moved that "suitable resolutions be sent to the family . . ."

F.C.P., born in April 2, 1850; who journeyed to Wiesbaden to learn from the lips of Regimus Fresenius himself; who for forty years headed the chemistry department of the University of Pittsburgh; who early was one of his country's top figures in hydrocarbons and who in 1913 gave American chemists their first compact, practical *Chemical German*; who did not live to complete his monumental *Life and Work of Joseph Priestley* but whose interest carried to the American Chemical Society, which established the gold Priestley Medal; who died at 70 from an illness contracted while nursing an invalid son . . . F.C.P. will long remain in the memory of the Section.

A Lady from France

Younger chemists do not always remember that for about a decade, 1911-1921, the radium center of the world was a five-minutes' walk from Mellon Institute. Here, at the corner of Forbes Street and Meyran Avenue, on the fourth and fifth floors of the Flannery Building, three Section members, Glenn Donald Kammer, Henry Titus Koenig and



WHEN PITTSBURGH SENT Glenn Kammer (center) to England to teach the nation's physicians how to use radium, Sir Ernest Rutherford put his personal laboratory at Kammer's disposal.

Charles H. Viol, crystallized over half the radium produced in the entire world, and it was here that the first radium *anywhere* was produced commercially.

Here, too, Viol edited *Radium*, a Standard Chemical Company house organ that was at the same time a genuine contribution to radiochemistry, ranking in importance with Leipzig's *Zeitschrift für medizinische Elektrologie und Röntgenkunde* and Paris's *Le Radium*. (The Technology Room of Carnegie Library still has a complete file—all that remains of this unique chapter in American chemistry.)

It was in the Standard Chemical Company's works in Canonsburg that carnotite ores from Colorado were converted to chlorides, and delivered by messenger on an interurban trolley to the Company's Forbes Street laboratories.

Although the ore was quite low-grade (about one gram of radium per 500 tons of concentrate, compared with one gram per *one* ton in European pitchblende) the wonders wrought by these chemists made it possible to produce radium reasonably enough for purchase by physicians and hospitals.

Mme. Curie herself had as her greatest interest—when she came to town in 1921 to receive an LL.D. from the University of Pittsburgh—to learn how Pittsburgh chemists could treat such poor ores so successfully and on so large a tonnage basis and she spent hours in Canonsburg with Louis Vogt, the Section member who headed the radium works there. She asked many questions, he reminisces. But she wouldn't disclose anything in return, though.

It is interesting that the experiments of Kammer and Viol with fluorescent materials during World War I (inducing the effect in crystallized zinc sulfide with radioactive materials) provided illuminated control devices for airplanes even in that war . . . a principle to be utilized

MARIE SKŁODOWSKA CURIE met the Section in 1921, and with Louis Vogt and James Gray toured the radium works in nearby Canonsburg.





THE THREE B's—Germany's Berl, Italy's Bruni, England's Sir Lawrence Bragg—a few of the international figures who widened horizons for the Steel City's analysts.

during World War II, of course, in many other ways.

Radium eventually killed all three—Kammer, Koenig and Viol—but their work has made it possible for thousands of people to be cured of cancer without injury to physician or lab technician.

More Hands Across the Sea

In 1922 the National Convention of the American Chemical Society was held in Pittsburgh and the Section set up an exhibit of industries characteristic to Pittsburgh in Carnegie Museum.

In the spring of 1923 the Section brought Dr. Guisepppe Bruni, one of Italy's foremost chemists, to address the section on "Italy's Part in Chemical Scientific Development" and later, Sir Robert Robertson (K.B.E., D.Sc., LL.D., F.R.S.), chemist to the British government and chief man behind the new propellants developed in World War I. Later yet, they heard Dr. H. F. Coward, of the safety-in-mines research board of Great Britain, speak on "Flame" (after all, it was the Flaming Twenties) and give some striking demonstrations of the ignition of gases.

In this period, the Section was proud of the Rezilal steels of vet-

eran member Charles M. Johnson; the work on olefine gases and their derivatives by George O. Curme; and Ralph E. Hall, who brought out the economic importance of chemistry to the community with his addresses on feed-water chemistry. With his talks, the education of the public on waste waters (today a nation-wide objective) was under way.

In this period, too, the Section was especially active in its smoke control interests. And it was a problem; in 1923 everyone was talking about a new novel by E. C. Rath that had on its jacket blurb: "*A young chemist from Pittsburgh with aspirations to make Pittsburgh the cleanest city in the world, starts West on a trip for his nerves. His adventures are among the most enjoyable in recent fiction.*" Title of the book: "The Nervous Wreck"!

Now, too, the Section was host to its old parent, the Engineers Society of Western Pennsylvania, as well as the American Society for Steel Testing, the American Electrochemical Society, the American Ceramic Society and other groups when it invited Harvard's Dr. Albert Sauveur (billed as "the Nestor of metallography") to address the Pittsburgh Section at the U. S. Bureau of Mines.

NARY A pH on their minds as 500 chemists (and wives or sweethearts) sailed down the Ohio on what came to be an annual outing.

The Section continued to make news when, in the fall of 1926, it played host to foreign delegates to the International Union of Pure and Applied Chemistry, their wives, and the American committee. Among them: Prince Conti, the Italian chemical manufacturer; Sir William Jackson Pope, of Cambridge; Professor Camille Maitgnon of the College de France; and Professor Stefan Minovici of Yugoslavia.

In June 1928, probably to cool off from the years-long round of activities sponsored by the group, the whole Section sailed 45 miles down the river and back on an Ohio steamboat.

"What They Did In Pittsburgh"

The big talk in the winter of 1930, spring of '31, was of the new Mellon Institute going up at the cor-



ner of Bellefield and Fifth, the largest excavation in Pittsburgh history (100,000 cubic yards of earth), and of its new laboratories.

That year Dr. Frederick E. Brethut, President of the American Institute of Chemists, gave the Institute's Gold Medal to Andrew W. and Richard B. Mellon and announced that the activities of Mellon Institute

"have assisted in bringing to the United States the largest chemical industry in the world and have led not only to the training of a large number of young scientists and technicians but also to the creation of new industries. What they have done in Pittsburgh has become more or less a part of

EN ROUTE to Section meetings in the winter of 1930-1931, members made a point of stopping to watch the Big Hole awhile (see any sign of our auditorium yet?)



our industrial fabric and technological organization, but it required great vision and courage to see this twenty years ago when research was still merely an unwelcome stepchild in most of our industries."

In 1932 the Section got a sobering picture of *another* fabric, *another* organization, when Colonel Burrell returned from Russia at the end of the second of his two trips to develop the natural gas and oil industry there. The Pittsburgh chemist had talked with Government officials, engineers, professional men, laborers, peasants; he had taken motion pictures (this was 1932, remember) of the never-never land that stretched

Emeritus with the quotation "Thus shall it be done to the man whom the King delighteth to honor." To the Section, he was a last link with a world known only in books: born in Wurttemberg in 1855, he had trained at Tübingen under Fittig, one of the great organic chemists of the 19th Century, in whose laboratory, Dr. Stahl would tell us, "those old long-beam balances were so slow I could smoke a cigar between swings."

The good Doctor Scientiae Naturalis, who as a child had seen Donati's Comet streak across the



GRAND OLD MAN of Pittsburgh chemistry—Karl Friedrich Stahl—cuts a piece of cake of the Section honors his 90th birthday. Ten former chairmen helped host.

from Leningrad to the Caucasian Mountains. And his summary of the government:

"It is ruthless in converting the people to its methods, and any means—persecution, coercion, or extermination—are applied as the necessity arises . . ."

In 1932, too, the Section created a new office when its 566 members installed Dr. Stahl as Chairman

sky, was to become the U. S.'s chief specialist on the manufacture and use of hydrofluoric acid, and he invented a new packing for sulfuric acid carboys that became universal. (His last "public" appearance was at the Section's June picnic in 1946. A month later, while waiting to board a street car after a visit to the library, he was struck by a truck and died in his 92nd year.)



"YES, INDEED," muses Alexander Silverman, chairman of the Section's design committee. Handsome symbolic plaque (right) by Sculptress Lois Whitcomb Rhead and Designer Frederick Fisher Florig won first prize. Cast into bronze, it became region's top honor in chemistry.

The First Pittsburgh Award

"Recognizing its leadership in chemical affairs in the community, the Pittsburgh Section of the American Chemical Society herewith establishes the presentation of the Pittsburgh Award. This Award symbolizes the honor and appreciation accorded to those who have rendered distinguished service to chemistry in this area."

The year: 1933. The recipient: Dr. Hall, the Bureau of Mines chemist who became the world's foremost authority on industrial and domestic water-conditioning simply by shaking his head when the experts of 1922 solemnly proclaimed that boiler scale was formed by sludge baking into the boiler surfaces.

Instead, Hall started the first *laboratory* investigation to find out how and why scale actually did form. His "calgon" (vitreous calcium phosphate) was to be named "chemical of the year."

1933 saw three internationally famous German scientists in the Section as they joined the staff of Carnegie Tech: Professor Otto Stern, pupil of Einstein, who developed the use of molecular beams in elucidating atomic structures; his assistant, Professor I. Estermann; and the fuels



expert Ernst Berl. Of this last, it was said that "new information drops in floods from simply knowing him" and ACS members would frequently call on him after his day's work.

In 1934 the Pittsburgh Award went to Charles Edward Nesbitt, chief chemist of the Edgar Thomson works of Carnegie Steel, "who utilized his knowledge of the chemistry of iron and steel to formulate and standardize laboratory procedures for the entire industry."

This pioneer in the application of spectral analysis to steel laboratories shepherded the finances of the Section from the lean days of 1915 until 1933, when the books of the Section (if not of the nation) were safely in the black.

His efforts, like those of R. W. Bridges, who served as secretary from 1931 until his death in 1946, and the CRUCIBLE's pappa, John O'Connor, show the strange attachment that men were to feel for the Section.

PITTSBURGH AWARD

[1933-1942]



**1933
RALPH E. HALL**



**1934
CHARLES E. NESBITT**



**1936
ANDREW W. MELLON**



**1936
RICHARD B. MELLON**



**1937
FRANCIS C. FRARY**



**1938
GEORGE H. CLAPP**



**1939
EDWARD R. WEIDLEIN**



**1940
ALEXANDER SILVERMAN**



**1941
WEBSTER N. JONES**



**1942
CHARLES G. KING**



1943
JUNIUS D. EDWARDS

PITTSBURGH AWARD

[1943-1952]



1944
LEONARD H. CRETCHER



1945
JOHN C. WARNER



1946
WILLIAM P. YANT



1947
CHESTER G. FISHER



1948
HENRY H. STORCH



1949
HARRY V. CHURCHILL



1950
WILLIAM A. HAMOR



1951
WILLIAM A. GRUSE



1952
HOMER H. LOWRY

ANALYTICAL CHEMISTRY



In May of 1935 the Section trooped over to the Carnegie Tech Drama School to see that controversial drama "Liliom" (on which the Rodgers and Hammerstein musical "Carousel" was later to be based). *THE CRUCIBLE* noted with dignity (this was before the advent of *The Grapes of Wrath* and *From Here to Eternity*): "The presentation was expurgated, and hence the careless and wholly unnecessary indecencies of language and gesture were gone . . ."

In December of that year, 250 chemists turned out in a wintry blast to hear the Bureau of Standards' Dr. G. E. F. Lundell speak on the importance of the analytical chemist ("He must now be prepared to handle almost every element in the periodic system . . . the old cherished methods of separation are often painfully inadequate . . .")

Thirteen years later, the Section would found an annual symposium that would draw analysts to Pittsburgh from all over America and even abroad.

In Division There Is Strength

By 1936 the Section had grown in size far beyond its founders' orig-

COVER BOY—one of Analytical's first picture covers featured J. R. Churchill, "one of the leaders of the new analytical revolution," famous son of a famous father. Other second-generation Sectioners: Gilbert Thiessen, son of Reinhardt, who was a world authority on coal; Philip Maury McKenna, son of the Section's first chairman, Alexander G.; and Edward Weidlein, Jr.

inal hopes . . . and to recapture some of the early work-a-day sessions for members in the same fields, it sanctioned the first formation of Divisions: "A", Analytical and Industrial; "B", Biological and Organic (at whose first meeting Dr. George D. Beal made an important attack on the bugaboos and misinformation regarding aluminum and food); "C", Physical and Inorganic; and, a few years later, "D", Chemical Education.

From September 7 to 11, 1936, the American Chemical Society again came to town, in what, the Section was later informed, "was one of the most successful meetings held." At least part of the average delegate's time must have been consumed reading the magnificent 108-page issue of *THE CRUCIBLE* awaiting them, in which a chemist from each characteristic industry in the area turned historian for the day and pictured his plant's work.

An unforgettable amalgam of significant technological events and the warm homey friendliness peculiar to the Pittsburgh Section was this national meeting. Here Thomas Midgeley, with a roar and a bang, demonstrated how something called "tetraethyllead" would eliminate the knock in an automobile engine, and 2500 chemists sat down to dinner on the lawn of Carnegie Tech, after which they watched a Tech Drama Department three-acter under the stars.

1936 saw, too, the unanimous decision to confer the year's Pittsburgh Award on Andrew Mellon and his brother, the late Richard Mellon,

founders and patrons of the "guild of scientists" that bears their name.

Within a year, another distinguished body of chemists had descended on Oakland for the dedication of the newly completed institute, and Section members heard three Nobel laureates: General Electric's Dr. Irving Langmuir (chemistry, 1932); Columbia's Dr. Harold C. Urey, co-discoverer of heavy hydrogen (chemistry, 1934); and Dr. William P. Murphy (medicine, 1934); as well as Sir Frederick Banting (who spoke on "Early Work in Insulin"); M.I.T.'s Dr. Karl Compton; and Bell's Dr. Frank B. Jewett.

In 1937 the Pittsburgh Award went to Dr. Francis Cowles Frary, director of research at the Aluminum Company of America, "for adding greatly to the prestige of Pittsburgh not only as a metal-working center but as a center for metallurgical research."

One of the joint inventors of Frary metal (the widely used lead-bearing alloy), he perfected the process for making phosgene used at Edgewood Arsenal during and since the war, and helped design the largest phosgene plant in the world, which was solemnly guarded by a volunteer Buck Private H. V. Churchill—who was immediately drafted for *laboratory* work when Frary ran across him (making Churchill his country's sole enlistee-draftee). It was Frary, too, who helped put the production of pure aluminum (99.98+%) from bauxite by electrothermal methods on a large-scale, commercial basis.

Another pioneer Pittsburgh chemist, an outstanding philanthropist and humanitarian, was to receive the Section's highest recognition a year

later: George Hubbard Clapp, the young chemist with the Black Diamond Steel Works who joined with a laboratory colleague, metallurgist Captain Alfred Hunt, to form what became the Aluminum Company of America . . .

Incidentally, some latter-day metallurgical pioneering was taking place at this time in little Latrobe, although it was not until the summer of 1939 that the nation first learned about Rare Metallurgist Phillip Mowry McKenna's new material.

With 20 men he was turning out each month some 40 to 50 pounds of the hardest artificial substance ever made—harder than sapphire, only a few degrees softer than diamond. It seems that the 42-year old Section member, after 5000 or so experiments, discovered that the molecules in tungsten, titanium and carbon, when heated to 4000° F with nickel and a solvent, arrange themselves in a near-diamond-hard lattice.

Chamberlain had promised us peace in our time, but orders for the new "Kennametal" were piling in from the armament makers in England and America, who saw the handwriting on the Berchtesgaden wall.

As if to show that the chemical world recognizes none of the bounds of the political one, September 25-30,

"A CHEMIST'S DESK"



AN ART-CHEMIST of the Section captures one of the group's intangibles: the ability to take chemists out of their special fields, let them compare notes with men in the other fields.

1939 saw Section members and research leaders from Great Britain, France, Belgium, Germany and Poland sitting together at 4800 Forbes Street in the Bureau of Mines building, for the Fifth International Conference on Mine Safety Research. This most important of groups concerned with the safety of the world's miners stemmed from the efforts of the Section's Joseph A. Holmes, first director of the Bureau of Mines, who arranged for an international conference on coal-mine safety research at the Central Experiment Station in Pittsburgh in 1912.

In 1939, too, the Section honored with the Pittsburgh Award, Edward Ray Weidlein, Director of Mellon Institute, for his distinguished services to applied chemistry, to the chemical profession and to the American Chemical Society, which he had served as President in 1937. By 1935 alone, 10 new industries had been born as the result of research at the Institute he guided.

As if realizing that this was their last moment of relaxation before war duties became their daily lot, the Section's chemists enjoyed a Christmas Party, the highlight of which was a critical revision of the famous "Schnitzelbank" song by Dr. H. S. Olcott and Dr. W. J. Remington of Mellon Institute, "since no existing version had attained the scientific precision characteristic of the chemist's work." Their version is reproduced in the present history; as they pointed out, "Those who are familiar with the Schnitzelbank in various forms will note here several recently identified isotopes . . ."

Still, on the brink of another world catastrophe, the chemists were a sober lot; the featured beverage was a preview batch of Canada Dry's new formulation, "Spur."

The Pittsburgh Award that year went to Alexander Silverman, 35-year member of the Chemistry Department at the University of Pittsburgh, under whose leadership the department grew from 100 students to 1500; from three teachers to 30. Of him, it was to be said 11 years later, on being made Honorary Member of the American Institute of Chemists, that he "promoted a better understanding of applied chemistry by lecture, by precept, and by unselfish service to the chemistry profession . . ."

Another Pittsburgh school was honored when the 1941 Pittsburgh Award went to Webster N. Jones, director of the College of Engineering of Carnegie Institute of Technology. A great teacher, a great administrator, he had been the chemical expert of World War I's War Trade Board, had conducted research on Lewisite and, later, had helped produce the "age-resisters" which have since protected millions of tons of rubber products. "Guiding father to all the rubber chemists in America," he has been called, a formidable title, but accurate.

The Squadrons

In September, 1942, gas was again in Pittsburgh chemical news, with 135 county chemists forming a Gas Protection Division—just in case. Head of the Gas Identification Squadron: Dr. O. F. Hedenburg, of Mellon Institute. His job would be to identify the gas samples taken to his laboratory by the Gas Detection Squadron under George Jones of the Bureau of Mines. Dr. John C. Warner of Carnegie Tech, head of the Gas Decontamination Squadron, would then clean up the mess.

HIER IST ES, the one and only scientific version of the "Schnitzelbank," a sort of by-product of Pittsburgh chemistry.



IST Das nicht eine



Schnitzel Bank?

"Ja das ist eine Schnitzel Bank"



Blaselampe



Wasser bad



Stirring Rod

°C.

Centigrade



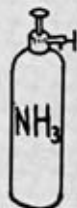
Flasche Gefunkt



Schmelzenpunkt



Becher Glas



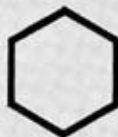
Ammoniakgas



Haufen Mist



Böse Gift



Benzene Ring



Gefährliches Ding



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PITTSBURGH SECTION
AMERICAN CHEMICAL SOCIETY

Lights burned late in Oakland as the chemistry departments at the University of Pittsburgh and Carnegie Tech announced tuition-free evening courses to train individuals for war industries . . . metallurgical analysis in steel works laboratories, microscopic testing of industrial materials, testing and control of foods...

To a former Pitt teaching assistant in chemistry went the 1942 Pittsburgh Award, Charles Glen King, in recognition of his outstanding service to chemistry through his scientific researches in biochemistry and nutrition, and for his extension of these services as an exceptional teacher and organizer.

Charles King probably wore out more shoe leather than any other member in the Section's history. The very sensitive, unstable vitamin preparations that protected guinea pigs from scurvy had to be stored in the same small icebox that serviced senior classes on the fourth floor of Thaw Hall. The guinea pigs, which required meticulous care each day during the continuous 10-week tests, were housed in a small room sand-

THIS HANDSOME BOOKPLATE adorns countless reference books at Carnegie, symbolizes a memorable chapter in the history of the Section.

wiched between two freshman labs on top of the hill, above Pitt Stadium. Directions for reaching the animal room were "Four floors down, then a half mile up and a half mile over . . ."

Behind the scenes at Mellon, work went on diligently, quietly . . . with just about the first notice coming from *Time* magazine, March 29, 1943, which reported Dr. McGregor's work in developing silicone resins . . . and Dr. Wakeman's development of a leatherlike material expected to stand up 25 years without stretching even when flexed 900 times an hour.

In mid-1943 a letter came to the already overburdened Section from the national secretary: "Fall meeting awarded to Pittsburgh."

As ACS President Dr. Per K. Frolich explained, on the basis of chemistry's part in the war effort this meeting was fully justified as it would be a forum for vital topics (food, rubber, coal, petroleum, steel, technical manpower), a chance for progress reports and information pooling.

Although all of the Section members were then busy on vital projects of their own, they buckled down as hosts, and the final registration, 3,537, added up to the largest chemical meeting ever held in the city. For the occasion, the entire offices of Fisher Scientific Company were overnight converted into an art gallery, with several hundred alchemical and historical paintings and engravings, depicting the sweep of chemistry from China's Wei Po-yang (142 A.D.), and his gold elixir, to Britain's Alexander Fleming, and his gold elixir, on display for the city's visitors.

The Pittsburgh Award that year went to Junius David Edwards, assistant director of Aluminum Research Laboratories, "in recognition of his fundamental contributions in the fields of gas chemistry, the metallurgy of aluminum and aluminum paint, and the practical application of these developments for the betterment of mankind through his activities as inventor, author, editor."

Battle of the Books

By now Pittsburgh was in the midst of the most tremendous efforts its analytical chemists were to know, running tests on \$19,000,000,000 worth of munitions as their plants switched from baked beans to bombers, corsets to parachutes, baby carriages to gun stocks . . .

War was beginning to tell on the Technology Department of Carnegie Library; in the first six months of 1944 alone Pittsburgh industry had called upon it for 5000 photostats of technical literature. And despite the

enormously increased cost of technical publications, the Department's allotment for reference books, instead of being increased, had just been cut by the City to *one third* of what it had been. At once the Section took up the challenge . . . and thereby hangs a rescue . . .

The Technology Department, you see, had been the first of its kind in any public library anywhere, starting 53 years ago when the Carnegie Library added a *chemist* to build up a reference library that could answer the questions those steel laboratories were bringing in day and night (the Department's still on an 82-hour week). He was the Section's Harrison Warwick Craver, who thus became the first technical librarian in America.

As a matter of record, the Pittsburgh Section, the city's first advocate of a strong technical collection, has had a Library Committee since 1921. At that time its chairman, Dr. Handy, made an earnest effort to

ON BEHALF OF THE SECTION, J. Paul Fugassi (right) presents a scroll to E. H. McClelland, who added over 100,000 books to the Technology Library in his 44 years, compiled 60 important scientific bibliographies (including the famous one on "Smoke Control")—and named THE CRUCIBLE'S notorious "Under the Hood."



induce city council to appropriate \$5000 a year *specifically* for the Technology Department. But the Year 1921 HCL (High Cost of Living) was not a good year for increased appropriations. So, the committee raised over half this amount *itself* through personal contributions from members of the Section, turning over some \$2600 to the Library.

With the Section's helping hand, the Technology Department got along fairly well. Then came the war—and the crisis.

So, in the summer of 1944, Gilbert Thiessen, chairman of the Section's Library Committee, began the campaign. C. G. Fisher, chairman of the fund sub-committee, published a pamphlet explaining the need, then phoned and wrote every industry in the area. The Department needed a fund of \$50,000; the Section raised \$70,000.

As *C. & E. News* pointed out in a two-page spread on the unprecedented event:

"The fund is in no way restricted to chemical literature; it enables the Technology Department to regain and improve upon its former service in the entire field of pure and applied science. Since the fund operates in this comprehensive field, it is noteworthy that the progressive group which recognized the need and acted was the *chemical profession* through its local organization."

Wrote Carnegie Institute president William Frew:

"You have enabled the Technology Department to subscribe to nearly 300 new technical journals; *several thousand* English translations of Russian and German articles . . . All this could never have been achieved . . . The Board of Trustees is grateful to every member of the Pittsburgh Section . . ."

That fund was to last the Department through the most strenuous years in its history. In 1953, with the fund depleted, a Section committee

was once again in action—this time with the most ambitious plan of all: to collect an endowment of sufficient size that its income would put the Technology Department's funds on a *permanent* basis.

In 1944 the Pittsburgh Award went to Mellon Institute's Leonard Harrison Cretcher, a standardbearer in the agelong war against human suffering and disease, a most noteworthy contributor to the chemotherapy of pneumonia.

In the fall of 1945, the Society of Analytical Chemists of Pittsburgh met and unanimously voted to accept the invitation of the Section to become the nucleus of its Analytical Division. This unprecedented move in the history of American technical societies was part of a Section plan to enlist the active participation of the largest possible number of chemists in the affairs of the American Chemical Society. The Society of Analytical Chemists served as a "pilot plant" to show that small *autonomous* groups of specialists could function—and function best—inside a larger, more general society.

Ruled the Section's Executive Committee:

"Members of the Section interested in any specialized field of chemistry may, with approval of the Executive Committee, organize as a Division of the Section . . ."

Response was enthusiastic. Soon some 600 Section chemists signed up for seven Divisions—Analytical Chemistry, Biochemistry, Chemical Education, Coal Technology, Organic Chemistry, Physical Chemistry and Polymer Chemistry. Each had its own membership lists, own elected officers, own rules; more important, each had its own meeting nights that would permit full freedom for the Division's specialized work. (In the rather amorphous A, B, C, D, group-



TODAY'S URGENT NEED for recruiting scientific personnel was anticipated by the Section. Its Pittsburgh Chemistry Award to high school students is only one of a half dozen different youth programs simultaneously conducted by the Section via high school contests, personal visits, Meetings-in-Miniature, Affiliate conclaves, radio.

ings of 1936, only three or four meetings a year were held, crammed into the hour before or after the main Section meeting.)

The national Society watched this innovation with lively interest, reporting it "for the edification of the other large Sections similarly faced with memberships of diverse scientific interests."

U²³⁵: Members Only

On December 10, 1945 the Section held a Special Joint Meeting with the other leading societies of the area in the ballroom of the William Penn—the first meeting ever restricted to "Members Only." The reason: Dr. John R. Dunning was speaking candidly on atomic energy, the first in a continuing series of programs by the Section on the chief chemical concern of the day.

They were to hear, later, California's Glenn Seaborg on the future possibilities of radioactive tracers... Rochester's Harold Hodge on the toxicity of uranium and its compounds... Westinghouse Research's J. K. Stanley on the use of radioisotopes in chemistry and metallurgy... and California's Melvin Calvin on carbon-14 in photosynthesis.

Part of Pittsburgh's intimate connection with the atomic bomb was brought out at the presentation of the 1945 Pittsburgh Award to Dr. Warner, who had been granted a two-year leave from Carnegie Institute of Technology, where he headed the Department of Chemistry, to coordinate research in the chemistry, purification and metallurgy of plutonium at the top-secret laboratories of the University of California, University of Chicago, Iowa State College, M.I.T., Los Alamos and, later, Clinton Laboratories at Oak Ridge. (When, five years later, the trustees of Carnegie Tech looked for the best man to head that institution, they selected the Section's J. C. Warner, and all of us who knew him well were sure that things at Tech were "going to be Jake.")

A former Pittsburgh Award winner was honored in 1945, too. Dr. Frary, the Section's councilor, and Award winner in 1937, received the Perkin Medal for outstanding accomplishments in industrial research—the second Alcoa scientist to be thus honored (in 1911, Charles Martin Hall was honored for his development of the modern process of aluminum—an occasion when sev-

eral of his Section friends spent a frantic hour before the dinner trying to find some "tails" for the busy inventor, who had let the matter slip his mind).

In the spring of 1946, Section members were joining an Association of Pittsburgh Scientists "to consider and act on the social and political implications of the new scientific developments." With the Council of Churches of Allegheny County, they sponsored a highly-lauded Conference on Problems of the Atomic Age.

The Pittsburgh Award for 1946 went to Dr. William P. Yant, director of research at Mine Safety Appliances, for his studies of carbon monoxide poisoning and development of ventilation for vehicular tunnels (now standard throughout the world). With the "sea around us" of increasing interest, thanks to Pennsylvania College for Women's Rachel Carson, it is fitting that it was Pittsburgher Yant who introduced helium-oxygen mixtures for deep-sea diving.

The Younger Set

In May, 1946, the Section held its first Student Award night, with prizes for the three best essays on a selected subject in chemistry and a fourth to the student having the best chemical exhibit at the Annual School Science Fair sponsored jointly by Buhl Planetarium and the *Pittsburgh Press* Junior Science Clubs (as many as 1200 contestants from 124 schools compete). As the Section had foreseen, its young awardees were all targets of scholarship offers from the area's colleges and universities and today many of them are studying chemistry and engineering and industrial design in graduate school.

In September 1947, when the *Chemical Bulletin* of the Chicago

Section asked its readers to send in answers to the question, "In my opinion, the 10 ablest chemists or chemical engineers now working in the United States in the above fields are . . .," Pittsburgh Section chemists found themselves among the top men throughout the survey. The list included:

Analytical & Micro: H. V. Churchill, Chief Chemist, Aluminum Research Laboratories.

Fats, Oils & Soaps: H. E. Longenecker, Dean of Graduate School, University of Pittsburgh.

Gas & Fuels: H. H. Lowry, Director, Coal Research Laboratory, Carnegie Institute of Technology; A. R. Powell, Associate Director of Research, Koppers Company; H. H. Storch, U. S. Bureau of Mines.

Industrial & Engineering: Francis C. Frary, Director of Research, Aluminum Research Laboratories.

Water, Sewage & Sanitation: Gladys Swope, Chief Chemist, Allegheny Sanitary Authority.

In May, 1948, many members of the Section went out to Bruceton to the dedication of the new U. S. Bureau of Mines Synthetic Fuels Laboratories and Pilot Plant for development of liquid fuels from coal . . . and the "Disco" (smoke-less fuel) Low-Temperature Carbonization Plant near Imperial.

The press suddenly became *coal-conscious* and took a good look at these developments, and at the Bituminous Coal Research, Inc., a major supporter of fundamental research in coal gasification, combustion, and direct production of chemicals from coal; the Coal Research Laboratory at Carnegie Tech; and the laboratories of Pittsburgh Coke & Chemical's research program.

"Pittsburgh coal chemists are guaranteeing for the future an adequate supply of vital products and byproducts . . . for the mass production of low priced medicinal chemical bases . . . and ingredients for paint and varnish industries . . . plastics industries . . . wood preserving . . . all of



A TALE OF TWO YOUTHS—As the Section's Herbert Longenecker awards a Somerset High School junior a check for his home-made spectrophotometer (with ACS President Noyes looking on), the national Society's Charles Parsons awards another young scientist, Max Lauffer, its somewhat larger prize for his study of influenza viruses (the Eli Lilly Award for a young scientist). There's a parallel here.

which depend on coal derivatives for their very existence."

In June, Howard Hunter Craver (librarian H.W.'s brother) died at 72. For more than a quarter century (1922-1948) he had had a large part in the production and editing of *THE CRUCIBLE*; at meetings in recent years one would always hear "Isn't Craver coming?" and there was always regret at his absence (which was usually to take care of his mother, who survived him at the age of 99).

In September, our Dr. Weidlein was awarded the Priestley Medal by the American Chemical Society for distinguished service to chemistry. Sir Lawrence Bragg came from Cambridge, England to visit Pittsburgh, and the Section, in cooperation with the University of Pittsburgh, presented the eminent scientist in a lecture on the "Laws of Plastic Flow." Naturally enough, it set the all-time attendance record for technical lec-

tures in Mellon Auditorium.

The 1948 Pittsburgh Award went to the Bureau of Mines' Henry H. Storch for his work on coal hydrogenation and the Fisher-Tropsch synthesis as well as his development work on improved methods of synthesizing liquid fuels. H.H. was a pioneer in the utilization of coal as a chemical raw material for the production of liquid fuels.

A Speaker in the House?

Due to "the scientist's increasing important role in virtually all phases of modern life," the Section established, in March of 1949, a Speaker's Bureau, with E. M. Kipp as Chairman. Soon, no fewer than 98 chemists and 257 topics that Section members could present to the public were registered with the Bureau!

The Section's active "youth program" reached a high point in May, 1949, when it brought together the young high school students who had

won awards for their achievements at the Junior Science Fair to hear Dr. Linus Pauling, past president of the American Chemical Society, who spoke simply, eloquently, on the contributions of chemistry to human welfare "from nylons to antibiotics." A meeting much lauded by the newspapers, it was a photographer's field day with flash bulbs bursting—literally—in the hall.

Pittsburgh had been one of the first cities where no restrictions were placed upon the admission of women to laboratory classes (Professor Phillips had seen to that in 1892) and now, in the spring of 1949, with much credit to Dr. Earl K. Wallace, a chapter of student affiliates at the Pennsylvania College for Women was granted a charter by the ACS and 100% of the young ladies eligible signed up.

But even Dr. Phillips might have been surprised to learn that there were enough women in professional chemistry in Pittsburgh to hold their own sessions in the Section and be addressed by their own number, such as Dr. Mary Lynch Bailey of the University of Pittsburgh's Virus Research Laboratory.

Awards continued. At a meeting of the *Pittsburgh* Section, October 20, 1949, the City of *Philadelphia* awarded Dr. Charles G. King, now Scientific Director of the Nutrition Foundation, the John Scott Award for his isolation and identification of Vitamin C (a prize of \$1000 and a copper medal previously accorded Mme. Curie, Sir Frederick Banting, Sir Alexander Fleming and Irving Langmuir).

In 1949 the Pittsburgh Award went to H. V. Churchill, chief of the Analytical Division, Aluminum Research Laboratories, who devoted 30 years to making aluminum the best-

analyzed of all industrial metals. Churchill was the pioneer adopter of spectrography for the quantitative analysis of aluminum, an innovation that permitted the aluminum industry in World War II to meet the 500% increase in production demands made on it. In one year spectrographs made some 6,000,000 determinations in the aluminum laboratories. (A versatile man, Harry has been interested in everything from the design of ham boilers to inhibited shaving cream!)

In 1949, too, the newspapers accorded their own form of tribute to Koppers research head Dr. G. Frank D'Alelio by quoting his predictions of eight years previous that "some day people will wear clothing made of chemicals"; men's nylon shirts were now in all the department stores.

The Pittsburgh Conference

The week of February 15, 1950, saw the first Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, a merger of conferences previously held separately by the Pittsburgh Section and the Spectroscopy Society of Pittsburgh.

Although both meetings had always been well attended, the *joint* conference, combined with an exposition of the newest in analytical and spectroscopic instrumentation, helped focus attention on Pittsburgh as the world center of analytical chemistry. To hear papers by the men whose analyses guide the area's vast aluminum, coal, oil, food, chemicals, glass, iron, steel and ceramics industries, came some 800 top scientists from all parts of the United States and Canada, while 1200 attended the exposition.

By 1953, the Conference and accompanying Exposition had mush-



PITTSBURGH SECTION made the first attempt to join the chemist with the public that enjoys the fruits of his labors when it had an open house at its "Kilauea volcano" lecture in 1913. Never dreamed of this coming to pass, though—Western Pennsylvanians waiting in 5-block lines to meet the men in the laboratory.

roomed into a five-day session, the largest scientific meeting in the City's year, with as many scientists as attended the *entire* first Conference now sitting in on a Symposium on X-Ray Fluorescence (the nation's first).

The connection of the two fields (analytical chemistry and spectroscopy) was revealed in a poem that a steel chemist (like Lot's wife, looking back to the Section's earlier glories) sent to the Section, two stanzas of which go . . .

They are becoming critical
Of chemists analytical
(Some think it is political).
But I maintain

It would be hasty to assume
The analytical chemist's doom
Is sealed. He has no cause to fume
Or to complain.

Some people think the spectrograph
Will write the chemist's epitaph.
Such hooley either makes me laugh
Or want to fight.

For results of spectrography
Must be confirmed by chemistry.
Without it how the heck can we
Be sure they're right?

Books were in the news again, summer of 1950, when Chairman-elect Edmund O. Rhodes journeyed to Germany to visit the University of Göttingen on behalf of the Pittsburgh Section and the CARE-UNESCO Book Fund Committee, where he presented the Library with funds for replacing some of the 250,000 technical books lost by the University's world-famous library during the war. Later, an illuminated scroll was to arrive in Pittsburgh: "To the Pittsburgh Section of the American Chemical Society . . . All Germans of honest hearts are dedicating this work as a Monument of Gratitude."

The Pittsburgh Award in 1950 went to Dr. William A. Hamor "chemist, research manager and author," in his early days closely identified with shale-oil and petroleum de-

velopments . . . a staff member or editor of a host of important journals; and editor, since 1947, of the ACS's *Chemical Monographs*. His chief field now is human relations and he did yeoman service for the Scientific Personnel Committee of the Atomic Energy Commission.

But this was the age of the young scientist, too. And in this period the Section was addressed by such men as Dr. Edward C. Creutz, of the new generation of physicists who have lived and worked behind the "lead curtain" of Los Alamos, and head of the Nuclear Research Center at Sax-onburg . . . and Dr. Jonas Salk, who early in 1951 addressed the Biological Chemistry Division on variations in viruses, data that were to come alive in news headlines two years later with the announcement of his work with polio vaccine.

It was, in a way, to prepare for future Creutzes, future Salks, that on June 14, 1951 the Section held

its first Meeting-in-Miniature, with 19 original papers read by graduate students and junior scientists from district colleges and laboratories, the winner receiving \$150 for a trip to the World Chemical Conclave in New York. Not only did the Meeting-in-Miniature give graduate students an immediate annual incentive; it was also a chance for them to compare notes and get a first-hand account of the various fields of research open to them in the area.

Jubilee!

The season 1951-1952 saw a dazzling array of speakers and of subjects (clinical medicine, antibiotics, hormones, cancer research, cosmogony, tracers in medical research, the state of scientific industry in China, the chemistry of crime detection, the selection of scientific personnel, chemicals from coal, and chemical calculating machines). A total of 6500 persons attended.

CHEMIST & FRIENDS, Time magazine might caption this. Here Mellon Fellow Edward R. Frederick demonstrates ultra-comfy laboratory-made stuffing for an Armed Forces sleeping bag. Another result of this research: a synthetic fur coat!



By now each of the seven autonomous divisions within the Section, according to a unique plan of Chairman Rhodes, was in charge of one General Meeting. No less than Professor Kurt Meyer of Geneva, Switzerland, international authority on high polymers, addressed the Get-Acquainted Meeting that launched the year of division-sponsored sessions.

1951 was also the American Chemical Society's Diamond Jubilee year. On August 27, Mayor Lawrence proclaimed September 2 to 8, Chemical Week; the Section issued posters to the Downtown stores . . . USSteel featured striking chemical exhibits . . . In Kaufmann's windows high-lights of the ACS's 75 years replaced the cocktail goggles.

Prodded by the Section's John H. Nair III, chairman of the Jubilee Committee, radio stations and newspapers kept public interest high. And on September 15 and 16, some 26,854 men, women and children stood in lines five blocks long to get into Mellon Institute for the mile-long tour of 48 fellowships. This was a golden chance, Section veterans agreed, to let people know that "chemists are not always the men in white coats and goatees of the ads prepared by Madison Avenue agencies." And they seized it.

Some 200 foreign visitors to the International Chemical Conclave visited the Section; thus, in addition to Professor Meyer, Section members heard three other members of the International Union of Chemistry: Dr. Richard M. Barrer of the University of Aberdeen, Dr. D. A. Bowden of Imperial Chemical Industries, and Professor H. W. Melville of the University of Birmingham.

The Section also played host to 120 young chemists from abroad

who had attended the Jubilee meeting in New York and were now touring the educational and research and industrial institutions of America as guests of the Economic Cooperation Administration and the Ford Foundation.

The 1951 Pittsburgh Award went to Dr. William A. Gruse, administrator and teacher, who has given the major part of his life to Mellon Institute and the Gulf Petroleum Fellowship, and whose research in World War II won him special citation from the Office of Scientific Research and Development and the Ordnance Department.

In addition to the Pittsburgh Award, its awards to the young chemists of School Science Fair, its Secondary School Chemistry Contest, and the prize for the top paper at the Meeting-in-Miniature, the Section now offered a *fifth* prize: to the best paper at the Student Affiliate Meeting, a conference of young student chemists from the area. This included no less than Bethany College, California State Teachers College, Carnegie Institute of Technology, Clarion State Teachers College, Duquesne University, Geneva College, Indiana State Teachers College, Mt. Mercy College, University of Pittsburgh, Seton Hill College, Slippery Rock State Teachers College, St. Francis College, St. Vincent College, College of Steubenville, Washington and Jefferson College, Waynesburg College, and West Liberty College.

The 1952 Pittsburgh Award went to Dr. H. H. Lowry, director of the Coal Research Laboratory of Carnegie Tech, the Peking-born son of American missionaries whose contributions to the knowledge of carbon have enriched the science of chemistry, bringing international renown

to the Laboratory—and to Pittsburgh.

Dr. R. B. Anderson, of the U. S. Bureau of Mines Synthetic Fuels Research Laboratory, received the 1953 Ipatieff Prize which is given for "outstanding chemical experimental work in catalysis or high pressure"—a *national* ACS recognition of Pittsburgh leadership in coal chemistry.

And as a climax to the year's awards came news of the conferring of the Gold Medal, highest award of the American Institute of Chemists, on Carnegie Tech's John Warner.

Today Dr. Warner is one of Science's most articulate spokesmen for free intellectual inquiry. Commenting on the recent investigations into the teaching practices of American universities, Dr. Warner told an ACS-AIC conference earlier this year:

"Some heresy or unorthodoxy has been good for our institutions and has led to progress in our civilization. This has been especially true of new ideas and new

points of view which have arisen from the replacement of superstitions by knowledge. I believe we should make a real effort to understand the difference between heresy and subversion."

To Meet the People

The latest moves of the Society have been towards extending even *further* the area of contact between the people of Pittsburgh and their chemists. May 1, 1953 saw the Section's first Family Night, giving wives and children a chance to see what makes up this business of chemistry.

Even more important, the Section broadened its already successful attempts to interest the young men of the area. It now enters its *sixth* year of continuous broadcasting to the area. In its last year, 36 crisp yet chatty dialogues on chemistry, engineering, physics, scientific management and personnel were beamed to an area that included students of 124 high schools in Pennsylvania and West Virginia. Currently the Section is publishing a "treasury" of

ANOTHER PIONEERING ATTEMPT in public relations—the Section invited wives (and husbands) and children of member chemists to a movie on science, an all-member art show, a look at what the breadwinner does in his own organization.





YOU'RE ON THE AIR—George Gerhardt and Donald Gibson bring the ABC's of molecular structure to their radio audience via the Section's six-year-old show, "Chemistry and You." In the offing, perhaps, an additional medium: television.

the best programs of the past, not only for the reading pleasure of its "lay" listeners but to provide teachers with up-to-date materials in specialized fields with which they can interest high school students in careers in science.

And now, with an educational TV channel about to open in Pittsburgh, the horizons for this aspect of contemporary Section work are for the first time endless . . .

At the same time the Section's Chemical Education Committee has initiated a program of personal high school visits by Section members to determine how best to assist teachers and schools and how to act as a clearinghouse for providing counselors and speakers. (The national ACS Manpower Committee has already asked for permission to reprint this pioneering plan.)

The reason for these departures in

Section endeavor isn't hard to find. Pittsburgh now enters a period in industrial and institutional research and chemical activity that may be compared to what happened in the 1870's when professional chemistry was born in the iron and steel plants . . . As USSteel lays out a great research center for centralized work in new and better steels, Westinghouse builds a plant for the development of private applications in the atomic field. "The Steel City," as one reporter put it, "is likely to become the leader in the atomic energy industry as well."

It is noteworthy that the latest speaker in the 50 years of speakers to appear before the Section produced little clouds to simulate atomic fission and atomic fusion. *Pittsburgh's first great age of chemistry was heralded, one remembers, by puffs of smoke, too.*

50 YEARS OF
CHAIRMEN

Pittsburgh Section, American Chemical Society

1903	Alexander G. McKenna	1928	Alexander Lowy
1904	Harry E. Walters	1929	Edward E. Marbaker
1905	George P. Maury	1930	J. Clyde Whetzel
1906	Joseph H. James	1931	Leonard H. Cretcher
1907	Joseph H. James	1932	Harry V. Churchill
1908	Joseph H. James	1933	William P. Yant
1909	Horace C. Porter	1934	T. George Timby
1910	James O. Handy	1935	Charles S. Palmer
1911	John K. Clement	1936	Chester G. Fisher
1912	Walter O. Snelling	1937	Gerald J. Cox
1913	George D. Chamberlain	1938	Charles Glen King
1914	Raymond F. Bacon	1939	Lloyd H. Almy
1915	Arno C. Fieldner	1940	Earl K. Wallace
1916	Karl F. Stahl	1941	James N. Roche
1917	George A. Burrell	1942	John C. Warner
1918	Samuel R. Scholes	1943	Helmuth H. Schrenk
1919	Rufus E. Zimmerman	1944	William A. Gruse
1920	E. Ward Tillotson	1945	Harold K. Work
1921	Henry C. P. Weber	1946	Robert N. Wenzel
1922	James O. Handy	1947	Herbert E. Longenecker
1923	Edward R. Weidlein	1948	Gilbert Thiessen
1924	Alexander Silverman	1949	J. Paul Fugassi
1925	Warren F. Faragher	1950	R. R. McGregor
1926	Clarence J. Rodman	1951	Bernard F. Daubert
1927	William A. Hamor	1952	Edmund O. Rhodes
		1953	Earl L. Warrick