

40th ANNIVERSARY ISSUE

CHEMICALS
ACP
PROCESSES

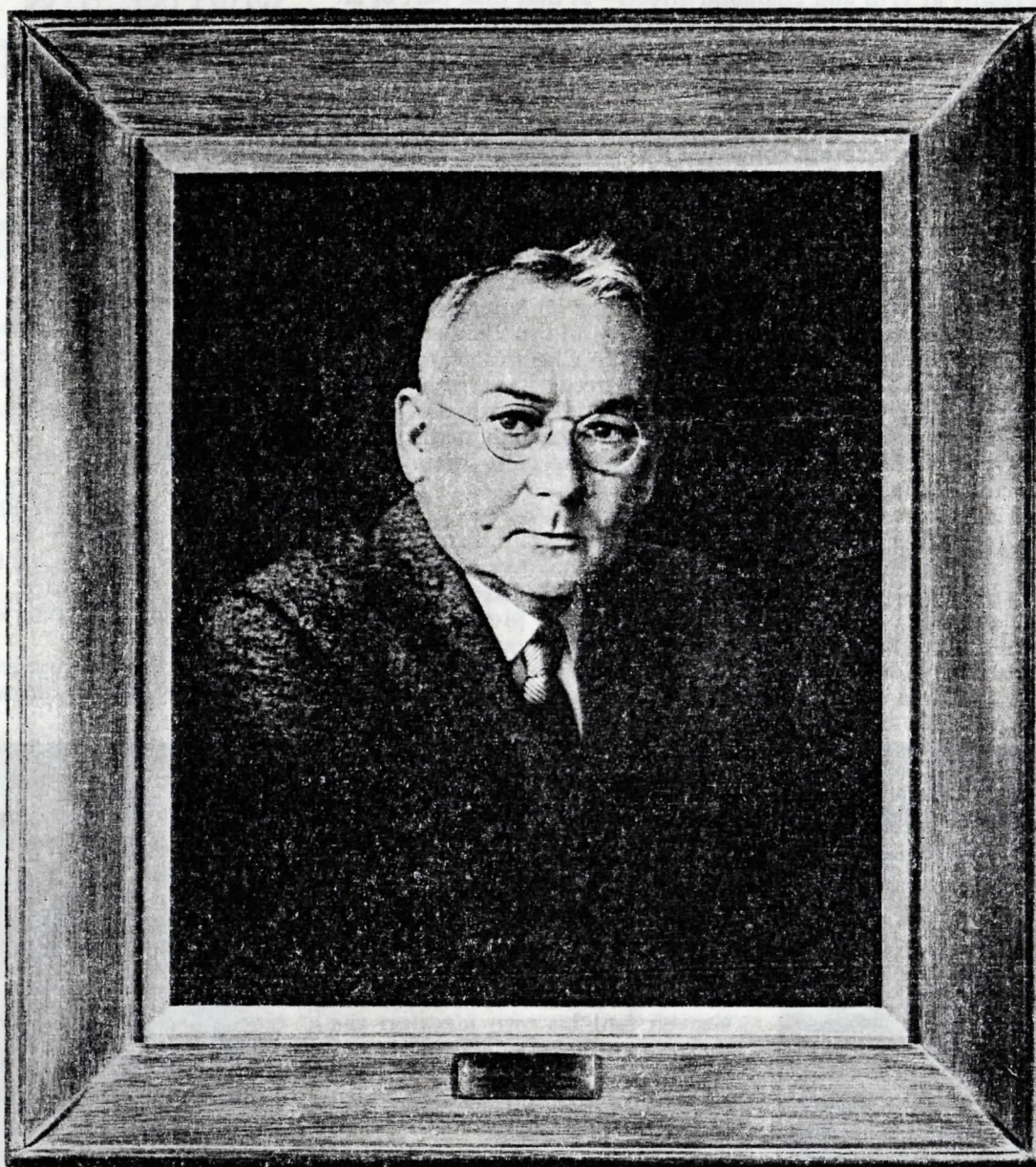
the **ACP** *News*

CHEMICALS
ACP
PROCESSES

AMERICAN CHEMICAL PAINT COMPANY

Vol. 2, No. 1

FEBRUARY 1954



JAMES HARVEY GRAVELL

1880-1939

• Founder and President (1917-1939) •
AMERICAN CHEMICAL PAINT COMPANY

JAMES HARVEY GRAVELL

In the history of American industrial progress, the prime movers are most often men who combine vision and ideas with plenty of plain, old-fashioned gumption. James Harvey Gravell, founder of our Company, possessed this combination and used it with outstanding success in many diverse fields. By his very nature and inclination, he was destined to make a unique and substantial contribution to American Industry.

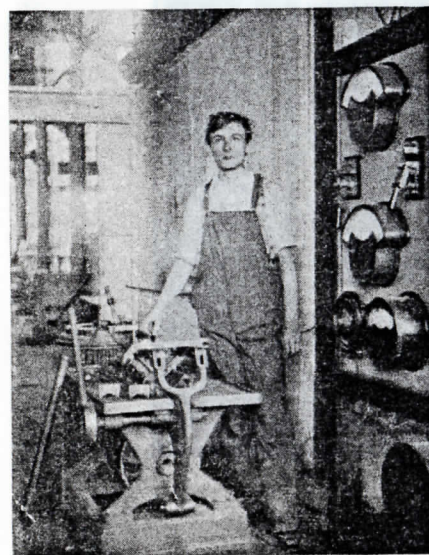
THE FORMATIVE YEARS

He was born in Philadelphia, Pa., on October 12th, 1880. As a boy, he lived with his family at 17th and Diamond Streets—at that time part of an attractive new neighborhood on the outskirts of a rapidly expanding metropolis. He went to the William Singerly Public School at 22nd and Berks and on Sundays attended the Episcopal Church of the Advocate at 18th and Diamond.

After completing his grade school work, young Harvey entered Central Manual Training where he found congenial and absorbing interests. Here was an opportunity to study chemistry and physics, sciences of great interest to him. With the characteristic zeal and industry that were to be the hallmarks of all his future work, he supplemented his high school courses with extra-curricular work at the Wagner Institute of the Sciences.

It is not surprising then that one of his favorite mentors in high school was a science teacher, Dr. Robert H. Bradbury. Gravell, after graduating from high school, kept in touch with Dr. Bradbury and in 1920 employed his former teacher as a consultant for the American Chemical Paint Company on a part-time basis. As long as Gravell lived, Bradbury was retained on a part-time consulting basis. After Gravell's death, Dr. Bradbury remarked that of all the students he taught through many years, James Harvey Gravell stood out in his mind as the one most interested in really learning and getting to the heart of a subject.

In his spare time, Gravell, and several of his boyhood friends, including Will Dietrich (formerly associated with ACP), spent many fruitful hours in the cellars of their homes, carrying out experiments in chemistry, physics, electricity and other natural sciences. In the old tradition of home-made science, one of the more daring experiments produced a good resounding explosion of heroic proportions, which could easily have taken its toll but, fortunately for Gravell and his cronies, and also for the future of ACP, resulted only in a fire which was soon extinguished.



JHG in work clothes and at the beginning of many careers.

GRAVELL, THE INDIVIDUALIST

It is quite probable that James Harvey Gravell kept his teachers on their toes, especially if his bent for investigation coupled with the scientific skepticism, so much in evidence in his mature years, existed then even in embryonic form. It seems logical to believe that young Gravell had his own ideas on the purpose and form of education and that he did not hesitate to present these ideas to his teachers as well as the other students.

At Sunday School he was definitely a non-conformist and would ask his teachers many embarrassing questions (i.e. ones that they had difficulty in answering). Gravell's personal philosophy even as a boy seems to have consisted of this ap-

proach: not to accept passively statements made by individuals, regardless of their reputation, fame, wealth, etc., without subjecting these statements to a severe test; not to accept without investigation facts, printed in a book, regardless of the book's reputation or its author's prestige.

WORKING DAYS

After he was graduated from high school, Gravell went to work as a meter reader with the Philadelphia Electric Company. Although this occupation gave him little time or opportunity to do creative work, he did secure an excellent basic knowledge of electricity and later went with a company in Bridgeport, Connecticut, that manufactured electric welding machines. This was his field and he became an expert in electric resistance welding, developing all kinds of special equipment for this work.

Strangely enough, Gravell's knowledge of electric welding led indirectly but inevitably to outstanding success in an unrelated field—rust proofing. The trail is somewhat complicated, beginning in Philadelphia and ending in Ambler.

In 1910, he was engaged as a one-man experimental department at



Gravell with specially designed welding equipment.

the Hale & Kilburn Company, whose plant at that time was located at 17th and Glenwood, near the North Philadelphia Station of the Pennsylvania Railroad.

Hale & Kilburn had installed a number of electric welding machines for the spot welding of sheet metal parts of railway car seats, interior car trim and similar railroad equipment. With his thorough background in electric welding, Gravell was a "natural" for this work and he concentrated on the design of special electric welding equipment that would facilitate the manufacture of Hale & Kilburn products.

About 1911 this progressive organization, under the management of Mr. Edward G. Budd (who later founded the Edward G. Budd Manufacturing Company—now the Budd Company), began production of the first all-steel automobile bodies ever made. These were built for the Hupp Motor Company. Young Gravell and his experimental department designed tools for electric welding machines that not only made these new all-steel bodies possible but also stepped up production to such a high rate that other automobile body manufacturers began to help themselves to the ideas behind the new product.

BURNING SOME BRIDGES

In this work at Hale & Kilburn, Gravell still maintained the individuality that had manifested itself so early in his life. He had his own ideas of how work should be accomplished with the highest degree of efficiency and, as his employees were later to discover, he was a perfectionist and was never satisfied with less than perfection in himself and others.

Eventually the strong individuality and the rarified atmosphere of perfectionism that Gravell generated, brought him into conflict with shop executives with less rigid criteria and he took the course that, whatever its immediate aspect of failure, eventually meant outstanding success. He resigned.

This resignation, among other things, reflected Gravell's confidence in himself. For one thing he was married and he lived with his wife, the former Carrie Marguerite

HOW KEMICK WAS INVENTED

Back in 1921, Harvey Gravell received a telegram asking if he could supply a heat-resisting chemical paint for automobile exhaust lines that would not burn off, even at high temperatures, and, if so, what the price would be. This telegram came from William C. DuComb, then in charge of our sales for the automotive industry in the Detroit area. He had sent the inquiry from the Winton Automobile Company, makers of the famed "Winton 6."

Without any hesitation, Gravell replied that he could make such a paint and that the price would be \$8.00 a gallon, whereupon the Winton Automobile Company placed an order for the non-existent product. Gravell swung into action and in a flurry of activity with his test tubes in the South 11th Street Laboratory soon produced a working formula.

Now, thirty-three years later, we still sell small quantities of that same chemical under the trade name of "Kemick."

Riehl, near 24th and Cambria Streets, within walking distance of the Hale & Kilburn plant. One thing is certain—security and material comfort did not impede his career at this critical moment in his life.

Fortunately, his interest in and knowledge of electric welding possessed high commercial value. Several manufacturers of electric welding equipment about this time were legally disputing the rightful ownership of some electric welding patents and Gravell offered his knowledge and experience to one of them. Being an expert, perhaps the expert in this field, he testified with great success and was well remunerated because after the trial he set up a consulting office on electric welding in New York City.

His office functioned as a clearing house and his information on welding patents was made available to manufacturers of welding machines all over the country. The early interest in electric welding never diminished and at the time of his death, he had what was probably the most extensive collection of data on electric welding patents in existence and he undoubtedly was more familiar with the development of electric welding than anyone else in the country.

"A BROOM, A BUCKET, AND A GOOD IDEA"

In the year 1914, the fateful transition from electric welding to rust proofing occurred. The all-steel body, introduced a few years previously, had revealed a terrible weakness—an irresistible urge to rust. As paint finish after paint finish failed and rejected bodies were returned in ever increasing numbers to worried manufacturers, the doom of the steel automobile body appeared certain.



Ray Coia mixing up a batch of "Deoxidine" in the old South 11th Street plant.

James Harvey Gravell had first encountered the rust problem at the Hale & Kilburn plant when the Hupmobile steel bodies went into production. With his restless, inquisitive mind and his indefatigable search for facts (and solutions to problems), Gravell was not long in finding the answer—it was the prototype of the phosphoric acid metal cleaners and rust removers which we now know as "Deoxidine." The exact procedure of the discovery has not been recorded but

COLD FORMING PIONEER

O. Macchia of the Royal Technological Institute, Pinerolo, Italy, acknowledged Gravell's ingenuity in an article "Present Status of Phosphating in Italy" that appeared in a 1942 issue of "KORROSION UND METALLSCHUTZ." He wrote that "a phosphate coat facilitates considerably the drawing process, especially after additional application of light oils, as the latter are known to be retained by the phosphate coating throughout the mechanical working. In this connection, it may be pointed out that J. H. Gravell suggested as early as 1921 the phosphate coating of hollow blanks and other semi-finished products prior to rolling and drawing in order to reduce friction."

The reference is to United States Patent No. 1428087.

It was probably compounded of the familiar ingredients often mentioned by Gravell: "a broom, a bucket, and a good idea." To this should be added liberal amounts of elbow grease and midnight oil.

In the year 1914 Harvey saw the great possibilities in the automobile industry for this rust-remover and metal-treating product. With his anti-rust product successfully tested and proved, Gravell's next step was to create a company to manufacture and sell the product and to service it in the automotive and other sheet metal industries. Thus the American Chemical Paint Company was formed and set up in the plant of the Tilghman Brooksbank Company at 1126 South 11th Street, Philadelphia. Benjamin Tilghman, a man in the upper tiers of Philadelphia society and a descendant of the Tench Tilghman who was aide-de-camp to Washington, made the physical plant available and, even more important, advanced some of the money necessary to start the new company.

How Gravell compounded his material that he called "Deoxidine" and went to Detroit to sell it, coming back with orders to make more "Deoxidine," has already been told (Dec. 1953 issue). The company grew rapidly and "Deoxidine" proved its worth and tremendous value to the automotive industry.

"Deoxidine" really cleaned steel, removing oil, grease, rust, and rust stimulants such as soldering residues, handmarks, and fingerprints. In litigation of the patent some years later, Judge Buffington in the

Court of Appeals commented that this development made the steel automobile possible. Bodies cleaned with "Deoxidine" did not develop rust under the paint finish and the automotive industry took a new lease on life.

There was no doubt by now that Gravell was an inventive genius. Fully aware of the beneficial effect "Deoxidine" had on clean steel, he visualized the possibilities of utilizing a phosphoric acid preparation to coat zinc with an insulating coating that would prevent the shedding of paint which was so general and so harmful to the use of galvanized iron. Practically all the bay windows in the city of Philadelphia were constructed of galvanized sheets and invariably the paint was peeled from most of the surface. The remedy that Gravell developed, later named "Lithoform," with its phosphoric acid ingredient, coated the galvanized iron and paint stuck to the coating without its former characteristic shedding.

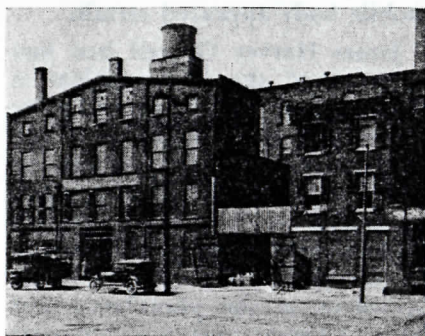
A NEW ERA IN PICKLING

Another instance of Gravell's ingenuity was in his pioneering work with inhibitors for pickling. One day he read a brief announcement in a trade publication that some doctor in Germany had found a material which, when added to sulfuric acid pickling solutions, would retard the acid's action on scale-free steel. This was all he needed. The idea was a challenge and he proceeded to find the answer to it.

In his little old laboratory on 11th Street, which was a far cry from the well-equipped laboratories we know today, Gravell set up hundreds of test tubes and test tube racks. Into each of these he put a sulfuric acid solution and an ordinary wire nail. Then began the first "Rodine" nail experiment. He added small quantities of different materials to each of the tubes and waited to see whether these had any effect in preventing the attack on the nail. The samples he chose included anything and everything. He went through the complete list of chemicals he had in his laboratory shelf; he used molasses, stale beer, bread, bran, blood, sugar, beet syrup. Almost any vegetable or mineral that came to Harvey's attention was included in the test.

Most of the additions had no effect and this was indicated in no uncertain terms by vigorous bubbling in the solution; hydrogen gas was being formed by the acid eating into the steel. Some materials actually increased the rate of attack but a few of them seemed to retard it and these became the subject of further and more intensive study. One of the experimental substances finally developed into "Rodine" No. 1, the first of a now famous family. These, of course, have been vastly improved since this day but "Rodine" was the pioneer inhibitor in the United States. Today it is no idle boast that "Rodine" is standard pickling practice the world around.

In his recent book, "Steel Wire in America," Kenneth B. Lewis states that "for solid excellence of



James Harvey Gravell and ACP made Rust Proofing history in this building on South 11th Street.



ACP Office about 1922.

TRIAL BY WATER

Gravell's mastery of himself, as well as events, is revealed in the following story:

In his late teens, Gravell and Russell Naisby (who later married Gravell's only sister) made a sea voyage from Boston to Maine aboard a coal barge that formed part of a convoy of barges. This stolid fleet sailed along at the usual few knots, with a powerful tugboat at the head of the procession.

All went smoothly with Gravell and Naisby enjoying the salt air of the Atlantic, until a violent storm arose. High winds whipped up rough seas; the tow line broke and left two frightened youths on an unattached and unmanageable barge of doubtful seaworthy qualities, helplessly floundering in angry waters. It seemed a long time to Harvey and Russ before their barge could be tied up again.

In spite of this experience, the memory of which never left him, Gravell eventually overcame his fear of water. He built and operated a ferry company on the Delaware River, he bought and operated a cabin cruiser, sailing this craft from a harbor at his Torresdale home on the Delaware River; and he even made a round trip across the Atlantic—only this time the vessel was an ocean liner, not a coal barge.



Aboard the cabin cruiser.

product backed by ceaseless experiment and research the crown goes to the American Chemical Paint Company for its 'Rodine' . . . an impression lingers that any other inhibitor mentioned was usually referred to in some such terms as: practically the same as 'Rodine,' as good as 'Rodine,' cheaper than 'Rodine,' and so forth, 'Rodine' being seemingly the norm to which everything of the class was referred. That's a tribute of a high order."

CREATIVE CONTRIBUTIONS

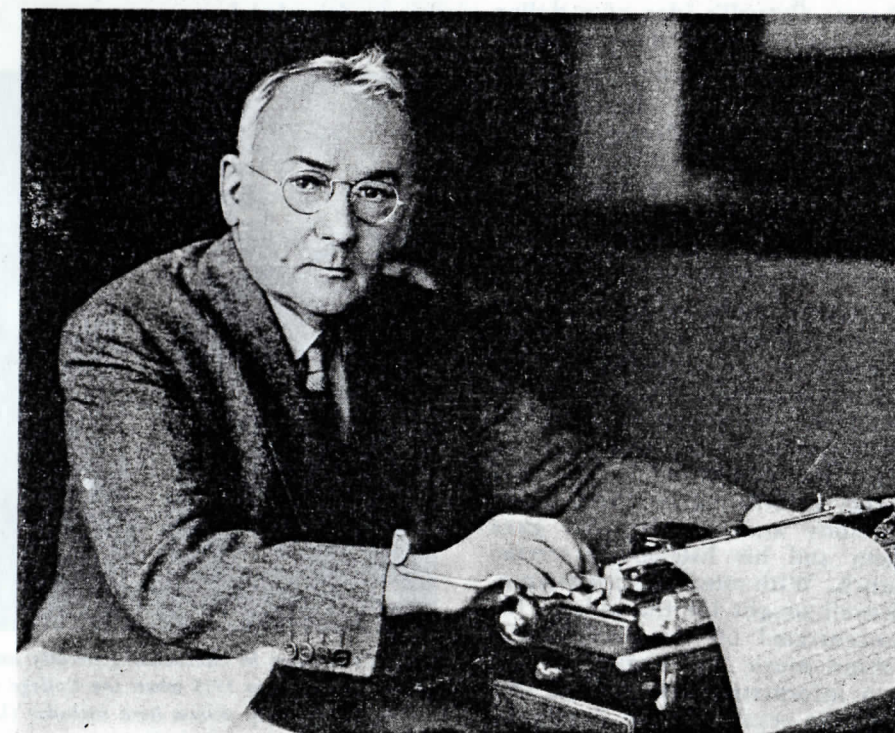
Years of hard intensive work went into the making of the American Chemical Paint Company, but once it was established, Gravell, never content to rest on his laurels, began to look for other fields in which he could exercise his ingenuity. His objective approach remained with him all of his life. In his own mind he very clearly differentiated the real from the unreal. One of his favored expressions was that something was either a fact or a fancy. A fact was something that was definitely provable, but a fancy, in his definition, was something disguised as a fact but either not proved or not capable of proof.

With this attitude as a guide, he began to investigate the financial conditions throughout the world, analyzing them from the factual and provable side with a great deal of care. Some of the fruits of this study were published in a small

book in which he analyzed the causes and cures of depressions. This work received a great deal of very favorable comment, in spite of the fact that he belittled the opinions of bankers and financial students.

The last years of his life were spent in extending his theories of economics and in writing a book embodying these ideas.

His definition of a dollar, for example, was a factual one, namely that it was a receipt for a given



JHG at work on one of his books.

THE WHITE HOUSE
WASHINGTON

December 31, 1936

My dear Mr. Gravell:

I have heard with sincere interest of your generous remembrance of your employees at the holiday season. I am writing this letter to congratulate you upon the adoption of such an enlightened policy and to express the hope that you have found real happiness in the happiness which you have brought so abundantly into the lives of others. Your action is indeed worthy of the highest commendation.

With all good wishes for a Happy New Year,

I am

Very sincerely yours,

Franklin D. Roosevelt

Mr. J. Harvey Gravell,
Aabler,
Pennsylvania.

never put into production and probably would never have had a widespread use. However, it was a monument to Gravell's ingenuity, and even Walter Damrosch, at that time one of the foremost musical authorities and conductors, spoke in a most complimentary way of one of Gravell's early achievements in the harmo-chart line.

Gravell bought an old fashioned organ, which is still around the plant, and like Captain Nemo in Jules Verne's "20,000 Leagues Under The Sea," he would retire to this instrument and play hymns whenever he felt like clearing the atmosphere in his own mind. He was really very fond of organ music and as a result was receptive to the idea for a new electronic organ which came to his attention in the Thirties.

The first and only model was erected here in the plant. It had 20 or 30 speakers, ranging from two or three inches in diameter to four or five feet in diameter. With this complex gamut of tweeters and woofers and other high fidelity equipment, just about any sound known to man could be obtained and the dynamic range was similarly wide—all the way from tremendous roars to mere rustles. The tone quality was, in the opinion of a non-musician, quite comparable to the most expensive conventional organs. It was never completely finished and the component parts were distributed after his death.

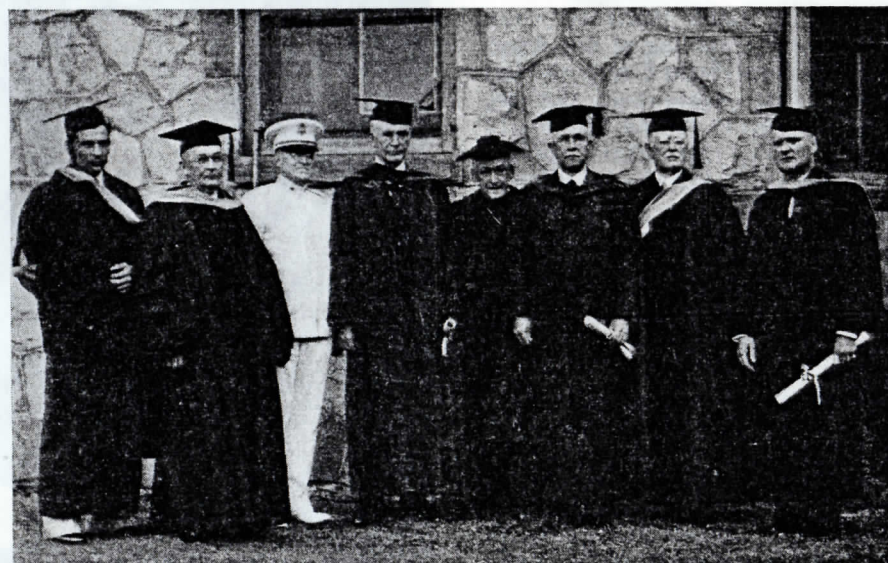
Gravell spent his later years in a lovely residence on the Delaware River at Torresdale, Pennsylvania, where he erected a swimming pool, though he never swam and couldn't swim. This was for the entertainment of his friends and guests and he had a great deal of pleasure in it. It was here that he resided until he died December 8th, 1939, at fifty-nine.

James Harvey Gravell will be remembered by his friends and associates for many different accomplishments, but his enduring monument and the ever-present reflection of his pioneering spirit will always be the Company that he founded forty years ago.

amount of labor accomplished and he got a great deal of joy in getting into heated arguments with financiers over the real nature of the dollar. They, of course, defined it out of text books as a certificate representing a certain amount of silver or gold that was on deposit, whereas Gravell's idea of a dollar was, after all, much more realistic.

One of the books that impressed him more than any other was one written by George Dorsey, entitled "Why We Behave Like Human Beings." The author was a free thinker, definitely a non-conformist, and like Gravell with his own ideas about religion.

Another hobby of Gravell's was music. He was one of the most interesting and enjoyable piano players one could listen to. He could read music but he preferred to improvise. His particular interest was in playing hymns on a piano, introducing variations in the harmony and rhythm that gave them and his listeners a terrific punch. With music as with finance, Gravell sought for the causes. He concentrated on the mathematics behind music and began, for his own information, to tabulate this with the result that he developed a slide rule type gadget which he called a "Harmonator." This was



Gravell's interest in education generally and Pennsylvania Military College specifically was reciprocated in 1935 when the College awarded him an honorary Doctor of Science degree. The group shown here includes (l. to r.): Judson Timm; Gravell; Col. Hyatt, Pres. of PMC; Cordell Hull, Secretary of State; Bishop Francis Taitt; George Cann; General Wm. Price; Congressman David L. Powers.

the ACP News

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of ACP Employees and
Their Families

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Norman P. Gentieu
Editor

LIFE IN KOREA



In a recent letter home George Antonacio Jr. wrote that "you ought to see this country over here. It's all blown to pieces and the people live like animals, living in shacks that they can put up themselves. They don't have many clothes and the clothes they have are nothing but rags. You have to be over here and see some of the things to believe them. I finished eating my dinner one day and had some meat left in the tray, I threw it into the

ACROSS THE PRESIDENT'S DESK

A lot of water has "gone over the dam" since Harvey Gravell and his associates founded ACP in 1914—forty years ago. During that period, the American people have suffered through two World Wars and the greatest depression in our history, and our country is greater than ever. ACP, too, has managed to survive these conditions—and prosper. One man was mostly responsible for bringing the Company successfully through those trying times—Harvey Gravell. Now, on this 40th Anniversary of our Company, I think it is fitting to dedicate this issue of the ACP News to him and thus refresh memories of those of us who knew Harvey Gravell and, at the same time, give our newer employees some of his history and accomplishments.

Leon Cheshire

Fred Schaefer Returns to Work

We are very happy to report that Fred Schaefer has recovered from his injuries and is on the job again at ACP.

Fred, who works in the Machine Shop, was seriously injured in an automobile accident in the Spring of 1953. However, as all our readers know, you can't keep a good man down—not for long. Welcome back, Fred.

25-Year Man



On November 11th, 1953, Robert Radcliff Montgomery Brown, better known as "Mike" but preferring the name Robert, completed 25 years of service with ACP.

Robert, who is a very amiable and philosophical person, and who has numerous friends, both young and old throughout the plant, is occasionally overcome with nostalgia.

Robert remembers the good old days when Flosols and Ridolines were made in buckets and mixed with wooden paddles. He likes to reminisce about the halcyon days of November 1928, when the entire plant was in Building No. 1, and thoughts of expansion at that time turned to the old glass works, which was located across the street and which is now our present Building No. 4.

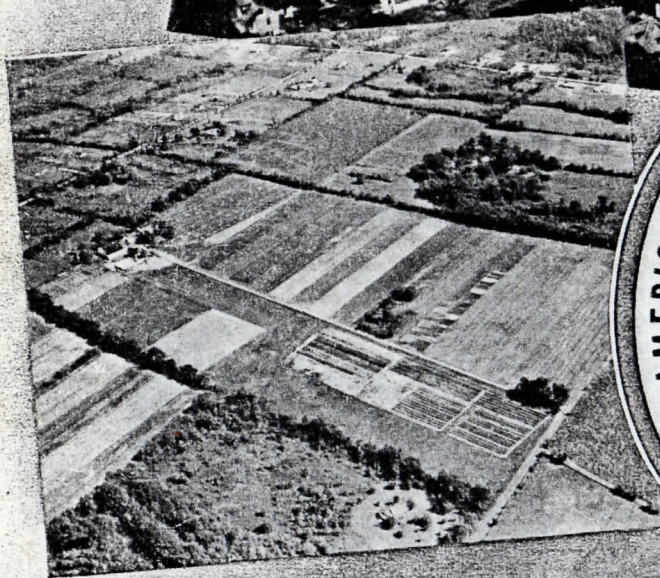
garbage can. There were a couple of Koreans standing there and they ran over, picked up the piece of meat out of the garbage can and ate it. Most of these Koreans are starved . . . I feel sorry for the little kids I see. They come up to the fence and beg for candy and cigarettes. I try to leave a little food on my tray when I get through eating, so one of them can get a little to eat . . . You don't know what you have at home until you're away from it."

George, a former employee of ACP, is the son of George Antonacio of the Shipping Department. His present address:

Pvt. George Antonacio,
US 52247998,
SV. Btry. 159th FA. Bn.
APO 358—Unit 1
% Postmaster San Francisco,
Calif.

FORTY YEARS OF PIONEERING RESEARCH AND DEVELOPMENT...

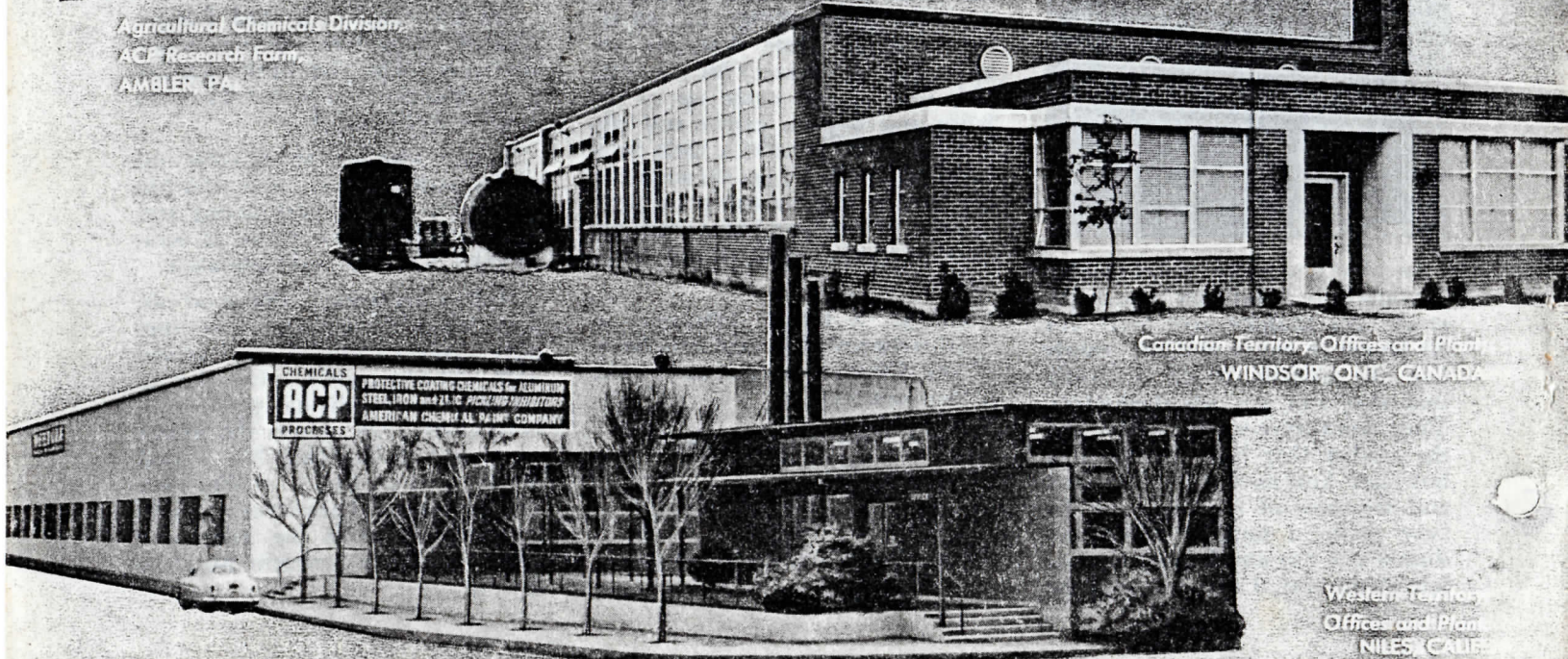
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