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the AMCHEM News

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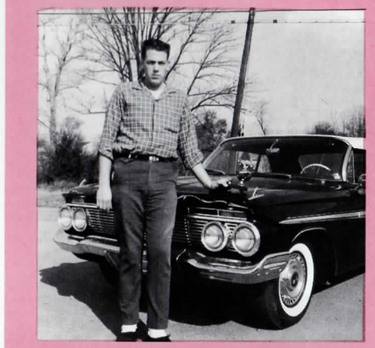
William A. Drislane *Editor*



On Our Cover

We prevailed upon Bill Neill, Pilot Plant, to pose with a sampling of the spoils from his numerous conquests on the Hatfield drag strip. More about Bill and the subject of drag racing will be found on page 10.

Condolence

We extend our sympathy to Anthony Varsaci, Accounting, and the other members of his family on the recent death of his father, Anthony, Sr. Mr. Varsaci was retired.

Can You Detect Any Symptoms?

"The things that will destroy America are: prosperity at any price, peace at any price, safety first instead of duty first, and love of soft living and the get-rich-quick theory of life."

THEODORE ROOSEVELT
January 10, 1917

"I am for a government that is rigorously frugal and simple, and not for one that multiplies offices to make partisans, that is, to get votes, and by every device increases the public debt under the guise of being a public benefit." . . .

THOMAS JEFFERSON

EDITORIAL

An Appraisal of the Achievements of U. S. and Soviet Science

There are far too many Americans who are willing to concede total supremacy in scientific achievements to the Russians, a view no doubt influenced by the launching of the first sputnik over four years ago and supported by a program of steady launchings into space ever since.

However, Dr. John Turkevich, Professor of Chemistry at Princeton University, assures us that there is no cause to be alarmed, "that we must not concede their (the Russians) claim that Soviet science overall is superior to that of the United States, or that because they can send up bigger objects into space that they have a better social and economic system." This view was expressed by Dr. Turkevich in an address at the Thomas Alva Edison Foundation Mass Media Awards dinner last year. Dr. Turkevich proved his point by remarking that since 1941 fifteen Americans received Nobel prizes in physics, while only three Soviets were recipients. In chemistry the United States received nine Nobel awards to one for the Russians. During the same twenty-year period in the field of medicine, the United States was awarded eighteen Nobel prizes and the Russians none.

Dr. Turkevich lists the names and the scientific contributions to medicine of all eighteen of these talented American scientists, but limited space precludes our mentioning no more than one or two: Philip S. Hench and Edward C. Kendall for cortisone in 1950 and Relman A. Wakeman for streptomycin in 1952.

It should be remembered, however, that the Nobel prize is considered to be the highest annual award that can be won in the fields of physics and chemistry, and physiology or medicine, and thus, in addition to our Nobel Prize winners, Dr. Turkevich points out "there are hundreds of others who have made world-wide scientific reputations by their work in the United States." These men are engaged in such areas as radar and nuclear science where "the (American) superiority has still continued," he said.

"In spite of all these facts, there are some in this country and many abroad who feel that the Soviet Union is a scientific power superior or at least equal to the United States. This misconception I tried to dispel when I lectured daily to thousands of Moscovites at the American National Exhibition in Moscow two summers ago. This I am still trying to do in our country and abroad."

Dr. Turkevich has been in the Soviet Union twice recently on special science missions for the U. S. Department of State and served in Moscow during the summer of 1961. He was on the staff of the Manhattan Project and also served as a member of the U. S. delegation of the United Nations General Conferences on Peaceful Uses of Atomic Energy in 1955 and 1958. He studied at Dartmouth and Princeton and took his Ph.D. at Princeton, with advanced study at Cambridge University, England, and the University of Leipzig, Germany.

Profit Is A Must

There can be no security for any employee in any business that doesn't make money. There can be no growth for that business. There can be no opportunity for the individual to achieve his personal ambitions unless his company makes money.

DUNCAN C. MENZIES

Well-Dressed Aluminum Wears ROLL COAT Underwear

New, Versatile Roll Coater in Building No. 4 Helps Get Results

Just as the neat-fitting piece of underwear, without wrinkles or bulges, gives a bit of sartorial class to the outer garment, it goes without saying that the pastel top-dressing on an aluminum awning, for instance, is much the better when it can boast a suit of ALODINE® chemical "underwear". And the smoother and tighter the latter clings to the bare aluminum, the sleeker the finished product looks.

The merits of ALODINE® chemical conversion undercoatings have been proven over and over again, but Amchem, ever striving for perfection, persists in continued product improvement. This goes for product application, too. That's why for the past few years Jim Thirsk, MCD research chemist, has been doing more than toying with the idea of using the roll coat method for applying ALODINE chemical coatings on aluminum as a base for proper paint adhesion, in order to obtain a sleek, uniform finish on the final product.

Initial Set-up

One of the first steps on the road to achievement was to install a model coater in our Pilot Plant. Through a trial period, the functions of this machine were critically evaluated, with the result that a commercial roll coater was installed on the production line of an Amchem customer in April of last year.

Since the latter machine is operating with consistent efficiency, it warranted investigation of the possibilities of roll coating galvanized steel coils, in addition to more intensive studies of roll coating aluminum. The logical procedure under these circumstances was to simulate an actual production line, with allowance for a multiple number of coating operations. The result is the versatile strip and roll coating machine that's housed in the basement of Building 4. With its numerous components specially designed to be interchangeable, it has the flexibility of a boy's "Erector" set. Having been designed by Amchem's Engineering department, fabricated and installed by our Maintenance staff, it is the only one of its kind extant.

Coating Galvanized

In addition to Jim Thirsk's experiments with ALODINE chemical roll coating on aluminum, a series of tests involving the chemical roll coating of galvanized steel strip is being carried on by George Otto, also an MCD chemist. Providing a strong bond between the zinc coating (which constitutes the galvanizing) and the painted finish would immeasurably prolong the life of any galvanized steel product. To attain this objective George has outlined nine specific requirements which the new chemical should possess. Progress in this phase of our pre-paint chemical coating program has been quite encouraging and coincides with the demands created by the newly adopted use of galvanized steel for certain sections of auto bodies.

The advantages of always having a roll coating machine at the disposal of our technical personnel are quite numerous, so we will have to confine mention to just a few: Experimental work can be done on our own premises, instead of in a customer's plant, without fear of "trade secrets" leaking out; the expense and inconvenience of maintaining personnel away from home can be eliminated; we are not obligated to customers for the privilege of carrying on experiments in their plants at the risk of interrupting their production.

In addition to Jim Thirsk and George Otto, whose functional ideas have been incorporated into the roll coater, the name of Bob Whitall deserves more than a mention for engineering the structure . . . and, of course, the skills of the Maintenance staff cannot pass without notice, for it was their task to erect it and set it in motion. This group included: Phil Baum, George Blattner, Stan Blichaz, Stan Clayton, Joe Feckno and Joe Mallozzi.

Soybean Queen. *Barbara Prestridge, Vidalia, La., who reigned over Annual Soybean Festival in Louisiana, last August. Annual soybean crop in U.S. is 560 million bushels.*

AMIBEN,
Soybeans'
Best
Friend

Four Years' Research and Tests Prove Effectiveness and Safety of Amchem's Newest Herbicide

LAST AUGUST, the U.S. Department of Agriculture granted Amchem official registration for the use of Amiben on soybeans. In December, Amchem was granted a patent on Amiben and on many of its derivatives, thus climaxing four years of intensive research and involved the efforts of more than 150 laboratory and field personnel, in approximately 40 states, who proved the safety and effectiveness of Amiben in suppressing weed growth in many types of soil under wide climatic differences. Accompanying this was the research of more than a score of people which resulted in the development of methods for the required residue analysis. Data on toxicity collected during the short and long term studies showed Amiben to be a very safe chemical, even in unusually high-level, prolonged feeding trials. Although the prime objective was to develop a chemical to destroy weeds in the annual 560-million bushel soybean crop, the use of Amiben in many other important crops is already progressing very favorably.

Amiben History

Amiben was first invented in the Amchem laboratories in 1958. From the beginning it showed considerable promise in greenhouse experiments. By the following spring, extensive field trials were under way which confirmed the earlier findings. The spring of 1960 saw the first work begun on a method of analysis for possible residues of Amiben in soybeans.

Residue Studies Expanded

Subsequent work in this area has since expanded to include ten people in four research laboratories who have combined their talents and experience into developing a method for this difficult residue analysis. Presently this work consists of grinding the soybeans into a fine flour and with the aid of selective solvents, the Amiben is extracted over a period of two days. This process is followed by a powerful chemical treatment to break off combined plant chemicals. At this point, further extractions are made to remove interfering substances. Then, finally, a brief series of reactions produces a violet color when Amiben is present. It is this color that is used to determine the amount of Amiben residue in the soybeans.

Major Hurdles Block Way

The bulk of the work which caused much fuss, sweat and tears was concerned with the presence of a natural substance in the soybeans which behaved very much like Amiben and which produced a similar color, even when Amiben was completely absent. Much of the procedure described in the preceding paragraph was instituted in order to separate the other substance from true Amiben in soybean extracts. Using this method of analysis, soybeans taken from numerous Amiben treated fields were analyzed for residues but no Amiben was detected.

Radio Active Tests at Amchem Farm

Supplementing all of this work were three studies of soybeans treated with radio active Amiben at the Amchem Farm. The radioisotope used was carbon 14 which was "custom tailored" to become an integral part of Amiben's make-up. With this powerful tool in hand the trouble of interfering colors disappeared. Other "gremlins" showed their heads but were satisfactorily dealt with.

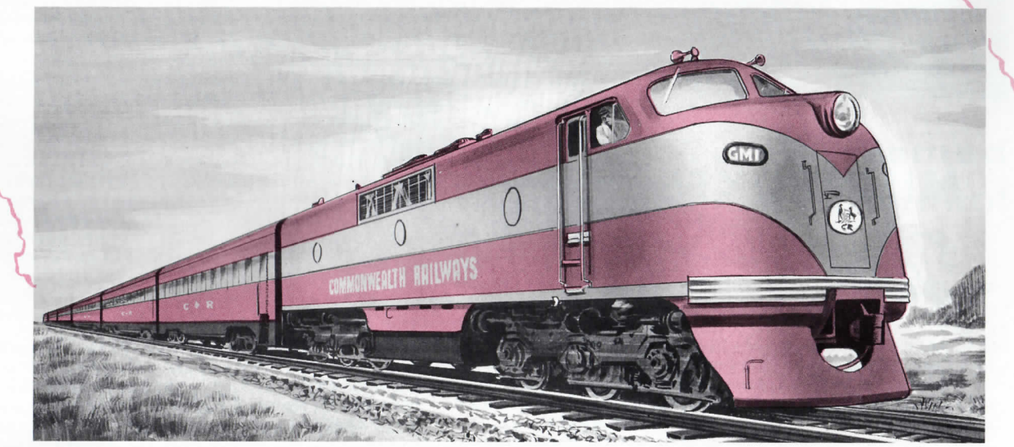
It was then possible to show that, when Amiben is applied after soybeans are planted and before the young plants break through the soil, Amiben is rapidly absorbed into the plants. However, as the plants grow, the Amiben rapidly disappears, and when the final soybeans themselves are harvested, no Amiben can be detected. The method is able to detect one part of Amiben in 10,000,000 parts of plant tissue, or one hundred thousandth of one percent.

Two-year feeding studies, using rats and dogs, were started in late 1960. These followed researches on skin irritation and short term high dosage toxicity, both of which showed Amiben to be an extremely safe chemical for handling or if accidently swallowed. Now, at the end of the first year's feeding study, there are no indications that Amiben causes abnormalities even when rats are fed very large doses every day of their lives. (The average life of a laboratory rat is two years.)

All the above work was needed before the Government was satisfied that Amiben was safe to use in the growing of Soybeans. This is fairly typical of other weedkillers for use in food crops, and the work required before they can be sold.

Amiben is headed for the soybean market in 1962. This means that a farmer using Amiben to eliminate weeds in his soybean crop can increase his yield from a level of 26 bushels per acre to 36 bushels per acre—an increase of over 27% as a result of using Amiben. In 1963 Amiben may be aimed at squash, carrots, tomatoes, peanuts or any one of many other important crops as Amchem pursues its war on weeds and continues to bring benefits to agriculture.

WEEDONE Busy "Down Under"



Agserv Gets Weedone Contract for 11,000-Mile R.R. Track

From time to time our overseas distributors and licensees have been most considerate and cooperative in supplying us with the kind of material that we like to publish in *The News.*

A letter written to Warren Weston by D. G. Michelmore, Managing Director, Agserv Industries Pty. Limited, our manufacturing distributor in New South Wales, Australia, informs us that his company had been awarded the contract for weed control on the Commonwealth Railways, with excellent prospects for a renewal at the time the present contract expires.

Commonwealth is the 1108-mile transcontinental line that runs from Pt. Pirie to Kalgoorlie, linking the East side of the Continent with the West. It is reputed to provide the most modern rail passenger service in the world, with the latest type of GM diesel locomotives, and cars that are the epitome of comfort and efficiency.

We are told that the Trans-Australian journey is one of the most fascinating travel experiences in the world. It offers an inexhaustible supply of spectacular sights accompanied by a magic spell of aloneness as one traverses the sparsely-inhabited plains, pastoral sheep stations (some covering almost 2,000,000 acres), chains of vast, fantastic, flat pans of glistening salt beds, and fabulous Nullarbor, a 420-mile long limestone plain thickly populated with a tremendous assortment of wild life, from rabbits to barking lizards—and covered with the ghostly colored blue bush and salt bush.

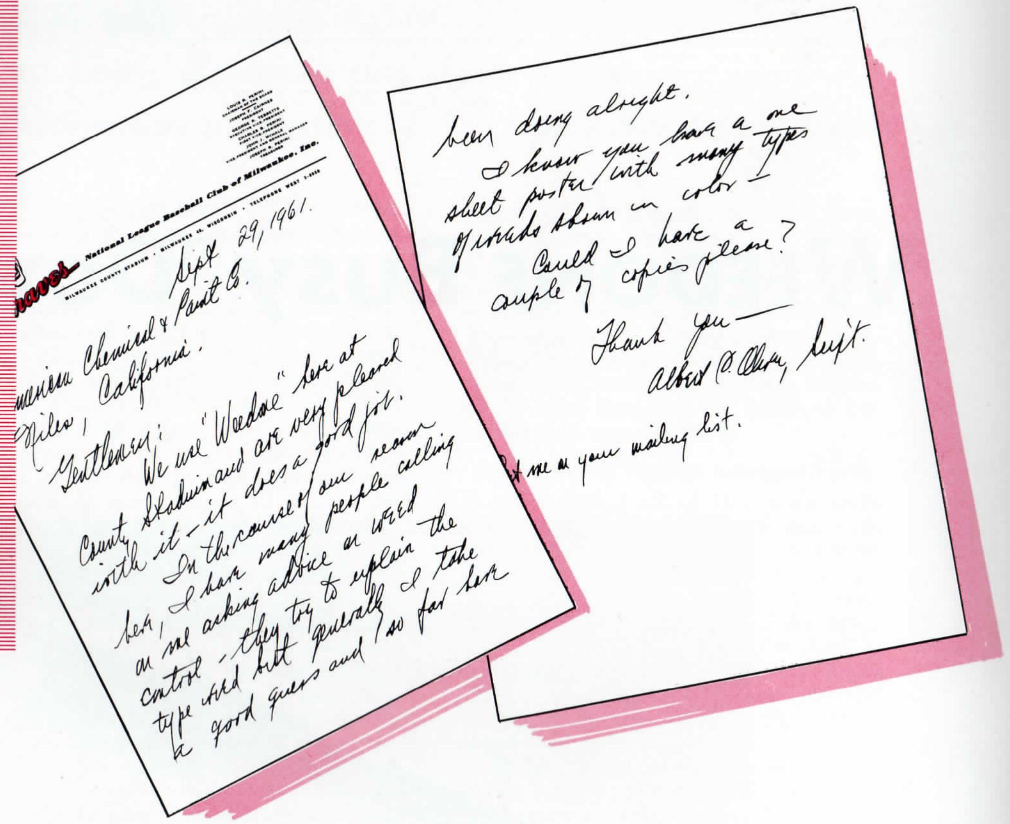
It is easy to visualize that controlling the weeds and brush that invade the tracks of this great railroad is a major project, and we give Mr. Michelmore and the other members of Agserv a resounding pat on the back for being alert to the needs of the railroad and satisfying them with the best product—Weedone "Verox," which is an Aminotriazole combination.

Reunion "Down Under"

It is interesting to note that included in the equipment used by the Commonwealth Railways for its short runs are Budd diesel rail cars made of high tensile stainless steel. These cars, somewhat similar to those used by the Pennsylvania-Reading Seashore Lines, are built in Philadelphia. Upon inquiring from Al Sinclair, MCD Eastern District Salesmanager, he informs us that Budd is a user of our metalworking chemicals in the preparation of the stainless steel which it uses in these cars. Now it looks as though there'll be a grand reunion between MCD and ACD "Down Under" every time a diesel car passes through a newly cleared section of track.

Weedone is a registered trademark of Amchem Products, Inc.

NEW STAR ON MILWAUKEE *Braves*


Braves National League Baseball Club of Milwaukee, Inc.

Sept 29, 1961.

American Chemical & Paint Co.
Niles, California.

Gentlemen:

We use "Weedone" here at County Stadium and are very pleased with it—it does a good job.
In the course of our season here, I have many people calling or me asking advice on weed control—they try to explain the type of bill generally I take a good guess and so far have been doing alright.
I know you have a one sheet poster with many types of weeds shown in color—
Could I have a couple of copies please?

Thank you—
Albert C. Oliver, Supt.

Put me on your mailing list.

THERE'S a new star on the Milwaukee Braves, and it treats the opposition with the same disrespect as the big bats of Eddie Mathews, Hank Aaron, Joe Adcock, et al., greet the offerings of the visiting pitcher. But you won't find its name in the daily line-up or in the scorekeeper's summary of the game. Also, its feats are completely ignored by the Braves' loyal supporters, all except one, whose name is Albert C. Oliver.

One thing, though, that this new star has in common with many of the other Braves is that it came up through the "farm system," not the home club's system but Amchem's, where it was readied for major league competition by a thorough apprenticeship on the Amchem Farm on McKean Road, Ambler.

By this time you've pretty well guessed the name of the Braves' new star, for it's a well-seasoned and versatile performer that has not confined its efforts to County Stadium, Milwaukee. Weedone's accomplishments are legion—stretching from a wee patch of lawn in our own Ambler to a sugar plantation in remote Zanzibar, but of all the nice things we've heard about Weedone none has triggered the emotional response as has the missive from Mr. Albert C. Oliver, superintendent of Milwaukee County Stadium, which we reproduce on this page. Many, many thanks, Al, for the glowing compliments which you pay to WEEDONE.

P.S. Readers! You can see that Mr. Oliver's letter of endorsement was unsolicited for he addressed us as the AMERICAN CHEMICAL and PAINT CO., which, as you all recognize, is a garbled edition of our former name. Furthermore he mailed the letter to Niles.

Roy Johnson Named Supervisor of Technical Operations at Farm

This is our first opportunity to announce in print the appointment of Roy Johnson as Supervisor of Technical Operations at the Farm. This is a newly created position. Roy, a former ACD Field Technician, has been functioning in his new post for the past several weeks. His duties are mainly of a liaison nature, coordinating the various research projects at the Farm and reporting on their progress to Management, as well as to ACD Director of Research Robert Beatty.

Since Research per se is mainly carried out autonomously, it is possible that a duplication of effort could occur. Roy's new assignment obviates this. Now, each researcher can work with the definite assurance that he is not operating in areas already covered by a fellow researcher. Roy has his office at the Farm.

Roy, a native of St. James, Minn., came to Amchem in July 1957 after receiving his B.S. in forest management from the University of Minnesota, in June of that year. Since coming to Amchem he has engaged primarily in industrial weed control.

He now makes his home in Ft. Washington with his wife Donna and son Erik, age 3½.

The status of the other ACD Research staff remains the same, with these two exceptions: Nancy Achuff has been placed in charge of primary screening and David Fritz has been assigned to project development where his work relates to chemical application in field crops and turf at the Farm.

Belgian Distributor TECNIMETAL Holds Conference

Professor Machu is Lecturer

We are indebted to Mr. Willy Convents, Managing Director, Tecnimetal Societe Anonyme, Brussels, our metalworking chemicals distributor in Belgium, for a report on a two-day metalworking technical conference held in Brussels, last October 5 and 6.

The responsibility for organizing the conference, the first of its kind ever to be held in Brussels, was due to the enterprising efforts of Tecnimetal. The affair was directed by Mr. Convents, who was ably assisted by Mr. Adrien Arendt, Technical Manager of Tecnimetal. Both of these gentlemen have visited our Ambler offices on numerous occasions and have many friends in our Company.

Of particular interest to Amchem was the appearance of Prof. Willibald Machu as a lecturer at the sessions. Prof. Machu, who directs European Research for Amchem S. A., our Swiss subsidiary (March 1961 *News*), was invited by the Centre Belge d' Etudes de la Corrosion and the Association Belge D'Electrodéposition to present two papers on subjects pertinent to the interests of these two societies under whose auspices the lectures were given. The titles of the papers were (1) Influence of a Pre-treatment of Metal Surfaces on the Structure of Phosphate Coatings, and (2) Electrolytic Deposition of Alloys of Iron-Chromium, Iron-Nickel, and Iron-Chromium-Nickel. Both papers were read in French and were accompanied by colored slides and/or illustrations. The total attendance at the two lectures was 170. Included among those present was Mr. Alexandre Lorant, President of Industrial Chemical Products A.A. (PTY) LTD., Amchem distributor for South Africa. Mr. Lorant visited Ambler last September.

Our Technical Director Al Douty has referred to these papers as "masterly" and states that both German and English translations have been circulated and that copies have been filed in our library. They will also appear as articles in European technical publications.

The host Company provided a cocktail party at the end of each day's program and Tecnimetal also held a banquet at the close of the conference. We offer hearty congratulations to Tecnimetal and specifically to Mr. Willy Convents.

A few Technimetal personnel and friends assemble for this group shot at Tecnimetal Metalworking Conference. L. to R. Willy Van Valle, James Conkie, Pierre Schoenhofen, Adrien Arendt, Willy Convents, Vic Rombaut—all of Tecnimetal; Prof. Machu, Amchem; Alex Lorant, I.C.P., Willy Blote, Tecnimetal; Phil Piette, General Motors; Gaston Wauters, Tecnimetal.

Turner Named Vice President

Maurice B. Turner, Sales Manager, Agricultural Chemicals Division, was named Vice President, Director of Marketing, Agricultural Chemicals Division, at the December Meeting of the Board of Directors of the Company.

According to an announcement by President Romig, the purpose of the move was to co-ordinate the research and sales activities of Amchem's Agricultural Chemicals Division in accordance with a new marketing program to be initiated by the firm. Turner will be responsible for guidance in defining the objectives and priorities governing such activities as formulation, field development, residue work, etc., as they relate to sales, customer requirements and problems.

Turner joined Amchem in October 1948, after having spent two years with U.S. Industrial Chemicals, Inc., New York, in the sales and development of pesticide chemicals. Prior to this he was employed by Dow Chemical Company, Midland, Michigan, for eight years, also in sales and development. Turner graduated from the University of North Dakota with a B.S. in Chemistry in 1937. He is a native of that State, but now resides in Wyndmoor with his wife and three grown children.

He is a member of Sigma Xi and Kappa Sigma fraternities.

Pack Up Your Weed Troubles in Your Backpack Blower and SPRAY! SPRAY! SPRAY!

Any method of application that will more effectively and efficiently dispense our weedkillers should prove of interest to our readers. For the success of the product, including its application, is usually reflected in more sales and additional revenue to the company. Hence, once again, we embark on the subject of MIST BLOWERS.

Our readers may recall that in the December 1960 issue of *The News* we dealt with the mist blower technique for the chemical control of brush and weed trees. However, this article was devoted exclusively to the tractor-mounted blower which is used in large forestry projects. On small areas of 10 acres or less, or for spot treatment, it is generally more advantageous to use the shoulder-mounted mist sprayer. The latter type was demonstrated at our Farm on the last Weed and Brush Control Field Day. Currently there are three of these backpack sprayers in use on Amchem projects in various parts of the country. One is now being used, on weed tree growth, by Ken Dunster, ACD Technical Field Representative for the Intermountain States—Idaho, Utah, Montana, Colorado, California, Wyoming, and Alberta, Canada. The second sprayer is in use at the University of California Experimental Station at Davis, Calif., by Dr. Oliver Leonard of the University teaching staff, while John Starr, associate professor of forestry at Mississippi State University, is using the third sprayer in the studies he is conducting on individual tree species at MSU's Experimental Station at Starkville, Miss.

In this last project, by treating these individual tree species at two-week intervals with chemicals dispensed from the shoulder-mounted mist sprayer, Professor Starr can easily determine the best time for herbicide application on each species. It is readily apparent what expense would be involved if this experimental work had to be done by helicopter spraying. Now the backpack mist sprayer simulates aerial application, giving the same low rates and volume of chemical application per acre as costly spraying from aircraft.

In addition to its usefulness in all types of experimental work and in small areas, the shoulder-mounted mist sprayer fills a long felt need for economically treating spots in large areas that are sometimes unavoidably untouched in aerial spraying.

The versatility of this portable mist sprayer can best be appreciated when it is considered that the sprayer can be used, with liquid or granular material, on row crops, corn, vegetables, grapes, berries and fruit trees—as well as in forestry, and that it can serve as a dispenser for dusting or spraying livestock and poultry houses. Two models of this sprayer are available —one with a net weight of approximately 25 pounds, the other with a net weight of approximately 42 pounds.

The power for converting the herbicides into mist foam and dispensing it is supplied by a two-stroke cycle, air cooled engine (1 HP at 7000 R.P.M. or 3 HP at 6000 R.P.M. depending upon model) fueled by a mixture of gasoline and oil (⅓ pint in 1 gallon of gas).

Pete Garritt Hangs Up Apron

Norm Chestnut Also Retires

The crew from the Pilot Plant, personnel from MCD Research and Development, as well as other friends throughout the plant, gathered at Frank & Eddie's, Blue Bell, on January 3, for a farewell dinner to Elton K. (Pete) Garritt on the occasion of his retirement. About 30 people in all attended. He was presented with an electric shaver, a key case and belt. Pete would have completed 10 years' service with the Company on March 4. He worked in the Pilot Plant.

A less pretentious encore took place the following morning in the Development Office when cake and coffee were served. (see picture)

Pete was born in nearby Flourtown and had worked in the Ambler area all his life. He is a veteran of World War I. Currently he and Mrs. Garritt are sampling Florida, perhaps with ideas!

Norm Chestnut Retires

Norman Chestnut retired January 26 after nine years as a carpenter in Amchem's Construction Department.

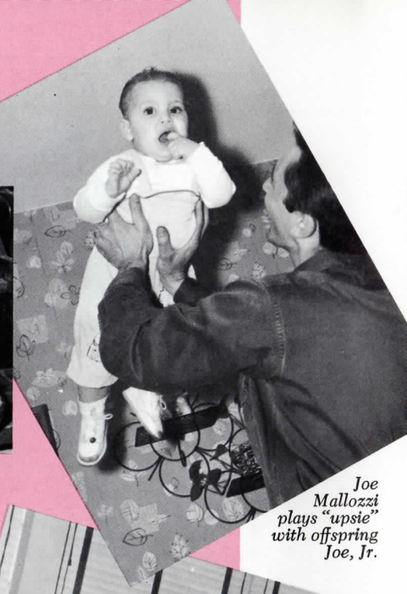
After Norman saw combat service as a Marine Corporal in World War I, he attended Banks Business College, Philadelphia, from which he graduated in 1923. He started out in the business world as a bookkeeper and office manager for a plumbing supply firm but found this type of work too confining and switched to carpentering within a year—a step, he says that he has never regretted.

Norman's plans are indefinite at the moment, but we're sure that the service of one possessing his skills will be in constant demand as a free-lancer.

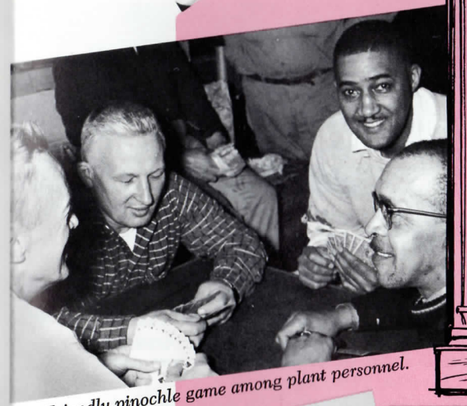
Pete Cuts Cake on last day at Amchem

Nancy (Pistilli) Gourley dines daily with son Brit.

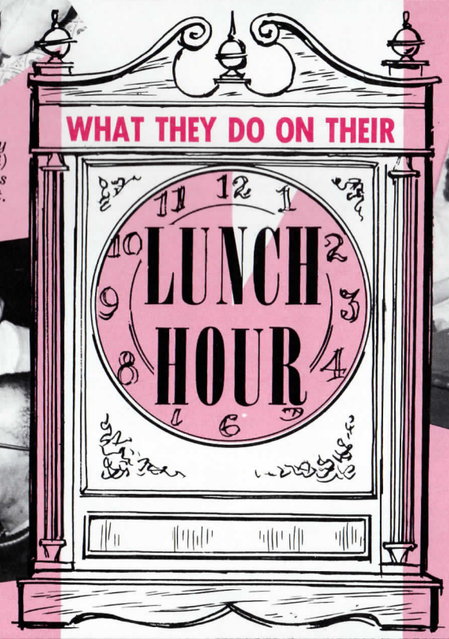
Fred Lieke compensates for his 56 miles of daily driving with a little shut-eye.



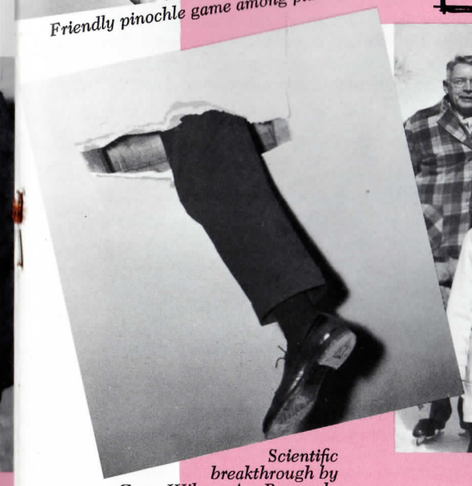
Joe Mallozzi plays "upsie" with offspring Joe, Jr.



Friendly pinochle game among plant personnel.



Accounting Department girls also play "according to Hoyle."



Scientific breakthrough by Gerry Wilson, Ag. Research.

The George Gardner "Amchapades" line up after noontime rehearsal at Penllyn.

Betsy Reinhart inspects finery at Ambler Fashion Shop.

THEY KEEP SPEED WHERE IT BELONGS

Bill Neill and his Fellow Dragsters Confine Speed to the Racing Strips

CONTRARY TO POPULAR BELIEF, drag racing, which tests the speed and acceleration of automobiles, was never intended to be a pastime engaged in by irresponsible teenagers on some unfrequented road late at night. This type of clandestine competition is not only senseless but dangerous, and is frowned on by the National Hot Rod Association which fosters organized drag racing under NHRA jurisdiction at specially constructed drag strips or courses. In fact, a cash fine is levied against its members by NHRA if they are reported speeding on public highways or roads.

900 Entries in Championships

The NHRA holds an annual championship. The one held last September at the newly completed Indianapolis Racing Park was the seventh such event. It lasted three days and attracted over 900 entries in 67 different classifications. 34 of these were for stock cars. There were over 40,000 spectators on hand for the final day.

The official length of the racing strip is a quarter mile—1320 feet. The contestants are pitted in pairs in the various classifications and through a series of these eliminations, winners are selected on an elapsed time basis. This type of competition is interesting, but time-consuming, before a winner emerges.

Engineer is Winner in '61

"Top eliminator" after the lengthy series in the '61 championships was Pete Robinson, an engineer from Atlanta, Georgia, with an elapsed time of 8.92 seconds for the quarter-mile run. Since there are no money prizes in drag racing, he received the Champion Spark Plug Co. trophy and a Pontiac 348 engine, one of the five given to the winners in the different classifications. Pete's Dragmaster Chassis was powered by a single Chevy '60 engine. There were no accidents during the entire championship because close technical inspection of cars by officials immediately before competing held accident risk to practically nil.

Amchem Has Genuine Hot Rodder

We were introduced to the mysteries of drag racing by Bill Neill, the young man whose picture you see on the cover, who works in our Pilot Plant. Bill is a consistent winner on the Hatfield Drag Strip and has plenty of evidence to prove it—one bit he displays as he stands beside his 1961 Chevy Impala convertible. Besides earning prizes on the strips, the Impala provides his transportation between Mermaid Lane, Wyndmoor, where he lives with his parents, and the Amchem parking lot.

Bill is a member of the "Equalizers" club, sanctioned by NHRA, and which has its own garage and headquarters in Germantown. Here you'll find him and his fellow drag racers, on their off hours, working on gear ratios, compression, injection, etc., with the studiousness and acumen of professional automotive engineers . . . and out of such organizations come the future Fords, Chryslers, Ketterings, et al.

Amchem has always been a "softie" for anything in the automotive line having grown up from its infancy with this industry. Therefore it's fairly evident that anything that promotes interest in this great field will get a big hand from us. So, go to it, Bill Neill.

Farewell Dinner for Frank Risolia

For Frank Risolia it was California here I come—full of pot roast, a little something else, and eleven years of happy memories at the Home Office—after the farewell dinner in his honor at Finore's, Springhouse, on January 9. Close to 100 of his fellow-workers turned out to honor Frank and present him with a 35 MM camera. To supplement this token, and in deference to Frank's consideration of them, the young ladies in his department gave him a carrying case for the camera as well as a supply of bulbs and film. The attendance represented the largest number of employees ever to be present for such an affair. The speeches were the shortest, the sentiments the truest, the regrets the sincerest—as one might expect—for a guy who's the nicest.

Frank left the East by auto on January 29, so by the time this copy of the *News* reaches you Frank will be on-the-job at Niles. There are two redeeming features about Frank's departure, however, one is that he's not leaving the Company, and the other is that it's an "up-the-ladder move" as stated previously, so we should be seeing him when he comes East in the future.

Gives Us the Business! *Mr. S. Goto (c), Director of Nippon Asbestos Co., Tokyo, has just signed licensing agreement for the manufacturing and distributing of Foster products in Japan. Nippon Asbestos is the largest company in the thermal insulation and contracting field in Japan. Stig Sasse (l), Int. Div., and Warren Weston (r), Mgr. Int. Div., look on.*

Amchem Lawn and Garden Display *at GLF (Grange League Federation) Dealers Meeting, Pocono Manor, last November.*

She's Tops! *Pat Delp, Accounting, was named the most outstanding 4-H girl in Montgomery County, and received top award in the 4-H sheep project. She is president of the Montgomery County 4-H Sheep Club. The awards were made recently at the Agricultural Extension Office, Norristown. Pat lives at Broad Axe with her parents and three sisters.*

AMCHEM PICTURE POTPURRI

PLANT XMAS PARTY

Joe Feckno, Maintenance, is M.C.

Board Chairman Chersksey joins Mel Nagle (l), Johnny Thompson (2nd from l) and Geo. Nelson (r) in Holiday Toast.

It's Home-coming Day and a welcome from Mr. Cherksey for Retirees Herbert Amey (l), Willis Atherholt (2nd from l), Ross Rile (3rd from l) and George Lodge (r).

Before leaving for festivities Mr. Cherksey accepts employees' gift for charity from Brooke Chapman, Ag. Sales.

SPLIT-LEVEL TRAVEL SUTHERLAND STYLE

Wherever it stopped it drew spectators with the magnetic allure of a midway pitchman. And when it hit the Amchem parking lot, your editor was just as big a rubber-necked rube as any of the scores who had gathered 'round the "Caveman Camper" at the various spots where it stopped on its cross-country journey from Oregon. Even here among the heterogeneous assortment of mobility that daily hauls Amchem personnel to the premises, this house-on-wheels was something more than a curiosity. Not that trailer-homes are uncommon anywhere in this country, but one so compact as to "nest" in the body of a Chevrolet pick-up is a rare sight in these parts. Here were living accommodations for four—sleeping, cooking, dining, etc.—in a space not much larger than the body area of the pick-up truck.

Has Truck, DID Travel

By simple deduction we assumed, since the "Camper" bore Oregon license plates, that it must have some connection with an Amchem employee from that State. The only one whom we could think of from Oregon was Mel Sutherland. We tracked Mel to his den of Soxhlet extractors in the Analytical Research Lab in Building No. 1, where he told us that the modern equipage on the parking lot belonged to his Dad, who, in company with Mel's Mother, came all the way from Klamath Falls, Oregon, to visit him and his family.

Home Again

The journey took three weeks, with eight sightseeing stop-offs at various places across the country. After their stay with Mel, Mother and Dad Sutherland returned to Oregon by way of the Southern States, taking in all the historical landmarks between here and Los Angeles. They reached the latter city just as that terribly disastrous fire was raging in that region. A five-day stay in L. A. was followed by the trip through California and Nevada back to Klamath Falls. The speedometer clocked 7064 miles for the round trip, while the Chevy turned in a creditable 12 miles per gallon.

John Kirch Chairman at SWC

Mitchell Gives Report

It was the consensus of opinion of those attending the 15th Annual Meeting of the Southern Weed Conference, January 17, 18, 19, that this gathering was the most successful in the history of this organization. Success of the affair, which was held at the Patten Hotel, Chattanooga, Tenn., was due in no small measure to the excellent program arranged by the committee under the chairmanship of John Kirch, ACD Research.

The program, divided into eight sections, each devoted to a specific phase of Weed Control, had for its theme "Woody Plants—Scope of the Problem." Research findings in each of the eight sections were read by university and college professors, staff members of Experiment Stations, representatives of utility companies and the chemical industry.

Cliff Mitchell, ACD Research, outlined Amchem's chemical contributions for the coming season at the "Developments from Industry," Section, and in addition to his duties as program chairman, Kirch acted as moderator of an evening informal discussion on woody plants. This was something of an innovation but the idea was so successful that it is being included as a regular feature of future programs.

The benefits to agriculture, forestry and stock raising that accrue from the utilization of the discoveries reported at such weed control conferences are incalculable. The man-hours saved by utility companies and those engaged in right-of-way and highway maintenance, through the use of chemical weed and brush killers, are reflected in savings of millions of dollars to all users of light, heat and power, as well as public transportation.

SCIENCE CORNER

George Gardner, MCD Research Chemist, presented an hour-long paper at last year's annual meeting of the National Association of Corrosion Engineers, at George Washington University, St. Louis. The following is an abstract of George's paper, the title of which is "The Theory and Application of Corrosion Inhibitors."

Metals such as copper, iron, chromium, and aluminum oxidize with a decrease in free energy—that is, their oxidation is spontaneous—and they would be unfit for use if it were not for the fact that the oxide layers act, to a greater or lesser extent, to slow up the oxidation rate. This "natural" type of corrosion control, which we know as *passivity,* is contrasted with corrosion control obtained by the addition of substances that are members of a large group known as *inhibitors.*

In dealing with metallic corrosion and metal surfaces, we are working with surfaces that are far from physical perfection —they are chemically contaminated and physically altered, or "damaged". This deviation from a theoretical surface must be considered as an important part of the question of corrosion inhibition. Also, this imperfect metal surface must be considered in its environment of gaseous or liquid substances, which make up what we term the *corrodent.*

The theory of the behavior of corrosion inhibitors has been given substance and direction by the farseeing work of Freundlich and Langmuir on the adsorption of substances on surfaces. We now distinguish two types of adsorption: (1) *reversible* physical adsorption, with relatively small Van der Waals forces acting, and (2) *chemisorption,* where the binding energy is large, and the binding forces are clearly related to the formation of chemical compounds. Organic inhibitors act to a large extent by reversible physical adsorption, and passivators by chemisorption. There is a borderline however, in which there is considerable overlapping.

Since the days of Faraday, the electrochemical nature of corrosion has been well established. It is now known that the distribution of cathodic and anodic areas on the surface is a function of lattice imperfections, strains, and the distribution of the components in a metal or alloy. Among the valuable contributions to electrochemical corrosion theory, the work of Gatos is of particular interest. He studied the phenomenon of polarization, and gives a picture of anodic and cathodic polarization that is very useful in understanding how corrosion proceeds with various types of control.

Inhibitors that retard the anodic reaction are termed *anodic inhibitors;* and those that retard the cathodic reaction are termed *cathodic inhibitors.* There is a definite tendency, however, particularly with organic inhibitors, to deviate from this classification, since, as Machu has pointed out, many organic inhibitors show *over-all adsorption,* as distinguished from adsorption at a definite electrode.

The distinction between inhibitors and passivators resides entirely in the degree of completeness of the covering of the surface, and the strength of the bonding. Passive layers are much heavier than inhibitor layers, and retain their protective ability for relatively long periods of time after removal from the corrosive environment. Inhibitor layers are monomolecular, or approximately so, and lose their effectiveness after removal from the corrosive environment containing the inhibitor.

Machu has contributed a theory for the mechanism of inhibitor action that seems generally valid. He concludes that the porous inhibitor films formed by adsorption or chemisorption must have a structural individuality. He believes that the high molecular weight polar inhibitor molecules form a layer of filaments at the metal surface, parallel to one another, by the up-ending of the molecular chains, because of the existing force fields. He compares the structure of the inhibitor layer to a pincushion. This theory explains the resistance to diffusion of corrodent, and the formation of a barrier for local corrosion currents.

Also involved in the complex behavior of corrosion inhibitors is the principle of synergism—mutual action. Corrosion inhibitor investigators use this principle daily—that two or more substances, acting together to inhibit corrosion, will give a greater degree of inhibition than either of the substances used separately.

As to the chemical nature of organic inhibitors, this covers a wide range: Aldehydes, Ketones, ring nitrogen compounds, sulfur compounds, and many combinations of substances, make up the corrosion inhibitors of commerce.

The practical user of inhibitors is confronted with a large number of conditions that affect over-all performance. Taking as a special example the application of inhibitors in commercial non-oxidizing acids, his selection of the proper inhibitor for the job in hand must be made based on the temperature, type of acid, concentration of acid, kind of metal, and other special considerations. A practical inhibitor chart is presented to show the way these problems are solved in everyday acid operations.

MCD Production Is Safety Winner

Jumping from third place as of December 31, 1960, to first place at the end of December 31, 1961, MCD Production captured top honors in the Percentage of Improvement Classification of the yearly Safety Contest with a plus 100% improvement. Runner-up was Shipping with a creditable 62.8% improvement.

At press time, Plant Management was assembling an assortment of practical and decorative merchandising gifts from which the winners will make their selection.

MCD Production personnel who took part in the contest are: Charles Ball, George Barreca, Joseph Blessing, Joshua Braxton, Robert Brown, Francis Cahill, William Coleman, Leonard Cooper, Norman Howard, George Nelson, William Nelson, Charles Olivieri, James Parker, Harold Smith, Clarence Thompson, John Thompson, and Clarence Wood.

Results in the Low Accident Frequency Classifiication will be tabulated as of June 30, 1962, in accordance with the plan inaugurated last year.

PERCENTAGE OF IMPROVEMENT STANDING AT END OF CONTEST

Percentage of Improvement is based on performance of all preceding months within the current calendar year as compared with standing at the close of the previous year.

STANDINGS	DEPARTMENT	% CHANGE
1.	MCD Production	+100.0
2.	Shipping	+ 62.8
3.	Construction	— 46.5
4.	Receiving	— 50.3
5.	ACD Production	— 53.0
6.	Maintenance	— 81.5
7.	Research	—140.0
8.	Packaging	—202.0

Tafuro Elected V. Pres. of NEWCC

Amchem Has Large Representation at Meeting

Tony Tafuro, ACD Research, was elected vice president of the Northeastern Weed Control Conference at the group's Annual Meeting held at the Hotel New Yorker, N.Y.C., January 3, 4, 5. He will automatically move up to the presidency in 1963. This is an excellent tribute to the esteem in which Tony is held by all the other members of NEWCC. The honor is richly deserved for Tony has given unstintingly of his time and efforts while serving on the various committees of this weed control association. For this year's meeting he was chairman of the public relations committee and was in charge of press and recording interviews.

Tony was also spokesman for Amchem when he presented our new products for 1962 at the new Herbicides for Industry session on opening day.

There was 100% representation from ACD Research over the three-day program, many being present for the entire Conference. Eastern District Sales personnel also attended. In addition to Tafuro's active participation, Mel Sutherland presented a paper on "The Recovery of C^{14} Amiben from a Typical Greenhouse Soil." Dick Otten also presented a paper on "Pre-emergence Crabgrass Results," while John Gallagher and Roy Johnson read the Coordinating Committee reports on "Aquatic Weeds" and "Soil Sterilization" respectively.

The total attendance was 650 and included representatives of industry, farming, Federal and State governments, colleges and universities.

Amchem Broadens Canadian Distribution

In order to broaden and intensify the distribution of its agricultural chemicals, particularly in the vast farm and ranch area of Alberta, Saskatchewan and Manitoba, Amchem has completed an exclusive licensing agreement with Allied Chemical Services Ltd., Calgary, Alt., to manufacture and distribute Weedone herbicides in that area.

Allied Chemical Services Limited is a comparatively young company, having been formed in November, 1949, and is in excellent position for growth. Its products have had fairly wide acceptance in the Prairie Provinces ever since the formation of the company. Aubrey E. Sherman, who had been Amchem's sales-development representative in those provinces for the past two years is now associated with Allied and should prove a very valuable acquisition to that firm.

The licensing agreement, in effect since last November 1, now provides on-the-spot organizational assistance to a larger segment of Canadian customers than in the past.

Amchem Partner in New Malayan Company

A new company, Weedone Products (Malaya) Ltd., has been formed to manufacture and distribute weed- and brushkillers in Malaya. The new firm, with headquarters in Kuala Lumpur, capital of that country, came into existence December 4, 1961. Weedone Products (Malaya) Ltd. is jointly owned by Amchem S.A. (Amchem's wholly-owned Swiss subsidiary), Ivon Watkins Ltd., New Zealand, A. H. Marks & Co., England, and Marton & Co., Ltd., Malaya. Representing Amchem (and AMSA) during the preliminary stages of formation was Ken Bridge, Agricultural Technical Representative, International Division, while he was in Malaya last summer.

Rich Market

As most of our readers are aware, Malaya is a rich source of natural rubber with extensive plantations covering its 50,000-square mile area. Servicing this rubber industry, which produced 709,500 metric tons* in 1959, was the prime objective for establishing this new outlet. However, since latest available figures show that Malaya also produced 762,000 metric tons* of rice in the same year, the cultivation of rice crops should also provide a valuable market for Amchem herbicides.

Area and Needs Familiar to Bridge

Malaya and its agricultural chemical requirements, as well as the major planters, are all well-known to Ken, who was an agricultural advisory officer for the Imperial Chemical Industries of Great Britain, in the Malayan area, for the 10 years preceding his employment at Amchem in September 1959. Ken informs us that up until now, Malaya rubber planters had been using sodium arsenite as a weed killer, but that its toxicity had endangered both live stock and humans to the extent that accidental deaths were not an uncommon occurrence. So lethal is this chemical considered to be in Malaya that its users are required to be licensed. Rigid supervision of spray gangs is also a necessity.

Another objection to sodium arsenite is that it is not a very proficient weed killer because spraying has to be constantly repeated due to heavy rainfall, especially during the monsoon season when washouts present a continuous problem. Sodium arsenite just hits the top of the weeds, while aminotriazole penetrates the soil to the roots and kills the weeds.

Communist Terrorism

With the ending of the "Emergency" which marked Malaya's 12-year fight against Communist terrorism, the country turned to rural development with the same determination and energy that marked its successful campaign against the aggressor. A plan was instituted which provides ten acres of land —seven to be planted with rubber trees, three to be in cash crops—to settlers in cleared jungle land. In 1960 new settlers numbered 600 families. This is a considerable number in view of the country's total estimated population of 6,815,000.

Ken's visit to Malaya was the major stop in a three-month jaunt that also took him to Japan, Australia, New Zealand and Hawaii. He left Ambler the first week in July and returned after Labor Day.

*metric ton equals 2204.6 lbs.

Congratulations!

These are the men and women of AMCHEM who have received Service Award Emblems between Sept. 1, 1961 and Jan. 1, 1962.

★ **15 YEARS** ★

John Campbell
Andrew Ducsik
Winford P. Sitz
Francis J. Super
Blanche S. Van Buren
Clarance C. Wood

★ **10 YEARS** ★

Christian Andersen
John A. Carroll
Robert R. Godorecci
John E. Waldrum
Robert F. Wright

★ **5 YEARS** ★

Albert C. Grahme
Eric H. Grayston
Edith M. Hablett
Albert J. Lear
Robert K. Rockstroh
Thomas Ryan
Dwight W. Shaw
John R. Sterry
Robert W. Taylor
John P. Zollo

Jack Campbell (l), Staff Asst., recipient of 15-year service award from Al Sinclair, MCD, East. Dist. Sales Mgr.

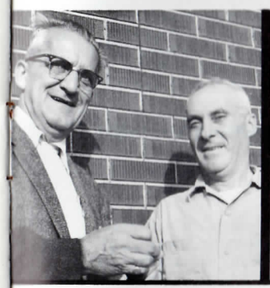
Clarance Wood (r), MCD Production, receives 15-year service award from Adolf Karcher, Supervisor of Dept.

Chris Andersen (r), Off. Mgr., is recipient of 10-year award from Warren Weston (l) Mgr., both of Int. Div.

Bob Godorecci (r), Maintenance, receives his 10-year service award from Harry Bailey (l), Mgr. Maintenance.

John Waldrum (l), Technical Specialist, is presented 10-year service award by Al Douty, Tec. Director.

Bob Wright (r), Const., is recipient of 10-year service award from Frank Piacitelli, Mgr. Const.



Al Grahme (r), Receiving, accepts 5-year service award from Guy Gochnauer, Manager Receiving Department.

Eric Grayston (c), MCD Sales, is congratulated by MCD Asst. Sales Mgr. J. Price (l) and Ernie Davenport (r), MCD Can. Mgr.

Edith Hablett, Pat. Off., is flanked by Tom Kirchoff (l), Asst. to Bill Gannon (r), Amchem Pat. Chief at Edith's 5-year service presentation.

Dick Rockstroh (r), Assistant Plant Manager, accepts 5-year service award from Graham Smith (r), Amchem Plant Manager.

Fred Lieke (l) and Johnny Zollo (r) get 5-year pins in double presentations by Frank Piacitelli, Mgr. — all of Construction Department.*

**Fred's anniversary came in Aug.*

Introducing New Members of the Amchem Stork Club

TINA MARIE ANGELICHIO
. . . November 4, 1961
The Proud Amchem Parent: Joseph Angelichio (Maintenance Dept.)

CAROL JEAN CROUTHAMEL
. . . January 12, 1962
The Proud Amchem Parent: Lee Crouthamel (Shop)

MARY WILBUR CUMMINGS
. . . November 13, 1961
The Proud Amchem Parent: Dr. Lynn Cummings (Ag. Chemical Lab)

CHRISTINE ANN FEATHER
. . . September 7, 1961
The Proud Amchem Parent: Ed Feather (Purchasing)

JOHN DAVID FRITZ
. . . October 2, 1961
The Pround Amchem Parent: Charles David Fritz (ACD Farm)

THERESA GIAMPA
. . . October 2, 1961
The Proud Amchem Parent: Frank Giampa, Jr. (ACD Packaging)

SHERYL LYNN GROSS
. . . September 29, 1961
The Proud Amchem Parent: Stanford A. Gross (Ag. Salesman)

SUSAN LYNNE HARRISON
. . . September 19, 1961
The Proud Amchem Parent: Dr. George Harrison (MCD Research)

CAROLYN ANNE HARRISON
. . . October 13, 1961
The Proud Amchem Parent: James (Pat) Harrison (Research)

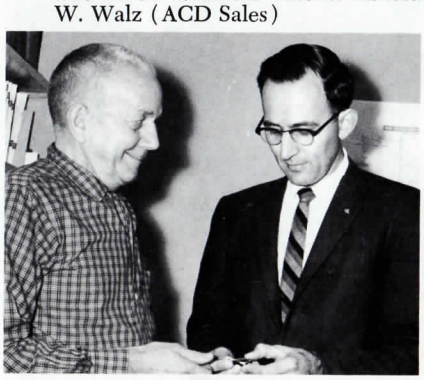
CHRISTINE MARIE KIRCHOFF
. . . August 25, 1961
The Proud Amchem Parent: Thomas Kirchoff (Patent Dept.)

DAVID CHARLES SHELLINGTON
. . . November 20, 1961
The Proud Amchem Parent: Richard L. Shellington (Inventory)

ROBERT ALLMAN TAYLOR
. . . December 8, 1961
The Proud Amchem Parent: Robert Allman Taylor (MCD Sales Representative)

DAWN TEDESCO
. . . January 9, 1962
The Proud Amchem Parent: Thomas Tedesco (ACD Packaging)

KIMBERLY ANN WALZ
. . . December 2, 1961
The Proud Amchem Parent: Arnold W. Walz (ACD Sales)



Snively D. Myers (l) accepts 10-year Service award from Russ Bishop. Taken in September, it's our last picture of Derv.

Welcome to our new employees

NAME	HOME TOWN	ASSIGNED TO
THEODORE BILLIS	*Detroit, Mich.*	Production, Detroit
KATHRYN L. BOZARTH	*Perkasie, Pa.*	International Div.
NORMAN R. BUCKLEY	*Haywood, Calif.*	Production, Niles
KENNETH H. BURGE	*Wathena, Kansas*	Production, St. Joseph
RICHARD H. CALVERT	*Irvington, Calif.*	Production, Niles
JOSEPHINE T. COOK	*Royal Oak, Mich.*	Office, Detroit
MARY LOU D'APUZZO	*Ambler, Pa.*	Publications
FRANK R. DATTILO	*St. Joseph, Mo.*	Production, St. Joseph
JOHN G. FARZETTA	*Ambler, Pa.*	Construction
MARY A. HARINCK	*Ferndale, Mich.*	Office, Detroit
JANET L. LEAHY	*Ambler, Pa.*	Production
MAXINE P. McCLEARY	*Oreland, Pa.*	Ag. Sales
CHARLES NASH	*Royal Oak, Mich.*	Production, Detroit
ORBY E. ROACH, JR.	*St. Joseph, Mo.*	Production, St. Joseph
NORMAN J. ROBERTS	*St. Joseph, Mo.*	Production, St. Joseph

Along the Party Line

Palace Guard: Visitors to Amchem—be they truckers, State officials, salesmen or employees' kinsfolk—get their first sample of Amchem hospitality the minute they step inside the gate house where JACK WATERS is major domo. Jack has a subtle, but sincere, way of becoming friendly without ever being presumptious, without ever forgetting the purpose of his presence: TO BE CORDIAL AND HELPFUL TO ALL. Nice work, Jack!

★ ★ ★

As You Were! PAUL CUPPETT, ACD Lawn and Garden Product Sales, is back in mufti for good—not just on week-ends.

ED FEATHER, Asst. Dir. Purchasing, is confining his purchases these days to the PX of the 298th Ordnance Company, Camp Pickett, Va.

★ ★ ★

Ambler Ties: JOHN STERRY, ACD Technical Service Supervisor for Amsa, our European subsidiary, flew over from Switzerland for the ACD Spring Development Meeting. We also noted the presence of DICK FOSSE and KEN DUNSTER from ACD Western District at the meeting.

★ ★ ★

A Talent: LINDA FOX, 18-year-old stepdaughter of genial JACK CAMPBELL, MCD Eastern District Staff Assistant, seems headed for a pro vocal career. Currently concentrating on All-Pennsylvania scholastic vocal honors, Linda, a Springfield high senior, has a repertoire that runs the gamut from jazz to grand opera.

★ ★ ★

Welcome Visitor: The Editor's desk had the pleasure of a personal visit from GEORGE WILLIAMSON, V.P. in charge of Western Operations, who was in Ambler late last month.

★ ★ ★

Adieus with Regrets: The two NAGELS—HERTA, ACD Research and MARLENE, Int. Div., have recently left. Herta was tendered a farewell luncheon at Broad Axe Hotel. Affair was arranged by CYNTHIA GEHRET, ACD Advertising.

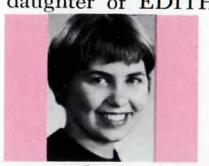
ANTOINETTE McBREEN, Pkg. whose name and picture have frequently appeared in *the News* has resumed household chores on a full-time basis.

★ ★ ★

Got Rocks Dept.: LYDIA CATAGANO and MARIE MASCOLA, both of Accounting, and FRAN VALEO, Inventory, are slated to be targets for a rice barrage sometime in '62. Donators of the precious ice that sparkles on their fingers are William Galvin to Lydia, Harry Leister to Marie, and Albert Reiff, Jr. to Fran.

★ ★ ★

Sheepskin Bearer: LYNNE V. HABLETT, daughter of EDITH HABLETT, Patent Office, received her B.S. from Elizabethtown, Pa., College, Feb. 7. Lynne, a National Merit Scholarship finalist, was captain of the hockey team in her freshman year. A history major at Elizabethtown, she has applied for a Commission in the U.S. Navy. She is the second oldest of five children of Mr. and Mrs. Hablett.



Snively D. Myers

With deep regret we announce the death of Snively D. Myers, ACD Research Lab, January 14, at Abington Memorial Hospital. "Derv," as he was more intimately known to his Amchem friends, received his 10-year service award last September 13. (see pic.) He had worked on the preceding Friday.

The quiet, conscientious and efficient way he accomplished his daily tasks, as well as his likeable personality, endeared him to both supervisors and fellow-workers alike. He will be greatly missed by all of us.

He is survived by his wife Maude, a daughter, Mrs. Otto Anders, who formerly worked in our Accounting Department, a grandson, two nieces and a sister, Mrs. Harvey T. Heath. To all of them we extend our sincere sympathy.