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BY GUM!

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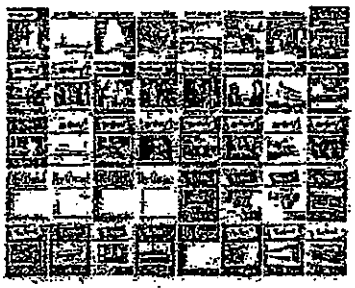
Established in 1931, By Gum!, RCI's house magazine, serves as a vehicle for informing customers and friends concerning RCI's latest activities and products. Its editorial offices are located at RCI's executive headquarters, RCI Building, White Plains, N.Y.



ABOUT THE COVER

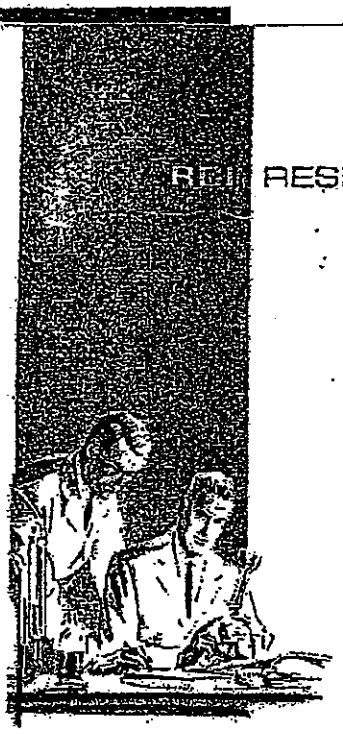
They say life begins at forty and 1967 marks that milestone in RCI's history. If we may judge from past performance, we can look forward to some interesting years ahead.

In this issue of BY GUM!, you will find a review of the company's growth over the past forty years both here and abroad. It took some real searching and, believe it or not, we even found the ledgers that were hand-posted back in 1927. Having become accustomed to our IBM world of today, we found them strange indeed.

We are sending this issue to our stockholders because many do not know the history of Reichhold and how it has grown over the years. In addition, we feel we should give an explanation of the name BY GUM! It is really quite simple. Before the age of synthetics, paints were made from natural gum rosins. So, when we started our little company publication back in 1931, we called it BY GUM! And, by golly, it stuck.

TABLE OF CONTENTS

RCI RESEARCH REPORT



Research with a Purpose

HERBERT L. WAMPNER
Vice-President—Development

REICHHOLD CHEMICALS, INC. is a research-founded company and its progress over the years has been based, for a large part, on continued research.

THE FIRST TEN YEARS

Forty years ago the company, under the name of Beck, Koller & Company, Inc., started the manufacture of synthetic resins in Ferndale, Michigan. These resins were based on research which had been done in Europe primarily by Dr. Herbert Hoenel, who can be considered the technical father of Reichhold Chemicals. The first United States patent assigned to Beck, Koller & Company was applied for on September 9, 1927, and was granted April 14, 1931.

The first patent granted to a person working in the Beck, Koller laboratory in the United States was applied for on May 5, 1934, and granted July 9, 1935. These two patents bear witness to the fact that the company was engaged in research leading to patentable products from the start.

In an article appearing in the first issue of BY GUM!, December, 1931, Mr. Reichhold speaks of. . . "the activity of research chemists" . . . The following issue of BY GUM!, January, 1932, announces SUPER-BECKACITE® 1001 and states, "It represents more than four years of exhaustive investigation on the part of research chemists in the Detroit laboratories of Beck, Koller & Company, Inc."

The first synthetic oils, sold under the tradename BECKOLIN®, were introduced in 1934 to produce more durable and faster drying house paints. In December of that same year a very significant announcement appeared in BY GUM!: The research laboratories had been enlarged. The number of patents applied for and granted during this period and the number of new products announced to the trade, attest to RCI's active research program.

THE SECOND DECADE

During the next ten years RCI expanded considerably and changed the nature of its business. While surface coating resins remained the dominant field of activity, the company in 1937, entered the chemical business. Its first efforts were the refining of glycerin. Shortly thereafter the manufacture of phthalic anhydride started.

Early in this period the corporate name was changed to Reichhold Chemicals, Inc. to more clearly indicate the nature of the business. One of the guiding philosophies of the corporation also became evident—protect your raw material supplies by manufacturing them when volume and market considerations warrant such action. The policy of establishing manufacturing, technical service, and research activities in our customers' localities similarly became firmly intrenched.

The period 1937 to 1947 also covers RCI's activity during World War II. The company entered into the color business and into the manufacture of phenol. The know-

Typical of research by RCI affiliates around the world is this picture taken at Reichhold Chemie AG, Hamburg, Germany.

how for both of these operations was purchased. In the case of phenol this led to a very vigorous and vital period of research to eliminate the many shortcomings in the information and process obtained. The present phenol process bears little resemblance to the original, except that both are based on the sulfonation of benzene.

During this period a considerable amount of time of the research department was devoted to developing coating materials from non-strategic raw materials. In this way priority materials were conserved for the war effort and non-critical materials were made available for the domestic market.

THE THIRD DECADE

1947 to 1957 saw a continued rapid expansion of RCI as a result of research efforts. The first plant for maleic anhydride was put on stream at the beginning of this period. Shortly thereafter the production of formaldehyde by a new RCI developed process was announced. No one then had any idea that this FORMOX process was to become the preferred one in the world for making formaldehyde from methanol. Now over a billion pounds of capacity per year in various parts of the world has been or is being constructed based on licensed know-how from RCI. This is about one-sixth of all formaldehyde produced in the free world.

Additional chemicals moved into production at RCI within the next few years—pentaerythritol in 1954 and pentachlorophenol in 1955.

This same period saw the start of our Plastics Division, which has become the largest single division in the corporation. RCI's polyester resins became commercial items in 1953.

THE FOURTH TEN YEARS

This decade saw an acceleration of research efforts at RCI through internally generated projects and also through the acquisition of five companies, each of which brought their own research groups into the organization. Organic peroxides and specialized phenolic resins were added in 1959; plasticizers, glass fibers, and fiberglass panels in 1960. The present Treated Fibers Division had its beginning in 1959 with the production of paper glue lines based on research at Seattle–Tacoma.

Research work was also done on hydrocarbon resins during this period and has resulted in the Delta Division of the company at Gulfport, Mississippi.

A special laboratory was opened in 1964 to study the needs of the adhesive industry and how best RCI could meet the diverse needs of the many different adhesives used today. Here again an entirely new field of activity was opened up through the research of this group.

Perhaps of most significance during this period was a meeting in 1958 of the technical directors and laboratory managers from the various RCI plants. One conclusion of this meeting was a resolution which was sent to the Board of Directors and the Executive Committee of RCI asking that a central research organization be established to coordinate the research of the various laboratories and to expand our efforts into new fields. As a direct result of this resolution the plans for a unique laboratory were developed and the search for a suitable site was begun. This came to fruition when RCI opened the first unit of its centralized research organization at Sterling Forest, New York, in 1964.

1966 saw the commercial production of o-benzyl-p-chlorophenol, primarily for the bactericidal field. At this time we began commercial production of parachlorophenol (a raw material for o-benzyl-p-chlorophenol), which is also sold to other chemical processors.

THE FUTURE

In the past, a fair share of the research effort at RCI has been given to improving products already manufactured and the processes used to manufacture them. At the stockholders annual meeting in 1966, it was mentioned that no sooner is a good commercial manufacturing process developed than the researcher starts looking for means to make it obsolete. He knows that our competition will be doing exactly the same thing, so to maintain our competitive edge, he tries to keep thinking ahead of them.

Examination of RCI's past efforts will also reveal that a major portion of our research has been directed to specific product areas. Mr. C. J. O'Connor at one time stated that the reason for RCI executives being away from their desks was that they were "out in the field gauging customers' future needs and preparing in advance to meet them." This has always been the philosophy behind the research effort at RCI: develop products which fit specific needs.

Mr. Reichhold mentioned in 1950 that "the pattern of approach to a new problem is to retain the best of the past, develop the good of the present, but always be on the alert for that which may be better in the future." Since these approaches have paid off in the past, undoubtedly they will be followed also in the future and the rapid expansion of RCI should continue based on Research With a Purpose.

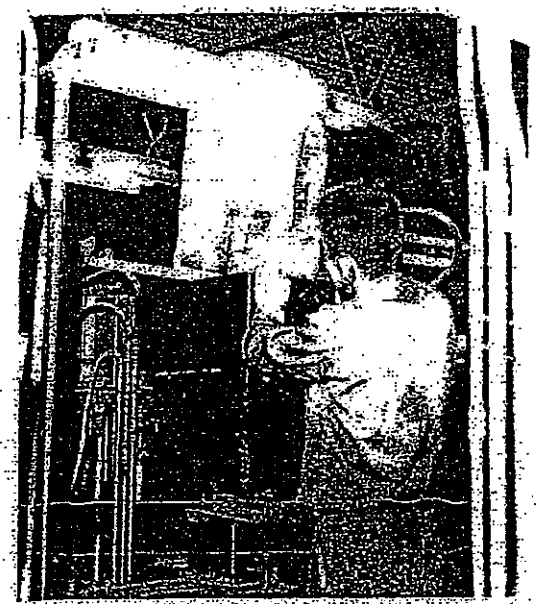
Structures of organic compounds are analyzed by means of Infrared Spectrophotometry.

When ideas are flowing slowly, a look at the lake provides relaxation and inspiration for Sterling Forest researchers.

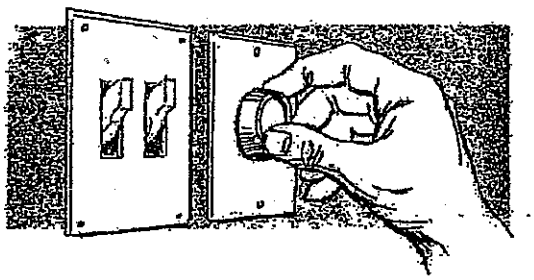
The sun never sets on RCI's laboratories. This is one maintained by Reichhold-Beckacite S.A., Bezons, France.

Reichhold Phenolic used in Circle F Molding Plant

Chris Greenwald, superintendent of Circle F's Plastic Molding Division with molded part and the injection mold used to make it.



Loading the hopper of a high-speed molding press with phenolic molding compound.



"WHEN YOU TURN ON A SWITCH or plug in an appliance, it's an even bet that you have used a Circle F wiring device." This is the estimate of the management at Circle F Industries of Trenton, N. J., and their annual production figures substantiate it.

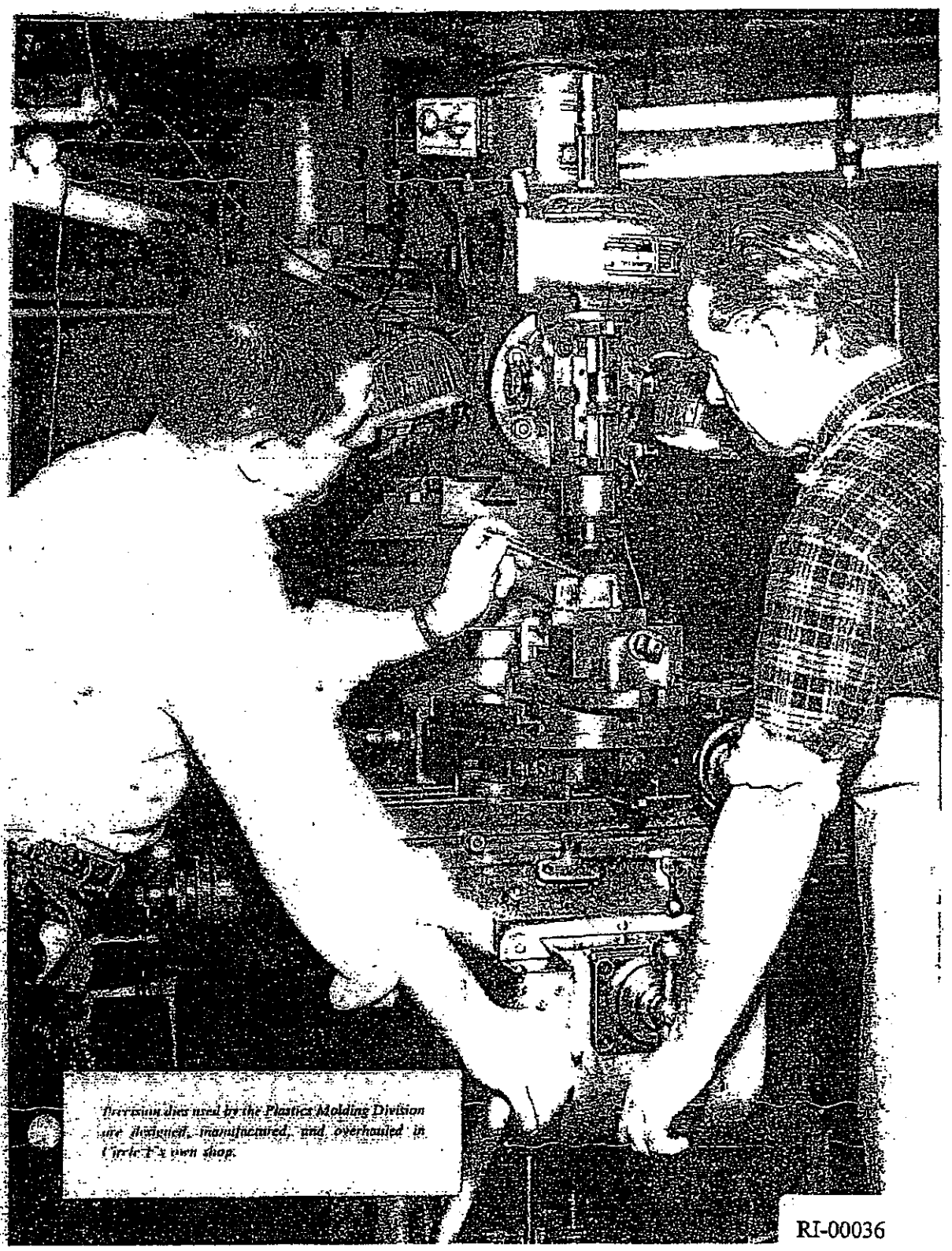
MANY PRODUCTS MADE

This corporation produces over 15,000 different electrical wiring devices for industrial and domestic use. Their products vary from wall plates and dimmer switches for lighting applications to plugs and outlets for washing machines, dryers and stoves. Circle F wiring devices are used as component parts by many major appliance manufacturers and each day several hundred thousand Circle F units are installed by electrical contractors.

Virtually every electrical device manufactured by Circle F contains one or more components molded of phenolic resin. For obvious reasons, the corporation makes as many of the component parts of its products as possible. It was one of the first companies to set up a production facility for molding thermosetting resins in the twenties. This facility, operated by its Plastics Division, has kept pace with the industry and was recently cited by a group of production machinery experts as the finest they have seen in the world.

DAILY PRODUCTION EXCEEDS ONE MILLION PIECES

Operating under the direction of Division Superintendent, Chris Greenwald, the Plastics Division is an efficiently run operation, with a wide variety of skilled personnel. Whenever a new production item is programmed, the Division immediately becomes involved and skilled designers and mold makers begin the production of the required compression molds. Fabricated of tool steel to withstand the 2,000 pounds per square inch pressure built up in the molding presses, these molds are painstakingly prepared, to close tolerances. They can contain cavities for from 2 to 36 identical parts, and cost anywhere from several hundred dollars to $30,000 each.



Extrusion dies used by the Plastics Molding Division are designed, manufactured, and overhauled in Circle T's own shop.

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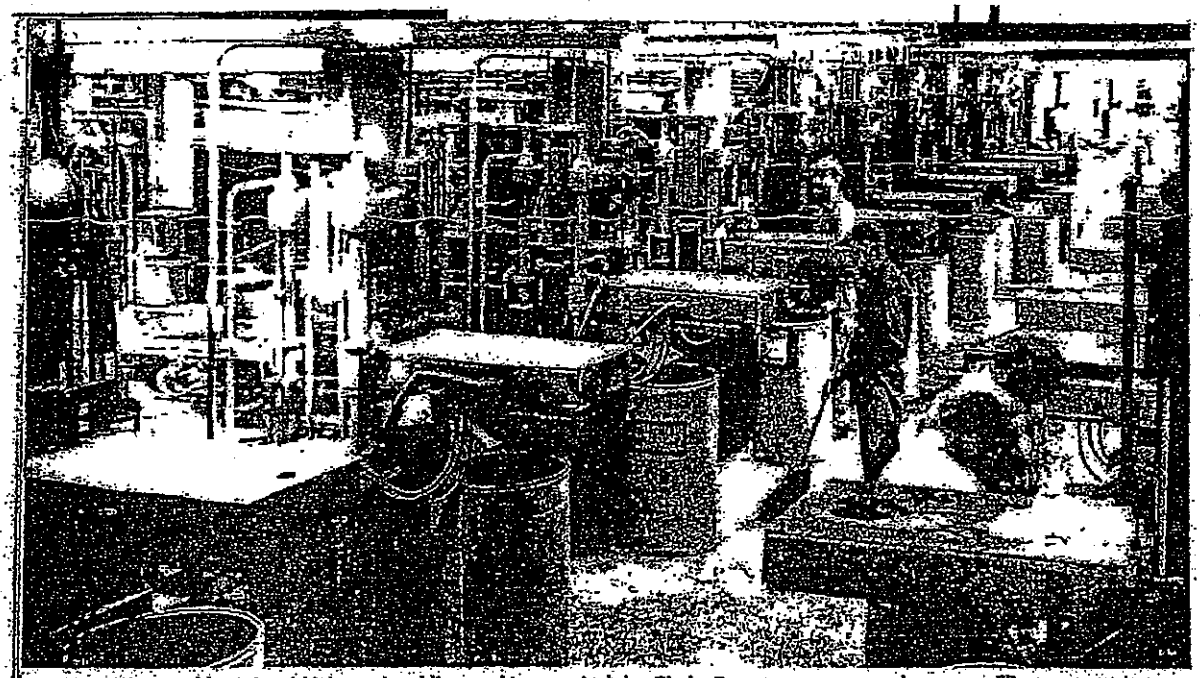

One of several batteries of high-speed molding machines required by Circle F to turn out more than one million parts a day.

Molded parts are tumbled in this wheelabrator to remove flash. Granular apricot pits are the only abrasive required.

QUALITY OF RESIN IS IMPORTANT

Having prepared these cavity molds with mirror-like finishes, it follows that top-grade molding compounds must be used in them to attain the desired finish. At Circle F by combining high precision production machinery with top quality raw materials, the Division has been able to consistently produce large quantities of accurately made parts. At the same time, their high standards have resulted in the virtual elimination of rejects and the use of costly finishing operations. During a recent interview Mr. Greenwald stated that, "Our products have to come out of the presses almost ready to use. All we do is tumble and wheelabrate the parts to remove the "flash" (excess plastic), and the parts are then ready to go on to assembly in other parts of the plant.

"Our raw materials have to be good. At our high production rate, we can't afford rejects or hand-finishing operations. We have been using Reichhold thermosetting resins and molding compounds in this plant for years, and they mold well in our equipment.

"We also appreciate the competent technical service we get from Ruff Cook and Doc Weisbecker of Reichhold Chemicals. We are constantly installing new and better equipment here, and their assistance has been very useful to us."

OTHER RESINS USED

Not limited exclusively to the production of phenolic molded parts, Circle F's Plastics Division also manufactures parts of urea-formaldehyde resins, and molds parts for special applications from thermoplastic resins like nylon and styrene.

The next time you turn on a switch or plug in an appliance, remember, you probably just used a Circle F wiring device. Since Circle F uses large quantities of Reichhold resin, chances are good that you also just used something made from Reichhold phenolic molding compounds.