

The History of



THE Buckeye Cotton Oil Company¹ was formed in 1901 as a subsidiary of The Procter & Gamble Company. The new company was born out of the parent firm's need for a steady supply of cottonseed oil for use in making soap and other products.

Buckeye's first venture in 1901 was to lease a crushing mill at West Point, Mississippi. A year later, it acquired mills in Birmingham, Alabama, and in Greenwood, Mississippi. Construction of five new mills in Georgia, Mississippi, Arkansas, and Alabama in 1903 rounded out the fledgling company's beginning in an industry in which it was destined to become a leader.

The procedure for crushing cottonseed was fairly well standardized by the time the Buckeye Cotton Oil Company was established. It consisted of five stages:

- Cleaning and delinting the seed;
- Separating the meats and hulls (hulling);
- Cooking and preparing meats;
- Pressing meats in hydraulic presses; and
- Grinding cake into finished meal.

Aside from some slight improvements in machine design, this process was to remain basically unchanged for many years. In the early 1930's, expellers were introduced with some success and replaced the old style hydraulic plate process.

Shortly after entering the cottonseed crushing business, Procter & Gamble directed its efforts toward refining higher grades of cotton oil to make salad oil. This experience with cotton oil prompted P&G scientists to study means for developing a vegetable shortening superior to lard. They succeeded in making a liquid oil plastic and creamy through hydrogenation. The result was Crisco. Introduced in 1911, Crisco is still one of P&G's better known and most popular food products.

Raw Material Handling

While P&G scientists worked to improve cottonseed oil products, Buckeye sought to improve the handling of raw material. The inability to store cottonseed without heavy deterioration caused mills throughout the industry to suffer severe losses almost every year. Buckeye is believed to have been the first company in the industry to recognize the undesirable effects of high moisture on the processing,

¹ In 1955, The Buckeye Cotton Oil Company became the Oil Mill Division of another P&G subsidiary, The Buckeye Cellulose Corporation.

yield, and quality of cottonseed products. To reduce moisture, the company installed seed dryers in 1914 and 1915. These materially helped to preserve the quality of seed in storage, and, therefore, permitted much longer storage periods.

During 1914 and 1915 Buckeye also erected its first large tank units for storage of seed. These original tanks were of steel, 50-70 feet in diameter, and held from 2,000 tons to 4,200 tons each. In later years, these tanks were made of reinforced tile and concrete.

The installation of seed dryers and storage tanks did not end Buckeye's search for improved storage methods. The company pioneered in the use of thermometer equipment to check the condition of seed in storage. Whenever a rapid rise in temperature was indicated, the seed was transferred from one unit to another or crushed directly.

Another major improvement in storage methods was developed when Buckeye experimented with the idea of passing air through the storage units to cool seed. This development greatly improved the company's ability to store seed and extended the crushing season significantly. As a result, Buckeye was able to retain more employees throughout the year. Before this, it had been necessary to lay off many employees during the dormant season.

Commercial Use for Linters

Other Buckeye research during this time was aimed at developing a commercial use for cottonseed linters.

World War I brought an acute demand for cellulose, the basic ingredient in gun cotton. To supplement the linters it was supplying the government ordnance program, Buckeye installed in each of its oil mills special processing equipment to remove additional amounts of lint fiber from cottonseed hulls. Buckeye also began purchasing large quantities of cottonseed hulls from other sources.

The war contracts were abruptly cancelled with the end of the war in 1918, leaving Buckeye with fiber making units and no outlet. War surplus fiber digesting equipment was purchased and installed at the Memphis, Tenn., and Augusta, Ga., Buckeye mills and a search for peacetime use of linters began. An effort to supply a fibrous substitute for rags to the paper industry met with limited success and the Augusta digesting unit was taken out of operation.

However, at Memphis the development of purified linter pulps for the then infant rayon and cellulose plastics industry proved successful. As a result, a separate division was established within Buckeye—the Cellulose & Specialties

Division. By 1929, the Memphis mill was producing 10,000 tons of pulp per year. Nearly all the pulp was chemically purified, second-cut linters for the rayon industry. Very little hull fiber was produced for the paper industry.

Cotton Production Declines

In the years following World War I, Buckeye increased its efforts to reduce cottonseed processing costs. Cotton production had been declining since the advent of the boll weevil around 1914. The decrease in the supply of raw material caused an intensified competitive situation, and it became quickly apparent to mills everywhere that the key to survival was in lower manufacturing costs. Buckeye concentrated on improving its processing methods and establishing an effective research and development program.

In 1924-25, Buckeye also took steps to improve its delinting process. At this time, the first controlled linter tests were made and provided more accurate information about the subject of cutting lint. As a result of the tests, the needed improvements in the delinting process were made.

Until about 1920, all linters—both first and second cut—were removed manually from the linter machines and literally carried to the baling presses. An experimental program was set up in the early 1920's to develop a pneumatic system for moving lint. The program was successful, and by 1926 pneumatic systems were installed in all Buckeye oil mills. The new systems had many advantages. They helped produce better quality lint, improved working conditions, reduced the amount of manual labor required, and lowered the hazard of fire. In the early 1930's, the pneumatic principle was further extended to the use of suction for unloading cottonseed. The pneumatic system proved particularly effective for unloading trucks.

New Division Formed

In 1930 another new division—the Technical Division—was established in the Buckeye Cotton Oil Company. Until 1930 most of the research for Buckeye had been done in the parent company's laboratories and by the Buckeye manufacturing department. The new Technical Division was created as a separate entity to handle all technical and engineering work, including supervision over Buckeye's mill and division laboratories. The Technical Division's laboratories were set up at Ivorydale, Ohio, near Cincinnati, and experimental equipment was installed to carry on the development work.

At about this time, another source for oil—soybeans—appeared on the scene as a suitable substitute for the gradually declining cottonseed supply. In 1931 Buckeye processed about 8,000 tons of soybeans. Subsequently, soybeans became an increasingly important raw material.

With the establishment of the new Technical Division, Buckeye turned its attention to the improvement of the basic crushing process. Old syle hydraulic box presses were replaced with expellers with some success during the early 1930's. Then, in 1939, a project was started to install a solvent extraction unit for soybeans at the Buckeye Louisville mill. Buckeye decided to build its own preparatory equipment and buy a German solvent unit for the plant. Although the start of World War II halted delivery of the equipment, Buckeye drew up new plans and had a domestic company produce the necessary machinery. This first American-made, basket-type solvent extraction unit—using hexane as the solvent—was placed into operation in March, 1941.

Memphis Unit Built

With the experience gained in processing soybeans at Louisville, Buckeye built a similar unit at Memphis to handle cottonseed. In February, 1947, the Memphis mill became the first installation to solvent extract cottonseed. The installation was doubly unique because it also included miscella refining of cottonseed oil. (Miscella refining has proved to be of great value not only in the economics of producing refined oil, but also in giving a decidedly better quality of finished oil, especially as to color.)

In recent years, many improvements have been made to both equipment and solvent extraction processes for seed and beans. Now, all soybeans and about 60 per cent of the cottonseed are processed by Buckeye with solvent extraction equipment. The balance is processed on expeller equipment.

The post World War II years brought many changes to Buckeye. Probably most significant was the consolidation of the company in 1955 with another P&G subsidiary, The Buckeye Cellulose Corporation. This new corporate unit kept the name of The Buckeye Cellulose Corporation. It was divided into two divisions, the Oil Mill Division and the Cellulose & Specialties Division.

The organizational change was prompted to a large degree by Buckeye's entry into the woodpulp industry. The end of World War II brought a shortage of cellulose pulp. Demand for Buckeye's pulp exceeded the supply obtainable from linters, and in the late 1940's Buckeye began considering the possibility of using wood to produce dissolving pulp. Early in 1950, following the purchase of a half-million acres of pine land at Foley in northwestern Florida, Buckeye began construction of a giant wood pulp-producing plant there. A year later, the Buckeye Cellulose Corporation was formed to operate the new mill. Production began in 1954. Since that time, the plant has been expanded twice and is currently undergoing a third major expansion.

Current capacity of the Foley wood pulp producing plant's two mills is 304,000 tons. This includes the production of both dissolving pulps and bleached and semi-bleached kraft paper grade pulps. In addition, the Memphis plant continues to produce cellulose pulp from cotton linters and today has a capacity of 115,000 tons. The two plants give Buckeye the distinction of being the only company in the industry which produces cellulose pulp from both cotton linters and wood. Buckeye has been the fastest growing cellulose pulp producer in the U. S. in recent years.

Changes in Oil Mill Division

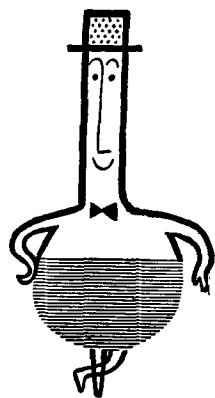
Meanwhile, changes also were taking place in the Oil Mill Division. The 1950's brought a sharp reduction in the number of crushing plant mills. Mills in more than a half dozen Southern cities had to be closed and the property sold as a result of the steady decline of cotton as a major crop in the South and a consequent seed shortage.

A major change in the Oil Mill Division came in 1958 when Procter & Gamble decided to sell four of its soybean processing mills to the Ralston-Purina Corporation. Sale of the plants resulted from changes which had taken place in marketing the end products from the soybean crushing operation. Buckeye's principal reason for crushing soybeans had been to supply soybean oil for Procter & Gamble food products. However, in the 1950's the growing use of low fiber soybean meal in animal feeds substantially changed the nature of the soybean crushing industry by making it desirable for crushers to enter the mixed feed business.

While Buckeye was among the first to offer this premium soybean meal product, P&G was not interested in pursuing the mixed feed business. The company decided to purchase its soybean oil requirements on the open market and sell four of its soybean crushing facilities. This sale virtually took P&G out of the soybean crushing business in this country.

Today the Oil Mill Division operates cottonseed and soybean crushing mills at Augusta, Ga.; Corinth, Miss.; Little Rock, Ark.; Memphis, Tenn.; and Montgomery, Ala. It also manages two subsidiary seed crushing operations—the Victory Soya Mills, Ltd., in Toronto, Canada; and the Traders Oil Mill Company in Fort Worth, Texas.

Current efforts of the Oil Mill Division are directed toward developing new uses for cottonseed protein. Buckeye believes that the future will bring substantial growth in the use of cottonseed protein in the human diet and that the cottonseed meal of the future will be a more nutritious product. As it learns more about the complex chemical composition of cottonseed and cottonseed products, Buckeye is confident that new uses will be found.



Meetings

A.O.C.S. National Meetings

- 1962—Toronto, Royal York Hotel, October 1-4
 1963—Atlanta, Atlanta Biltmore Hotel, April 22-24
 Minneapolis, Radisson Hotel, September 30-October 2
 1964—New Orleans, Roosevelt Hotel, April 19-22
 Chicago, Pick-Congress Hotel, October 11-14
 1965—Houston, Shamrock-Hilton Hotel, April 25-28
 Cincinnati, October 11-13
 1966—Los Angeles, Statler Hilton Hotel, April 24-27
 Philadelphia, Bellevue-Stratford Hotel, October 4-6
 1967—New Orleans, Roosevelt Hotel, May 7-10
 Chicago

Other Organizations, 1962

- July 24-27—International Conference on the Biological Problems of the Lipids, Birmingham, England.
 *Aug. 27-31—Sixth Annual Infrared Spectroscopy Institute, Canisius College, Buffalo, New York

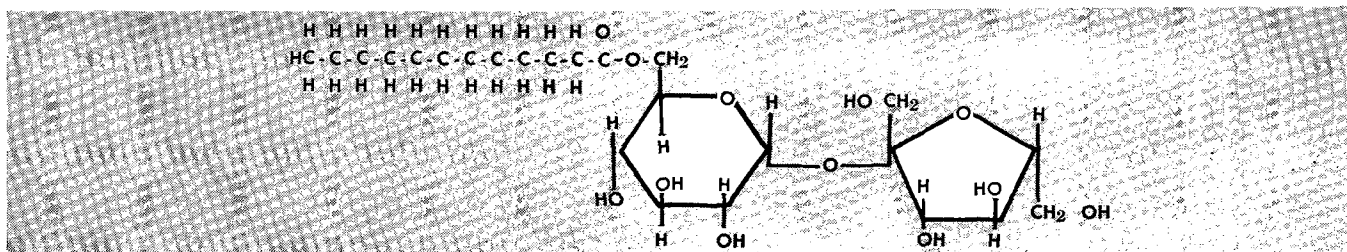
- Sept. 8-16—Fifth International Food Congress and Exposition, New York Coliseum. For information write James Muckell, Secretary, 527 Madison Avenue, New York 22, N. Y.
 Sept. 17-29, 1962—International Course on Chromatographic Methods, Milan, Italy
 Sept. 18-21—First International Congress of Food Science and Technology, Imperial College of Science and Technology, London, England. Address: Francis J. Griffith, 14 Belgrave Square, London, S.W. 1, England
 Sept. 20-30, 1962—Seventeenth International Exhibition of Preserved Food and Packaging Materials, Parma, Italy
 Sept. 26-28—American Society for Testing and Materials general meeting on "The Practice of Gas Chromatography," at the Kellogg Center for Continuing Education, Michigan State University.
 Sept. 30-Oct. 5—Pacific Area Meeting of ASTM, Statler Hilton Hotel, Los Angeles, Calif.
 Oct. 3-5—Gas Chromatography comprehensive course, West Haven, Conn.
 Oct. 15-17—International Congress on Plastics and Problems of Choice, Amsterdam
 Oct. 15-17—Federation of Societies for Paint Technology Annual Meeting, Chase-Park-Plaza Hotel, St. Louis, Mo.
 Oct. 16-19—Annual Meeting of the American Council of Independent Laboratories, Edgewater Beach Hotel, Chicago, Ill.

* Additions to previous calendar.

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