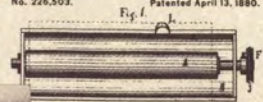


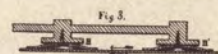
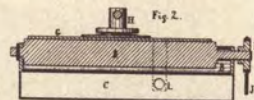
Method and Apparatus for Coating Plates for use in Photography.

No. 226,503.

Patented April 13, 1880.



A - Roller  
 B - Knife-Edge  
 C - Hot Water Tank  
 D - Pulley  
 E - Glass Plate  
 F - Knife-Edge  
 G - Hot Water Tank  
 H - Water Spout



Witness:  
 Attest:  
 J. H. Sullivan  
 J. H. Sullivan  
 J. H. Sullivan



**KODAK MILESTONES**

## MILESTONES

The milestones listed here touch upon some of the highlights in the history of the Eastman Kodak Company. They have been selected on the basis of their possible usefulness to students and others interested in the company's growth and development. If more information is desired, please write to the Corporate Relations Department, Eastman Kodak Company, 343 State Street, Rochester, New York, 14650.

1878

• George Eastman, a 24-year-old amateur photographer, began making photographic emulsions for his own use with material and information obtained from England, then the world's center of photography. Eastman was one of the first to demonstrate the greater convenience of gelatine dry plates compared with the old, cumbersome, and complicated wet plates. Dry plates could be exposed and developed at the photographer's pleasure; wet plates had to be coated, exposed at once, and developed while still wet. The wet plate photographer required a wagon load of equipment, including a dark tent, whenever he ventured away from his studio.

1879

• Eastman invented an emulsion-coating machine which enabled him to mass produce photographic dry plates. Shortly thereafter, he sailed to England with drawings of the coating machine and obtained his first patent.

1880

• Eastman began commercial production of dry plates in a rented loft of a building in Rochester, New York.

1881

• On January 1, Eastman and Henry A. Strong, a family friend and local buggy-whip manufacturer, formed a partnership known as the Eastman Dry Plate Company. By March, six employees were on the payroll. Six months later, Eastman left his position with a Rochester bank to devote all of his time to the new photographic dry plate business.

1882

• Photographers complained that Eastman plates had lost their sensitivity. Eastman recalled the plates and promised to replace those which did not measure up to his standards. He learned that time dulls the sensitivity of photographic emulsion; but he found that he was unable to make a good emulsion from formulas which previously had been reliable. Eastman closed the factory. After more than 450 unsuccessful experiments, he sailed with Strong to Europe. There, the partners found the trouble had been caused by an inferior shipment of gelatine; it was not a result of the Eastman formula. The factory was reopened, plate manufacturing was resumed with a new supply of gelatine, and the defective plates were replaced.

1883

• The Eastman Dry Plate Company completed transfer of operations to a four-story building at what is now 343 State Street, the address of the company's administrative headquarters. Today the site is marked by the 19-story Kodak Office—a landmark in the city of Rochester.



*Wet plate photography was a cumbersome, inconvenient system.*

**1884**

• The business was changed from a partnership to a \$200,000 corporation with 14 shareholders when the Eastman Dry Plate and Film Company was formed. Henry A. Strong was president and Eastman was treasurer.

• Eastman Negative Paper was introduced; it consisted of a light-sensitive emulsion on paper which, after development, was made transparent enough for printing by treating it with hot castor oil.

**1885**

• Eastman and William H. Walker, an associate, invented a roll holder for negative papers. The device made it possible to use negative paper in rolls with standard plate cameras. It formed the beginning of a revolution in photography.

• Later in 1885, Eastman American Film was announced. In contrast to the negative paper, this was a stripping film which used paper only as a temporary support for the emulsion. The paper was stripped off after development, leaving a thin film negative which was then mounted on glass or thick gelatine to use in making prints.

• The company opened a wholesale office in London, England. This marked the beginning of a basic Eastman business principle—international distribution. Kodak products are now sold in virtually every country and territory of the free world.

**1886**

• George Eastman became one of the first American industrialists to employ a full-time research scientist. He hired a chemist to aid in the development of a flexible, transparent film base.

**1888**

• The name “Kodak” was born. Eastman was in search of a distinctive trademark. He wanted a short word that could be spelled and pronounced easily in any language. The letter “K” was a favorite of his. After considering a great number of letter combinations involving words starting and ending with “K,” Eastman chose the name “Kodak.”

• The Number One Kodak Camera was placed on the market. Loaded with enough Eastman American Film for 100 pictures, it sold for \$25. The camera and exposed film were returned to Rochester to have the film developed, prints made, and the camera reloaded—all for \$10. This was the beginning of the “complete system of photography.” Widespread publicity appeared in national magazines, and Eastman coined a slogan for his new system: “You press the button—we do the rest.”

**1889**

• The first commercial transparent roll film, perfected by Eastman and his research chemist, was put on the market. Using a flexible base of cel-



*Kodak's first folding camera was introduced in 1890.*

lulose nitrate, the film was coated on glass-topped tables 200 feet long. The availability of this flexible film made possible the development and achievement (1891) of Thomas Edison's motion-picture camera and projector.

- A new corporation—The Eastman Company—was formed. Capitalized at \$1 million, it took over the assets and business of the Eastman Dry Plate and Film Company. Meanwhile, Eastman Photographic Materials Company, Ltd., was formed in London to handle sales outside the Western Hemisphere.

**1890**

- The first folding Kodak camera was introduced. It could produce 48 four-by-five inch pictures. Advertisements for Kodak cameras now read: "Seven styles and sizes."

**1891**

- The company marketed its first daylight-loading camera. Packaged roll film was made available as well. The user could load and unload film in the camera at his own convenience, eliminating the necessity of returning the camera to the factory.

- Construction of four buildings, begun in 1890 on the new 16½-acre site at Kodak Park in Rochester, was completed. The manufacture of photographic film and paper was transferred there. By 1970, Kodak Park Division had grown to 1870 acres, and included more than 170 major manufacturing buildings. It is Kodak's largest plant.

- A plant at Harrow, England, the company's first factory outside the United States, began to make film and paper. The Kodak Limited Harrow Works is Kodak's largest overseas manufacturing plant.

**1892**

- Solio Paper was introduced. Described as a printing-out paper, it was printed through exposure to sunlight.

- The company became the Eastman Kodak Company of New York. Its capital was expanded to \$5 million.

**1893**

- A six-story Camera Works was built on State Street, Rochester, to manufacture the growing line of box and folding roll-film cameras. Today, the Camera Works makes Kodak cameras, projectors, and other equipment and is a major plant in the company's Apparatus and Optical Division.



*Kodak founder George Eastman in the 1880's.*





*A complete processing and printing service was offered to customers.*

**1894**

- William G. Stuber, a professional photographer and dry-plate maker, was hired by the company to direct emulsion making. In later years, Mr. Stuber became president and chairman of the board of directors.

**1895**

- The Pocket Kodak Camera was announced. The first to be made, in part, of aluminum, it utilized roll film and incorporated a little window through which positioning numbers for successive exposures could be read.

**1896**

- One year after the discovery of x-rays by Wilhelm Conrad Roentgen, Eastman Kodak Company entered into an agreement to supply plates and paper for the new process.

- Kodak marketed the first film especially coated for motion-picture positive prints. Previously, film used for motion-picture negatives and positives had been the same as that used in Kodak still cameras.

- Sales offices were established in Germany.

**1897**

- Kodak established a wholly owned subsidiary—Eastman Kodak S.A.F.—replacing the Eastman Photo Materials Co. branch which had been opened in France in 1891.

**1898**

- Kodak marketed what is considered the ancestor of all modern roll-film cameras—the Folding Pocket Kodak Camera. The camera was only  $1\frac{1}{2}$  inches thick and  $6\frac{1}{2}$  inches long. It produced a negative  $2\frac{1}{4}$  by  $3\frac{1}{4}$  inches, and this remained the standard size for decades. The Folding Pocket Kodak Camera also was the first camera with an all-metal case.

- The suggestion system was begun. By 1970, over 400,000 suggestions had been adopted and their originators had received more than \$8.5 million in awards.

- The American and British companies were consolidated as Kodak Limited, with a capitalization of £1.6 million (nearly \$7.8 million).

**1899**

- Frank Lovejoy, a young chemical engineer hired in 1897, directed the development of a continuous wheel process for manufacturing transparent film base. Since 1889, the film had been made on long plate-glass tables. The new drum system made it possible to manufacture film continuously, permitting substantial cuts in production costs. The system proved especially significant to the infant motion-





*In its early days, Tennessee Eastman used timber to produce wood alcohol.*

**1911**

• The company's Blair Camera factory on St. Paul Street, Rochester, was renamed the Hawk-Eye Works. In 1912, a department for the study and design of optics was established there. Today, Hawk-Eye is Kodak's optical plant, where lenses and a variety of optical-mechanical equipment are made. In fact, about one million lenses a month are ground and polished at the Hawk-Eye Works on machines especially designed by Kodak engineers.

• Eastman created a benefit, accident, and pension fund for employees. The company's first safety committee was organized to study accident prevention. The result has been an intensive, continuing program that has reduced on-the-job accidents.

**1912**

• Dr. C. E. Kenneth Mees, a British scientist prominent in the photographic field, was hired by George Eastman to organize and head a research laboratory in Rochester. This laboratory was one of the first formal research units in American industry and became a keystone in the company's growth. Dr. Mees directed the company's research program until his retirement in 1955.

• Kodak employees received their first wage dividend—a payment designed to reward them for their contributions to the company's growth. This payment is related to the amount of dividends declared on the common stock and to each employee's cumulative earnings during the previous five years. A wage dividend has been paid annually (except the Depression year of 1934) since its inception.

**1913**

• Professional photographers no longer had to use cumbersome glass plates. The introduction of Eastman Portrait Film began a transition to the use of sheet film.

• A specially wrapped dental x-ray film was placed on the market.

**1914**

• Kodak made one of its many contributions to the Allied effort in World War I when it manufactured single-coated x-ray film with a flexible cellulose nitrate base and an emulsion of greater sensitivity.

• The first autographic cameras and films were introduced. They allowed the photographer to write identifying information on the film at the time he took a picture.

• Company medical services were expanded into a full medical department.

• A sixteen-story office building, the company's present administrative headquarters, was completed at 343 State Street, Rochester. Three more stories were added in 1930.



1916

- The company marketed the first camera equipped with a coupled range finder. It was the 3A Autographic Kodak Special Camera.

1917

- Kodak developed aerial cameras and trained aerial photographers for the U.S. Signal Corps during World War I. George Eastman also offered the Secretary of the Navy supplies of cellulose acetate for weather-proofing airplane wings and producing unbreakable lenses for gas masks.

1918

- When World War I cut off trade with Germany, American scientists could not obtain their normal supply of synthetic organic chemicals. With the help of the University of Illinois, Kodak established a synthetic organic chemical laboratory to make organic chemicals for use in U.S. research. The 1970 catalogue listed more than 6,000 different chemicals.

1919

- Construction was begun on a gelatine plant, paper mill, power plant, and other facilities at Kodak Park.
- The Industrial Relations Department was formed, combining work of the Health, Employment, and Welfare Departments.

1920

- Tennessee Eastman Corporation, Kingsport, Tennessee, was organized when Eastman Kodak bought a plant to manufacture wood alcohol for film base. Under the direction of Perley S. Wilcox, who later became chairman of Kodak's board of directors, Tennessee Eastman grew to be a major producer not only of materials for photographic manufacturing, but also of plastics, man-made fibers, dyes, and industrial chemicals. In 1951, Tennessee Eastman became a division of the company. TEC and its associated units in Kingsport form one of the leading industrial complexes in the State of Tennessee.

1921

- The Eastman Savings and Loan Association was organized to aid employee saving and to finance home purchases.

1923

- For the first time, amateur home movies were made practical. The company announced a 16mm reversal film on cellulose acetate (safety) base. The first Ciné-Kodak 16mm motion-picture camera and Kodashcope projector also were marketed. The immediate popularity of the innovation resulted in the establishment of a network of Kodak processing laboratories throughout the world.



*A major milestone was the introduction of movie film and equipment for amateurs in 1923.*



*This early microfilmer was a forerunner of the modern Recordak business systems.*

**1924**

- Eastman Kodak introduced the first x-ray film with a nonflammable cellulose acetate base.

**1925**

- George Eastman became chairman of the board of directors; William G. Stuber was elected president.

**1926**

- Kodak installed a 16mm processing laboratory in each of three Cunard liners on around-the-world cruises. On-the-spot processing service was offered to tourists on the ships.

- The company introduced a film specifically designed for duplicating professional motion-picture negatives.

**1927**

- Eastman Kodak Company's European operations continued to expand. They now included a factory in Kopenick, Germany, which manufactured sensitized films and papers. The Kopenick plant remained a part of Kodak's German organization—Kodak A.G.—until it was lost in the division of Germany after World War II.

- A merger of Pathé and Eastman photographic interests in France resulted in the formation of Kodak-Pathé, a photographic manufacturing company.

- Kodak employment throughout the world passed the 20,000 mark.

**1928**

- Motion pictures in color became a reality for amateur cinematographers with the introduction of 16mm Kodacolor Film. This was not Kodak's first color process. A two-color subtractive process for portraiture had been developed in 1914; work on it continued until the advent, in 1935, of Kodachrome Film.

- Retirement annuity, life insurance, and disability benefit programs were established for Kodak men and women.

- Recordak microfilming equipment, devised by George L. McCarthy and manufactured by Kodak, was introduced by the Recordak Corporation, a newly formed subsidiary of the Eastman Kodak Company. The first microfilm system was designed to simplify bank records, but today its highly sophisticated descendants are widely used by department stores, insurance companies, libraries, government agencies, and industry.

**1929**

- Eastman Kodak Company continued to keep pace with the burgeoning motion-picture industry. With the end of the silent movie era, the com-

pany introduced its first motion-picture film designed especially for making the new sound motion pictures.

1930

- Development of improved panchromatic sensitizers for photographic plates resulted in a panchromatic plate for commercial purposes. This plate was sensitive to all colors of light and had increased speed and sensitivity.

1931

- The production of cellulose acetate for safety film base was transferred from Kodak Park to Tennessee Eastman. The production of hydroquinone, one of the principal ingredients of photographic developing solutions, was transferred from Eastman Chemical Corp., Passaic Junction, N. J., to Tennessee Eastman. Hydroquinone is also important in the manufacture of synthetic rubber, in additives for animal and poultry feeds, in weathering agents for paints and plastics, and in a wide variety of other products.

- Tennessee Eastman began marketing its first cellulose acetate yarn in the textile field. Now marketed under the trade names of Estron and Chromspun, the fiber is used in such items as drapery fabrics and women's apparel.

- Kodak purchased a gelatine manufacturing plant in Peabody, Massachusetts, and formed the Eastman Gelatine Corporation. Gelatine is one of the most important raw materials in the manufacture of photographic films, plates, and papers. Eastman Gelatine Corp. today provides about two-thirds of the entire company's requirements for the product.

- Kodak introduced Kodalith materials for the graphic arts, the first of a number of photographic products designed to reduce printing costs and increase the quality of photomechanical reproduction. By 1934, Kodalith Film and Kodalith Plates had replaced the cumbersome collodion wet plates used up to this time for photoengraving.

- Kodak Verichrome Film was introduced. This popular black-and-white roll film had greater exposure latitude and less graininess than Kodak NC (Non-Curling) Film, which had been the standard film for amateur photographers since 1903.

- Recordak introduced a microfilm system to speed the billing process in department stores. Sales slips were photographed in greatly reduced size for record purposes and original slips were returned to the customer with his monthly bill.

- Cameras and photographic apparatus were added to the products made by Kodak A.G. in Germany with the purchase of the Nagel Camera Company in Stuttgart. In 1934, this factory introduced the first of its Retina line of precision 35mm cameras.



*Many millions of pictures have been made on Kodak Verichrome Film.*



*George Eastman's home is now a world-famous photographic museum.*

**1932**

- The first amateur motion-picture film, cameras, and projectors in an 8mm size were introduced.

• Tennessee Eastman began production of its first plastic—Tenite acetate, a cellulose acetate molding composition. Tenite butyrate was introduced in 1938. Both types of plastic are characterized by toughness, high impact strength, resilience, pleasant feel, natural luster, and an endless variety of chip-proof colors. Tenite acetate is used in such articles as toys, Christmas decorations, and housewares. Tenite butyrate is used where greater resistance to impact and outdoor exposure is desired. It is found in steering wheels, gun stocks, toothbrush handles, and radio housings. In 1957, Tenite propionate was produced by Tennessee Eastman. This material has even greater impact strength and is used in the manufacture of such items as cosmetic cases, telephones, pen and pencil barrels, and frames for sunglasses.

• George Eastman died. He left his entire residual estate to the University of Rochester. In 1949, his Rochester home was opened as an independent public museum—The George Eastman House of Photography.

**1933**

- Kodak marketed its first panchromatic roll films, Kodak Super Sensitive Panchromatic Film and Kodak Panatomic Film.

• The Cine-Kodak Special (16mm) Camera, designed for advanced amateur and professional cinematography, was announced. With improvements, this camera remained Kodak's best 16mm motion-picture camera until 1961 when the Kodak Reflex Special (16mm) Camera was introduced.

• Eastman Kodak and Western Electric announced a high-speed camera synchronized with an electric timer. The camera recorded rapid motion in terms of 1/1,000-second timer intervals. Developed as an industrial tool, the camera and timer made it possible for engineers to analyze and solve high-speed mechanical problems.

• Recordak introduced the first automatic microfilmer. The film moved in synchronization with documents fed over a revolving drum, making it possible to microfilm documents of unlimited length.

**1934**

• Kodak and General Mills began a joint research program on molecular distillation, based on earlier Kodak research. This venture led to the formation, in 1938, of Distillation Products, Incorporated—a manufacturer of vitamin concentrates and vacuum distillation equipment. Kodak purchased General Mills' interest in the Rochester corporation in 1948 and, the following year, made it the Distillation

Products Industries division. DPI manufactures vitamin A and E concentrates as well as distilled monoglycerides, which are used in baked goods and other products.

- Recordak Corporation introduced 35mm microfilm for preserving newspapers. This provided libraries with permanent and more compact reference files.

- Frank Lovejoy succeeded William G. Stuber as president of the Eastman Kodak Company. Stuber became chairman of the board of directors.

**1935**

- Kodachrome Film, destined to become the first commercially successful amateur color film, reached the market. It was a reversal transparency film invented by two musicians, Leopold Mannes and Leopold Godowsky, who brought the invention to Kodak. The process was perfected in cooperation with the Kodak Research Laboratories. The 16mm size for motion pictures was introduced in 1935; sizes for 8mm home movies and 35mm slides followed in 1936.

- Tennessee Eastman marketed Tenamene I, an antioxidant and gum inhibitor for gasoline. Other fuel antioxidants and gum inhibitors have since been added to this line. Dozens of Eastman products now serve the automotive industry.

**1936**

- A new home movie camera was announced which used film in magazines instead of rolls. This was the 16mm Magazine Ciné-Kodak Camera.

- A major contribution to the graphic arts field was a new Kodak stripping film. Improved versions of this basic product remain important tools of the printing and publishing industry.

**1937**

- Kodak introduced its first 16mm sound-on-film projector, the Sound Kodascope Special Projector.

**1938**

- The first camera with built-in photoelectric exposure control was developed. It was known as the Kodak Super Six-20 Camera.

- Tennessee Eastman began to manufacture a new line of superior dyes for acetate yarns. Traditional dyes would not work well on newly-developed man-made fibers.

**1939**

- The already growing popularity of miniature cameras was given an important boost when Kodak added a Readymount service for 35mm Kodachrome Film. The 2 by 2 inch cardboard mounts made it possible for the customer to project his slides as soon as he received them from a Kodak processing laboratory.



*A spectacular growth in color photography followed the introduction of Kodachrome Film in 1935.*



*Cellulose acetate fiber has been produced at Tennessee Eastman since 1931.*





*Kodak-developed "V-Mail" was a familiar sight during World War II.*

- Eastman Kodak Company began a program of annual fellowship grants to colleges and universities throughout the nation. In 1955, a plan was added to provide grants to privately supported U.S. colleges and universities whose graduates are employed by the company. Contributions totaled about \$4.2 million in 1966.

**1940**

- With interest in 35mm amateur photography growing steadily, Kodak marketed the versatile Ektra Camera. This precision still camera had a shutter-speed range from one to 1/1,000th of a second. Its interchangeable magazine back permitted any one of eight different Kodak films to be used in the camera. Six different lenses could be used interchangeably.
- An 8mm Magazine Ciné-Kodak Camera and accompanying film were introduced.

**1941**

- Production of Kodak rare-earth glass was announced. This new type of glass, made from rare earths rather than from sand, had greater light-bending power and less color dispersion than the standard glasses.
- Airgraph or "V-Mail," developed by Kodak Limited and the Eastman Kodak Company, was a system for microfilming letters to conserve shipping space. It was adopted for overseas communication by the British in this year, and by the U.S. armed forces in 1942.

- Color prints and enlargements from amateur and professional Kodachrome slides became available for the first time. They were made on a white-pigmented cellulose acetate base and became known as Minicolor Prints.

- Thomas J. Hargrave succeeded to the presidency of Eastman Kodak Company when Frank Lovejoy was elected chairman of the board. Hargrave, an attorney, had previously been head of the company's legal department and also had served as vice-president and secretary. He had joined Kodak in 1927.

**1942**

- Kodacolor Film, a color negative film, was announced. This easy-to-use color film and a new paper for color prints made it possible to take color snapshots with simple, low-priced cameras. An improved dual-purpose Kodacolor Film for either indoor or outdoor use was marketed in 1956.
- Eastman Kodak's Rochester plants were awarded the Army-Navy "E" for high achievement in the production of military equipment. Kodak war production in Rochester included proximity fuses, range finders, several kinds of aerial photographic film and equipment, and literally millions of feet of film and photographic paper for the armed forces. Tennessee Eastman Company produced RDX, a high explosive, at the government's Holston Ordnance Works in Kingsport. From 1943 to 1947 Tennessee

Eastman operated the Y-12 atomic-bomb-material manufacturing plant located at Oak Ridge, Tennessee.

1945

- The Kodak Dye Transfer Process was introduced to provide a method for making professional color prints from three-color separation negatives.
- Perley S. Wilcox succeeded Frank Lovejoy as chairman of the board of directors.
- Tennessee Eastman began the manufacture of oxidized cellulose for surgical dressings. Discovered in the Kodak Research Laboratories, these dressings can be left in a wound by surgeons to stop internal bleeding because they are gradually absorbed by body liquids.

1946

- Kodak marketed Ektachrome transparency sheet film, the company's first color film which could be processed by the photographer himself with newly marketed chemical kits. Additional research and development resulted in the 1947 introduction of this film in roll film sizes. An improved Ektachrome Professional Film with increased speed was introduced in 1955.
- Kodak's wartime developments were made available to the public. Among these were "Lumenized" lenses. They were coated with magnesium fluoride in order to greatly reduce surface reflections.
- Government-owned plants in Rochester, where Kodak produced military supplies for the Navy during World War II, were organized as the Navy Ordnance Division.
- Kodak employment throughout the world exceeded 60,000.

1947

- The world's first commercial production of synthetic vitamin A began at Distillation Products, Incorporated. Prior to this, fish liver oils had been the commercial source of Vitamin A.
- The company introduced Kodak Ektacolor Sheet Film, a professional color negative film which could be processed by the user. Several improvements were made during the 1950's and, in 1962, the film speed (degree of light sensitivity) was increased from 25 to 80.
- Kodagraph Autopositive Film was announced. This was the first of a series of direct-positive photographic materials which are widely used today for the reproduction of engineering drawings.
- Kodak introduced the Eastman Television Recording Camera, culminating experiments in cooperation with the Allan B. Du Mont Laboratories and the National Broadcasting Company. This special motion-picture camera records the image on a television screen.



*An intensive research program has provided a continuing flow of new products.*

*This "Oscar" — one of several awarded to Kodak — recognized the introduction of professional Eastman Color motion-picture films in 1952.*



1948

- Kodak announced tri-acetate safety-base film for professional motion pictures. This introduction followed a long search for a suitable safety base to replace the flammable 35mm cellulose nitrate base used until this time throughout the industry. In 1950, the company was awarded an "Oscar" by the Motion Picture Academy of Arts and Sciences for developing this nonflammable safety-base professional motion-picture film.

- Fully automatic processing of snapshots was made possible for the first time by the Kodak Continuous Paper Processor. The machine produced 2,400 finished snapshots an hour and was the first in a continuing line of automatic photofinishing equipment produced by Kodak.

- Tennessee Eastman introduced the Tenox brand of food antioxidants. An early use was to preserve the crispness of potato chips.

1951

- The simplicity and economy of the Brownie line of photographic equipment was extended to the movie field with introduction of the low-priced Brownie 8mm Movie Camera. The Brownie Movie Projector was added in 1952 and the Brownie Turret Camera, with telephoto and wide-angle converters in addition to the standard lens, was introduced in 1955.

- Tennessee Eastman Corp. became a division of the company.

1952

- Kodak received an "Oscar" for scientific and technical achievement from the Motion Picture Academy of Arts and Sciences in recognition of the Eastman Color Negative and Color Print films introduced in 1952. The speed of the negative film was doubled in 1959.

- Recordak Corporation introduced a microfilmer with the highest reduction ratio ever achieved. It was the new Bantam microfilmer with a reduction ratio of 40 to 1.

- The Kodak Ektagraph Process was announced. It enabled silk screen printers to reproduce delicate gradations of tone with stencils made by a photographic process. (Silk screen printing is a low-cost, flexible method of reproducing on signs, banners, book covers, and similar items with a variety of surfaces.)

- Chromspun, Tennessee Eastman's solution-dyed acetate textile fiber, went into large-scale production.

- Tennessee Eastman began to produce acetate tow for cigarette filters.

- Texas Eastman Company, a new division of the Eastman Kodak Company, began operations. The original plant, located on a 2,400-acre site in Longview, Texas, cost more than \$20 million to build. Its first products were alcohols and aldehydes for other divisions of the company and for the chemical trade. The division now produces

a wide variety of polyolefin plastics and industrial chemicals. Texas oil and gas fields provide the principal raw materials.

- Dr. Albert K. Chapman succeeded Thomas J. Hargrave as president of the company when Hargrave became chairman of the board of directors. Dr. Chapman, who held a Ph.D. in physics, joined the company in 1919. Prior to his election as president, he was vice-president and general manager of the company.

**1953**

- The Verifax Office Copier—an office machine for rapidly and easily producing copies of typed, written, or printed originals—was put on the market. This major invention marked Kodak's entry into an important new field.

- The company introduced Kodak Photo Resist, its first photopolymer, designed for making photolithographic printing plates. Today, Kodak photopolymer resists are used widely to produce printed electrical circuits, such as those used in many television sets, and to make microminiaturized electronic devices.

- A new subsidiary, Eastman Chemical Products, Inc., was formed to market plastics, dyes, and industrial chemicals made by the Tennessee Eastman and Texas Eastman divisions. In 1954, ECPI became the marketing organization for Eastman man-made fibers. ECPI now also markets Eastman plastic sheeting materials and the products of DPI division.

**1954**

- Kodak introduced high speed Tri-X Panchromatic Negative Film for motion pictures, Tri-X roll films, and Royal Pan sheet film. All were considerably faster than previous films. The increased speed and low graininess of these black-and-white films made it possible to take pictures under difficult lighting conditions. Another Tri-X film with further improved qualities was introduced in 1960.

- Texas Eastman constructed a new plant to produce low-density Tenite polyethylene plastic. In 1957, medium-density polyethylene plastic was added. Over-all polyethylene production capacity has been boosted from the original capacity of 20 million to 250 million pounds a year. Polyethylene is used in squeeze bottles, kitchenware, animal feeding dishes, packaging materials, and many other products.

- Kodak Brasileira began operating a photo-paper sensitizing plant in Sao Paulo, Brazil. The plant exports some of its products to other nations of the Latin America Free Trade Association.

**1955**

- Kodacolor and Kodachrome films began to be sold without the cost of processing included in the selling price, following a federal court consent decree. Papers and chemicals for making color prints from Kodacolor negatives and



*This was Texas Eastman in 1953. Greatly-enlarged since then, the plant now produces plastics and a wide range of industrial chemicals.*



*The Retina Reflex Camera,  
first Kodak single-lens reflex camera.*



*Ten million  
Brownie Star cameras  
were sold in  
about five years.*

Kodachrome slides were introduced, and methods of processing the films and papers were made available to independent photofinishing firms.

- The company announced availability of Kodak Ektacolor Paper for making high-quality color prints directly from color negatives. In 1961, the company introduced an improved Kodak Ektacolor Professional Paper.

- Company world employment reached 73,000.

- An improved Panatomic-X black-and-white film with extremely fine grain and high definition was introduced.

- The Brownie Turret Camera, with telephoto and wide angle lens (in addition to the standard lens) was marketed.

- Ektachrome high speed professional film was made available.

**1956**

- Kodak Verichrome Pan Film, a panchromatic black-and-white film, was introduced to replace Kodak Verichrome Film, a favorite of photographers since 1931.

- The time required to expose x-ray films was reduced appreciably as two Kodak dental x-ray films were doubled in speed. The following year, a new medical x-ray film with increased speed (Kodak Royal Blue Medical X-Ray Film) was introduced. Further increases in the speed of medical and dental x-ray films were made in 1961 and 1962.

- Verel, a modacrylic fiber made at Tennessee Eastman, was added to the company's textile-fiber line. Verel was used in rugs, draperies, and other household furnishings, as well as in pile linings for coats and in industrial fabrics.

- The company formed the Apparatus and Optical Division, which includes the Camera Works and the Hawk-Eye Works in Rochester, New York. The division was created to unify the company's photographic apparatus and optical operations. Another unit in this Rochester division was the Lincoln Plant, added in the 1950's to handle research, development, and production work for special defense contracts.

- An improved dual-purpose Kodacolor Film for indoor and outdoor use was marketed.

**1957**

- The Brownie Star line of cameras was introduced. These were the first low-priced cameras designed specially to take color slides, as well as color and black-and-white snapshots. One model, the Brownie Starflash Camera, was the first Kodak camera with a built-in flash holder. The Star line eventually included seven models, and within five years Kodak had sold more than ten million of the cameras.

- Royal-X Pan sheet film and roll films were introduced. These black-and-white films were three times as fast as Royal Pan Film.



1958

• Kodak entered the photorecording field with Kodak Linagraph Direct Print Paper, the first practical print-out paper for oscillography. Permanizing developers were also introduced to make the 'print-out traces permanent.

• The Kodak X-Omat Processor made possible the rapid processing of x-ray films in hospitals, clinics, and radiologists' offices. Complete processing, which formerly took about an hour, was done automatically by this machine in only six minutes.

• The Kodak Cavalcade Projector, the company's first fully automatic color-slide projector, was introduced. Three years later, the automatic Kodak Carousel Projector, which featured a round tray holding 80 slides, was placed on the market. The Carousel projector won several awards for its design.

• The company's first single-lens reflex camera, the Kodak Retina Reflex Camera, was introduced. The camera was made by Kodak A.G. in Stuttgart, Germany.

• Kodak Panalure Paper became the first panchromatic paper designed specifically to produce top-quality black-and-white prints from color negatives.

• Kodel polyester textile fiber, developed by Tennessee Eastman, was made available for use in men's, women's, and children's clothing. A plant for large-scale production of Kodel was built in 1960.

1959

• High Speed Ektachrome Film became the fastest color film on the market. Also introduced was Ektachrome ER Film, a motion-picture color film used mainly in scientific and technical recording. Both have had key applications in the U.S. space exploration program.

• The Kodak Zoom 8 movie camera became the first Kodak camera with a "zoom" (variable focal length) lens.

• Fully automatic exposure control was introduced on six Kodak cameras. Two were still cameras; four were 8mm movie cameras.

• The Kodak Ektalith Method for making offset duplicating masters was announced. The system made it possible to go from original copy to a photo-offset master in two minutes, thus permitting quick, easy, and inexpensive reproduction.

• Tenite polypropylene plastic was produced in pilot-plant quantities. A year later, Texas Eastman opened a large-scale plant to produce the new plastic product, which is used in such items as auto arm rests, name plates, hospital and laboratory ware, packaging film, battery boxes, and cable insulation.

• The Recordak Portable Microfilmer was introduced. It weighed only 24 pounds.

• The Recordak Lodestar Reader, with a completely new concept for high-speed information retrieval, was introduced. It used microfilm pre-coded and enclosed in



*Man-made fibers produced at Tennessee Eastman now include Estron and Chromspun acetate, Verel modacrylic, and Kodel polyester.*



*In 1958 Kodak introduced its first fully-automatic slide projector, the Kodak Cavalcade Projector.*

plastic magazines. A magazine was inserted into the reader, and the film was advanced by a motor drive at speeds from a fraction of a foot per second to ten feet a second to locate any document quickly and easily.

- The number of Kodak share owners passed the 100,000 mark.

1960

- Estar polyester film base was introduced to give improved dimensional stability to Kodalith graphic arts films, which are used for reproduction in printing processes, and to several other Kodak films. A large new plant was built to produce the base at Kodak Park in Rochester.

- The Navy Ordnance Division in Rochester was discontinued. Military contracts assigned to this division were incorporated into the Apparatus and Optical Division.

- The Kodak Motormatic 35 Camera was the first Kodak still camera with a spring-driven film-advance mechanism, allowing ten pictures to be taken in as little as ten seconds.

- The Recordak Reliant 500 Microfilmer was introduced. It photographs up to 500 checks or 185 letters in one minute.

- Eastman Research A.G. was formed in Zurich, Switzerland, to do basic research in chemistry and other areas related to work of the Tennessee Eastman and Texas Eastman divisions.

- William S. Vaughn succeeded Dr. Chapman as president of Eastman Kodak Company. Dr. Chapman became vice chairman of the Board of Directors. Vaughn, the company's seventh president, joined Kodak in 1928. Prior to his election as president, he was vice president and general manager of the company.

1961

- Kodachrome II Film, a significant improvement over the long-established Kodachrome Film, was introduced. With exposure indexes of 25 daylight and 40 indoor, Kodachrome II had  $2\frac{1}{2}$  times as much speed. It also made even sharper pictures, with improved color rendition and better detail in shadows. Like its predecessor, the improved film could be processed both at Kodak laboratories and at others.

- Faserwerke Huels G.m.b.H., was jointly formed by Eastman Kodak Company and Chemische Werke Huels A.G., with principal offices in West Germany, was formed to produce the polyester fiber known in the United States as Kodel and to sell it throughout Europe, Africa, and the Middle East.

- The company introduced magnetic sound recording tape for professional use. The following year, tape was added for use by hi-fi enthusiasts.

- Kodak Australasia opened a major new photographic manufacturing plant in



*Astronaut John Glenn was  
pictured on Kodak film  
during space flight.*

Coburg, Australia, replacing outdated facilities at nearby Abbotsford.

1962

- John Glenn became the first American to orbit the Earth. Photography was used in this flight to record the astronaut's reactions to his new atmospheric environment as he traveled through space at an average of 17,400 miles per hour. Kodak products played a part in this flight, in unmanned flights prior to the Glenn ride, and in subsequent manned orbital shots.

- The Kodak Electric 8 Automatic Camera was the company's first movie camera with a battery-powered film drive.

- Four new rapid, automatic processing machines, with chemicals specially designed for each, were introduced:

The Eastman Viscomat Processor provided complete one-minute processing of 16mm black-and-white motion-picture films for television and other commercial uses.

The Kodak Versamat Processor processed many types of black-and-white professional and aerial films in about six minutes.

The Kodalith Processor provided five-minute, highly uniform processing of Kodalith graphic arts films.

The Kodak Ektaline Processor processed a 475-foot roll of photographic oscillograph-recording paper in less than three minutes. This is twenty to thirty times faster than was previously possible.

- Kodak Neodymium Glass Laser Rods were introduced for use in certain types of lasers. In a laser, the rod emits a powerful beam of light which can be focused to a spot. The resultant heat is greater than that of the sun.

- Texas Eastman began producing a new family of olefin plastics called polyallomers. First to be marketed was a propylene polyallomer containing ethylene for use by plastics molders. Among the many products made of this new plastic are lightweight tool boxes and portable carrying cases of many types, impact-resistant pipe fittings, and boilproof kitchen ware.

- The company's U.S. consolidated sales exceeded \$1 billion for the first time.

- Dr. Albert K. Chapman became chairman of the board of directors following the death of Thomas J. Hargrave.

- Kodak employment throughout the world passed the 75,000 mark.

1963

- The loading of film in still cameras was greatly simplified with the production of the Kodapak film cartridge with a pre-threaded takeup spool built in, and the introduction of a family of Kodak Instamatic cameras designed



*Kodak Instamatic cameras and the Kodapak film cartridge introduced a "new dimension in amateur picturetaking."*



*William S. Vaughn, Kodak president, accepted the Export "E" Award from President Johnson for Kodak's "success in export markets."*



*The futuristic Kodak Pavilion at the New York World's Fair.*

especially to hold this cartridge. The camera was loaded by simply dropping the cartridge into the back of the camera.

- Three new color roll films were placed on the market—Kodachrome-X and Ektachrome-X for slides, and Kodacolor-X for prints. Ektachrome-X and Kodacolor-X had twice the speed of their predecessors and produced sharper pictures. Because of their great speeds, all three films could be used with the same camera settings as the popular Kodak Verichrome Pan black-and-white film.

- Recordak introduced its new Miracode microfilm system with a new concept of automated search and retrieval. The heart of the system was a high speed retrieval station, at which an operator could locate any one of more than 900,000 pages of information in less than 15 seconds.

- Kodak Bimat Film formed the heart of a new diffusion transfer system for processing certain black-and-white aerial films. The Bimat Film, pre-soaked in processing chemicals, was merely placed in contact with exposed negative film to produce, in about 15 minutes, both a negative and a positive transparency.

#### 1964

- The Kodak Pavilion at the 1964-1965 New York World's Fair was one of the ten largest industrial buildings at the international exposition. Numerous displays and demonstrations told of the wide range of company products and their diverse applications. A highlight of the pavilion was the "Tower of Photography," featuring the largest outdoor color prints ever exhibited.

- President Lyndon B. Johnson presented the company with an export "E" award at the White House for "success in export markets." A report submitted to the Department of Commerce indicated that Kodak's exports increased 56 percent from 1957 to 1962.

- The Kodak Rapid Color Processor, Model 11, was introduced. Its price (less than \$200) and its compact size made it suitable for both amateur and professional darkroom use. The Model 11 required no warmup or setup time, and produced enlargements up to 11 by 14 inches in size in only 7½ minutes.

- The photographic marketing organization was restructured by class of trade to meet the needs of customers even more effectively. The marketing divisions are: Consumer markets; Professional, Commercial and Industrial markets; Motion Picture and Education markets; Radiography markets; Business Systems markets (including the business of Recordak Corporation); and International markets.

- A new family of magnetic tapes was introduced for instrumentation recording. The tapes were designed to serve a wide range of electronic data-recording uses—from

the sophisticated requirements of missile tracking stations to the everyday needs of medical laboratories.

1965

- The "super 8" home movie system was introduced, consisting of new Super 8 Kodachrome II Film in an easy-loading cartridge and a choice of Instamatic movie cameras and projectors. (The super 8 format provided approximately 50% more image area per frame.) Licenses to make cameras and film utilizing the system were made available to other manufacturers. For "distinguished technical achievement in photography" through development of the super 8 format, Kodak became the first "outsider" to receive the Bell and Howell Company's Albert S. Howell Award.

- The new line of "flashcube" model Kodak Instamatic cameras enabled the photographer to take four flash pictures without changing flashbulbs. The flashcubes, compact four-shot devices, were introduced simultaneously by Sylvania Electric Products, Inc.

- The Microstrip System, designed to reduce voluminous listings in directories and credit files to compact microfilm in immediately retrievable form, was announced by Recordak Corporation.

- The Eastoflow system, a new transparent packaging technique, was introduced by Eastman Chemical Products, Inc., the company's marketing unit for fibers, plastics, and chemicals.

- Eastman plastic twines became available for agriculture and industry. The twines were knotless, uniform in strength, unappealing to rodents or insects, and resistant to rot and moisture. The twines were tough, yet easy on the hands.

- Astronaut Edward White's dramatic spacewalk was documented on Ektachrome MS Film; 62 cameras loaded with Kodak films enabled scientists to obtain vital information about the performance of the rocket which thrust Mariner 4 skyward on its journey to Mars; and data recorded on Kodak instrumentation papers allowed engineers to follow precisely Gemini 5's globe-circling, eight-day voyage. Kodak films also recorded the history-making rendezvous of Gemini 6 and Gemini 7.

- In the x-ray field a revolutionary automatic processing system produced dry, ready-to-read radiographs in 90 seconds—nearly five times faster than previously available machine processing. The new Kodak RP X-Omat Processing System was made possible by the design of a new medical x-ray film and the formulation of new chemicals that permitted 90-second processing while retaining excellent image quality.

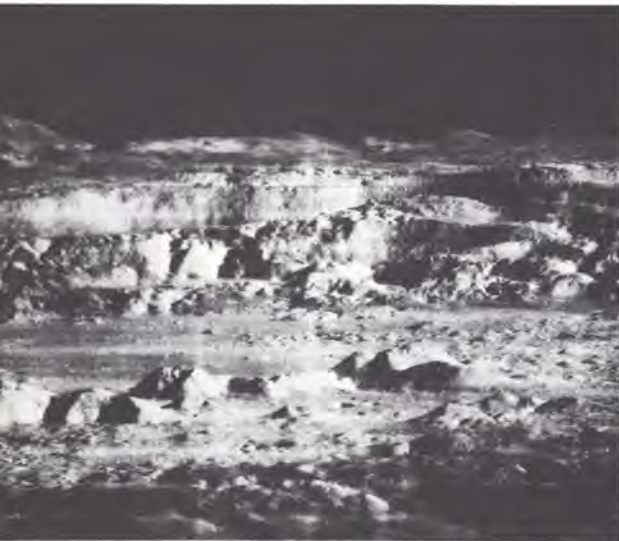


*America's first spacewalk was captured on Kodak color film.*



*Instamatic movie cameras (L) and flashcube cameras further improved amateur photography in 1965.*





*Copernicus—known to astronomers as the “monarch of the moon”—is 60 miles wide and two miles deep, with a 3,000-foot promontory in the middle. Lunar Orbiter II was 28.4 miles above the lunar surface when this picture was taken.*

**1966**

- Two new overseas marketing units—Kodak A.B. in Sweden and Kodak Oy in Finland—were incorporated.
- The 2620 Color Printer, utilizing an electronic memory to produce 2,000 to 3,000 prints an hour, was introduced to the photofinishing industry.
- “The photograph of the century,” a close-up of the crater Copernicus on the moon, was made by Lunar Orbiter II, using a dual-lens camera, film, processor and readout device supplied by Kodak. A NASA program to collect data for moon landings, the several Lunar Orbiter flights produced many spectacular pictures using the Kodak photographic subsystem.
- Combined sales of all Kodak units around the world surpassed \$2 billion.
- Kodak employment throughout the world passed 100,000.
- Shareholders numbered more than 168,000.

**1967**

- After nearly fifty years with the company, Dr. Albert K. Chapman announced his retirement. His successor as chairman of the board was William S. Vaughn. Dr. Louis K. Eilers became the new president and chairman of the executive committee.
- The projection of color slides on a curtain of water was an outstanding feature of the Kodak exhibit at Expo 67 in Montreal.
- Relocation of the Camera Works plant was begun on the 600-acre site six miles west of downtown Rochester in the town of Gates. Removal of the apparatus assembly operations from the State Street complex allowed much-needed expansion of the company’s administrative headquarters.

**1968**

- Carolina Eastman Company, a manufacturing division closely associated with Tennessee Eastman Company, was dedicated. Carolina Eastman manufactures Kodol polyester fiber in staple form. Textile mills use this man-made fiber alone or in blends with other fibers to produce a wide range of clothing and home furnishings.
- Kodak introduced three new motion picture films which included a color reversal intermediate that enabled laboratories to eliminate one or more printing steps to obtain improved quality duplicate negatives.
- To provide faster deliveries of Kodak products throughout the Middle East, Kodak (Near East) Inc. opened a distribution center in the Beirut Duty Free Zone.

1969

- The number of shareowners passed the 200,000 mark.
- The ground-breaking ceremony for the Kodak Colorado Division marked the beginning of construction for the newest manufacturing unit of Eastman Kodak Company.

- At the annual Academy Awards Presentation, Eastman Kodak won an "Oscar" for a film that is the heart of a new system to produce sharper, finer-grain motion pictures with significantly improved color.

- Kodak introduced the Kodak Instamatic 44 Camera, the lowest priced cartridge-loading camera ever sold by Kodak and the first Kodak self-service carded camera.

- Three new movie projectors that use the new 50- and 100-foot Kodak Projection Cartridges were introduced. The low-cost, reel-to-reel cartridge was developed to encourage the broadest possible use of motion pictures and to end film handling forever.

- Kodak also introduced a new high-brightness screen which spectacularly enhances the display of any projected photographic image under normal daylight or room-light conditions.

- At the annual "Emmy" awards presentation, the National Academy of Television Arts and Sciences presented Eastman Kodak Company one of its gold statuettes in recognition of the company's development of a fast, practical color film processing system for television use.

- When astronauts Aldrin and Armstrong finally set foot on the moon, they brought with them a very special stereo camera (see picture on cover) made by Eastman Kodak. As in every manned space shot, the Apollo 11 crew used film made by Kodak to record their epic journey.



*The Kodak Instamatic 44 Camera, which has a price of less than \$10, offers the same carefree cartridge loading as its predecessors in the Kodak line.*



*This memorable shot, made by Neil Armstrong during the Apollo XI moon mission, was made on 70mm Kodak Ektachrome Film. Reflected in Aldrin's visor are Armstrong, the LM, the lunar stereo camera, and the television camera.*





