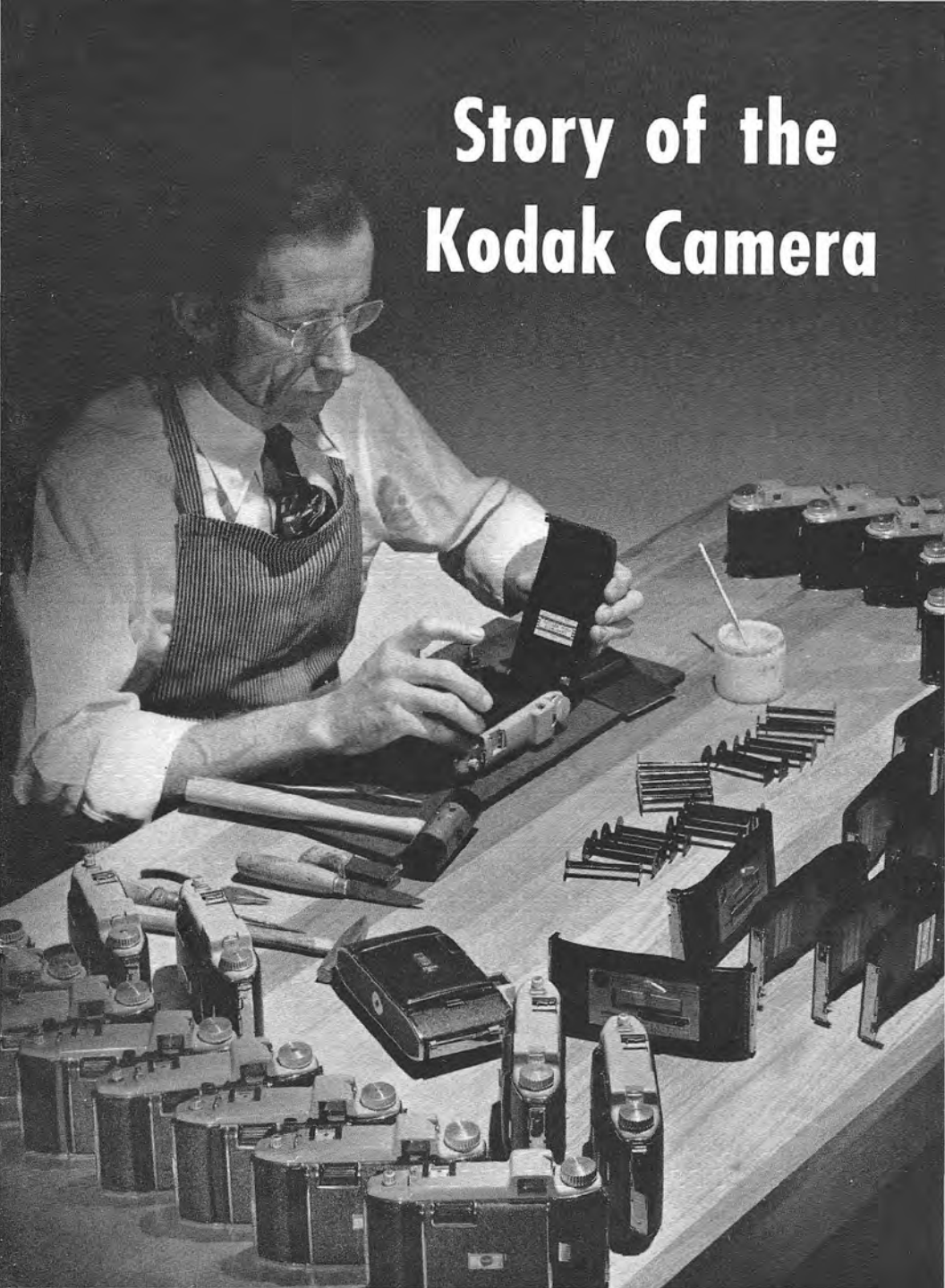
Story of the Kodak Camera



AT HOME — for Pleasure

BLACK BOX WITH A MAGIC EYE

THIS is the story of today's camera . . . how it began . . . how it has grown . . . what it is.

The era of the modern camera really started in 1888 when George Eastman introduced his "No. 1 Kodak Camera." That little black box—operated by pulling a string and pressing a button—has now become a twentieth century wonder-worker.

Bolted in a rocket, a camera has pictured this globe of ours from 100 or more miles in the air. Combined with a microscope, a camera has revealed the grain structure of a slice of steel, enlarged 5,000 times.

Spectacular? Yes . . . but typical of the scope of the cameras of today. The camera is at once a handy gadget for millions of people and a precision instrument of amazing efficiency and versatility.

In this brief booklet we would like to tell you of the Eastman Kodak Company's Camera Works . . . take you along our production lines . . . have you meet some of our people.

FOR SNAPSHOTS . . . OR SCIENCE

The camera and its photographic results touch all our lives every day in many ways . . . in our education and entertainment . . . our business and industry . . . our medicine and research.

In the factory, an engineer stretches time by means of an ultra-fast movie camera taking 3,000 pictures a second.

In the office, some 10,000 letters are stored on a few rolls of microfilm that fit into your hand. A camera helps to make this possible.

For school, the camera assists in creating visual aids for easily-grasped instruction.

Imagine your life and today's civilization without pictures . . . without the many specialized applications of the camera . . . not only at home but also in your newspapers, magazines, books . . . your work and your play. It would, indeed, be different—and drab.

Some 26,000,000 families use still cameras actively every year. More than 1,500,000 families shoot amateur or home movies.

Each year these non-professionals click off about a billion and a half still photographs and uncounted miles of 8mm. and 16mm. motion picture film. The snapshots themselves would encircle the world three times!

Yet, as we have seen, the amateur and his camera are more than matched by the professional, commercial and industrial users.

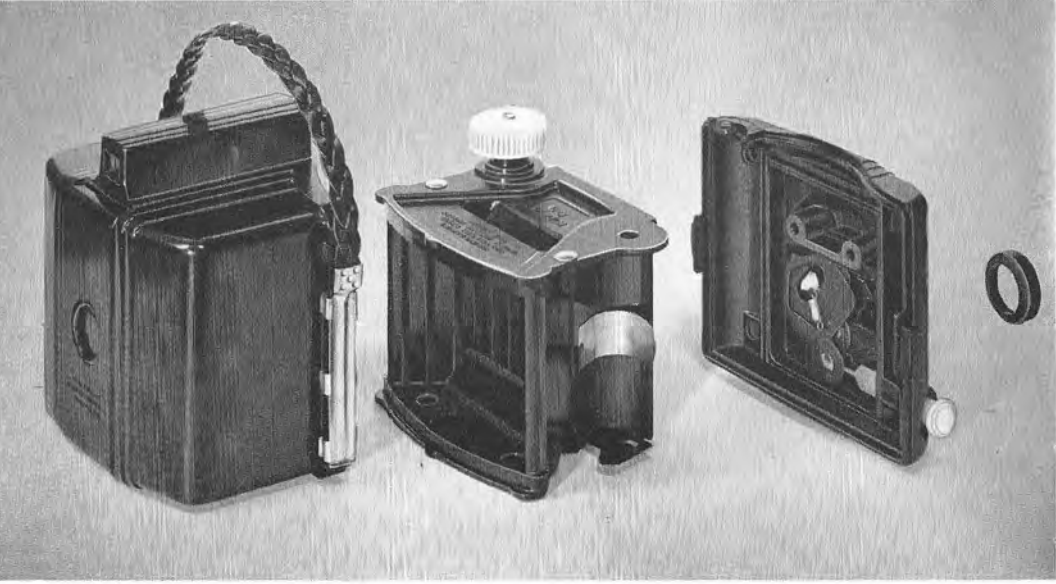
The camera's power—and photography's impact—are virtually limitless . . . able to meet the demands of snapshooter or scientist alike.

So let's take a camera apart and see just what makes it work.

IN INDUSTRY — for Research

IN BUSINESS — for Recording

IN SCHOOL — for Teaching



BASIC parts of a camera are shown in this view of a Baby Brownie Special. Left to right: body, film-holder, shutter, lens.

COMPLEX precision camera is well illustrated by this "exploded" Kodak Medalist II. It consists of 796 separate pieces.

WHAT IS A CAMERA?

A camera is pretty simple—when you cut it to basic parts.

There are camera types and models galore. They include box, folding, miniature, reflex, press, studio and motion picture.

Despite many variations, however, these cameras all contain the following essential elements:

LENS—Lets light into the camera and focuses it on the film.

SHUTTER—Determines how long the light goes through the lens. An important part of the shutter mechanism is the diaphragm. It controls the size of the opening through which the light is admitted into the lens. Working together, the shutter and the diaphragm govern the exposure—the amount of light that reaches the film.

FILM-HOLDER—Keeps the film in place so the light coming through the lens will make an "image." This image is invisible until the film has been developed.

BODY—Holds the camera together and keeps out all light except what you let in through the lens.

A camera is somewhat like your eye. The camera admits light through the diaphragm (iris) and beams that light on to the film (retina). The camera's lens does the trick. So does the lens in your eye.

Depending on what you expect of a camera, the way it has to be built is simple or complicated. Kodak Cameras range from a small box type with 41 parts to the Kodak Medalist Camera having nearly 800 different pieces—some machined to accuracies of 2/10,000th of an inch, or 1/10th the diameter of a human hair.

But behind the camera—still or motion picture—is this idea: You focus light to get an image on material sensitive to that light.

The "light" is really the person, object or scene at which you're aiming your camera. The "image" is the photographic result which you get after the light-sensitive film has been chemically treated, or processed, in a darkroom.

This, then, is "the camera." It has a fascinating past and an unpredictably bright future. In almost every profession and occupation, in fact, the camera is now invaluable.

HOW A KODAK CAMERA IS MADE

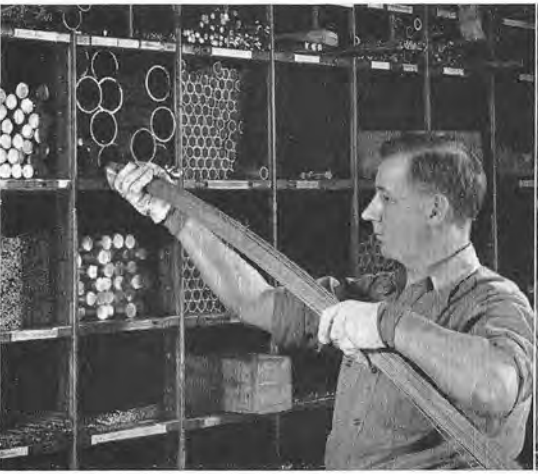
1. **DESIGN** starts after approval by sales and engineering experts. Plans are drawn for each part which will go into the camera.

2. **TOOLING** follows. An average of four tools is needed to produce every one of the 102 parts of the Kodak Duaflex Camera.

5. **LENS-MAKING** is done at company's Hawk-Eye Works. High grade optical glass is ground, polished, then carefully inspected.

6. **ASSEMBLY** is specialized. Assemblers add parts until camera reaches the end of the production line in finished form.

These are the chief steps in the creation of a representative Kodak Camera—the Kodak Duaflex. This is a relatively simple photographic product. But its production demands much planning and effort, many men and women, materials and machines.

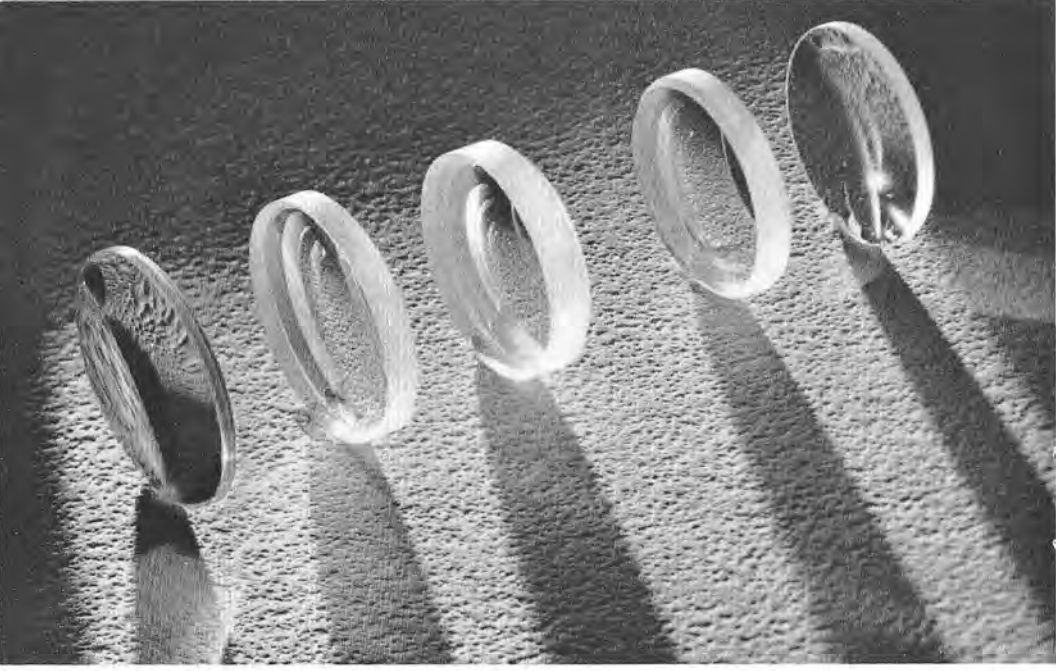


3. MATERIALS include steel, brass, aluminum and plastics. They are sent to production areas from big Camera Works stock rooms such as this.

4. FORMING the camera's body, or case, involves several massive, complicated machines. This one stamps camera fronts from aluminum.

7. INSPECTION is rigid. Hundreds of employees test for quality of the completed product. Here, lens focus is being checked for accuracy.

8. PACKAGING means protective cardboard around the camera, then an attractive box, finally the preparations for shipment to dealers.



ELEMENTS of a Kodak Ektar Lens (f/3.5, 100 mm.)

YOUR CAMERA'S EYE

The lens is often the key to superior photography and is the "secret" of a good camera.

Kodak's lenses are made in our Hawk-Eye Works. Then they are sent to Camera Works for assembling in the camera. Both plants are in Rochester, N. Y.

The camera's lens is a piece—or several pieces—of optical glass that gathers in light and passes it on to the photographic film.

This glass must be good—of high optical quality. It must also be so shaped that the picture you get is sharp and clear.

Simplest of camera lenses is the "single meniscus." It has only one glass element. More intricate lenses for various Kodak Cameras and other photographic equipment, such as slide projectors, have as many as seven elements.

The picture above shows the five glass parts of an outstanding modern lens before assembly in the lens mount.

AN OPTICAL REVOLUTION

In 1939 the Hawk-Eye Works began the first commercial production of a new type of glass, one made without sand. This was about like making steel without iron. It was a revolutionary accomplishment in optics because, before this, all the best optical glasses contained sand.

The new "rare element glass" is thus named because it is compounded of such materials as barium, tantalum and lanthanum. A product of research, it has given science a new substance from which to design better lenses.

How? Because the new Kodak glass has greater light-bending power combined with lower dispersion—or spreading of individual colors—than previously available optical glasses.

CLEARER THAN GLASS

"It's as clear as glass."

You've often said it.

But let's look through a lens that is really "clearer than glass."

It's a lens that has been "Lumenized." That's the way we describe the process of coating the lens with a microscopic layer (1/250,000th of an inch) of magnesium fluoride.

Lumenizing helps you to get better pictures . . . by cutting down on reflections in and from the lens. This permits more light to go through the lens.

The upshot of it all is better detail, greater clarity and more color purity in your pictures.

Kodak, a pioneer in lens-coating, introduced the process for some of its optical products in 1938.

LUMENIZED lenses mean better pictures. This shows why. Coated half (left side) transmits more light.

HAWK-EYE WORKS, Kodak's optical plant, makes lenses, filters and other photographic products, including Recordak units.

BEFORE the Advent of the Kodak Camera

FAMILY ALBUM

Great-granddad of all cameras was the "camera obscura."

Those Latin words mean "dark chamber" . . . and that's all the first camera was. Light rays came into a dark room through a tiny hole to cast on the wall a "picture" of the outside scene.

No film . . . no snapshot . . . just an upside-down image.

In 1802 Thomas Wedgwood, British scientist, succeeded in making a picture with the camera obscura. His method was to have the camera throw a scene on paper treated with silver nitrate.

Sir Humphry Davy and Sir John Herschel improved on Wedgwood's work. In 1839 Fox Talbot described his "developing" solutions and how he had taken photographs by using salted paper coated with silver nitrate. Louis Daguerre of France, meanwhile, evolved a system using silver-coated metal plates treated with iodine fumes.

But the camera itself was still a whopper . . . nothing you'd care to lug on a picnic. Photography was still creeping.

In 1877 George Eastman, then a 23-year-old Rochester bank clerk, plunged into photography. By 1880 his hobby had blossomed from a kitchen sink pastime into the Eastman Dry Plate Co.

Eastman aimed to make photography simpler and faster. For at this time the usual method of picture-taking was to use "wet plates."

The photographer had to haul along a big load of equipment, hand-coat these plates with emulsion in a dark tent, then quickly take the picture.

Eastman's fledgling firm marketed dry plates that cut out this messy system. These plates were followed by film made of paper coated with emulsion.

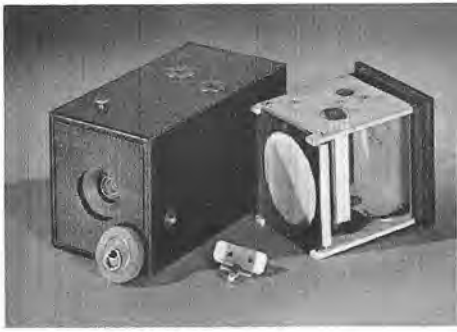
In 1888 Eastman marketed his No. 1 Kodak Camera. Its famous trade name was personally coined by Eastman.

A year later, in 1889, Eastman succeeded in making commercially practicable a flexible, transparent base for photographic film. This led to the films now familiar to all.

The first Kodak Camera took 100 pictures to a roll. To get prints you sent your camera to the company. There the film was developed, the pictures printed. Thus Eastman's first slogan: "You press the button, we do the rest."

That Kodak Camera cost $25. Today, most Kodak Cameras sell for a fraction of that price in terms of income . . . and have improvements undreamed of then.

GEORGE EASTMAN, founder of many modern photographic methods.



FIRST KODAK CAMERA ushered in new picture-taking techniques.

MODERN CAMERA, typified by this Kodak 35, is compact, fast.

CAMERA WORKS, partly shown above, began formally in 1893 as a small plant employing about 50 persons.

MANY MACHINES, such as these big punch presses, help to speed output of photographic goods.

WHERE KODAK CAMERAS ARE PRODUCED

Impressively large and modern, Camera Works is the hub of Kodak's production of cameras and photographic apparatus. Here are the highlights of the plant and its products:

THE PLANT—Occupies eight major buildings of six or seven stories each near the site of the first Eastman establishment.

Fills two city blocks near downtown Rochester.

Includes about 1,500,000 square feet of floor space.

Consumes daily almost 1,000,000 gallons of water and more than 70,000 kilowatt hours of electricity.

Operates 3,500 machines that perform 9,000 different kinds of mechanical steps a day in turning out 2,500,000 separate parts.

THE PRODUCTS—In all: Approximately 300 different kinds of photographic goods.

Principal output: A line of 35 models of cameras, slide projectors and 8mm. and 16mm. movie cameras and projectors.

Other products: Several types of professional apparatus and 250 photographic accessories.

PRODUCTION PLAN—The products of Camera Works are made under a departmentalized system. First, general machining areas turn out the main parts. Then these go through finishing divisions and on to stock rooms. Next, other specialized departments assemble and inspect the completed products.

Workmanship is a watchword—and standards are very high.

One of every seven production employees in Camera Works is a product inspector. The plant also has complete laboratory facilities for experimental and developmental work.

The result: Built-in quality.

Eastman Kodak's other units in Rochester include: Kodak Park, producer of films, papers, plates and chemicals; Hawk-Eye, which, as has been noted, is the optical plant, and Kodak Office, administrative headquarters and general offices.

THE PEOPLE OF CAMERA WORKS

About 6,000 Kodak men and women keep this plant humming.

They are engaged in 300 different kinds of work in some 80 production, staff and service departments.

In all, they do approximately 150 types of production jobs and a like number of other production-backing services.

Among the departments—to illustrate the variety of activities—are Punch Press, Milling, Screw Machine, Hand Lathe, Buffing, Plating, Lacquering, Leather, Tool-Making, Assembling and Inspecting.

Included in the staff and service group are Safety, Maintenance, Shipping, Stock Records, Accounting, Purchasing, Production Planning, Product Development, Engineering, Designing and Industrial Relations Departments.

All Kodak people participate in a number of benefits. These include annual wage dividends, sickness allowances, liberal vacations with pay, six paid holidays, low-cost group life insurance, certain free medical care during working hours and a retirement plan.

Modern cafeteria facilities and many recreational opportunities also are provided. High in popularity are such indoor and outdoor sports as basketball and baseball. Other group activities—such as camera clubs —attract the interest of hundreds.

Kodak has followed an employment stabilization program for many years. Results in greater employment security have been excellent.

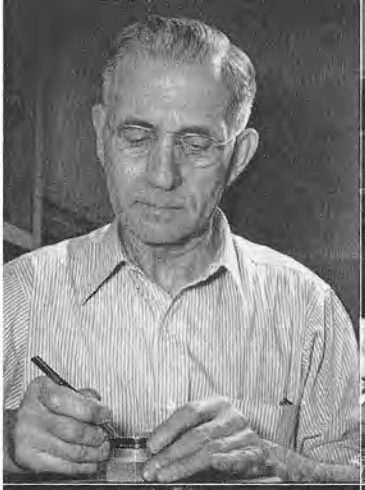
THEIR JOBS—The pictures facing this page give some hint of the many and interesting types of work done at Camera Works.

Essentially, Camera Works is a plant devoted to making products of precision. The plant's people reflect this fact. They are skillful, alert and have won repeated industrial safety honors. The company is rightfully proud of the accomplishments of Kodak men and women.

We hope that this short "visit" has given you some insight into the story of Kodak Cameras, the people who make them and some of the countless ways photography serves progress.

Left
ASSEMBLING A SHUTTER takes skillful, practiced fingers. William Abrey is an expert at this difficult job.

Right
STAMPING A PART is another operation, done here by Mae Di Roberto, in fabrication of a camera.

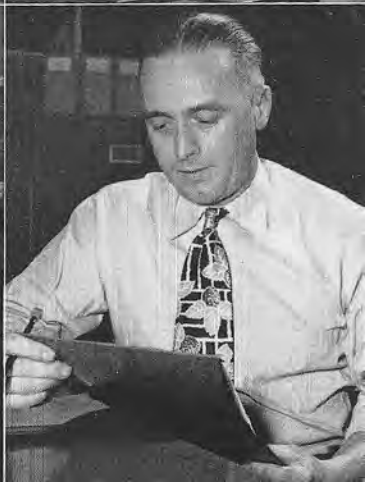


Left
WORKING WITH LEATHER, Margaret Yawman fashions camera carrying case, one of Kodak's leather products.

Right
MAKING TOOLS AND DIES, lifeblood of production machinery, Kenneth Hood operates a vertical mill.

Left
PRODUCT-TESTING is a never-ending assignment of plant's laboratories. John Lundberg tries a projector.

Right
PLANNING AHEAD, Harold Hinton, a general foreman, examines the record of a day's production.



INDICATIVE of the many types of photographic equipment which Kodak's Camera Works produces are those shown here: slide projector; motion picture camera; reflex, box, precision miniature and folding cameras; motion picture projector, and printing box.

Eastman Kodak Company, Rochester 4, N. Y.