

# KODAK

A MAGAZINE FOR EASTMAN EMPLOYEES



**PHASCOLARCTOS CINEREUS**

The eucalyptus leaf's their meat  
(See page 6)

FEBRUARY 1938





The only Kodak plant south of the Equator: an excellent view of Kodak Australasia's factory at Abbotsford, near Melbourne, where sensitized and other photographic goods are made. The tree that frames the picture is a eucalyptus, an evergreen found chiefly in Australia. This one is of the "stringybark" variety, so called because it sheds its bark in long strips that sway lugubriously in the wind

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# KODAK

Volume 17

FEBRUARY 1938

Number 1

## In the "Village" of Batman's Dreams

**Now a Thriving City, It's The Home of the Only Kodak Plant South of the Equator**

JUST OVER a century ago the pioneer, John Batman, landed on the banks of the River Yarra, in Victoria, Australia, and made the historic entry in his diary: "This will be the place for a village."

John Batman made an excellent choice, for that "village," the dream of a pioneer, is now Melbourne, a mighty city of more than a million population.

Named after Lord Melbourne, the Prime Minister of England at that time, it is the seat of the government of the state of Victoria.

Originally intended for pastoral pursuits, the discovery of gold in the early "forties" made Melbourne the cynosure of the world's eyes, and from that time the city has continued to flourish.

The world in general associates Melbourne with two great sports, cricket and horse racing. It possesses the finest cricket ground in the world, arena for many a keen struggle with

England for the mythical "Ashes"; and Flemington racecourse, situated a few miles from the city, is said to be the most picturesque in the world. This course was the scene of the titanic efforts of Carbine and Phar Lap in the Melbourne Cup, which will remain epics among horse lovers for generations to come.

Photographers, amateur and professional, know Melbourne as the home city of the only Kodak factory, south of the Equator, that manufactures sensitized and other photographic materials. The plant, which is in Abbotsford, within three miles of the city, goes to complete the chain of Kodak factories encircling the globe, being owned by Kodak (Australasia) Proprietary Limited, an affiliated company.

In its setting of stately old trees, shrubbery, flower gardens, and tidy lawns that slope down to the banks of the River Yarra, this Kodak factory stands as a monument to its two founders, the late Thomas Baker and J. J. Rouse, the present Chairman of Directors. Kodak's interest in the plant dates from the year 1908.



Bird's-eye view of the plant's lovely lawns

The factory buildings occupy seven and a half acres of land which, at one time, consisted of pasture; and part of the old homestead built more than ninety years ago still exists and is used as an executives' dining room. Compared with other Kodak factories, that at Melbourne is, to quote one of its employees, "a pigmy among



Australians love sports, especially horse racing: surging crowds throng Flemington racecourse, near Melbourne, on Melbourne Cup day



This picture shows the original factory building, erected in 1886 . . . . . This is the Kodachrome Building, a recent addition to the plant

giants"; but giants' work is performed in this practically self-contained plant that gives continuous employment to some six hundred persons and supplies photographic materials to seven million people.

Originally built in 1886, the factory then consisted of one building only, which still stands, and in fifty-odd years it has grown to its present proportions as shown in the illustration inside the front cover. The Kodachrome Building, a recent addition, is the most modern example of factory construction in Australia. Here Ciné-Kodak film, black-and-white and Kodachrome, is processed. Here also are housed the Technical Laboratories, where research is carried out all the year round, and where the raw materials used by the plant are subjected to the most exacting tests in order that the Kodak standard may be maintained.

### Artificial Cold

Since the climate is almost semi-tropical, a vast amount of refrigeration is required, and for this purpose brine is used in conjunction with ammonia compressors, the chilled brine solution passing through thousands of feet of piping at the rate of 750 gallons a minute.

Readers are so conversant with the means and methods employed in the manufacture of photographic sensitized goods that it would be idle to describe the many coating rooms, mixing rooms, and other specialized departments peculiar to this industry except to note that all such departments are modeled on Rochester lines.

Apart from Kodak films and sensitized papers, mounts and albums are also manufactured in considerable quantity, and a factory is set apart for this purpose. Here, in systematic

rotation, are carried on all the operations involved in making cardboard—from thin sheets to the artistically finished mounts required by professional photographers.

Other separate units are buildings devoted to the packing of chemicals and the manufacture of silver nitrate.

One of the most important departments is the Amateur Same Day Developing & Printing Service. Here are the necessary up-to-the-minute appliances for giving the photographic enthusiast the benefit of modern developing and printing methods. Spools of film left in the retail shops in the city before ten o'clock in the morning are ready for delivery—developed and printed—by five the same day. This service is also available to a host of Kodak dealers within a radius of ten miles of the city, and a fleet of motorcycles is continually on the go, delivering and picking up customers' films.

Many workshops are provided for the Maintenance Department which, as in other Kodak plants, is responsible for the servicing of the engineering, electrical, carpentering, plumbing, and other activities so necessary to its operations.

Large dining and assembly halls are provided for the use of employees. Thrift is encouraged through special arrangements with the Government Savings Bank. Benefits are also enjoyed from the plant's Life Insurance and Disablement Scheme. The health of the staff is looked after by a fully qualified medical officer, who is in daily attendance. Recreation is stimulated by the provision of a sports ground.

In addition to the plant, Kodak Australasia also owns wholesale and retail branches in the principal cities of every state of the Commonwealth.



Australian kingfisher: the "laughing jackass"



No need to introduce this lovable chap: his progress is (literally) by leaps and bounds.



# THIRTY-FOURTH SEMIANNUAL REPORT

## EASTMAN SAVINGS AND LOAN ASSOCIATION

### ASSETS AND LIABILITIES AS OF DECEMBER 31, 1937

ASSETS		LIABILITIES	
MORTGAGE LOANS		DUE TO SHAREHOLDERS	
Mortgage Loans.....	\$4,715,629.93	On Installment Shares.....	\$ 851,074.44
CASH		On Savings Shares.....	1,042,682.99
Cash in Bank and on Hand...	88,763.14	On Income Shares.....	2,821,200.00
NOTES RECEIVABLE			\$4,714,957.43
Loans on Shares.....	\$ 70,119.00	Dividends Declared and	
Notes Receivable.....	31.31	Credited.....	682,815.50
	70,150.31		\$5,397,772.93
INVESTMENTS		RESERVES	
Demand Loans Receivable		Reserve for Unpaid Interest..	\$ 15,000.00
(secured by \$350,000.00		Reserve for Taxes and Insur-	
U. S. Government Bonds)	300,000.00	ance Advanced.....	19,000.00
Home Owners' Loan Bonds...	113,875.00	Reserve for Real Estate Losses	15,000.00
Government and Other Bonds	322,505.00	Contingent Reserve.....	10,000.00
Modernization Loans (Federal			59,000.00
Housing Administration)...	19,662.70	LOANS PAYABLE	
Investment in Savings and		Bank Loans.....	50,000.00
Loan Bank.....	1,000.00		
Investment in Other		MISCELLANEOUS	
Associations.....	8,200.00	Unpaid Social Security	
	765,242.70	Deductions.....	17.74
REAL ESTATE		Unearned Profit on Real Estate	
Real Estate Contracts.....	79,146.55	Sold.....	20,204.50
Other Real Estate.....	111,682.96	Guaranty Fund.....	270,000.00
	190,829.51	UNDIVIDED PROFITS	
FURNITURE AND FIXTURES		Undivided Profits at June 30,	
Furniture and Fixtures.....	12,807.76	1937.....	\$ 52,879.84
Less: Reserve for Depreciation	10,279.69	Add: Profit for Six Months	
	2,528.07	Ending December 31, 1937..	30,423.89
DEFERRED CHARGE			\$ 83,303.73
Prepaid Real Estate Expense	13,285.60	Less:	
Sundry Debtor.....	75.00	Transfer to Guar-	
	13,360.60	anty Fund.....	\$26,398.24
MISCELLANEOUS		Transfer to Taxes	
Appraisal Fees Advanced....	417.00	and Insurance	
Taxes and Insurance Advanced	6,747.54	Advanced.....	231.86
	7,164.54		26,630.10
			56,673.63
	\$5,853,668.80		\$5,853,668.80

### INCOME ACCOUNT FOR THE SIX MONTHS ENDING DECEMBER 31, 1937

EXPENSES		INCOME	
Salaries.....	\$13,421.00	INTEREST ON INVESTMENTS	
Advertising.....	360.20	Mortgages.....	\$131,320.98
General Expense.....	2,486.80	Notes.....	2,034.30
Office Supplies and Stationery..	400.96	Shares in Other Associations..	123.00
Printing and Postage.....	353.12	Taxes and Insurance Advanced	967.15
Depreciation on Equipment....	301.74	Cash on Special Deposit.....	4,400.00
Real Estate Repairs and		Home Owners' Loan Corp.	
Maintenance.....	3,821.76	Bonds.....	1,677.15
Real Estate Taxes and Expense	1,752.28	Real Estate Contracts.....	2,068.91
Attorney's Fees and Costs.....	800.50	Federal Housing Administra-	
Adjustment Account.....	33.50	tion Loans.....	1,421.46
Unemployment Insurance Tax..	241.35	Government and Other Bonds	4,699.98
Federal O. A. B. Tax.....	111.78		\$148,712.93
Interest Paid.....	375.00	Rents from Real Estate Owned	4,548.97
Real Estate Commissions.....	743.63	Dividends Forfeited on Shares	
Charge off Prepaid Real Estate		Withdrawn.....	883.86
Expense.....	2,657.12	Profit on Real Estate Sold....	7,228.52
	\$ 27,860.74	Miscellaneous Receipts.....	25.69
DIVIDENDS		Building Plan Service.....	89.73
On Income Shares.....	\$61,540.11		
On Savings Shares.....	13,930.91		
On Installment Shares.....	20,734.05		
	96,205.07		
Transferred to Guaranty Fund..	7,000.00		
Net Profit for Period Transferred			
to Undivided Profits.....	30,423.89		
	\$161,489.70		\$161,489.70

We have examined the books and accounts of Eastman Savings and Loan Association for the six months ending December 31, 1937 and the above Balance Sheet has been prepared therefrom. We certify that it correctly represents the condition of the Association as shown by the books for the period ended that date.

Auditors: STANLEY B. SLADE  
FLOYD R. SPENCER  
CHARLES T. KELLY

# Cyclopentanoperhydrophenanthrene, Etc.

## That's The Tonsil-Tickling Surname of A Distinguished Family Found at Kodak Park

THE CLOUD of steam issuing from a hot kettle is visible evidence of the struggle going on inside it—the violent efforts of the molecules to escape from the boiling water and fight their way, with countless jostlings and collisions, through the spout to freedom.

The conversion of water to steam and the recondensation of the steam outside the kettle is an example of distillation. Distillation is employed to purify substances because the component parts of a mixture generally turn into vapor one by one and can be collected separately. Not every substance will withstand this severe buffeting of its molecules. Heavy, sluggish substances like olive oil or butter, for instance, are completely spoiled if one tries to boil them.

About fifteen years ago, chemists in various parts of the world began experimenting with a new kind of distillation by which molecules were saved from all collisions and bumps after they were vaporized.

The earliest variety of the new still was like a saucepan with a saucer for a lid and a wide tube for a handle, the tube being connected with a powerful vacuum pump. The oil to be purified was warmed on the bottom of the pan, the vacuum pump was applied, and presently the air was withdrawn so completely that a molecule happening to emerge from the oil surface, be it ever so reluctantly, could fly unhindered to the condensing saucer.

### When Beauty Repelled

One of the earliest "short-path," or "molecular" stills, as these new stills were called, was made by Dr. Kenneth C. D. Hickman, in the Research Laboratories, Kodak Park; but, although he used it to distill various queer substances, he regarded it as rather a scientific curiosity.

Passing by a drugstore one day, Dr. Hickman noticed a large display of cod-liver oil bottles gleaming in the rare winter sunshine. An attractive, even beautiful, sight to most passers-by, it appalled him, for he knew that the bright light would destroy the vitamins in the oil. The thought crossed his mind that perhaps the oil could be distilled and the vitamins extracted and preserved in small amber bottles or capsules.



Explorers, chart, and equipment: from left (seated), Drs. Gray, Baxter, Hecker, and McLean, and (standing) Drs. Embree and Hickman. Charted: the distillation curve of natural vitamin A

By this time, a "continuous molecular still," forerunner of the kind now used commercially, had been constructed in the Research Laboratories, and it was through this machine that the first batches of cod-liver oil were poured. A beautiful golden wax appeared on the condensing surface of the still, and the cod-liver oil, after passage, was found to have lost most of its yellow tint. The golden wax proved to contain the valuable vitamins A and D.

This experiment was the birth of a new industry—one that is exclusively a Kodak development. Today, at Kodak Park, there is a factory in full-time operation distilling vitamins from vast quantities of fish oils. The industrial development has been made possible by the formation of a distillation-products research group.

The members of this group have had to study the pure science of the vitamins as fully as the practical utilization of high-vacuum distillation. They have found, for instance, that the vitamins are not just dissolved in the oil, but are anchored in place in a way that is especially beneficial in the field of curative medicine. Molecular distillation is unique because it allows the vitamins to be driven off the oil, still safely fastened to their anchors, giving concentrates of high medicinal value.

The factory where the vitamins are distilled is run by Dr. John Hecker and Dr. Eric McLean. When "things are behaving," the apparatus operates day and night at one-millionth of atmospheric pressure for two weeks at a time. Dr. Hecker has almost

completed designs for a new still, not for better vitamins—they are pretty good already—but for cheaper and more convenient operation.

The high-vacuum pumps attached to the still have long been a hobby of Dr. Hickman's. The newest pumps are fitted with high-speed jets designed by Dr. Norris Embree, and are operated with fluids specially compounded by Dr. James Baxter.

### The Witches' Cauldron

The most exciting work of the project is being done in a room on the third floor of the Laboratories, to which the rare concentrates have been carried for study. To step into this room is to face a bewildering maze of glass evaporators, extractors, and condensers, full of golden and orange liquids. Flaming jets gush from a corner where a white-coated figure is blowing glass, and here and there other figures can be seen bending forward, absorbed. "The witches' cauldron, 1938-style," was one observer's immediate impression.

From this "cauldron," he found, Dr. Hickman and Dr. Edward Gray lifted a whole new family of vitamin D's. The surname of the family, believe it or not, is none other than Cyclopentanoperhydrophenanthrene, and the given names are nearly as long, padded with "ols" and "enes" in tonsil-tickling succession.

It had been surmised for some time, Dr. Gray explained, that different fishes contain different D-vitamins in their livers—but it was certainly surprising to find six separate vitamins in the cod-liver oil alone!



KODAK PARK • NEW YORK • KODAK OFFICE • CHICAGO • KINGSPOORT • PEABODY • TORONTO • SAN FRANCISCO • LIMA • HAWK-EYE • CAMERA WORKS  
 BUENOS AIRES • RIO DE JANEIRO • SANTIAGO • BARRANQUILLA • HAVANA • MEXICO, D.F. • MONTEVIDEO • PANAMA CITY • SHANGHAI • HONOLULU  
 MANILA • TOKYO • BERLIN • LONDON • PARIS • VINCENNES • COPENHAGEN • VAC • HARROW • STUTTGART • DUBLIN • GLASGOW • COPENHAGEN  
 DAR ES SALAAM • NAIROBI • KAMPALA • CAPE TOWN • JOHANNESBURG • CAIRO • BATAVIA • ATHENS • BOMBAY • HAIFA • SINGAPORE • BEIRUT  
 ISTANBUL • ALGIERS • BRUSSELS • THE HAGUE • MILAN • ROME • MADRID • LISBON • LAUSANNE • GENEVA • VIENNA • PRAGUE • BUDAPEST • ZAGREB  
 BUCHAREST • WARSAW • GÖTTENBURG • REYKJAVIK • OSLO • LAS PALMAS • HELSINGFORS • CASABLANCA • COLPETTY • MALTA • MELBOURNE • WELLINGTON

## Park Visitors

CHIEF-GUIDE Charles A. Brown informs us that visitors to Kodak Park during 1937 numbered 10,057, topping by 3,535 the all-time high record set in 1936, and bringing the total number of visitors since 1914 up to 99,735. (No visitors were allowed in 1918, a War year.)

Each of the 48 states, the District of Columbia, four United States possessions—Hawaii, Puerto Rico, the Philippine Islands, and the Canal Zone—and 44 foreign countries were represented among last year's callers.

September was the heaviest visiting month; January, the lightest. More visitors came on Wednesday than on any other day of the week.

Visitors almost invariably comment on the size and cleanliness of Kodak Park, Mr. Brown reports.

## Washington Interlude

IF THOMAS J. CRAIG, head of the Repair Department, had yielded to the suggestion of Edward S. Farrow, assistant production manager of the Company, that they visit the Smithsonian Institution, we would not be telling you this story. Mr. Craig didn't yield, to his and Mr. Farrow's subsequent sorrow—and to our glee. Instead, he prevailed upon Mr. Farrow to go with him to Arlington National Cemetery.

So, feeling the need of some exercise after a long business conference, they heeled-and-toed it from their Washington, D. C., hotel to that beautiful national cemetery just across the Potomac, in old Virginia.

As they neared the Tomb of the Unknown Soldier, the hush of evening was broken by the boom of the sunset gun. For a while, they sat in the marble amphitheater in front of the Tomb. Then, in the fast-gathering dusk, they strolled back to the cemetery gate, about three-quarters of a mile away.

The gate was locked. Not a person was in sight. Mr. Craig looked at Mr. Farrow. Mr. Farrow looked at Mr. Craig. They both looked at the formidable wall that separated those silent acres, and them, from the outside world.

"Well, we climbed it," says Mr. Farrow. "There was nothing else to do. We knew of no other exit, and a cemetery is not the most cheerful

place to spend a night—especially in winter. But I still wish that Tom had come with me to the Smithsonian Institution instead."

We'll give you just one guess as to how Mr. Craig feels.

## Travel Note

FROM NEW YORK to Hong Kong, via Panama, Honolulu, Guam, and Manila, is 14,015 miles, which is just 48 miles less than the total distance covered by the four passenger elevators at the Kodak Office last year, a look at Starter "Ben" Knight's log reveals.

Elevators 1 and 4, which go to the nineteenth floor, had the largest mileage, No. 1 doing 4,130 4/10 miles and No. 4, 4,105 8/10 miles. Numbers 2 and 3—the sixteenth floor is "tops" for them—traveled 2,911 5/10 miles and 2,915 3/10 miles, respectively. (Keen rivalry you'll notice.) Total stops were 1,720,521.

The daily total of "ups and downs" was more than 54 miles.

## Why Grumble?

WITH ST. PATRICK'S DAY just around the corner, there's an anecdote that bears repeating.

An Irishman and a Dutchman were arguing about their hours of work, the Irishman contending that he should have more days off. The Dutchman didn't think so, and this was his argument:—

"Let's see just how your year goes, Pat. There are 365 days in a year. You sleep eight hours a day, which makes 122 days you sleep. That leaves 243 days, doesn't it? Now, you have eight hours' recreation a day, which makes another 122 days. Taken from 243 days, that leaves 121 days.

"Now, let's see, we have 52 Sundays in the year. That leaves 69 days. You have fourteen days' vacation, leaving 55 days. You don't work Saturday afternoons, and in a year that totals 26 days, leaving only 29 days. Now, Pat, you take one and one-half hours for lunch each day, which makes 24 days. That leaves you only five days. Then, there are Christmas, New Year's, Thanksgiving, and the Fourth of July. That leaves you exactly one day.

"And you invariably get St. Patrick's Day off, so what's biting you?"

## Gauchos, Etc.

A RECENT VISITOR to Rochester was Wallace B. Tait, manager of our Montevideo house. Montevideo, one of the world's cleanest cities, is the capital of Uruguay, the smallest republic of South America.

In Montevideo, the opticians are also photographic dealers—a tradition that dates from the early days of our expansion, when the optician was the logical person to choose because of his knowledge of lenses and optics.

Mr. Tait often makes trips through the country. There are plenty of gauchos—the "centaurs" of the pampas—in the interior. They are colorful figures, he reports, with their ponchos and their violently hued neckerchiefs.

In Spanish, the language of Uruguay, a camera is *cámara*. A box camera is *cámara de cajón*; a bellows camera, *cámara de fuelle*; and a folding camera, *cámara plegable*.

Our imaginary collection of animals, of which we boasted on this page in our last issue, was boosted considerably during our session with Mr. Tait. To the motley group we added: a tapir, a puma, a mulita, and an onza—all from Uruguay.

## Of Time and Our Error

"SOME twenty-five hundred years ago," began the article on page 6 of our last issue, "the men of the Cro-Magnon race . . ."

We're still blushing. It should, of course, have read, "Some twenty-five thousand years ago," etc. Here's the low-down on our lamentable lapse:—

The copy for the article, as it reached our desk, gave the time in digits and ciphers—25,000. We decided to spell it out. But somewhere in the shuffle, a cipher got lost and the comma strayed. By the time we missed that cipher no search party in the world could fetch it back.

That's why our statement was "off" by 22,500 years. Our sincere apologies to the Cro-Magnon men (and women); and our thanks—and compliments—to the alert Kodak Office reader who spotted the error and called it to our attention. (We can still hear his triumphant chortle.)

Well, we feel a whale of a lot better now, but you bet your life we've got our fingers firmly crossed.



## "Picture Ahead"—But Watch Your Step!

... If you don't, some of the results shown here may happen to you. The picture on the right was made from an *underexposed* negative. How do we know? Because the whole thing is dark and "muddy" looking. That means the film didn't receive enough light to bring out the proper detail and tone, especially in the shadow parts. Modern, fast films greatly reduce the danger of underexposure, but, if in doubt, it is usually better to increase the time a bit—for if the picture image isn't caught and retained on the film, nothing in the world can put it in the finished print.

The effect of *overexposure* is shown on the extreme right. Made from a dense, or "thick" negative, the print looks "washed out," especially in the face and snow areas. With the right grade of paper, however, it is easier to get a passable print from an overexposed negative than from a badly underexposed one.



Camera movement is another bugaboo. Admittedly, we've exaggerated the one on the far left a bit, so there'd be no mistake about what we are discussing. But even if the camera is moved ever so slightly during the time an exposure is being made, the whole picture will be blurred. (If you have difficulty holding a camera steady, try resting it against your body; then trip the shutter release very gently.) It usually works, for today's films, with their faster emulsions (greater sensitivity), enable us to make pictures in much shorter exposure times than was formerly possible, but even these wonder films mustn't be expected to do the impossible.

In the picture on the left, the *subject moved*. The girl's feet and skis are sharp enough—as is the rest of the picture—but she very apparently turned quickly to the left just as the exposure was made. And what a blur she is!

Pictured on the right, our *subject is out of focus*. The girl, the pine tree, and the entire foreground are indistinct and "fuzzy" looking, yet the pines and the trees back of her are sharp and clear. That means that, through error, or perhaps forgetfulness, the footage scale on the camera was set (or left at) about a hundred feet, when it should have been set about eight feet.

And last—a print from a *properly exposed* negative, in which the camera was held steady, the subject stood still, and the footage scale was set for the correct distance. The picture was taken on rather a dull day (Rochester sunshine and the magazine dead line just couldn't get together) but the print has the same relative contrasts and looks very much like the original scene. There is good contrast between the highlights and shadows, and there is a pleasing amount of detail in them.





# THE EDITOR'S PAGE

## Australia and Kodak

EVERY SCHOOLBOY KNOWS that Australia is the home of the kangaroo, the platypus—a duck-billed, four-legged, webbed-footed, fur-bearing animal that lays eggs—and the eucalyptus-eating koala or “Teddy bear,” or—to give him his scientific name—*Phascolarctos cinereus*.

Every Kodak employee knows that it is the home of the only Kodak factory south of the Equator, the Kodak Laboratories, situated on the outskirts of the great city of Melbourne. Our description of this plant, in this issue, is brief, but we hope that it will give you some idea of what life is like “down

under.” . . . The Twelfth Annual Kodak International Salon shares a unique distinction this year. To quote from a letter from a colleague in Australia: “We are looking forward to making this salon one of the largest and most prominent as far as Australia is concerned, because of the fact of its harmonizing with the 150th Anniversary celebrations.”

The celebrations, commemorating Australia's settlement, commenced on January 26th and will continue until April 25th. Sydney, the largest city in Australia, will be the center of the Anniversary program. . . . The stamps on this page, reproduced from photostatic copies sent us by Edgar Rouse, managing director of Kodak Australasia, were issued in New Zealand. Mr. Rouse happened to read in an earlier issue of KODAK of some ardent collectors in our large family. He prizes his because of the Kodak advertisements that appear on the selvages. The supply was exhausted in December, 1928.

## Real Saving

AS MARCH 1ST draws near, and with it the distribution of the Company's 26th wage dividend, the following statement made many years ago by Mr. Eastman seems well worth repeating:—

“Systematic saving is the basis of future prosperity and independence. I saved the first money I ever earned (five dollars for sawing brackets), and I saved thirty-seven dollars out of my first year's earnings of three dollars per week, as office boy.

“When the time came for me to engage in business for

myself, I had accumulated about four thousand dollars out of my wages as a clerk and bookkeeper.

“I would not have had the courage to leave my position, or perhaps would have been hopelessly handicapped, had I not saved an amount sufficient to warrant such a serious undertaking.

“The best method of systematic saving is the planning and carrying out of a personal or family budget system. With the budget, you can plan your income intelligently and, at the end of each month and year, know exactly where you stand; and you can put aside a definite amount to be saved for some specific purpose.

“Real saving means regularly putting aside a definite amount to meet some of the bigger needs—not saving for a few weeks or months and then spending the money for something you could have done without.”

The Eastman Savings and Loan Association has helped thousands of Kodak people to save since it first opened its doors seventeen years ago.

## Safety Awards

THE CLOSE, in late December, of the annual state-wide accident prevention campaign of Associated Industries of New York State, Incorporated, found Kodak ranking high in the war against loss of lives, limbs, and money.

Three Kodak Park departments were group winners: the Sundries Department; the Paper Mill; and the Chemical Plant. Though an accident occurred in the Paper Mill, it still led all others in its group in the competition.

Hawk-Eye received a certificate of merit. A single accident that entailed 28 hours of lost time put group honors just out of reach.

The film-manufacturing division, of Kodak Park, and the Camera Works had several minor accidents that prevented their receiving awards, although their record throughout the competition was very high.

More than five hundred industrial concerns participated in the campaign. Total number of employees participating was 220,000; and the total hours worked exceeded 100,000,000.

We all believe in “Safety First.” Do we always practice it? In our jobs, we should always have respect for the safeguards that are there for our benefit. And if we have safety suggestions to make, there's a suggestion box for our convenience in every department.

In our homes, it is up to us to apply the rules we learn in the plant—especially if we have children.

On the highway, and this is particularly true if we drive, it is our duty to obey the laws—laid down for our protection—and to respect the rights of the other fellow.

“Safety First” is a splendid maxim; don't forget it!



# High Spots from the Life of a Half Tone

## Photography Is The Initial Step and The Basis of All Forms of Photoengraving

PHOTO-REPRODUCTION can, like ancient Gaul, be divided into three parts: the *intaglio* process—commonly used in rotogravure sections of Sunday newspapers and magazine supplements; *surface* prints—such as those produced by the offset process—used extensively for magazine covers and other illustrations; and *relief* engravings—like printing types, line drawings, and half tones—used for letterpress printing.

Lest we get lost in a maze of more or less unfamiliar terms, we'll promise to deal only with the latter in this story—and for two reasons. Relief illustrations are widely used today; and, what will probably interest you more, it is by one form of relief process—the half-tone process—that the illustrations in our own magazine are made. This fascinating work is done right here in the Company, in the Engraving Department, at the Kodak Office.

Any copy that is to be reproduced can be classified either as "continuous tones"—such as photographs, paintings, and wash drawings; or as "linework"—typified by pen drawings, woodcuts, and steel engravings. A picture to be rendered in "line" does not need a half-tone screen; but a "continuous tone" illustration can only be reproduced by means of the half-tone process. This process not only reproduces the continuous tones of the original, but translates or converts those tones into minute printing surfaces that, when reproduced on paper, will re-create them in a mosaic pattern in a manner that is satisfactory to the eye, and that is

accepted by it as a continuous whole.

... But what is a half tone?

A half tone is so called because it shows intermediate or middle tones. That is, a black-and-white half tone really consists of solid black and white; although it apparently also contains gray. But since there is only white paper and black printing ink, put on in one even thickness, any effect of tone must be an illusion. It is, really. It is caused by two things—the distribution of ink in relation to the white paper, on the one hand; and to the limitations of human eyesight, on the other.

If a half-tone illustration is examined under a powerful magnifying glass, it will be seen that it is composed of thousands of tiny dots, all of the same color, but of different sizes. In the light tone areas, the dots are small with a relatively large amount of white paper around them, while in dark tone areas the dots are large with a relatively small amount of white paper showing between them.

### When the Eye is Naked

These dots are so small (there are 17,689 of them to every square inch of the pictures used in KODAK; 22,500, per square inch of the cover pictures) that the naked eye does not distinguish them separately, but blends the varying relative amounts of black ink and white paper together, and so gets the effect of different tones.

"Come again," you say. "What makes the dots?" "And how can they be made exactly the size desired?"

It is here that the famous half-tone screen enters the picture. These much-talked-of screens are formed by very fine parallel lines ruled diagonally (from upper left to lower right) across a clear glass plate.

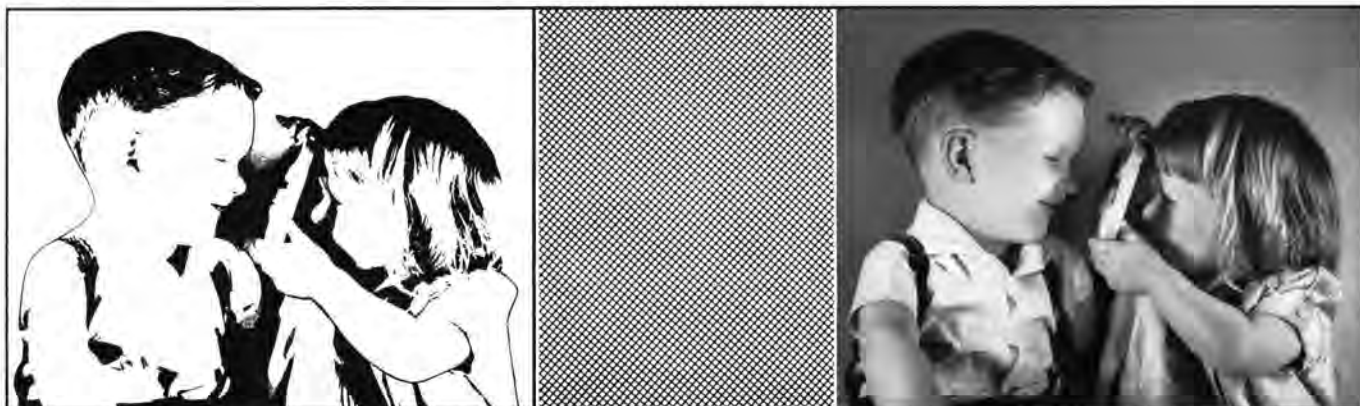
Another set of lines is ruled on the opposite diagonal on a second glass plate. The two glasses are then placed face to face so that the lines cross each other at right angles, and the edges are firmly cemented together. Thus is formed a very fine cross-line screen, or grating, through which light can pass.

The screen used in making the cover illustrations for KODAK has 150 lines ruled to the inch. Our inside illustrations are made with a 133-line screen. Both of these require high-grade, coated paper stock and careful printing if the most satisfactory results are to be obtained.

Half tones in a great many magazines are made with a 120-line screen, while those in newspapers run around 60 lines. The more lines to the inch, the "finer" the screen is said to be. And the finer the screen, the more detail will appear in the finished reproduction.

But to get on with our story. When a half-tone cut is to be made, the original copy with its accompanying order—on which is indicated the desired size and screen mesh of the finished cut—goes to the office of the head of the department for a preliminary checkup and for any special directions that may be necessary. It is then sent into the art room, where it is inspected carefully by one of the artists connected with the Engraving Department, and where any necessary retouching, designing, or "spotting" is done. From here, the copy passes along to one of the photographers. (These men are the guardians of the all-important half-tone screens.) The original is fastened up on a copy board, and is carefully and evenly lighted by are lights—daylight can

(Continued on page 10)



Not a line drawing, nor a woodcut, nor even a linoleum-block print on the left—but an engraving from a photograph, made without a half-tone screen. When the magic screen, shown above in an enlarged section, is used, all the tones and shades of the original are faithfully reproduced



# Major Steps in Making a Half Tone.....



1. Even the best of photographs may need a bit of spotting or a little art work before it starts out to become a half tone



2. Careful checking to get the proper screen distance (above) and judging the correct exposure to give require experience and skill



5. After the negative has been stripped from its glass or film support, it is reversed, and "dried down" on a heavy glass plate



6. With the aid of a 50,000-candle-power arc light, and a vacuum printing frame, a print is then made on a sensitized copper plate



9. A "re-etcher" protects parts of the plate again with an acid-resisting solution, before sending it back for further etching



10. A skilled "finisher" then works on the plate by hand and, with the aid of various special tools, eliminates any small defects

# .....A Tour of Our Engraving Department



3. Light—reflected from the copy—passes through the half-tone screen and strikes the light-sensitive emulsion on the film



4. The developed image appears on the negative as a multitude of minute dots—for the half-tone screen did its work in the camera



7. The developed plate is coated with an acid-resisting enamel that is "burned in"—to harden the enamel and protect the image



8. An "etch" bath eats away parts unprotected by the enamel coating—and leaves a surface covered with tiny, raised dots



11. A proof is pulled and compared with the original photograph. If no further work is required, the plate moves on another step



12. Finally, the cut's edges are beveled. Then, mounted on a block of wood, it is ready for printing (see inside back cover)



## Highlights

(Continued from page 7)

not be used because it is neither bright enough nor uniform enough. The half-tone screen designated on the order is then placed at the correct distance in front of the plate or film on which the print is to be photographed, and the exposure is made.

The proper placement of the screen is all important, for it is the screen, splitting up the light by its minute gratings, that makes the resulting dots on the negative. Between getting his screen at the proper distance, and taking care that he neither under- nor overexposes his negatives, it is easy to see that life, for a photographer, is far from monotonous.

After the half-tone negative has been exposed, it is developed—much as many of us develop our roll or cut film; but with a great deal more exactness and care than most of us exercise, we suspect. The next step is to print it, not on paper, as we might think, but on metal—copper or zinc.

### A Rapid Whirl

A light-sensitive compound (composed of photoengraving glue, ammonium bichromate, and water) is first flowed over a sheet of highly polished metal, which in turn is whirled rapidly over low heat until the wet surface is entirely dry and even. (This sensitive substance has the curious property of becoming insoluble in water wherever it has been acted upon by light.) The highly polished, sensitized metal plate is then placed in a large vacuum-printing frame, in perfect contact with the negative—which has previously been stripped, in reverse, onto a glass plate, so that the left and right of the picture will be correct in the finished print. The two are exposed to the strong light of a powerful arc light for the time required to print the image on the plate, which is then developed in—water.

Where light has passed through the transparent areas of the negative and struck the plate, the gluey surface is insoluble. Wherever the light has not penetrated, the surface is soluble and washes away, leaving only the original design or picture on the metal. We now have a copper plate covered with minute spots of glue, alternating with spots of bare copper.

But prints in quantity can not be made from the plate at this stage. It is necessary first to eat away and below the top surface the unwanted or non-printing spots of bare metal, leaving the image (the parts covered



Actually a dot mosaic, yet, if held at ordinary reading distance, the eye accepts this 133-line half tone as a continuous whole

by the glue) standing in bold relief. The glue, insoluble in water, is not, however, insoluble in the acid that will be used to eat away the copper, so it must be made insoluble. Heat does the trick. When the plate is heated over a flame or in an oven to about 500 degrees Fahrenheit for a short time, and then cooled suddenly, the gluey coating is "burned in" and hardens into an acid-resisting enamel. Then the back of the plate is covered with acid-resisting shellac for protection, and it is ready for "etching." This biting-away process is done in an iron perchloride bath, into which the plate goes for some 14 to 18 minutes. This is the rough- or flat-etch stage. The acid, of course, bites sideways as well as downward, so the plate must be watched carefully and removed before the finest dots are undercut, or eaten away.

### A Well Groomed Plate

After the flat etch, the plate is rinsed, dried, and then thoroughly brushed, to remove any slight residue left by the acid bath. It passes along to a "proofer," who pulls a "flat proof" on paper. Here—for the first time—we see the picture somewhat as it will look when it is finished. At this stage it hasn't enough contrast—it still lacks the nice highlights and shadows we saw in the original—but we needn't worry, for that will all be taken care of. There is handwork to be done now, by men who are called "finishers."

Chalk, rubbed lightly over the surface of the plate—from which the ink has been cleaned—brings the picture up and enables the finisher to see what



But this 7-times enlarged section shows clearly the part played by the dots. Viewed 10 feet away it, too, looks like a photograph

needs to be done. He compares the flat proof and the plate with the original copy, notes the places that have been etched enough, and "paints out" all of these—covers them up and protects them with an acid-resisting ink (like the enamel we mentioned farther back). Then the plate goes into the bath again for a "re-etch." This painting out of different parts, and re-etching, goes on as many times as the finisher thinks are necessary to make the half-tone plate a perfect pictorial reproduction of the original copy—on the average, some two or three times.

When the finisher is satisfied with the plate he sends it on to another man—a "router"—who cuts off any excess metal, bevels the edges of the cut, and mounts it. When, as in magazines like KODAK, the cuts are to be locked in a form and printed along with type, they are mounted on wooden blocks. The thickness of the combined plate and its mount must measure exactly the height of the type, which is .9186 of an inch. The edges of the mount must be smooth and true, or it will not lock up accurately with the type and other plates that may be used on the same page. This last step, like all the previous steps, demands great care.

As we promised at the beginning of our story, we've only recounted the high spots in the life history of a half tone. Half tones, however, are only a part of the interesting work done in the Engraving Department. Line etchings, combinations, and color plates—all are brought to life under the hands of these skilled men. Some day, we'll tell you more about it.

# Introducing: The Sound Kodascope Special

WITH THE SHOWING of some short musical and dialogue films and *Don Juan*—a full-length, silent film with a mechanically reproduced musical accompaniment—at the Manhattan Opera House on August 16th, 1926, the talking picture made its debut.

The spontaneous enthusiasm that greeted *The Jazz Singer* in the following year sounded the death knell of the silent movie. Cinemas all over the world were wired for sound.

The first talking pictures were poor, judged by today's standards, but progress in the new field was rapid and the "talkie" has long ceased to be a novelty . . . even in the amateur-movie field.

Sound-projecting equipment for the amateur has been available since 1932, and sound recorders, since 1933. The Eastman Kodak Company has not been behindhand in its development in this field, although it wisely refrained from putting sound equipment on the market until it was satisfied that the highest quality of sound was reproduced by it. This has now been achieved in the Sound Kodascope Special, which is of such high quality that it has actually been adopted as a standard by some leading sound laboratories.

## Years of Research

The Special is a 16-millimeter sound projector, mechanically and scientifically superior to all others yet produced. Many years of work in the Research Laboratories, backed by wide experience in the general field of sound recording and reproducing, and close coöperation by the Development Department, have resulted in this outstanding piece of apparatus. It was built in the Precision Instrument Shop of the Hawk-Eye Works, home of the Ciné-Kodak Special.

The bold departure of the Sound Kodascope from conventional projector design is apparent from a first glance. Its mechanism is enclosed in a removable, cast-aluminum case—less than sixteen inches high, and measuring eleven inches from front to back and eight inches wide—in which chromium bands contrast with a rubbed lacquer finish.

Likewise apparent from the outset are the convenience and simplicity of the machine. No baffling array of mechanism meets the eye—even the film-threading path is partially enclosed.

The projector uses 1,600-foot reels, the take-up reel operating at right

angles to the feed reel (see picture) instead of projecting forward, thus making for compactness. An added advantage offered by this construction is that the film is given a half-twist and enters the take-up reel at a slight angle, thereby lessening any danger of scraping against the outer flanges of the reel. For rewinding, the upper reel swings into line with the lower reel.

Automatic loop-formers insure perfect sound synchronization and simplify film threading (it's virtually impossible to thread the film improperly).

The standard lens is a 2-inch, *f*.1.6 projection lens; and a 4-inch, *f*.1.6 lens is also available.

New developments at the Hawk-Eye Works have made possible the construction of an entirely new type of lens, which is used in the sound-optical system of the Sound Kodascope Special. This makes possible an unusually efficient "scanning beam"—the optical equivalent of a phonograph needle—and gives a faithful reproduction of frequencies in the 100- to 6,000-cycle range, which is approximately the tone range reproduced by the highest quality radio.

Sound drive and intermittent mechanism run into an oil bath, thus giving especially silent operation (the "purr" of the Sound Kodascope Special is barely audible even in a small room), reducing wear, and keeping the parts clean.

A special feature of the Sound Kodascope Special's sound-optical system is a variable focus by means of which sound on either reversal or duplicate films may be reproduced.



The Special is compact: note take-up reel



Interchangeable lenses are another feature



Handsome product, new high in performance



Speaker back of case forms base for screen



# Here's Where Kodak Quality Begins

*In its last five issues, KODAK has presented articles on various factors that affect the economic growth of our company, explaining Kodak's policy in each case. The article that follows deals with the Company's development of a reliable and uniform raw-material supply and, taking three examples, shows how this policy has influenced our expansion and our opportunities for employment.*

ONE OF THE INGREDIENTS of the mysterious drug that enabled the gay Dr. Jekyll to transform himself into the fiendish Mr. Hyde was, you will remember, a very special salt. His supply of this salt ran out at a critical moment indeed, when Mr. Hyde, by this time a fugitive from the hangman, frantically sought the safety which could come only from a permanent return to his original shape of Dr. Jekyll.

"I sent out for a fresh supply," says Dr. Jekyll, "and mixed the draught . . . I drank it and it was without efficiency. . . . I am now persuaded that my first supply was impure, and that it was that unknown impurity which lent efficacy to the draught."

Thus, in Robert Louis Stevenson's gruesome story, *Dr. Jekyll and Mr. Hyde*, a man's life depended upon a steady supply of a uniform raw material.

It is not stretching the analogy too far to say that sometimes the life of a business organization may also depend upon certain precise qualities in its raw-material supply. At the very beginning of Mr. Eastman's enterprise, which began, officially, with the manufacture of gelatine dry plates in a loft of a State Street factory building, the disadvantages of a supply of raw material that was not of consistent quality were forcefully made apparent.

## Success—Chaos

Mr. Eastman used to mix the emulsion at night. The next day, it would be applied by his "factory" force, which then consisted of one hired assistant. Gradually, the business expanded. Success seemed assured. And then—chaos. From all parts of the country to the wholesaler who handled the distribution of the plates came the complaint that they were dead, that they had lost their sensitiveness. Mr. Eastman recalled the stock and promised to replace the plates. But, though he tried and

tried, he could not produce a good emulsion. The factory was closed through many anxious weeks. It looked as if it might remain so indefinitely. Then, Mr. Eastman made a trip to England and found that his difficulty was entirely due to a change in his gelatine and not to the formula, process, or chemicals. With an adjustment of the formula and the process to meet the change in the gelatine, the factory was soon turning out satisfactory plates and the defective plates were replaced.

Mr. Eastman had learned the costly lesson of how a variation in a raw material may impair the quality of our finished product, cause disappointment to the customer and, if not controlled, seriously affect the success of the business and the employment of all engaged in it. Thus early was it shown that without proper raw-material control the most painstaking efforts to maintain quality throughout the manufacturing process would be unavailing. To meet this problem an exhaustive method of testing has been developed.

All materials that go into our products are tested before acceptance to see if they are up to the rigid specifications which have now been established or if they contain anything that might affect the quality of the finished goods. Later inspection of goods in manufacture will disclose defects before our finished products are offered for sale. Nevertheless, a

failure to find variations in raw materials may involve the waste of other materials and part, if not all, of the time consumed in manufacture. It may interrupt production schedules and result in irregularity of employment. For all these reasons, the most careful examinations of raw materials are essential.

## Mustard Oil

The need for sufficient quantities of materials of a grade to meet our requirements has led in many cases to the development of our own sources of supply. The requirements for photographic gelatine are even more exacting than for the best grades of the edible types. Although adequate testing methods had prevented a recurrence of Mr. Eastman's early difficulties, the manufacture of gelatine was begun at Kodak Park in 1911 in order to insure a sufficient supply of the highest quality.

Photographic gelatine is made, not from cows' hoofs as many suppose, but from clippings from the skins of calves. In 1925, the Research Laboratories discovered that the sensitizing quality of the gelatine depended upon the presence in it, in minute quantities, of a substance which itself had sensitizing qualities.

This substance was identified as mustard oil. The amount of mustard oil present in the gelatine is very small—a ton contains only a few drops—but this discovery was one of the most valuable advances made in photography for more than a quarter of a century. It proved that the sensitivity of photographic film depends upon specks too small to be seen in the microscope, and that these specks are derived from the mustard oil in the gelatine. (Shades of Dr. Jekyll and Mr. Hyde!)

## Expanding Sources

The Company's production of gelatine has steadily increased and the plant at Kodak Park is one of the largest photographic-gelatine factories in the world. In 1930, we acquired an existing plant at Peabody, Massachusetts, to further extend our manufacture of this important raw material.

Sometimes, the development of the Company's raw-material supply has led to the development of other important products. The most striking example of this, perhaps, is afforded by the Tennessee Eastman



Quality begins with the raw material, and rigid tests, from raw material to finished product, insure the maintenance of Kodak's high standards. This picture shows a dye test under way on Eastman Acetate Rayon

Corporation, which within eighteen years has grown from a small group of buildings on a 35-acre site to 86 buildings on a site of 372 acres, the second largest of our plants.

If such an expansion is surprising, still more so is the story behind it. Briefly, it is this:—

A steady supply of wood alcohol (methanol, to give it its technical name) is necessary for use in the manufacture of photographic films at Kodak Park. During the War, the government needed all the wood alcohol it could get and as a result our supply, bought from a distributor, was threatened. To insure against such a danger in the future, the Company organized the Tennessee Eastman Corporation to purchase an existing wood-alcohol plant and to buy timberland and timber rights in four southern states.

### What a Demand Did

Wood alcohol, along with several valuable by-products, is derived chiefly from waste timber. One of these by-products is acetic acid. The introduction of the home movie, in 1923, and the demand for safety film for that and other purposes made it advisable to put the manufacture of cellulose acetate, the primary material for this type of film, on a large and permanent basis. As acetic acid is one of the chief raw materials of cellulose acetate, Tennessee Eastman was the logical plant to take over acetate manufacture. By an addition to the processes, acetic anhydride, the second essential in the production of cellulose acetate, was obtained. Cotton, the other necessary raw material, was "right next door."

Years of experimentation and production in Rochester preceded the operation of the first cellulose-acetate unit at Kingsport, in 1930. Since then, the plant's capacity for making cellulose acetate has been expanded by more than ten times.

The manufacture of cellulose acetate has led to the production, at Tennessee Eastman, of, among other things, Eastman Acetate Rayon, used for making fabrics and hosiery; and Tenite, from which are made various automobile accessories and gadgets, costume jewelry, combs, and a host of other articles.

Yes, our plant beside the Holston River offers several graphic examples of the Company's policy of developing to the utmost its raw-material supplies, a policy that has been reflected in the growth in Tennessee Eastman's man power. Eight years ago, it employed some four hundred

## The Rhythm of the Railings



"The Snow Fence": this photograph, noteworthy for its simplicity as well as its remarkable rhythmic quality, was taken by Chester W. Wheeler, of Building 29, Kodak Park. It was hung in the 1937 International Salon of the Oval Table Society. Mr. Wheeler likes snow scenes; he took the photograph that appeared on the front cover of the last issue of KODAK

persons; today, its force numbers 4,600.

The story of how we entered the papermaking business, which brings us back to Kodak Park and a mill that has no peer in the world in the manufacture of photographic paper, gives yet another example of the importance of a steady raw-material supply.

For many years, our paper came from Europe. We had, however, a small one-machine mill at Kodak Park, and when the War broke out and endangered our supply, we expanded our process.

### Rags and Rosin

The first paper manufactured at Kodak Park was from the best new white rags available—mostly waste from the textile mills. The paper was sized with rosin to give it a better surface and strength. This had been accepted for very many years by papermakers throughout the world as the best process, but it is characteristic of rosin to oxidize and eventually turn yellow, thus affecting both the paper and the emulsion coating upon it. Not only did it affect the picture in the hands of the customer, but also the "keeping" quality of unexposed photographic material.

In addition, there was a great variation in rags. Long-staple cotton rags would come in one bale, short-staple in another. Some rags were

carefully bleached, others had been subjected to excessive bleaching action. The use of different materials for textiles reduced the available supply of rag materials suitable for photographic paper. All this presented a problem.

This problem was twofold: First, to secure a raw-material supply that would be adequate and uniform; second, to develop a sizing agent without the disadvantages of rosin.

To meet the situation, the Company turned to wood, which was at least uniform, although no really high-grade paper had been obtained from it up to that time. Through coöperation with wood-pulp manufacturers, and after years of research and experiment, the material sought was finally secured. During the same period, experiments had been carried on with various sizing materials, and a new agent was discovered that had surfacing qualities equal to rosin but which in no way injured the wood fibers or affected the sensitive emulsion. Today, the Paper Mill manufactures photographic paper that is as permanent as the silver image it carries—provided that it is properly processed.

Our work with gelatine, cellulose acetate, and paper are outstanding examples of the development, and conservation, of raw-material supplies, but many others are to be found.

(Continued on page 16)





# OUT OF THE HAT

Well, the draw goes on gaily, and this time we have: a builder of ship models (his nephews got him going); an old friend from China (where women wear trousers); and an expert swimmer (he's a life-saving examiner). And now, read on.

## Ship Builder

Four years ago, John M. Lehle, of Hawk-Eye, decided he'd build a few ship models for his nephews—there are half a dozen of 'em, all told. Pausing for a checkup the other day, Mr. Lehle found he has already turned out enough ships to supply fifty nephews.

Six of Mr. Lehle's models are authentic, full-rigged ships; the others are racing types. The biggest model is the *Crusader*—72 inches from stem to stern, 13½ inches in beam, and 37 gross poundage. Tying for smallest are several 18-inchers (1¾ gross poundage). One of these, the *Toy*, captured the prize in its class at the Board of Education races in Rochester last year. Lehle boats have also won cups and plaques in Syracuse.

Movie fans in Rochester have probably seen the good ship *Crusader*. It was on exhibition at a local theater during the run of "Captains Courageous." And other models have been on display at various times in this

city. Mr. Lehle has also made a model of the *Bounty*, by the way.

Mr. Lehle's equipment is by no means elaborate—a gouging chisel, plane, files and rasps, drills, gig saw, a small bench drill, polishing head, and an emery head. He makes his own screws and brass parts, uses airplane silk for sails.

Though he tried his hand at model-building as a boy, Mr. Lehle didn't take it up seriously until his sudden impulse on his nephews' account. His first real venture into woodwork took place shortly after he got married, when he made a Martha Washington sewing cabinet for his wife. He copied it from one he saw in a store window, was so pleased with the results that he soon produced cedar chests and, after these, smokers' stands.

At Hawk-Eye since 1913, Mr. Lehle is keen on skating, camping, and gardening. "But the model-building bug has got me hard," he says. A preacher of what he practices, he is now busy organizing a model-yacht club that will promote model-building in the schools, and showing some young neighbors how to build their own.

## Traveler

We write from left to right; they write from top to bottom. Men wear trousers in Europe; women wear them in China. . . .

Eleven of Morley C. Reid's 27 years with the Company have been spent at the Shanghai Branch, where



Morley C. Reid: he gets there

he has charge of photographic technique, and of motion-picture, Ciné-Kodak, and x-ray film.

In the course of his duties, Mr. Reid does a good deal of traveling, using many of the varied means of transportation there are in China. He says that, rumor to the contrary, he has rarely found it necessary to travel by sampan, junk, or camel.

China, of course, does not lack modern means of transportation. Mr. Reid travels like any of us when he goes north to the sub-branches at Dairen and Tientsin or south to the Hong Kong sub-branch. But some of his journeying happens to have been to remote rural districts—to advise hospitals and medical missions on the use of x-ray film.

He takes it all in his stride. "When your job calls upon you to go somewhere—well, you get there, don't you," he says. Which about sums up the spirit of all the men in Kodak's export territory.

Many Chinese provinces, Mr. Reid informs us, are named according to their geographical relation to a river (*ho* or *kiang*), lake (*hu*), or mountain (*shan*). For instance; Hopei means, "north of the river"; Hunan, "south of the lake"; Shantung, "east of the mountain"; and Kiangsi, "west of the river."

Joining the Company in 1910, Mr. Reid worked for some years in the Eastman Kodak Stores, Boston (which was then known as the Robey-French Company).

During the War, he served with the aerial-photography division, being one



John M. Lehle: he paused for a checkup the other day

of the first six in Rochester to volunteer for that branch.

His transfer to the Shanghai Branch followed a period with the Service Department, at the Kodak Office.

### Swimming Teacher

With inner tubes and the helping hand of a friend, George H. Bauman, of the Repair Shop, the Kodak Office, learned to swim in a real honest-to-goodness "old swimming hole." By the end of three months, he was doing a hundred yards with a fair amount of ease.

Now, Mr. Bauman, as a lifesaving examiner and swimming coach, has his pupils doing the length of an indoor pool within a week, the breadth in a single evening. "Overcoming peoples' fear of the water is the hardest part of a swimming teacher's job," he says. "Once you've accomplished that, it's plain sailing—swimming, rather."

The crawl is the fastest stroke there is, according to Mr. Bauman. It is also the most difficult to learn. "People just won't kick their legs properly. They kick from the knees rather than from the hips. Also, they are nervous about breathing."

Mr. Bauman became a lifesaving examiner a year ago. There are some thirty-five examiners in Rochester. They operate under the American National Red Cross. Once a year, they meet for a week's instruction.

In July of last year, Mr. Bauman saved a man from drowning in Lake Ontario. He received a certificate from the American National Red Cross, signed by President Roosevelt and the president of the Red Cross.

Mr. Bauman stays away from the water once in a while and goes in for skiing, tobogganing, skating, tennis, golf, and squash.



George E. Bauman: people won't kick

## Recent Company Appointments



James E. McGhee, general sales manager

JAMES E. MCGHEE was appointed general sales manager of the Eastman Kodak Company on December 24th, 1937.

The new sales manager joined the Company in the summer of 1920 and served in the field for six and a half years as a demonstrator in the medical division, contacting users of x-ray film. Through his pleasant personality, he formed many friendships that have lasted throughout the ensuing years.

He was transferred to the Chicago Branch in 1927 as assistant branch manager.

Entering the Sales Department in 1931, Mr. McGhee was appointed as assistant to Herman C. Sievers in the following year. He remained in that position until his appointment as assistant general sales manager at the beginning of 1935.

The position Mr. McGhee now fills had been vacant for three years, since Mr. Sievers, former general sales manager, was elected vice-president of the Company in charge of sales and advertising.

Mr. McGhee was graduated from the University of Rochester in 1920, the War having broken a course begun at Wesleyan University. He entered the Army in April, 1917, and was commissioned a second lieutenant of infantry. During his overseas service, with the 81st Division, he was promoted to first lieutenant.

WITH HIS APPOINTMENT to the position of Rochester export-sales manager of the Eastman Kodak Company,



F. P. Root, export-sales manager

F. P. Root, who held the post of assistant export-sales manager since 1921, takes charge of a territory in whose development he played an active part. He succeeds Domingo E. Delgado, who died on November 11th, 1937.

Mr. Root entered the Company's employ at the Chicago Branch in 1905 and remained there as assistant to the manager until 1915, when he was sent by the Company to open our first sales-export house in Argentina.

The Rochester sales-export field today embraces a large territory, employing some 650 persons in thirteen companies. Mr. Root personally organized and established eight of these companies: Kodak Argentina, Ltda., Kodak Mexicana, Ltda., Eastman Kodak Company, Shanghai, Kodak Chilena, Ltda., Kodak Cubana, Ltda., Kodak Philippines, Ltda., Kodak Hawaii, Ltda., and Kodak Japan, Ltd.

In the course of his travels to far-off places, Mr. Root has had some thrilling experiences. To mention but a few: a collision in the China Sea; a four-day typhoon while en route from Shanghai to San Francisco (the ship, with radio disabled, was reported lost); an unusually rough voyage from Brazil to France—the propeller was broken leaving harbor and had only two blades; and a severe earthquake in Guatemala.

Many languages are spoken in the sales-export territory and Mr. Root has what he terms "a smattering" of Chinese, Japanese, Spanish, French, Portuguese, and Italian. His hobby is collecting and building ship models.



# "Of Shoes — and Ships — and Sealing Wax"

## The Walrus Could Discover Many Other Topics In This Department At Kodak Park

IRON, steel, copper, nickel—tons of these metals are to be found at Kodak Park West. Not in mines are they, but stacked in great mounds . . . overflowing from huge containers . . . in orderly rows in several sheds.

Old machines, tools, odds and ends from the metal shops, metal sawdust and borings—there's something from every part of Kodak Park in the large and valuable junk heap. Last year, Kodak Park's Salvage and Reclamation Department handled \$260,000 worth of materials, and the items ranged from a light socket to a printing press.

To give an idea: there were, 49,000 pounds of brass; 80,644 pounds of copper; 5,063,025 pounds of iron; 3,756,580 pounds of scrap paper; and 326,710 pounds of burlap bags, felts, and other fabrics.

Varied, indeed, are the destinies of the different things that go into Kodak Park's junk heap. That steel may some day form a cable or a truss in some new bridge—those of the new San Francisco bridge, for example, were composed largely of scrap—or become a gleaming spike atop the tower of a skyscraper—like that of the Chrysler Building, in New York. . . . Yes, it has a thousand and one possible fates—but before its "reincarnation" comes rejuvenation, with ordeals by tooth and fire, when the alligator jaws of motor-driven shears crunch it up into specified lengths,

and when it is fed into open-hearth furnaces to be reduced to a quivering molten mass.

In striking contrast is the fate of scratched photographic plates. Even very small scratches make them useless for photography. They are eagerly sought by novelty dealers for use as tops of puzzle containers, in inexpensive picture frames, and so on.

Empty wooden boxes are sold to a nut and bolt concern.

Wool filter felt—used for filtering dope—is bought by a blanket manufacturer.

Most of the scrap piping ends its days near, if not in, a bed of roses: it is eagerly sought for use in greenhouses.

Used boiler tubes wind up, for the most part, as supports for family clotheslines.

Scrap paper—wrappings, box-cuttings, waste from offices and departments—is sold to a mill that turns it into chip board.

In the 25 years since the Salvage and Reclamation Department was established, it has made a gross profit of more than two million dollars.

"There's a dealer for everything," says Thomas Frost, head of the department, "but don't think that we sell everything. Our job is really the organized saving of materials that have further active life—the reclamation of secondhand valves, for instance, is worth more than five thousand dollars a year—and the converting of material that might otherwise be a hazard into cash."

With seventeen full-time employees, the department is a beehive of

## Activities Calendar

- February 12—Camera Works basketball; in the Kodak Office auditorium
- February 15—K. O. R. C. snapshot awards
- February 16—Camera Works smoker
- Mid-February—Hawk-Eye girls' party  
—K. P. A. A. table tennis
- Late February—Men's interplant bowling tournament, for Lovejoy Trophy  
—Camera Works girls' annual party
- March 3—Camera Club meeting
- March 7—Kodak Office Book Club
- March 9—Camera Works bingo party
- Early March—Kodak Office men's shuffleboard pair championship
- Late March—Kodak Office girls' party
- April 7—Camera Club meeting
- April 13—Camera Works card party
- April 15—K. O. R. C. snapshot awards

activity. There is nothing haphazard about the handling of materials, however worthless they might appear to the mere layman. Everything is carefully graded according to most rigid specifications.

Dealing in junk is a big business. More than five hundred million dollars was paid out for junk in the United States last year.

## Where Quality Begins

(Continued from page 13)

A great many things contribute to the fineness of the products which our Company makes and which, in turn, have made our Company—have brought about its steady growth and increasing opportunities for employment. Some of these we have described in other issues of KODAK: the development of improved methods and processes; the constant research activities, both in laboratory and production departments; the search for new products—all are conducted with the aim to offer goods that will bring satisfaction to our customers.

But in order to meet our standards in finished goods, we must be able to rely on the quality and uniformity of the raw materials we use. Mr. Eastman's early experience emphasized this as strikingly as did the fictitious case of Dr. Jekyll and Mr. Hyde. No later efforts can compensate for the lack of the proper ingredients. Quality begins with the raw material.



From Kodak junk heap to dealer's yard: into the freight car goes a pile of assorted scrap



This interesting "angle shot" won an award for outstanding quality in a contest that followed an eight-week photography course for a group of new employees. The spire of St. Patrick's Cathedral, in the foreground, dwarfs the tall, familiar tower of the Kodak Office



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