

# TPHS Newsletter

*—founded 1966—*

## MEETINGS

**7:30 PM, 3<sup>rd</sup> Thursday**

*Visual Studies Workshop*

31 Prince Street  
(corner University Ave.)  
Rochester, New York

**NOTE:** Entrance in the rear, only 7:15-7:35pm  
Held *Jan, Feb, Mar, Apr, May, June, Sep, Oct, Nov*

## JOIN US

**Annual Dues, Jan 1**

Individual, \$20  
Family, \$30

**Payable to**

TPHS  
POB 10342  
Rochester NY 14610

## CONTACT US

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### May 18 Meeting — *The Grand Show & Tell*

#### Please bring something to show & tell

Everyone interested in the history of photography, collector or scholar, has something special related to photography. A thing, an experience, an anecdote. A strange accessory (four-legged tripod), your first camera, your photograph that won a prize, the location of your first make-shift darkroom, meeting a famous photographer, getting chased for taking a photograph, a darkroom disaster, a book, your greatest photographic treasure.

Take a minute, two minutes, but not more than three, unless the audience is spellbound with your presentation. Bring more than one item if you wish, in case there is time to go around again.

### April 20 Meeting Speaker — **Ali Feser**

*After Analog: an Historical Ethnography of Chemical Photography in the Imaging Capital of the World*



### July 21 — **Open House at the Bloemendaals**

Jack & Sharon Bloemendaal invite members and visitors to attend an open house from 7 to 10 p.m. on Friday, July 21 at 82 Quentin Rd., off Browncroft Blvd. in the city. As this event coincided with a snowstorm in December, we felt that the weather should not be a problem. Questions? Call (585) 288-6359. Please note that this is a Friday!

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**News Alerts**

Nick Graver  
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**April 20 Show & Tell — Edith Cuerrier**

Edith Cuerrier brought a couple of printing frames and a few film developing hangers which are part of her darkroom equipment collection. In order to find a use for them, she transformed them into picture frames which she hung on the wall or, in the case of the printing frames, can stand on a mantle or book shelf to decorate her new place. "It is just a fun way to display my images and use items which would otherwise be obsolete. I just wanted to inspire others to display their photographic collectibles in a fun way."



**April 20 Show & Tell — Nick Graver**

As is customary, Nick Graver presented many artifacts. Photos and text of these will be available in a later Newsletter.

Here is a plaque given to Nick Graver by a former Marks & Fuller manager during the time when the company was going into bankruptcy.

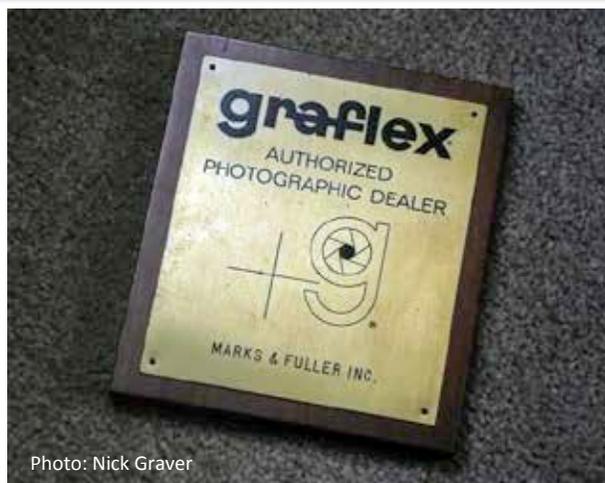


Photo: Nick Graver

**April 20 Free Table**



**TPHS News**

From Martin Scott: **Lori Birrell**, Special Collections Librarian for Historical Manuscripts, University of Rochester, who has been supportive in our meeting efforts has the following message: "I'm excited to share with you that I've accepted the position of Head of Special Collections at the University of Arkansas, and my last day at UR will be June 16<sup>th</sup>. I've enjoyed working with you the past few years, and appreciate the time you've taken to help us describe our collections, and to share with us your wealth of Kodak-related knowledge. I hope you'll reach out to our Director, Jessica, as you come across other tidbits." We wish her well.

**April 20 Show & Tell — Bruce Tyo**

Bruce Tyo presented at the April Meeting six examples of an unusual type of camera from the late 1890s – the Platebox camera. These box cameras used glass plates, rather than film cartridges, that were manufactured by a number of the lesser known camera makers in Rochester, Chicago, and in Europe. They were a technical throwback, clinging to outdated glass plates, mostly to avoid paying licensing fees to Kodak or Ansco for the rights to use their film cartridges in their cameras. With the introduction of the Brownie Camera in 1900 most of them quickly disappeared from company catalogs as they were simply too heavy in comparison to film cameras. Brownie cameras with a film cartridge weighted only two pounds, but a platebox camera with a dozen plates in single sided metal holders weighted closer to four pounds. Collecting these cameras also means gathering examples of devices from long gone and obscure Rochester based firms, such as Sunart or Rochester Optical and Camera to name just a couple. [Editor's note: Bruce's presentation sets the standard for an S&T grounding his artifacts on a linen-covered base each with a well-described placard.]



**1. Sunart Photo Co., Sunart Jr., No 1, 1892.**

Among the rarest of the Rochester manufacturers for camera collectors is Sunart which was started in Rochester in 1892. This camera used 3¼"x4¼" glass plates in a vertical format.

**2. Ray Camera Co., Ray E, 1894.**

**3. Eastman Kodak Co. Bullet No. 4, 1896.**

**4. Rochester Optical and Camera Co. Cyclone 4"x5" Camera, 1900.** This magazine camera used twelve single sided open glass plate holders in horizontal format which following exposure were dropped down into the bottom of the camera where they could be unloaded through a hatch in the bottom.

**5. Rochester Optical and Camera Co. 3¼"x4¼" Premo Film-Pack Camera, 1900.** Manufactured in the city about 1900, this camera shot twelve images on a film pack rather than glass plates. ROC was absorbed by Eastman Kodak in 1903 and the Premo name became part of the Kodak lexicon. Kodak continued to manufacture Premo film-pack box cameras up until the Depression.

**6. Seneca Camera Co. Seneca Senior 4"x5" Platebox Camera.** Seneca was started in Rochester in 1899 and absorbed Sunart Photo the next year. This camera, with a simple spring loaded shutter, was in their catalog until about 1909. In the late 1920s, Seneca was absorbed by the Conley Camera Co. of Rochester, Minnesota.

**7. Eastman Kodak Film Pack – An example from the 1950s.** Film packs were thin acetate film with an attached paper tab contained in a sheet metal pack. After exposure the photographer pulled the tab out of the holder pulling the film sheet into the back of the holder where it could not be re-exposed. Eastman Kodak manufactured these packs with other companies names on them including Rochester Optical and Camera, Seneca Camera, and Gundlach. Graflex also made a back for their press cameras that used them as well.



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**Historical Corner — Bruce Tyo****Thirty Years of Innovation That Changed Photography Forever**

Many of the most significant technological advancements in the photographic process were made in the thirty years following Richard Maddox's invention of the gelatin dry plate in 1871. These inventions shaped the film and camera industry here in the United States and around the world for the next one hundred years marking the most significant steps forward in visual communications until the advent of the personal computer and digital photography.

In 1877, only six years after Maddox's invention, George Eastman's interest in photography grew from taking pictures with the wet plate process to overcoming its disadvantages. Working in his mother's kitchen, his initial experiments more resembled cooking rather than chemical trials. He finally arrived at a mixture which could be mass produced utilizing plate coating machines. By 1880, the Eastman Dry Plate Co. was beginning to make headway in the fledgling plate industry here in America. In 1882, despite a near disaster from contaminated gelatin which caused Eastman and partner Henry Strong to replace all their existing stock, the company made a fifteen thousand dollar profit that year.

In 1884 Eastman announced he was adding the word "film" to the company's name and was producing a paper backed flexible material that could be moved through a roll film back that he and Rochester camera builder William Walker had devised to fit in existing cameras of the time. The flexible film was difficult to work with and it was grainy and not as sharp as plates, but the strippable film and roll holder overcame one of the major disadvantages of the dry plate era – the weight of carrying large numbers of glass plates to expose and process. Demand for the new material and the holder was large enough for Eastman to seek a second supplier to make the wooden roll holder, he had already asked Frank Brownell's wood-working shop in Rochester to manufacture the holders, so he turned to a second supplier, the Blair Tourograph and Dry Plate Co. of Boston.

In 1886 David Houston patented a paper backed flexible film transport system with a film advance indicator. Houston's film wound from the upper front of the camera through the back and then around to the lower front again eliminating the need for an additional light tight roll holder. Realizing that this invention made a totally self-contained camera possible, Eastman quickly purchased the patent and began work to join his film and Houston's camera design together. It was the first of twenty-one patents Eastman would buy from Houston.

In 1888 Eastman patented his "Camera" which used his "American" or stripping film. One of the byproducts of the gelatin process was an increase in overall film speed bringing about the need for a shutter and his cameras used a rotating cylindrical or barrel shutter capable of making an instantaneous exposure. The camera could not be loaded and unloaded except at a lab, giving rise to the birth of the photographic processing industry. It became a success and sold for \$25, more than a month's wages at the time, and it was a challenge for the company to keep up with demand which totaled 2500 units by the end of the first year.

At this time Eastman began experiments to find a clear flexible film base to eliminate the paper backed film with its two layers of gelatin, one with the light sensitive emulsion and a second to aid removing the negative from the paper backing and its cumbersome method of printing. Chemist Henry Reichenbach, together with S. Carl Passavant, isolated a clear flexible celluloid film that was patented by Eastman and Reichenbach in 1891. They later developed machines to coat the celluloid film with emulsion as well. The patents for this were later challenged by the estate of DR. Hannibal Goodwin and the Ansco Camera Co.

At the same time the Eastman Dry Plate and Film Co. was making huge strides in photographic film production other inventors were making improvements in camera shutters as well. Brooklyn inventor Abner Tisdell patented a "Photographic Camera Shutter" in 1891. An early sector style shutter for a camera it contained many more moving parts than others of the day, but it was accurate, reliable, and robust enough for the first generation of box cameras. Eastman licensed the shutter and used it his famed Pocket Kodak Camera of 1896.

Improving on Tindall's shutter, rival camera builder Thomas Blair, working with Fred Kelley, patented a rotary "camera shutter" the next year that added the ability to make both instantaneous and timed exposures by pushing up and down on a handle on the body of the camera in 1892.

That same year Blair's former business partner and the owner of Boston Camera, Samuel Turner, patented a system for his "Bulls-Eye" camera, using paper backed flexible nitrate film with exposure numbers printed on the outside of the paper backing and a red crystalline window to view the film moving through the camera.

Four years later in 1896, Eastman bought the rights to the patent and paid royalties for the design until 1899 when he bought the company. He produced his rival "Bullet" camera side by side with Boston Camera, introducing at the same time the concept of camera owners being able to load and unload a camera by themselves. In 1911, Eastman will name a Rochester factory building the "Hawk-Eye Works" in honor of a camera model developed originally by Turner. He also purchased the rights to Blair's shutter and finally completed the purchase of Blair in 1899, trading 7,000 shares of Kodak stock for the company and its intellectual properties.

**Historical Corner — Bruce Tyo (cont.)**

By 1896 Eastman Kodak would manufacture its 100,000<sup>th</sup> camera and Frank Brownell, by now an employee rather than a supplier, designed and patented a “Photographic Camera” which used a triple action rotary shutter (Time, Bulb, and Instantaneous) of his design with aperture control built into the shutter on the front of the camera. Eastman incorporated the shutter into both his Bullet Camera and the smaller Pocket Kodak.

In 1900, Eastman Kodak released its legendary Brownie Camera with a rotary shutter, selling the camera for \$1. 150,000 cameras were shipped the first year it was in production. It included four patents imprinted inside the back of the camera for incorporated designs - the Eastman-Walker Roll Film Back patented in 1885; the rotary shutter designed by Abner Tisdell in 1891; David Houston’s roll film transport system and film counter introduced in 1894; and Frank Brownell’s improved rotary shutter design of 1899. With improvements the Brownie Camera would remain the Kodak line for the next twenty years and over 2.5 million cameras were produced and sold during that time. The Brownie Trademark would continue to be used in cameras right up until the unveiling of the Instamatic Camera in 1964.

In summary, Maddox’s discovery freed the professional photographer from the constraints and dangers of the Wet Plate Process; George Eastman’s flexible film and coating machines allowed worldwide access to photography and made the photographic processing industry possible; inventors and camera builders William Walker, David Houston, Samuel Turner, Abner Tisdell, and Thomas Blair developed film transport systems, cameras’ layouts, and shutters for smaller, simpler, and reliable cameras for manufacturers; and Eastman Kodak’s Frank Brownell, with his Brownie, made the amateur photographic industry of the twentieth century possible. In the short span of thirty years, George Eastman brought together the ideas of many inventors. This, together with his manufacturing acumen, brought about access to photography for everyone.

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- Tisdell**, A.G., *Photographic Camera Shutter*, **US Patent 520,972**, 1894.
- Turner**, S.N., *Photographic Film Roller*, **US Patent 539,713**, 1895.
- Walker**, W.H. & G. **Eastman**, *Roller Holder for Photographic Film*, **US Patent 317,049**, 1885.

**Historical Corner — Bruce Tyo (cont.)****Timeline and Patent Dates**

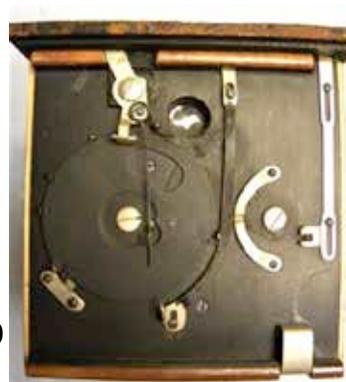
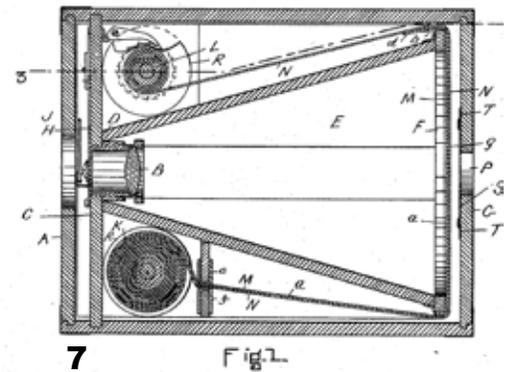
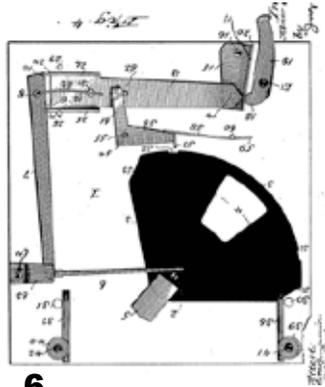
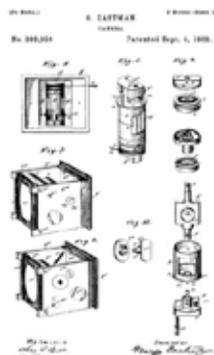
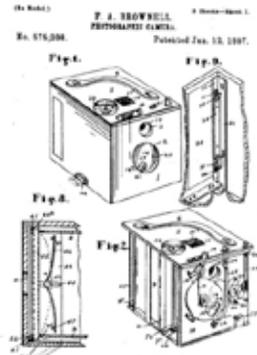
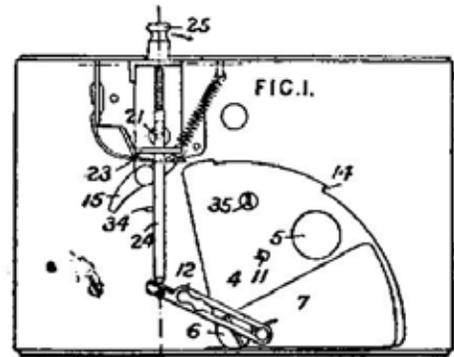
- 1871** Invention of the gelatin dry plate by Richard Maddox. In 1878, Charles Bennett discovered that by heating the emulsion before coating, the ripening process dramatically increased the sensitivity or speed of the material thus necessitating the need for a shutter to control the amount of light entering the lens.
- 1884** George Eastman and William Walker patent a paper backed flexible photographic film for use in a camera and develop a holder so it can be used in cameras. Eastman will have the woodworking firm of Frank Brownell make the holders and when his shop cannot keep up with the demand he will contract with the Blair Tourograph and Dry Plate Company of Boston in 1885 to fill additional orders. **US Patents 306,470** (10-4-1884), **317,049** and **317,050** (5-5-1885).
- 1886** Inventor David Houston of North Dakota patents a roll film transport system for a camera with a visible film advance indicator and puncturing device that he will sell to George Eastman for \$5000. It will be the first of 21 photographic related patents he will sell to Eastman Kodak before his death in 1906. A later version of the patent, **US Patent 526,446** (9-25-1894), will be incorporated into the original Brownie camera of 1900.
- 1888** George Eastman patents his “camera” which uses his “American” or stripping film using a rotating barrel shutter to make exposures on flexible film. 5200 of these cameras were manufactured before the barrel shutter was replaced with a sector shutter. The invention of this camera, when combined with Reichenbach’s flexible film in 1891, is recognized as the beginning of the amateur photographic industry. In 1892 advertising will point out that the camera, capable of 100 exposures on roll film and weighing 4 pounds as opposed to 100 glass plates at 30 pounds, was the ideal camera for use at the World’s Fair that year. **US Patents 306,470** - dated 10-4-1884, **317,049** and **317,050** (5-5-1885), & **388,850** (9-4-1888).
- 1889** Henry Reichenbach and Samuel Carl Passavant, chemists working for George Eastman, develop a transparent and flexible film that uses celluloid as a base. **US Patent 458,663** (9-1-1891).
- 1891** Abner G. Tisdell of Brooklyn, NY invents a “photographic camera shutter” utilizing a rotary shutter that allows a photographer to make instantaneous exposures on plates or film and files a second patent showing an improved shutter the next year. **US Patents 464,260** (12-1-1891), **520,972** (6-5-1894), and **536,242** (5-26-1895).
- 1892** Thomas Blair and Frederick Kelley of the Blair Camera Company patent a rotary “camera-shutter” that offers the ability to make instantaneous and timed exposures with a camera that is an improvement on the Tisdell shutter. Aperture control is not included, but is incorporated in later versions following the sale of the company to Eastman Kodak. **US Patent 478,909** (7-12-1892).
- 1892** Samuel N. Turner of the Boston Camera Company patents a system of paper backed celluloid base roll film and the red crystalline window to serve as a film counter in his Bulls-Eye box camera. Eastman bought the rights to use Turner’s “daylight loading” patent in 1896 and paid royalties of \$5,000 a year to use the concept, marketing his Bullet camera side by side with the Boston Camera Bulls-Eye. Kodak had manufactured 55,000 Bullet Cameras by 1896. Eastman will buy the company in 1899. **US Patent 539,713** (5-21-1895).
- 1894** Following many years in competition with the Eastman Kodak Company, Thomas Blair is forced out of the Blair Company and the American Camera Company by his backer and President Darius L. Goff of Pawtucket, RI, who will sell the company to Kodak in return for 7,280 shares in Kodak LTD to cover his loss of over \$140,000 in investing in Blair in 1899.
- 1896** Eastman Kodak will manufacture its one hundred thousandth Kodak camera. Frank A. Brownell patents a “photographic camera” which uses a rotary shutter and makes instantaneous, bulb, or timed exposures using the Eastman Triple Action shutter. Aperture control with three different diaphragms is incorporated into the shutter. It is used in the 1896 model Pocket Kodak camera and the No. 2 Bullet camera. **US Patent 575,208** (11-2-1897) and **UK Patent 24,259** (10-30-1896).
- 1900** Eastman Kodak releases the Brownie Camera with a rotary shutter, based on a Frank Brownell design, selling the camera for \$1. 150,000 cameras were shipped the first year it was in production. Four patents are listed on the back of the camera, the Eastman – Walker Roll Film Back, **US Patent 371,049** (5-5-1885); the Photographic Camera Shutter of A. G. Tisdell, **US Patent 464,260** (12-1-1891), David Houston’s camera roll film transport system, **US Patent 526,446** (9-9-1894), and Frank Brownell’s Rotary Shutter patent, **US Patent 662,955** (4-11-1899).
- 1901** Eastman Kodak releases a second generation Brownie Roll film camera, the No. 1 Brownie and the No.2 Brownie cameras. Retaining Brownell’s rotary shutter, but with an improved roll film transport system and film clips, adding two patents in the back of the camera. The Brownie camera will remain in the Kodak catalog for over 20 years and 2.5 million cameras were manufactured during that time. **US Patents 662,762** (11-27- 1900) and **725,034** (4-14-1903).

**Historical Corner — Bruce Tyo (cont.)**

**The Kodak.**

ANYBODY can use the KODAK. The operation of taking a picture consists simply of pressing a button. One Hundred instantaneous pictures are made without re-loading. Price \$25.00. No dark room or chemicals are necessary. A division of labor is offered, whereby all the work of finishing the pictures is done at the factory, where the camera can be sent to be reloaded. The operator need not learn anything about photography. He can "press the button,"—we do the rest. Send for copy of KODAK Primer, with sample photographs.

The Eastman Dry Plate & Film Co.  
1 ROCHESTER, N. Y.



1. 1888 advertisement for George Eastman's first Box Camera.
2. Kodak No. 2 Bulls-Eye Kodak Camera and No.4 Bullet Kodak Camera of 1896 showing Brownell's Triple Action Rotary Shutter mounted in both cameras. The design is flexible enough that it could be mounted on its side in the No.4 Bullet and function solidly.
3. Patent Diagram of Tindell's Rotary Shutter as modified by Frank Brownell and mounted in the Pocket Kodak Camera of 1896.
4. Patent Diagram of Frank Brownell's Bulls-Eye Camera which is based on Samuel Turner's Bulls-Eye Camera.
5. Patent Diagram of the cylindrical rotating shutter of George Eastman's 1888 Camera.
6. Patent Diagram of Tindell's Rotary Shutter.
7. Patent Diagram of Samuel Turner's Box Camera showing the now classical movement of the film through the camera and the red crystalline window at the back of the camera.
8. Rotary Shutter of the 1896 Pocket Kodak Camera.
9. Frank Brownell's Rotary Shutter of the No. 2 Bulls-Eye Kodak Camera, Model D, of 1899.