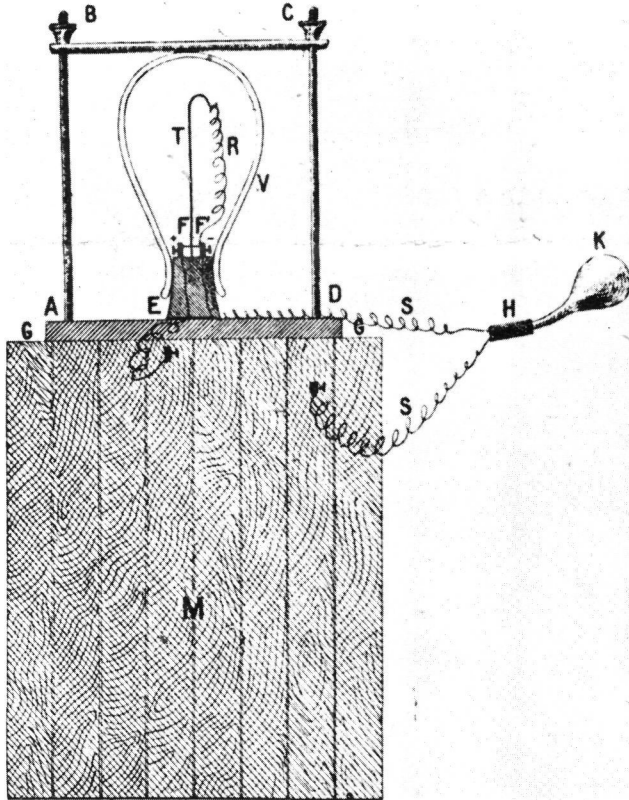


IMAGE

Journal of Photography of the George Eastman House

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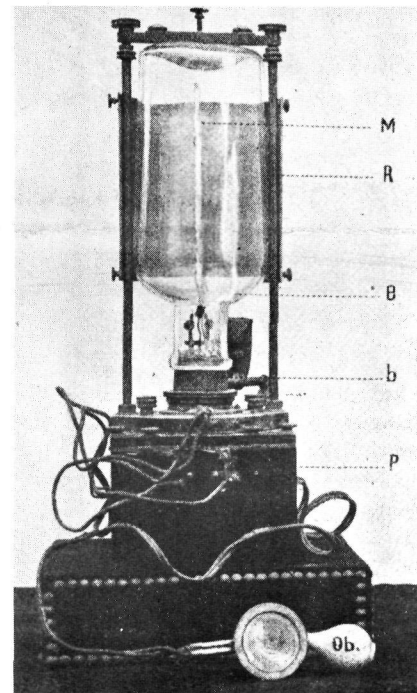
MAGNESIUM LAMP, M. CHAUFFOUR SYSTEM, 1893.
 V, thick glass vessel; ABCD, metal support to hold the lamp on cast iron base; T, metal support for the ribbon of magnesium; R, ribbon of magnesium; FF', terminals connected by platinum wire; E, rubber stopper; GG, cast iron table; SS, conductor wires; H, switch; K, rubber bulb; M, ballast chest containing weights.

P H O T O F L A S H 6 2 Y E A R S A G O

ON OCTOBER 24, 1930, the *New York Times* carried a news story, headed NOISELESS AND SMOKELESS PHOTOFLASH LAMPS DEvised. By November these new electric photoflash bulbs were being used to report the news: a picture was taken of President Hoover signing the Unemployment Relief Bill. The twenty-fifth anniversary of

the practical use in America of flashbulbs is now being celebrated. As we have already pointed out in *Image* (September, 1953; March, 1954), the first patent was issued to Paul Vierkotter in 1925,¹ and the first commercially manufactured bulbs were made in Germany from the patents of Johannes Ostermeier in 1929.²

But the history of photoflash is very much older. Historians have overlooked the fact that sixty-two years ago, in 1893, working with a watertight camera at the depths of the sea, Louis Boutan made exposures with an electric photoflash lamp devised by a French electrical engineer named Chauffour. An account of this pioneer photoflash lamp is given in Louis Boutan's *"La Photographie Sous-Marine"* (Paris, 1900),³ and earlier in an article by Anthony Guerronan, "La Photographie Sous-Marine" in Paul Nadar's periodical *Paris-Photographe* for August 30, 1893.⁴



B, flask; b, rubber stopper; M, magnesium; P, galvanic battery; R, reflector; Ob, interrupter or switch.

75th ANNIVERSARY CONVENTION OF THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA

Boutan writes (we translate): "A magnesium wire in the form of a spiral is placed in a glass bulb containing oxygen. In addition to this, the completely water-tight bulb contains a fine platinum wire which is connected to the two poles of a battery. When the current is released, the wire gets red hot, the magnesium is ignited and oxidizes in contact with the oxygen, thus producing a vivid flash . . . The magnesium wire, coiled up in a spiral, has a diameter of 1 mm. and is, in its upper end, suspended from a rigid iron rod which is placed on the principal axis of the lamp. The lower end of the wire is connected through a piece of tinder with a platinum wire which is stretched between two posts. These two posts traverse a rubber stopper of sizable diameter. On this stopper rests the neck of a glass bottle upside-down. This glass bottle, which has the capacity of about three liters, constitutes the globe of the lamp and encloses the posts, the platinum wire, and the magnesium spiral. It is held in place by a horizontal cross-beam placed on the bottom (upper end) of the bottle . . . The rubber stopper rests on a thick metal plate. It is fixed in its place permanently by the use of a screw-ring which clasps its base . . . On the platform on which the stopper is placed are fastened two copper rods which support a transverse bar. Fastened to these rods is a gilded reflector which half surrounds the middle part of the bottle."⁵

Boutan then goes on to describe the battery box below the lamp, the device for operating the lamp, and the procedure for getting the equipment ready for use underwater.

Boutan did find, however, that this apparatus had certain drawbacks: "(1) The combustion of the magnesium often starts too fast, if the temperature rises too fast, and the air in the bottle heats up too fast, the pressure of the gas causes the bottle to break. However the temperature of the surrounding water partly counterbalances this effect. (2) A greater inconvenience arises from the irregular combustion of magnesium. The magnesium is neither pure nor homogeneous, which causes repeatedly irregularities in the intensity of the light. (3) The intensity of the light is somewhat diminished by the fine particles of magnesium dust after burning."⁶

Although this lamp is much more clumsy than those invented 32 to 37 years later and did not prove too successful, the principles upon which it is based are the same. The later lamps were really not much more than refinements and improvements on the earlier one, with foil substituted for magnesium wire.

DR. EUGENE P. WIGHTMAN

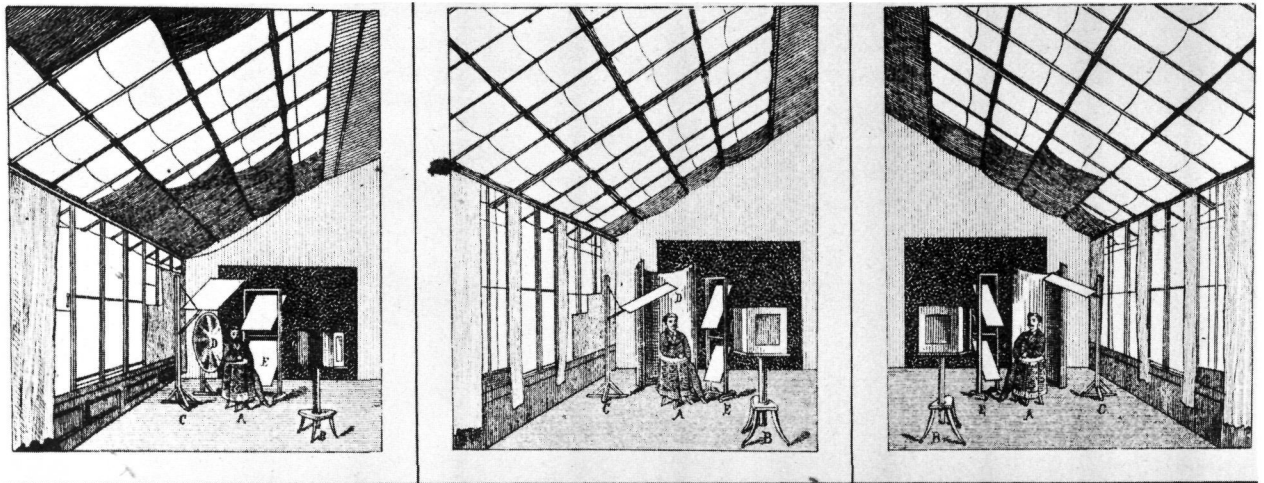
1. German Patents 446, 514, Aug. 16, 1925; 451, 207, Dec. 18, 1926.
2. German Patents 492, 801, Mar. 1, 1930 (assigned to Hauff A. G.); U. S. Patent 1, 776, 637, Sept. 23, 1930.
3. Boutan, Louis, *La Photographie sous-marine et les progres de la photographie*, Paris, Librairie C. Reinwold; Schleicher Freres, 1900, Chap. XII, p. 226-237; *Les Premiers appareils d'eclairage employes pour la photographie sous-marine*.
4. Gueronnan, Anthony, "La Photographie sous-marine," *Paris-Photographe*, III, No. 8 (1893), 347-352.
5. Boutan, *Op. cit.*, p. 227
6. *Ibid.*, p. 230

AT THE 75th convention of the Photographers' Association of America in Chicago, the oldest photographic organization in the country, the George Eastman House was one of 25 individuals and organizations honored by citations for distinguished services to professional photography. Eastman House was cited "for maintaining a lasting memorial to George Eastman, whose contributions to photography are legendary; for its dynamic permanent exhibition of the world of photography, which serves as a constant reminder of the traditions of the art and science of photography and for collecting and preserving records and deeds of professional photographers."

In addition to receiving this honor, the George Eastman House was privileged to help the Association commemorate its diamond anniversary by advising on historical matters. The Curator served as the official historian, and a special exhibition showing the state of photography in 1880 was prepared especially for the convention.

The Photographers' Association of America was organized in a period of fierce competition. It was hoped to provide for the members a code of business ethics, group insurance, and the exchange of technical information. The first meeting in Chicago, was attended by some 300 charter members. The most pressing technical problem of the day was the newly-invented gelatin dry plate and in retrospect perhaps the most important work of the 1880 convention was the report of the Committee on Dry Plates. In his autobiographic *Voigtlander and I*, President Ryder gives us some idea of the excitement of these trials. "So eager were all to see the plates developed that the dark room in which the work was done was packed by at least twenty persons, although it was not possible for more than three . . . to witness the process . . . It revolutionized and simplified the most difficult part of the work in negative-making, it 'let the bars down' to the photographic world."

The very year that the P. A. of A. was founded, George Eastman began to manufacture plates and maintained continuing interest in the organization. It was at the 1888 convention that the Kodak Camera was first presented to the world. On the occasion of the 50th Anniversary of the Association, Eastman wrote a letter, looking back on his early days. "Fifty years!", Eastman wrote; "It is too bad that many of the old guard, faithful workers with the camera, cannot be here to witness the changes that have come for the betterment of—and particularly for the simplification of—photography . . . It has been a marvellous fifty years—the most wonderful half century in the whole world's history. In every important department of scientific work the achievements have been greater in the past fifty years than in all the time that has gone before. I am proud



*Disposition générale de l'atelier, des rideaux, des écrans
et des réflecteurs, des fonds et de la chambre noire pour l'éclairage
des portraits, Nos. 4, 5 et 6.*



PORTRAIT LIGHTING IN A DAYLIGHT STUDIO OF THE 1880s. The diagrams above show how the curtains were arranged for the portraits below. From A. Liebert, *La Photographie en Amérique*. Paris, 1884.

of the fact that photography has kept in step with the world's progress."

George Eastman would have been proud of the record of the past 25 years—and proud of the speech made by Donald McMaster, General Manager of the Eastman Kodak Company, who was honored by the Association by being elected Honorary Master of Photography, the highest professional degree which the Association awards. Mr. McMaster, who is a Trustee of the George Eastman House, looked into the future, and predicted that in the next 75

years there would be an increasing growth of photography and a great simplification and amplification of its technique. He surveyed the past, and noted that today's emulsions are a million times more rapid than what Daguerre used. For the future, an increase of about 800,000 times might be expected. "The film speeds which could result are so high that I hesitate even to try to calculate them." Mr. McMaster went on to describe revolutionary processing techniques, which would be instantaneous, and the marked strides which can be expected in color photography.

FOOTLIGHTS

&

SKYLIGHTS

Theatrical Photographs

1860

1900



AUTOGRAPHED PHOTOGRAPH OF NAPOLEON SARONY. Only 5 feet 1 inch tall, he was warm, dramatic and excitable. He would make his subjects play to the camera as if to an audience, and then record them.

ADAH ISAACS MENKEN, the magnificently audacious, in the Grand Equestrian Spectacle, MAZEPPA. Despite the copyright line, this was photographed by Sarony in Birmingham, England in 1865.



THE photographs in FOOTLIGHTS AND SKYLIGHTS were selected from the Eastman House collections of cartes de visite and cabinets. They were chosen to illustrate a cultural and social use of photography rather than to present a pictorial history of the theatre. The theatre of the last half of the 19th century made good use of photography to spread the fame of its stars. These souvenirs were placed on public sale and thus allowed people to recall the faces and costumes of their favorite personalities.

Actors of stature and dignity are prominent: Joe Jefferson, famous for his Rip Van Winkle role; Edwin Booth, the Hamlet of his day; and always the Divine Sarah Bernhardt. The fascinating player, equestrienne actress, Ada Menken is present. The frivolities of the period add gaiety.

Of the photographers Napoleon Sarony was famous and most of the theatrical celebrities posed under his skylight. In Paris Nadar was equally famous. Many photographs by both enliven the exhibit.

The exhibit was designed and researched by George Pratt of the movie department. A traveling version (on 16 medium sized panels) will be available for rental after the first of the year.

**ON HER FIRST
AMERICAN
TOUR**

(1880-81) the French actress Sarah Bernhardt was received with spectacular enthusiasm. But unkind newspapers caricatured her thinness. And someone said that she had the face of a toad and the voice of a nightingale. Sarony complained that she never came to the studio early enough for the benefit of good (skylight) light.



SARAH BERNHARDT (1844 - 1923) Photograph by Nadar in Paris about 1860. She made her debut in 1862.

T H E S T A G E O F T H E T I M E

LILLIAN RUSSELL



JOSEPH JEFFERSON



EDWIN BOOTH



A VAUDEVILLE GIRL



REVIEWS

HOW LIFE GETS THE STORY; Behind the Scenes with Photo-Journalism. Written and Edited by Stanley Rayfield, Garden City, New York, Doubleday & Company, Inc., 1955. 84 pp. Illus. \$5.00.

THE PHOTOGRAPHER as adventurer has become a legendary figure. When Fremont crossed the continent in 1853, a Charleston daguerreotypist, S. N. Carvalho, was along, and his account of the hardships and trepidations (during which he lost all his hard-won photographs) is a classic in the literature of the American frontier. The government expeditions in the U. S. West were documented by photographers so that citizens everywhere would know what lay beyond the wide Missouri. But the photographs which O'Sullivan, Hillers and Jackson brought back carry little evidence of the adventures which went into the making of them, and you must turn to Jackson's autobiography, *Time Exposure*, to learn that his camera was so big that it took two packhorses to carry it—one for the camera, the other for the 20 x 24 inch plate holder. The glass negatives which were broken to bits when the packhorse slid down the side of the cliff exist only in Jackson's anecdotes. We can only imagine the dangers that Brady's cameramen faced in the field of battle.

And today, looking through any issue of LIFE magazine, the reader is hardly aware that behind each picture story is another story. Some of these latter stories Stanley Rayfield, Promotion Manager for LIFE, has brought together. It is an entertaining book, ideal reading for the armchair traveler. We go on a 16-hour globe-trotter flight on a B-47 with Ralph Morse; to the South Seas with Eliot Elisofon, and again with him we become lost on the snow-clad Mountain of the Moon in Central Africa; we are in the midst of rioting Japanese Communists who have smashed the window of our automobile; we shiver at 60 below a hundred miles from the North Pole; we are fished out of the sea with Margaret Bourke White by a helicopter; we are skin diving with Peter Stackpole, smuggling film past the Guardia Civil in Spain with W. Eugene Smith, up to our necks in steaming hot water in the Tecolote Tunnel with George Silk; at Molotov's cocktail party with Tom McAvoy; in the New England hurricane with amateur photographers who knew nothing about photo-journalism but were on the spot.

When LIFE was first conceived back in 1936, even before it was christened and had the awkward title *Show Book of the World*, a bold program was announced: "To see life, to see the world; to eyewitness great events; to watch the faces of the poor and the gestures of the proud; to see strange things—machines, armies, multitudes, shadows in the jungle and on the moon; to see man's work—his paintings, towers, and discoveries; to see things a thousand miles away, things hidden behind walls and within rooms, things dangerous to come to; the women that men love and many

children; to see and to take pleasure in seeing; to see and be amazed; to see and be instructed."

How faithfully this program has been followed over the past 18 years can be judged by Mr. Rayfield's choice of photographs from the thousands which have been specially taken for the magazine. The book is LIFESize, well printed, and contains a generous number of color plates, often full page.

The book is more than a story of adventure in faraway and exotic places. It shows us that making a picture story is not merely recording with a camera interesting events and places. To be present is not enough. LIFE's managing editor, Edward K. Thompson, lists in the foreword some of the characteristics of the photo-journalist: "Intuitive sympathy and identification with the subjects of a story . . . Ability to plan for the expected and the unexpected . . . Knowing when to be bold and when to tread softly . . . Ability to share with the reader a sense of participation . . . An insatiable curiosity . . . An appreciation of the American right to know and enjoy what is going on."

—B. N.

THE GREAT LINDT; a compilation based on research by Jack Cato, R. J. Barcham and Keast Burke. Australasian Photo-Review, LIX (Jul. - Aug., 1952), 396-414, 490-497.

IN 1863 a young German sailor, John William Lindt (1845 - 1926), who had jumped ship in Australia, learned how to take photographs from a certain Wagner, self-styled "artist-photographer" in Grafton. Lindt was to become "Australia's outstanding photographer of the 'eighties." He specialized in taking documentary photographs of the aborigines and the natural scene, while maintaining portrait studios successively in Grafton, Melbourne and a mountain resort-residence in Victoria, "The Hermitage."

When Sir Peter Scratchley claimed New Guinea for the British Empire, in 1885 Lindt went along as official photographer. Using the newly-invented dry plate he made photographs everywhere, including places where no white man had been before. Of striking physique, he stripped to a loin cloth when photographing the natives: they came from miles around to see the strange white man. Fifty of his photographs were published in his book, *Picturesque New Guinea* (1887). For the last thirty years of his life, Lindt lived in semi-retirement in "The Hermitage." He died there in 1926.

The articles, written by the staff of the Australasian Photo-Review, are well illustrated. However interesting the photographs are from the anthropological and topographical point of view, it must be admitted, as the authors point out, that Lindt "cannot be esteemed as one of great artistic imagination." But as a record of the first coming of the white man to aboriginal countries, Lindt's work is of lasting value. The greatest collection of his work is in Public Library of Victoria.

SILENT FILM SPEED

THE CONSTANTLY increasing use of silent motion pictures by film societies and institutions studying the history of motion pictures makes the question of projection speed of great importance.

Unfortunately, the problem has been over-simplified by youthful program directors many of whom never saw a silent film before they became students of the cinema. There is a wide-spread misconception that there exists a standard "silent speed" of 16 frames per second. Champions of this mythical "silent speed" grow quite heated over the projection of any silent film on a fixed-speed sound projector which runs at 24 frames per second.

The historical fact is that more silent films were *intended* to be shown at speeds which were much closer to the sound projector's 11 minutes 6 2/3 seconds per reel than the legendary "silent speed" of 16 frames per second which drags the film along at sixteen minutes and forty seconds per reel.

In many, many cases, major silent productions were released with instructions that they be projected at speeds *faster* than current sound speed.

Even beginning film students must realize that most silent films were produced by hand-cranked cameras. Each operator prided himself on his own "cadence," believing that regardless of the tempo or the excitement of what he filmed, his hand turned the crank at an unvarying rate with all the precision of a machine.

But precise or not, each cameraman's cadence was different from the other's. Moreover, Ince scripts of 1912 to 1914 sometimes carried specific instructions to the cameraman to "crank faster here." How many frames per second was "faster"?

Amateur projectionists confidently believe they are showing *Intolerance* or *Robin Hood* or *Caligari* at the speed of 16 frames per second by switching their projectors to the "silent speed" position. Actually most 16mm projectors having a positive "silent speed" switch, are built to run at 18 frames per second. At 16 frames flicker is quite noticeable.

Showing a 35mm nitrate print on a modern high-powered arc projector which has been geared down to run at 16 frames per second is an invitation to fire.

In presenting a silent film to a group of spectators, the program director should be sure of his purpose. Does he wish (as he often claims) to show the film as it was seen originally? Or does he wish to present the film as its maker intended it to be seen?

If he is seriously reconstructing the conditions of a silent era showing, he should realize that Douglas Fairbanks' *Robin Hood*, for example, might have been shown in two hours and a half during slack periods of the day or in a little less than two hours during the evening, to squeeze in an extra show.

If he wants to show *Robin Hood* at the speed originally specified in 1922, he will run it at 12 minutes per reel which is very close to sound speed. (The film will then last two hours and eight minutes.)

If it is decided to show *Robin Hood* at the arbitrary 16 frames per second, the film will last exactly three hours! And this is the way poor *Robin Hood* is usually shown to Film Society audiences, painfully limping through the forests at a rate that gets him through his adventures a full 52 minutes later than Mr. Fairbanks intended.

But running *Robin Hood* at sound speed only misses by seven minutes, the original, correct running time.

How does one know at what speed silent films were intended to be run, since they were all obviously filmed at various rates?

Silent films were usually released with musical cue sheets supplied in many cases by the producing company itself. As early as 1916, Triangle published special instructions to the projectionist. Here are some samples: "The best effects in *The Captive God* will be had by timing the film to run from 13 to 13½ minutes to the reel. The two big battle scenes . . . should be speeded up considerably. Following the sub-title 'The Alarm,' shoot it through fast."

For *Stranded*: "Time the feature to run 14 minutes to the reel. Only two places in the five reels call for speed. When the little girl falls from the trapeze there is great excitement resulting. Speed it here."



ROBIN HOOD WITH DOUGLAS FAIRBANKS. Film Society audiences usually sit through this film 52 minutes longer than it was originally intended to run.

In *The Halfbreed* with Douglas Fairbanks, Triangle's Projection Hints call for several specific scenes where "considerable more speed will help." In the last reel they admonish "shoot the big fire scenes very fast. The only place where the picture may be slowed down at all is in the church scene."

Thus it should be remembered that it was taken for granted that early films would not be shown at constant speeds at all. The situation was summed up by F. R. Richardson in the Projection Department of the Moving Picture World, December 2, 1911: "Speed is of very very great importance and a comprehension of this fact is absolutely necessary to do really fine projection. The operator "renders" a film, if he is a real operator, exactly as does the musician render a piece of music, in that, within limits, the action of the scene being portrayed depends entirely on his judgment. . . . Watch the scene closely and by variation of speed bring out everything there is in it. No set rule applies. Only the application of brains to the matter of speed can properly render a film. I have often changed speed half a dozen times on one film of 1000 feet."

Unfortunately, the creative operator that Mr. Richardson called for was more often a workman under strict orders from his boss, the theatre manager, to give him a fast or a slow show depending on activity at the box office.

Film makers were aware of the growing tendency to speed up their pictures in projection. They sought to offset the resulting frantic action by having cameramen shoot faster and faster. Thus many films toward the end of the silent period were actually produced with cameras operating faster than sound speed. When such films are projected at 16 frames per second by misguided film societies, the distortion can be enormous.

Following are some of the published correct projection speeds for certain individual films of the silent period; time is given in minutes per 1000 foot reel in 35mm or 400-foot reel in 16mm. (* Indicates a rate faster than sound speed)

Minutes
per Reel

THE AMERICANO, 1916.....	14
MALE AND FEMALE, 1919.....	14
DR. JEKYLL AND MR. HYDE, 1920.....	12
POLLYANNA, 1920	14
MOLLYCODDLE, 1920	14
THE SHEIK, 1921	12
THE THREE MUSKETEERS, 1921.....	14
WHITE OAK, 1921	12
FOUR HORSEMEN OF THE APOCALYPSE, 1921....	12½
IMPOSSIBLE MRS. BELLEW, 1922.....	12
TRAVELIN' ON, 1922	14
ROBIN HOOD, 1922.....	12
BLOOD AND SAND, 1922.....	14
SCARAMOUCHE, 1923	11*
THE GREEN GODDESS, 1923.....	11*
CAMEO KIRBY, 1923.....	12*
SHERLOCK, JR., 1924.....	11*
SEVEN CHANCES, 1925	11*
SALLY OF THE SAWDUST, 1925.....	12
PHANTOM OF THE OPERA, 1925.....	14
THE NIGHT CRY, 1925.....	11*
LADY WINDERMERE'S FAN, 1925.....	11*
THE MERRY WIDOW, 1925	11*
THE SCARLET LETTER, 1926	11*
SO THIS IS PARIS, 1926.....	11*
THE DIVINE WOMAN, 1927.....	11*
THE STUDENT PRINCE, 1927	11*
THE MYSTERIOUS LADY, 1928	11*
FOUR SONS, 1928	12

Examination of thousands of cue sheets for silent films has failed to turn up a single one which indicates that a film should be projected at 16½ minutes per reel or 16 frames per second. It would seem that in the matter of projecting silent films, Mr. Richardson's advice is still pertinent.

JAMES CARD

BEGINNING IN JANUARY

IMAGE will be enlarged to 24 pages, liberally illustrated and to the present editorial content there will be added a generous quantity of material on the moving pictures.

BEGINNING IN JANUARY

IMAGE will become a subscription publication. Single copies will sell for \$1.00. A year's susbcription (10 issues) will be only \$5.00. Subscription blanks will be sent to the present mailing list during November.

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