PRESIDENTIAL ADDRESS

Fall Meeting of the Society of Motion Picture Engineers

Chicago, Ill., 1924

Fellow Members and Guests:

IT GIVES me great pleasure to welcome you to the 19th regular meeting of the Society of Motion Picture Engineers. I do not need to tell you that these meetings are occasions of pleasure and profit to those who attend them. Our conventions have, in the past, been uniformly good and I know that this will be no exception to that rule. The local arrangements committee has been working very hard during the past months making the plans for our visit to Chicago and I know that we are going to be royally entertained.

When I realized that I would have to make an attempt to give a talk, diginified by the title of "Presidential Address," I cast about in my mind to determine what a president should say on such an occasion. After looking through the proceedings of several learned societies, I concluded that it is by divine right the privilege of the president to choose his own subject regardless of whether it has any relation to the immediate interests of the society or not. I am going to take advantage of this privilege and make a few rambling remarks which may, or may not, bear on the interests of this organization.

As I stated in the beginning, this is the 19th regular meeting of the society and, since it is our custom to meet twice a year, this means we are now in the tenth year of our existence. This is a relatively short time and I think we are to be congratulated on the progress that has been made within this single decade. Even though we are a young organization we have an illustrious ancestry and it may be of interest to turn backward for a few moments and see just how far into the past we can trace our family tree. Many people take great delight and pride tracing their ancestry back to the Pilgrim Fathers or to the time of William the Conqueror, so let us see if we can identify the beginning of the motion picture industry in those remote periods.

You are all familiar with what we may term the recent developments in scientific fields which made motion pictures possible. It was only a few years ago that Mr. C. Francis Jenkins built his first motion picture projector and we will not at present consider these recent developments but go farther into the past. I believe it is usual, in tracing a genealogy, to start at the present time and proceed generation by generation into the earlier centuries. However, we shall reverse this process and begin with the first date at which we can find any mention of anything resembling, even remotely, a motion picture.

Some months ago an interesting chronological table was published by Mr. W. Day* in which he gives many interesting references and I am quoting in part from this publication.

We find that the Chinese in 5000 B.C. indulged in shadow shows in which buffalo hide figures were projected as shadows or silhouettes upon parchment screens. The phenomenon of persistence of vision, upon which depends the possibility to produce motion pictures, was noticed and mentioned in the writings of Lucretius, 65 A.D., and this same fact was commented upon by Cladius Ptolemy in 130 A.D.

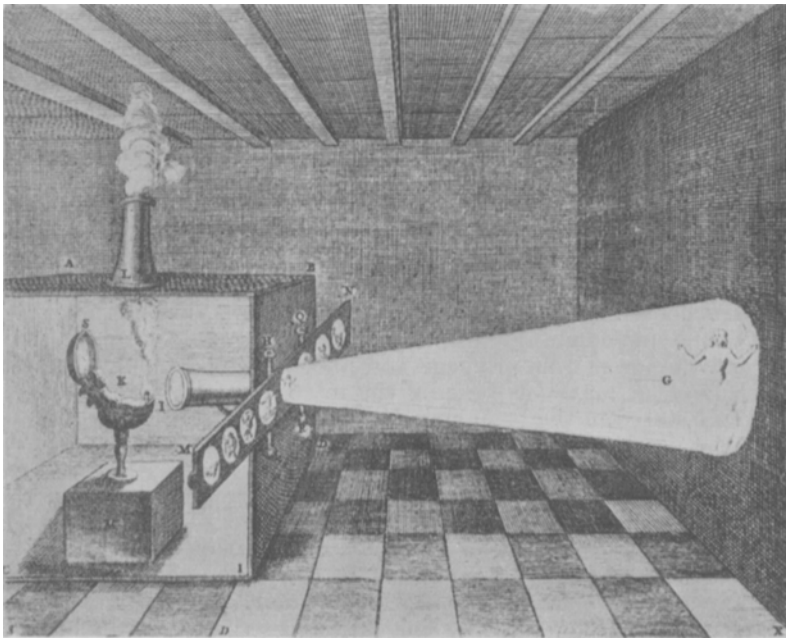

Fig. 1

The first lens of which there is any mention in existent literature, was formed by a glass globe filled with water. This is credited to Hero of Alexandria but no date is given for this work.

It is well known that the optical lantern, or projector, in some form, was used by the ancient priests and magicians in the temple of Tyre and throughout Egypt, Greece, and the Roman Empire between the period 4000 B.C. and 200 A.D. and it was by some such means that many of the divine manifestations, occurring in the shrines and temples, were produced.

* Trans. Opt. Soc. *24* No. 2, 1922-23, p. 69.

The optical lantern in its present form was invented by Athanasius Kircher at the Jesuit College in Rome, 1640 A.D. This was described and illustrated in "Ars Magna Lucis et Umbrae" by Kircher, the first volume of which appeared in 1657 and of which there are a number of copies still in existence. In Fig. 1 is shown a reproduction of a picture which appears in the second edition of the above work published in 1671. This shows Kircher's magic lantern and if we have an elastic imagination we will be able to see in the large box enclosing the light source and the lens a remote ancestor of the present projection booth, or as I should say in consideration of Mr. Richard-

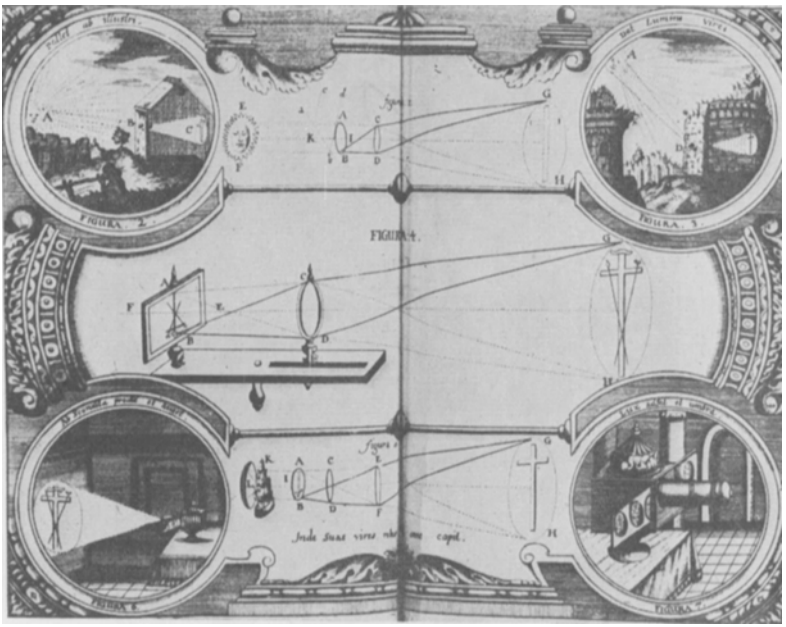

Fig. 2

son's feelings, the projector room. Following the work of Father Kircher there are many references in the literature to the projecting lantern and its evolution. In Fig. 2 is shown a reproduction from "Artificialus telediopticus" by Zahn, 1685. Here we see not only the assembled projecting equipment but the geometrical optics are also clearly set forth. I do not know that Dr. Kellner will agree that the geometric optics shown therein are in entire agreement with the most modern conceptions but in any case the figure shows that the elements used in the projector at that time are essentially the same as those used at present. Fig. 3 is another illustration from Zahn's work (1685) showing the various suggested applications of the optical pro-

jector. The lower one is particularly interesting. The vertical rod, seen just above the body of the lamp house, extends upward through the roof of the house and terminates in a weather vane. This is connected by two gears, shown in the figure, in such a way that the image projected onto the wall of the adjacent room shows, at all times, the

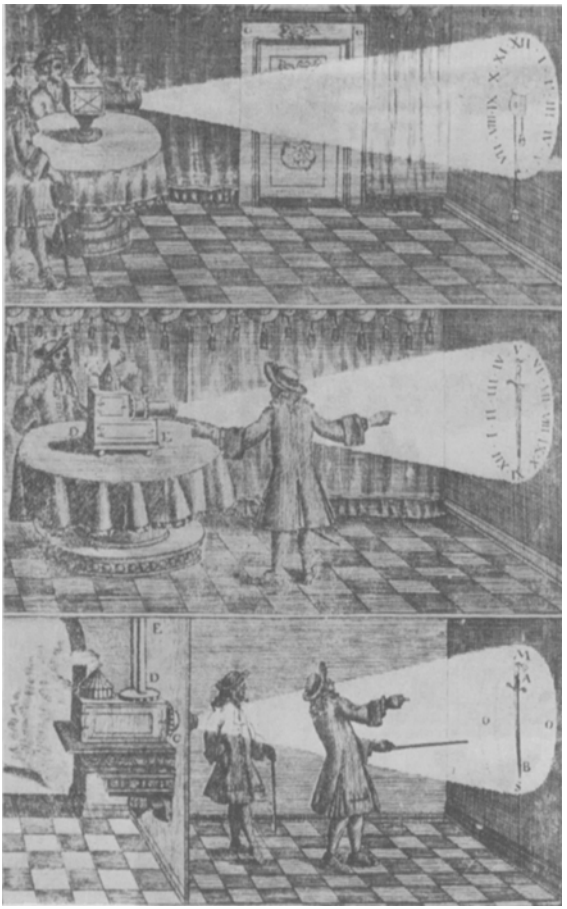

Fig. 3

direction in which the wind is blowing. In Figs. 4 and 5, also from Zahn's work (1685) are shown various suggested forms of the optical projector. In the lower right hand corner of Fig. 4 we see a type where the machine is supported on three legs and one can not help wondering whether or not this simple little device may not be the illustrious

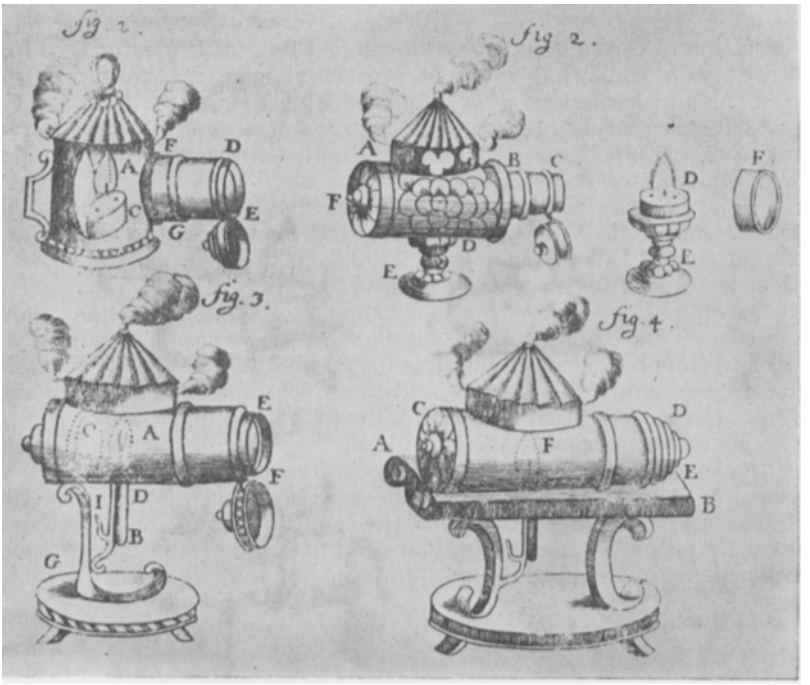
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Fig 2.
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Fig 4.
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Fig. 4

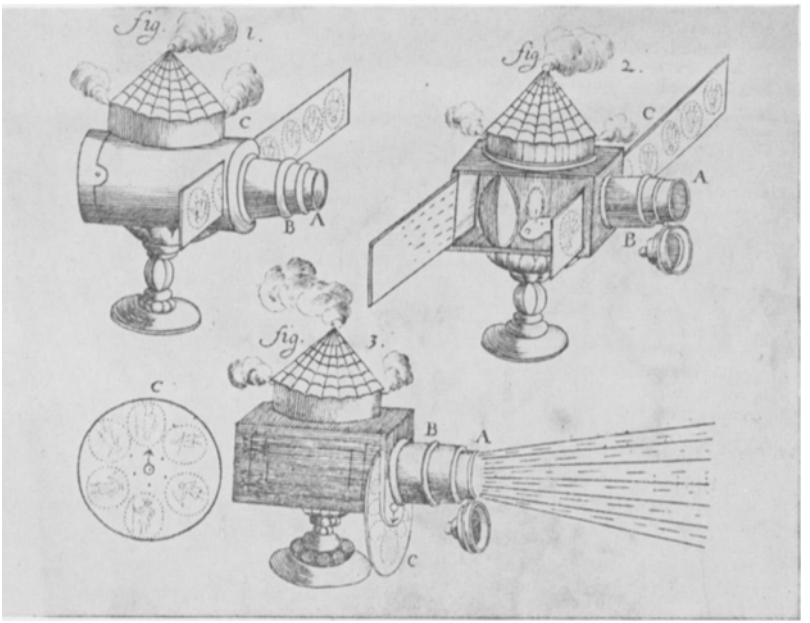
Fig. 1.
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Fig. 5

forefather of the present highly developed Powers Projector. In Fig. 5 we see a somewhat different structural type in the supporting element and perhaps it is not unreasonable to suppose that this represents the ancient progenitor of the present Simplex family. Judging from the fumes emanating from the lamp house it must be equipped with high intensity arcs.

The Camera Obscura was first suggested by Friar Bacon in 1260 and Leonardo da Vinci gave illustrations explaining the theory and application of this instrument in 1490. Porta described the Camera Obscura quite fully in "Magica Naturalis" published in 1558 and in 1568 Daniel Barbaro first metioned the use of a lens with the Camera Obscura. The application of the light sensitive properties of silver salts to the production of pictures began about 1792. Many investigators worked on this subject and the precise chronological order in which the various results were obtained is rather uncertain.

From this period developments in the fields of science resulting in the production of motion pictures were very rapid and many of you are entirely familiar with this evolution. I will therefore not impose on your patience to follow the evolution from that time on. I hope that this very brief consideration of some of the more remote antecedents of the motion picture may be of some interest to you.