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Motion-Pictures in Education

Anna M. Filut

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PREFACE.

It is hoped that the material presented in this thesis, will add a little more information to visual education, and help to the educators re-
MOTION-PICTURES IN EDUCATION. has become a powerful force in national life and is exerting a lasting influence in shaping attitudes and ideals.

What is included in this treatise is regarded as essential to the systematic introduction of the motion picture in teaching.
By
Anna M. Filut. one of the greatest educational inventions of modern times.

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A thesis submitted to the Faculty of the
College of Liberal Arts of Marquette University
in
Partial Fulfillment of the Requirements
for the
Degree of Bachelor of Philosophy.
John P. Freney, Marquette University, for his review of this thesis.

Milwaukee, Wisconsin,
July 1936.

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PREFACE.

It is hoped that the material presented in this thesis, will add a little more information to visual education, and help to make educators realize that the motion picture has become a powerful force in national life and is exerting a lasting influence in shaping attitudes and ideals.

What is included in this treatise is regarded as essential to the systematic introduction of the motion picture in teaching, since the motion picture is considered one of the greatest educational inventions of modern times.

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Anna M. Filut.

Milwaukee, Wisconsin,
July 1936.

INTRODUCTION.

At the National Congress of Parents and Teachers convention at Miami, Florida, in May 1935, E.H. Barrow of Columbus, Ohio made a statement that American Colleges are teaching forty years behind the times instead of ten years ahead.

"This is a tabloid age and to teach effectively, we must use modern agencies of the era that is highly visual and auditory in appeal."

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INTRODUCTION.

At the National Congress of Parents and Teachers convention at Miami, Florida, in May 1935, B.H. Darrow of Columbus, Ohio made a statement that American Colleges are teaching forty years behind the times instead of ten years ahead.

"This is a tabloid age and to teach effectively, we must use modern agencies of the era that is highly visual and auditory minded".

How should this statement be evaluated ? What bases was used for measuring the time that colleges are behind times in education? The speaker further states,

"The study of the past is a poor academic process unless it makes the child interpret the present. Only the schools that have stopped covering students over with the dust of dead things and are giving them current events have the beginning of self-education".

Are the various colleges not responsible for training the teachers for the American schools ? If they are forty years behind times in their teaching, then the product which they turn out for teaching the American children must be equally backward or more so before it actually orients itself in its new profession. It is the product of these colleges that promulgates the covering of the American Youth with the dust of dead things, thus creating an endless chain of backwoods teaching. If conditions are like this in education, how do they compare with human endeavor in other lines of progress ? It would perhaps help us to grasp the trend of things generally if some of the outstanding inventions were enumerated and the speed with which they were accepted by the public was mentioned.

¹
The Milwaukee Journal, (Friday, May 3, 1935), Milwaukee, Wisconsin. p.1

²
Ibid. p.2

Matches were made in England in 1833 and shortly after 1840 they were used in America. Eli Whitney invented the cotton gin in 1793 and at once the South began to grow more cotton, and to bring more slaves into the states. The McCormick reaper was invented in 1833 and it was in general use by 1840. By 1860 these machines were being manufactured at the rate of twenty thousand per year. John Fitch, of Connecticut, made his model of the steamboat in 1785, and, in 1789 it made a trip on the Delaware River. In 1807, Robert Fulton's Clermont, made the trip from New York up the Hudson to Albany. In 1811, for the first time, a steamboat was sent down the Ohio and the Mississippi Rivers to New Orleans. In 1819 the Savannah was the first steamship to cross the Atlantic Ocean. In 1844, Samuel F.B. Morse invented the telegraph. In 1858, Cyrus W. Field brought Europe and America closer together by his invention of the Atlantic under sea telegraph cable. By 1866 telegraph cables were in operation in all parts of the world. In 1876, Alexander Graham Bell started talking over wires and invented the telephone. In 1877 the first telephone switchboard came into use. In 1892, Charles E. Duryea built the first successful gasoline motor vehicle in this country. The next year, Henry Ford and Ransom E. Olds constructed and ran a gasoline motor car of their own design. Since then the number of various automobiles increased marvelously. Orville and Wilbur Wright experimented with flying as early as 1900. In 1909 the United States Government ordered its first plane. In 1911, the first flight was made across the United States. In 1927 Charles A. Lindbergh made his flight across the Atlantic. In 1901 Guglielmo Marconi invented wireless telegraphy and in 1903 wireless messages were sent to and from ocean liners. In 1900, there was not a single movie theatre in the United States. They were experimented with by

Thomas A. Edison as early as 1888. Sound in connection with motion-pictures was introduced in 1926 and revolutionized the whole industry. The radio dates from Marconi's invention of the wireless. The first news bulletin was sent by radio in 1920. Public broadcasting also was begun in that year. According to The Film Daily ,

"RCA will bring television out of the laboratory in 1936 for the first comprehensive, experimental field test in America".

With the inventions of modern times, the world seems very small, long distances can be covered in a short time. Voices can be heard from all parts of the world. The nations of the earth have all been brought closer together by the many advances in the fields of communication and transportation.

The question to be answered is, has education kept up with the progress and rapid strides of other endeavor ? Amelia Earhart states,

"It takes from ten to twenty years for the public to accept an invention, and today we are just beginning to feel the impact of the airplane. And more of us are just beginning to realize how mighty a force aviation will be in shaping the earth. It will flatten our cities, enable people to live 100 miles from their daily jobs, affect the thinking and outlook and psychology of the world as profoundly as did the automobile. It will, I guess, finish the job the automobile started".

In view of the above review of progress in industry, business, and amusement, where does education stand ? Especially in the use of modern agencies of the age to teach effectively the highly visual and auditory minded humanity ? With the motion-picture we are enabled to hear beyond the range of sound, and see beyond the range of sight.

3

David Sarnoff, "RCA Bringing Television Out of Lab", The Film Daily, LXVIII No.151 (Saturday, December 28, 1935), p.1

4

Ira Wolfert, "Amelia Earhart Stops Being Personality to be a Person", The Milwaukee Journal, (Friday, Aug. 23, 1935), p.2

It is capable of bringing new earths, skies and seas within ordinary human vision. Yet, has it been utilized to its fullest extent in education? Perhaps a review of the history of the motion-picture and its application to education will enable us to see what strides have been made in utilizing this forceful medium in promoting knowledge.

HISTORY OF THE MOTION-PICTURE.

From the very beginning of the human race, men felt the need of some form of expression, by means of which it would be possible to make other human beings feel what you feel, see what you see, and hear what you hear. The accomplishment of this desire was a slow development through various states of culture commensurate with man's need and surroundings. The aim of the earliest writers was to give durable form to their productions. The earliest inscriptions and historical records which have been preserved were placed on stone or baked brick or metal. The Ten Commandments were engraved on slabs of stone. The Laws of Solon, about 546 B.C. were inscribed on wooden planks.

It is interesting to note that the very first form of writing used by primitive man was picture writing, such as was and is still used by some of the Indian tribes of the New World. In this system of writing the characters are rude pictures of material objects, as for instance a picture of an eye to indicate the organ of sight; or they are symbols of ideas, as a picture consisting of wavy lines beneath an arc representing the sky to indicate rain. This way of representing ideas, seemed natural to man.

The Egyptians are given credit for developing the alphabet without knowing it. They employed three forms of script: the hieroglyphic, in which pictures and symbols were carefully drawn; the hieratic, a simplified form of hieroglyphic, adapted to writing the

papyrus manuscripts; and the demotic, a further simplification of the hieratic form. The key to the Egyptian writing was discovered by means of the Rosetta Stone,¹ found by the French when they invaded Egypt under Napoleon in 1798. The decipherment of the Egyptian hieroglyphics by Champollion, revealed to us the life, thought and scientific attainments of the old Egypt.

The visual images which were used in the ages of antiquity, reveal to us that the ancients had a need for the keeping of records, and dates of events for the purpose of conveying this information and records to others.

The earliest productions answering to our modern books of which we have any record were the tiles covered with inscriptions in the soft clay by the Chaldean authors and rendered permanent by being baked in ovens. The excavations carried on in Lower Mesopotamia (1895-1901) by Dr. John P. Peters and others have brought to light, from the ruins of the Temple of Nippur, tablets believed to have been produced about 6000 B.C.

Next to baked clay in importance was the skin of goats. The writings inscribed on these were known as diphtherai basilikai or "royal books" of the Persians. Herodotus, the ancient historian says that such skins were used in the earlier ages even in Egypt.

Impetus was given to the use of papyrus by an embargo placed on it by the Egyptian King. A copy of The Odyssey, the Grecian classic, was written on a roll of papyrus. In Egypt the rolls of papyrus were kept in jars (holding nine or ten each). In Rome they were kept in wooden boxes or canisters (often of costly workmanship) or in parchment cases.

¹

Philip Van Ness Myers, Ancient History, pp.33-35.

From the fourth century B.C. to the close of the sixth century A.D. by far the larger proportion of the literature of the world was recorded on sheets of papyrus. The perishability of the papyrus is responsible for the loss of a very large proportion of this literature of antiquity. With the increasing scarcity of papyrus, the improved parchment came into general use in the beginning of the seventh century.

The classic texts that exist to-day have come down to us in these parchment copies prepared by the monastic copyists. Next books were made in some of the oldest universities like Bologna and Paris. In the thirteenth century the making of books became a part of the educational work. Cotton paper began to be used in Europe about the beginning of the tenth century. Specimens of linen paper have been identified about 1270. With the invention of printing in 1450 we come to the modern period of the making of books.

For a century prior to this date, books of a special character, made up mainly of pictures with an inconsiderable interpolation of text had been printed from blocks of solid wood, and later of zinc. These books were chiefly devotional in character. The printing of these block books is termed Xylography.

From the Egyptian papyrus down to the invention of printing illustration was supplied by pictures, colored or uncolored engravings, and carvings, executed by hand. The first printed books were entirely illustrations, both pictures and text being printed from blocks engraved on wood relief, such as the Biblia Pauperum, and many other. The Ars Memorandi, which appeared at the end of 15th century comprised of fifteen New Testament pictures, faced by the same number of text pages, all engraved on wood. Probably the first printed book with wood-engraved illustrations used throughout the text was the Fables of

Ulrich Bohner, issued by Albert Pfister, a printer of Bamberg, in 1461, which had 161 engravings on wood. Next books were issued with illustrations engraved on metal.

The leading educators of this period used these various texts as their visual aids in teaching. The humanists, in the middle of the sixteenth century, relied on the study of good authors with their records of human experience. The realist believed that teaching the child from books was secondary in importance to bringing him into direct contact with nature and reality. The naturalists maintained that the child can be prepared for life only by living.

The outstanding realist of this period was John Amos Comenius,² (properly Komenski) (1592-1671). He was an educational reformer, born in Moravia, who was convinced that the child could not learn through words alone. He maintained that words and ideas should be made real through the use of the objects themselves when possible or through pictures. According to him, everything in the intellect comes through the senses. The perceptions are stored in memory and called up by imagination. Comenius advocated that we first educate these senses, then the memory, then the intellect and finally the critical faculty. He gave to the world the first picture-book for children, the Orbis Sensualium Pictus, or the Visible World. This book appealed to the eye and the mind of the pupil through the skill of the artist. Words were clarified and impressed by pictures. The Orbis Sensualium Pictus became the most popular school-book in Europe and held that place of distinction for nearly a century. This gained for Comenius the distinction of introducing visual education to the modern world, and helped him attain the title of father of visual education. Incidentally, this gives us evidence that visual aids are as old as education itself.

²William H. Johnson, Fundamentals in Visual Instruction, p.9.

Simultaneously other forms of expression were developing, like painting and sculpture. All achieved a great degree of perfection but the artists felt that something was lacking in their reproductions, which seemed beyond their human power to grasp and retain. This led to an endeavor of producing a realistic appearance of objects and fixing them by means of light on a previously sensitized surface. The reproduction of exact images was accomplished by various processes on glass, paper or other materials and became called photography.

The first photographic camera was a darkened room to which light was admitted through a small hole in the window shutter. This was the Camera Obscura of Giambattista della Porta, Italian philosopher in 1569. In Germany, J.H. Schulze, obtained the first actual photographic copies of writing as early as 1727.

In Rome about 1640 Athanasius Kircher, a Jesuit from Geiss, demonstrated to an audience of nobles his Magia Catoprica, or magic lantern. On this device Kircher projected crude hand-painted images of the Devil, on the wall of a darkened room by the light of a smoky lamp.

In 1802 Thomas Wedgwood published his account of a method of copying painting on glass, and of making profiles by the agency of light upon nitrate of silver. He performed some experiments at the Royal Institution, in London and the English claim him as the first photographer. No method of fixing the images thus obtained was known at the time.

Joseph Niepce, in France produced permanent pictures by a process which he called heliography in 1814. This method of reproduction seemed too slow however to some of the ingenious scientists and artists. They began to dream of reproducing living pictures and

picture projector. He took photographs of his sons in a series of

make them so that it would be possible to reproduce that what the eager eye saw in nature.

About 1824 Peter Mark Roget, was one of the first scientists to study the nature of the appearances of motion. His was the first scientific inquiry into the phenomena upon which the motion picture illusion of to-day is based. He published his paper on the persistence of vision, suggested by seeing glimpses of a passing bakers' cart through the slats of a Venetian blind. These experiments in motion led to the invention by William George Horner of Bristol, of the toy called the Daedaleum which was later manufactured in France as the Zoetrope, or Wheel of Life. This nursery toy appeared in England in 1833 and ten years later became known in America. By turning the wheels the drawings or paintings of animals or people in different positions were seen in rapid succession, giving the idea of continuity of motion. This idea was further developed by Lieutenant Baron Franz von Uchatius, of the Austrian army, in Vienna in 1853. He combined the magic lantern with the Daedaleum and had a projecting Zoetrope. Moving-pictures could now be projected on the wall, but the images thus reproduced had to depend on the eye and hand of the artist for the process of record.

Simultaneously with these developments in France since 1829 Louis Jacques Mande Daguerre and Joseph Niepce formed a partnership and continued their research in photography. Daguerre was a painter seeking a scientific method of record, to attain a maximum of realism in his pictorial recreation of events. Ten years later they announced the invention of the daguerreotype process of permanent photography.

By 1860 Coleman Sellers, of Philadelphia, a mechanical engineer, made a device which closely resembled the present motion-picture projector. He took photographs of his sons in a series of

actions showing them driving a nail into a box. This device he called the Kinematoscope. It was patented in 1861. He has the distinction of being the first to use photographs of real people in continued action and to arrive at the conclusion that to obtain continuity of motion the picture should be at rest during the moment of vision. He is given credit for making the first camera for taking pictures to simulate motion.

The next development in motion pictures grew out of an argument among a group of horsemen in California. The argument was to determine the position and analyze the movement of the horses feet during the race. This incident took place in 1872 on the ranch of Leland Stanford, the founder of Leland Stanford University. He ordered a series of twenty-four cameras placed along the edge of the race-course to enable John D. Isaacs, the engineer in charge, to take ordinary snapshots of the racing horses as they moved along the track. These cameras were operated with electrical shutter controls, by Edward Muybridge, a skilled photographer. It was discovered that the horses were entirely off the ground at certain times.

Muybridge took up in earnest his experiments in pictured motion. He invented the Zoopraxoscope, which projected moving-pictures on a screen and enabled a number of persons to watch the results simultaneously. He succeeded while working at the University of Pennsylvania in making the first instantaneous photographs, an essential step in cinematography. This enables the spectator to receive the impression of continuity of motion.

Following these developments we have in 1882, Dr. Marey announcing the invention of a Photographic-gun, the first camera capable of taking through a single lens, the number of exposures per second requisite for recreating the illusion of motion when

projected. The only draw-back to permanent development of this invention was the fact that the pictures were reproduced on glass plates. Dr. Marey devoted his experiments to the attainment and demonstration of scientific facts. He was an eminent French scientist, a member of the Institute and of the Academy of Medicine, Professor at the College of France and Director of the Physiological Station, where most of his experiments in picture motion were conducted. In the preface of his work on Movement, Dr. Marey says:

"The graphic method, with its various developments, has been of immense service to almost every branch of science..... Almost all vital functions are accompanied by movement, but any attempt to investigate them is beset with difficulty, for the majority are very complicated or very rapid, but it occurred to us that many of these problems could be solved by chronophotography." (This is the name given by Dr. Marey to what we now call cinematography.)

In America, Thomas Edison, made a machine that talked. He now was intent upon making a machine that would make pictures move. In 1887 he calculated that if a number of photographs could be taken of a moving object at the rate of fifteen per second, these same photographs, under mechanical motion, would reproduce exactly the movements of the original object. He proposed to

"do for the eye what the phonograph does for the ear..... and by a combination of the two produce sound and motion simultaneously"

Fortunately for Edison in 1889 George Eastman, of Rochester, New York, placed a new transparent celluloid roll film on the market. This when utilized in the camera invented by Edison produced the desired results. Since that day the principle of the Edison camera

³ Don Carlos Ellis and Laura Thornborough, Motion Pictures in Education, p.13.

⁴ Francis Trevelyan Miller, Thomas A. Edison, pp. 227-230.

has been the established method for securing pictures in motion. The application for United States patent was filed on August 24, 1891. This gives Thomas Edison the distinction of being the father of the motion-picture industry. His camera called Kinetoscope, was a peep-show. It was a little black box into which one spectator at a time could peer at a running film, magnified by a lens and illuminated by an electric light behind. The machine had a capacity of about fifty feet of film. It was about one inch in width and presented sixteen frames or separate images, per foot, running at the rate of about forty-eight images a second, or three times the modern rate of film movement. The Edison standard size, which was determined in 1888, before the film became available, became and remains the world standard to-day. It was planned that Edison introduce his product at the Columbian exposition at Chicago in 1893 but the machines were not produced in time, so the first film show in the world was at the Kinetoscope Parlor at 1155 Broadway, New York, opening April 14, 1894.

Among the spectators were Gray Latham and his brother Otway. They were not fully satisfied with Edison's peep show because they could entertain only one patron at a time. They conceived the idea of combining the Kinetoscope with the magic lantern and projecting the pictures on the wall and thus being able to accommodate a larger audience. With the aid of their father Professor Woodville Latham, a chemist and engineer, they demonstrated a motion picture projection machine at his laboratory in New York on April 21, 1895. The pictures shown were of a prize fight. The machine was imperfect in principle and performance.

During the Fall of 1894 several of Edison's machines were exported to Europe and from them sprang the English and Continental development of the Motion-pictures. Louis and August Lumiere,

photographic supplies manufacturers, at Lyons, France, produced a fairly satisfactory projecting machine, the Cinematographe. They exhibited it to the public in Paris, December 28, 1895. The same year, Thomas Armat of Washington, D.C. discovered the principle of modern projection. This projector was first shown publicly at the Cotton States exposition in Atlanta. It displayed the Edison Kinetoscope pictures and became later known as the Vitascope. These machines were manufactured at the Edison plant in West Orange, N.J., and mark the real beginning of screen history for the United States, as April 23, 1896. Simultaneously the Lumiere influence on the motion picture assumed greater importance. Their Cinematographe was adjustable, and a combination of camera, film printing machine, and a projector. It was easily movable about and could record outside scenes. They sent photographers all over the world obtaining films for the screens of Europe and America.

The progress of motion pictures in America was slowed down by the necessity of censorship of some undesirable films which were making their appearance, and by a number of law suits over patents. Abroad, this form of entertainment received a set-back because at Paris in 1897 a disastrous fire in a motion-picture theatre took the lives of 180 people.

The fifty-foot lengths of film used in the kinetoscope consisted of merely photographs of moving objects and persons, scenes of waves rolling in on a beach, a part of a prize fight or some popular dancers. To-day scenes of this length are called Shorts. The first effort in telling a story in pictures was realized in 1897, when The Passion Play of Oberammergau was presented on the roof of the Grand Central Palace, New York. The length of this presentation was about three thousand feet. Interest in motion-pictures was declining, when in 1903 Edwin S. Porter, an Edison cameraman introduced two new

pictures to supply the public demand for thrill pictures. They were The Life of an American Fireman and The Great Train Robbery. They became world-wide sensations and immediately a demand went up for pictures that were more realistic in nature.

The show men of America discovered the entertainment value of the motion picture and developed it to a very important industry. They brought about technical improvements, theatrical growth, refinement and outstanding perfection in an incredibly short time. The screen itself was now capable of maintaining sustained interest. David Wark Griffith, a Kentuckian introduced in 1907 into the production technique the art of using the close-up, flash-back, fade-out and the dissolve. He produced, The Birth of A Nation, one of the outstanding pictures of all time. This marked the advance of the serial picture. It was revolutionary and immediately advanced the motion picture to a level where it could give the stage keen competition. One or two reel pictures were common up to 1912. In 1913 an eight-reel picture "Quo Vadis" was produced in Italy and was very successful. The most sensational pictures were coming from Europe up to now and had considerable influence on the American producers.

With the outbreak of the World War in 1914, film production came to an end in Europe. America obtained control commercially and maintains this control to-day. In 1918 she was controlling the world market for pictures. The censorship of pictures led to the organization of the National Board of Review of Motion Pictures in order to enable it to maintain a high, desirable quality in the production of pictures. This board is opposed to all forms of censorship, and believes firmly in selection and classification - a plan it was the first to evolve - as the most effective and constructive method of creating a public appreciation and demand for good films.

The industry grew to such proportions that in 1922 it was necessary to organize it in order to have it more efficient. This led to the organization of the Motion Picture Producers and Distributors of America, with Will H. Hays as president. It serves as a co-ordinating agency in industrial relationships. Their activities are distributed among the following categories: Production Code Administration, Advertising Advisory Council, Public Relations, Foreign, Legal, Theater Service, and Department of Conservation.

Edison's Kinetoscope was a one-man device, but in its infancy it had ear tubes to catch the sound, thus giving the public synchronized sound with pictures. Upon withdrawal of the Kinetoscope from the market, scientists continued their investigations in recording sound with pictures. In 1926 it was presented and was immediately successful. Their problem of producing satisfactory qualities of sound in adequate volume for theatre use was accomplished. Credit for the development of sound is generally given to the scientists and engineers of Bell Telephone and General Electric Companies. The addition of sound strengthened the influence of the motion-picture on entertainment, living, ideas and ideals, the customs and costumes, and hopes and ambitions of people in all walks of life. It revolutionized the standards of living.

To advance the present accomplishments in this field, experiments are carried on to produce pictures in natural color, three-dimension motion-picture, wider screens, and television. The artistic portrayal of pictures is constantly improved.

In tracing the development of the motion-picture Will H. Hays, writes:

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Will H. Hays, See and Hear, p.27

Ibid. pp.35-36

"The industry had by now passed the state of an entertainment force only. The screen was being used in many directions, It had become an aid to the educator, an ally of the scientist, the servant of clergymen, the friend of industries.....Motion pictures could teach employees better methods of operation, more skillful use of tools, better ways of living, safety methods".

In another part of his narrative, the outstanding authority states:

"Thoughtful people are agreeing with our persistent contention that the motion picture is one of the greatest forces yet given to man to bring a happier understanding not only between men but also between nations. And herein lies what I confidently believe is one of the greatest future possibilities of the motion picture. The motion picture knows no barriers of distance nor of speech. It is the one universal language. All men, wherever they may live, can find on the screen a story they can understand. If we can only have understanding, we shall not only be peaceful and kindly among ourselves, but we shall remain at peace with all nations. When we understand, we do not hate and when we do not hate, we do not make war".

With the above quotations and review of progress in mind, perhaps it would be advantageous to resume the history of motion pictures in the field of education, and note what use and development has been made of them as compared with progress in other lines of endeavor.

The term "educational" has been commonly used by the motion-picture producers to describe all pictures not made for recreational purposes. They are of informative nature, religious and historical drama, pictures of travel, science, industry and news reels. One of the first educational pictures of this type was the Passion Play. It was a religious and historical drama filmed in 1898. The coming of the Spanish-American war in 1898 gave the films new interest because they could avail themselves of patriotic scenes of waving flags and marching heroes. After the war, a historical drama based on the news reels taken during the war was assembled under the title,

Tearing Down the Spanish Flag.

About 1900 Georges Melies, in France adopted the camera to fantastic representations and enlarged its possibilities as a medium in feats of mystification. He evolved many tricks of the camera, which enabled him to produce pictures of fantastic imaginative character. He boasted of originating the idea of photographing artificially arranged scenes. In this method he produced Gulliver's Travels and A Trip to the Moon. These pictures appealed to the children.

The Federal Government was first to utilize the motion-pictures on an extended scale for instruction. There is record of the fact that the United States Reclamation Service exhibited at the Jamestown Exposition in 1907 film which enlightened the public on the work of the Government in reclaiming arid lands. The Department of Agriculture produced educational films in their own laboratory, and was the first to successfully combine cinematography and animated technical drawing in their film, The Barbarous Barberry. It was a study of the wheat rust. The first film on forestry in the world was produced by the Forest Service Bureau of United States.

The use of news reels, depicting historical events from all over the world and the animated drawings invented by J.R. Bray in 1911, provided a new means of indicating places on a map and helped in showing processes that could not be photographed. European products showing the growth of plants, the emergence of the butterfly from the caterpillar, drew the attention to the value of this new medium of expression as a teaching aid in the schools. Due to this interest commercial companies invested in educational pictures and in 1912 the General Film Company organized an educational department where a large collection of educational films were assembled.

The attention given to motion-pictures by the Government during the war gave them an impetus, a dignity and an importance as a medium of conveying information that they never had before. These films were available to educational institutions and after the war were deposited with various State Universities. This led to the beginning of various visual departments in these institutions, and the production of valuable pictures has been increasing yearly and the quality of them improving with time and experience.

About 1915 the National Academy of Visual Instruction was organized with the purpose of stimulating the use of visual aids in education, stressing the unique advantages of motion-pictures. Its membership consisted practically of all the directors of visual education in state colleges and universities. This organization later merged with the department of the National Education Association and formed "The Visual Instruction Department of the National Education Association". Simultaneous with these activities, between 1915 and 1925 several companies were organized to produce and distribute educational films for schools, churches, clubs, public institutions and industrial organizations. Due to various obstacles and enormous expense they were forced to discontinue their efforts. Few of these organizations, maintain an educational department and supply the market on that point to date.

In 1917 the legislature of the state of North Carolina, was first to appropriate \$25,000. for purposes of improving social and educational conditions in rural communities through a series of motion pictures selected by the Department of Public Instruction.⁷ Portable

⁷Don Carlos Ellis and Laura Thornborough, Motion Pictures in Education, pp. 29-31.

units were organized, mounted on trucks and made the rounds of the community regularly. The programs included six reels made up of comedy, history, literature and agricultural subjects of general and local interest. These community circuits proved extremely popular and grew in number very rapidly.

Visual instruction departments were being organized in the more modern and efficient school systems, like: Atlanta, New York City, Chicago, Evanston, Kansas City, Detroit, San Francisco, Berkeley, Oakland and Los Angeles and Newark. At the National Education Association Convention at Boston, in 1922 the Hon. Will H. Hays,

President of the Motion Pictures Producers and Distributors of America
8
said:

"On behalf of our organization I offer to your association all of our facilities to aid in your experimentation. There is already a great demand for pedagogic pictures. I propose that we jointly study that demand and that we jointly find ways and means of supplying it. Let a committee be appointed of this association made up of the very best talent within your ranks; let them meet with the great producers of the country and find ways to use our facilities. We ask you to aid us and let us aid you in the study of the whole problem of the use of motion pictures as a direct pedagogic instrument. Let us together find the means of making classroom pictures which are scientifically, psychologically, and pedagogically sound. Not only can we take care of the demand which now obtains; but the great demand which is imminent, and which will certainly come, must be met by producers with a supply that measures up to the ideas of the educators of the country".

This liberal offer was either disregarded by the association, or the statements made were not intended to bear fruit, because there were no developments forthcoming from the above planned procedure. The small independent educational producer made the majority of the pedagogical films now being used in instruction.

8
Ibid. p.24.

The same year is published the first piece of research in the field of visual education. It is a thesis entitled, "Comparative Effectiveness of Some Visual Aids in Seventh Grade Instruction" by Joseph J. Weber, for a Doctor of Philosophy degree at Columbia University. Since then several admirable pieces of research were undertaken which will be mentioned later.

Another important step to further the visual education field was the beginning of the publication Educational Screen, a magazine devoted exclusively to the improvement and scientific development of this phase of teaching. Two years later (1924), Nelson L. Greene, Editor of this magazine estimated the number of non-theatrical motion-picture machines in use to be about 15,000 and studies made by Hollis, F. Dean McClusky of Purdue University, and J.V. Ankeney, secretary of the National Academy of Visual Instruction reveal that forty universities, normal schools etc. have organized departments of visual education for the distribution of films, slides and other visual aids, and fifty cities maintain departments of visual education. The "1,001 Films", a catalog of films lists 3,000 motion pictures for non-theatrical use. The United States Government, Ford Motor Company, International Harvester Company, General Electric and others produced thousands of reels of film of an educational nature. Yale University by this time has created quite an extensive library of educational films.

Wide awake teachers were using visual aids independently, enthusiastically, with growing effectiveness, in city school systems and isolated country classrooms. This continued growth in the use of visual aids was stimulated by Eastman Kodak Company placing their 16mm Cine-Kodak and supplies on the market, which enabled the amateur to do

some independent experimentation in the field of education. The original cost of equipment and supplies was reduced considerably from the cost of professional 35mm. stock. ¹⁰

It became necessary for teachers to be instructed in the proper use of the visual aids on the market at that time, so Mr. DeVry organized the first Visual Instruction School in Summer of 1925, at Chicago. A program which was carried out in this institution can be found in one of the texts on this subject. Tuition was free at these sessions. All expenses were covered by Mr. DeVry. During the depression the sessions were temporarily suspended. They were resumed in June 24-28, 1935, at the Francis W. Parker School. Most of the outstanding educational and industrial films of the last few years could be seen and heard here.

The first Film Foundation as an independent educational institution was founded in 1928 by Harvard University. They accumulated films and established a film service which is available for loan or University use. The name of this department was changed to The Harvard Film Service in 1934.

Educators are beginning to realize that films of greatest instructional value, are those being primarily made for instruction. They are devoting more time to educational films and faculties of various universities are developing films of superior educational value and paralleling these pictures with standard courses of study. Some of the outstanding efforts along this line are undertaken by Yale University, in producing the Chronicles of American History. The University of Chicago likewise developed unusually helpful pictures in Physical Geography and Geology. Other Universities

contributing worth while motion pictures are: The Universities of Illinois, Indiana, Iowa, Oklahoma, Michigan, Nebraska, Wisconsin and Utah. The University of Nebraska has erected a \$20,000 motion-picture studio on its campus.

In 1932, The Visual Aids Service has been started in Illinois university. The extension division of this institution supplies various schools of the state with visual aid materials by means of their State Cooperative Film Library.

At a meeting of the National Council of Teachers of English, their Committee on Photoplay Appreciation recommended that units of instruction be introduced into the nation's schools, with a view of improving popular standards and tastes in motion pictures. As a result of various studies by this committee, the Council is preparing a series of lesson texts on various outstanding motion pictures. These texts are being sent to the heads of English departments in some 17,000 high schools all over the country. These lessons are divided into two sections, one to be used before seeing the film; the second to test the reaction of the students after witnessing the picture. Study guides are made for the outstanding motion-pictures and supplied to English classes. These aids are rapidly increasing in popularity since the beginning of their use in 1934. Simultaneously with this movement, the New York University announced a course entitled "The Motion Picture; Its Artistic Educational and Social Aspects" for the academic year of 1934-1935. It is to be given under the direction of Dr. Frederic M. Thrasher, Associate Professor of Education, and will cover every phase of the motion picture including the entertainment film as well as the educational and creative production. This course is the outgrowth of the

conviction, based on research, that the motion picture is one of the most tremendous educational and social forces of modern times.

Likewise, the Department of Cinematography at the University of Southern California, Los Angeles, under the direction of Dr. Boris V. Morkovin, is offering three courses: "Fundamentals of Motion Picture Production", by means of lectures, films, experimental work and studio excursions, "The Motion Picture Camera" is a technical course discussing camera development, construction and operation. "Teaching Motion Picture Appreciation" places the emphasis on the social and educational values of moving pictures and the development of standards and criteria of appreciation.

The State Normal Schools of Newark, Jersey City and Paterson, New Jersey, are for the first time giving a course "Modern Trends in Education". This course uses educational talking pictures as basic materials and is being offered as an extension course for teachers in service. The educational talking pictures included in the course will also be used with student teacher courses.

Dr. Cline M. Koon, Senior Specialist in Radio and Visual Education of the United States Office of Education compiled a report for the International Congress of Educational and Instructional Cinematography in 1934. Commenting on the status of Motion Pictures in Education in the United States, he states: ¹¹

"Unfortunately, data on this problem are few and unreliable.....From these available data a conservative estimate of the number of all public schools in the nation making systematic use of motion pictures in classroom instruction would not exceed ten percent. The large city school systems have made the most extensive use of films.... Pittsburgh, Pennsylvania, with a school population of 100,000, has a motion-picture library of about 4,300 reels."

The United States Bureau of Mines has the largest and most

¹¹

Cline M. Koon, Motion Pictures in Education in the United States, pp.58-60.

authentic library of educational films in existence to-day. It consists of nearly 3,000 reels. Other departments of the government are planning to utilize the motion picture to educate the public and inform it of their various activities under the recovery program. This will enable millions to understand how our Government functions and will have a clearer insight into what it accomplishes. The films are to serve a useful purpose in connection with the educational work to be carried on in the Civilian Conservation Corps camps.

We learn that the Library of Congress in Washington is boasting of over a million separate films of books and manuscripts. Most of the new films were made in Europe during the past two years, and afford an opportunity for scholars to examine material without the preliminary necessity of an ocean voyage. The films do not move, but are projected much in the manner of the old lantern slides. Dr. Thomas P. Martin of the manuscripts division predicts the replacement of cumbersome newspaper files with small boxes of practically imperishable film. The New York Public Library has already taken a step in this direction. It is conducting experiments designed to substitute motion picture film for the fragile, comparatively short-lived newspaper. The actual photographing is done in the Eastman laboratories, with standard 35mm non-inflammable film used.

Since September, 1935, no permanent license to teach in the public schools of Pennsylvania will be granted to any applicant who does not show evidence of having had a laboratory course in visual-sensory techniques. This course must now be given in the Arts Colleges and the Departments of the Universities giving teacher training work as well as in the State Teachers Colleges. The Department of Visual Instruction of the National Education Association recommended that all states of the Union make mandatory the action just taken by

Pennsylvania. This means that Pennsylvania is the first State in the Union to put the measure into effect. The American Council on Education, under the leadership of Dr. George F. Zook and with the cooperation of Dr. Edgar Dale, are planning to establish an American Film Institute with the following objectives:

12

"To develop a national appreciation of the potential contribution of the motion picture to the cultural life of America.
 To collect and distribute significant information concerning motion pictures in education at home and abroad.
 To stimulate the production and use of motion pictures for educational purposes.
 To promote the co-operation of all agencies interested in the production and use of motion pictures in education.
 To initiate and promote research pertaining to motion-pictures and allied visual and auditory aids in education".

With National organizations like the above becoming actively interested in the visual education movement, there is no doubt that in a very short time it is bound to expand to enormous proportions.

The greatest impetus to the whole field of visual education will no doubt be given by the Federal Office of Education. This agency in January 1936, is undertaking the most exhaustive survey of visual aids ever made in this country. The purpose of this survey is to determine the nature and scope of visual aids in elementary and secondary schools with a view to guiding national agencies such as the American Council on Education, the National Education Association, the National Congress of Parents and Teachers, the United States Office of Education, and others in extending and improving their services to schools. This study has been made possible by a grant from the American Council on Education. Data collected in this study will be published by the Office of Education.

12

Josephine Hoffman, "Film Institute Planned", The Educational Screen, XIV, (March 1935), p.72.

Simultaneously with the above survey, the Department of Visual Instruction of the National Education Association is mailing out questionnaires to determine the present visual equipment in various schools and its use. It is planned that the results of both of these surveys be combined and an enlarged Visual Instruction Directory be issued for the entire country.

1. to determine the field in which a particular device is most useful,
2. to determine the specific conditions under which the aid is most effective, or
3. to determine whether or not a particular device has enough merit to warrant its general use".

Some of the original research studies and their findings, are reviewed briefly here, for the purpose of revealing a wealth of helpful suggestions for the improvement of instruction.

Weber conducted one of the first experiments with motion pictures in education. He compared his investigation with verbal instruction. The questions which he endeavored to answer were:

"Is the text-film worth a place in the curriculum? Should part of the class period be given over to it? And, if so, when will it be more effective, before the lesson or after it? In other words should the film introduce a topic, or should it be used as a summary?"

In stating the results of his experiment he enumerates the following findings:

"When a correlated film is used as an aid in a seventh-grade geography class, it will increase the effectiveness of the lesson.

The National Elementary Principal, Bulletin of the Department of Elementary School Principals, National Education Association, Vol. XIII, No. 6, (June 1936), Washington, D.C., pp. 434.

Joseph J. Weber, Comparative Effectiveness of Some Visual Aids in Seventh Grade Instruction, p. 17

Ibid, p.49 and p.107.

EDUCATIONAL RESEARCH IN THE USE OF MOTION-PICTURES FOR INSTRUCTION.

Many experiments and tests have been conducted in the field of visual education but under conditions which cannot be accepted as valid research. A more accurate refinement of the technics used and varification of the findings is needed in the field. We find in the Elementary School Principals Yearbook, that the skilled investigator seeks no unattainable vision. He is usually attempting:

- "1. to determine the field in which a particular device is most useful,
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² Joseph J. Weber, Comparative Effectiveness of Some Visual Aids in Seventh Grade Instruction, p. 17

³ Ibid. p.49 and p.107.

This increase in effectiveness is the result of (a) greater ease of comprehension and (b) a higher degree of satisfyingness as a consequence. Since pictures provide vicarious experience, they should precede the lesson when the subject-matter is relatively foreign to the learners.

The preference for moving pictures as a visual aid stands about 15 to 1 among the pupils in the experimental group".

In developing a composite visual image, pictorial presentation is more effective than verbal;

This increase in learning is characterized by more memories, clearer ideas, better organization, and less misinterpretation;

Verbal description, when aided by pictorial presentation, is the most effective method of the three.

The averages of the "Film Lecture" presentation are almost invariably higher than any of the other methods used".

The most elaborate study made of the value of motion-pictures

in instruction was made possible by a grant from the Commonwealth Fund. Dr. Freeman was in charge of this experiment and appointed

various responsible investigators to aid him in this undertaking, in order to be assured of scientific procedure. These experiments were

carried on in the University of Chicago Elementary School and in the public schools of Evanston, Illinois; Urbana, Illinois; Detroit,

Michigan; Cleveland, Ohio; Joliet, Illinois; and Chicago, Illinois.

In all thirteen important experiments were conducted. The high lights of the final summary and interpretation of findings are as follows:

"The relative effectiveness of verbal instruction as contrasted with the various forms of concrete experience, represented in visual education, depends on two major conditions, the nature of the instruction to be given and the character of the pupils' previous acquaintance with the objects which are dealt with in the instruction.

The comparison of the motion picture film with other visual aids - slides, stereographs, still pictures - as means of informational instruction, indicates that the motion picture is superior within a restricted range of subjects, and that outside this range of subjects the older devices are as effective or more effective than motion pictures.

In teaching science, demonstration by the teacher is superior to the motion picture.

In teaching how to do or make something, demonstration, where it can advantageously be carried out, is superior to the film, but the film is superior to the methods with which it was compared, except demonstration.

Pictures appear to be very effective as devices to help in gaining proficiency in the oral use of a foreign language.

It does not appear that motion pictures are of outstanding and unparalleled value as means of awakening interest in a subject or of stimulating activity, in comparison with advanced modern methods of instruction.

The peculiar value of the film lies in its ability to furnish a peculiar type of content of experience rather than in its generally stimulating effect.

Each of the common forms of instruction which employ visual aids has some advantage, and there are circumstances under which it is the best form to use.

The usefulness of motion pictures would be enhanced if they were so organized as to confine themselves to their peculiar province.

The superior effectiveness of the teacher as contrasted with any merely material device was indicated repeatedly in the investigation.

Music, accompanying a motion picture film appears to heighten the attention, but whether it increases the amount of information gained from it is not certain.

There was a smaller percentage of loss on the memory tests in the case of the film groups than of the groups which were given other methods of presentation, with one exception.

Subject-matter should not be included in educational films which is not primarily the representation of motion or action.

It is uneconomical to put into motion pictures actions which can readily be demonstrated by the teacher.

Motion pictures should be so designed as to furnish to the teacher otherwise inaccessible raw material of instruction, but should leave the organization of the complete teaching

unit largely to the teacher.

It is probably desirable to have motion picture films in small units.

Caution should be observed to encourage initiative and an intellectually active attitude, and not to allow the use of motion pictures or other visual materials to overdevelop the attitude of passive receptivity."

A Psychological investigation was conducted by Special sub-committees appointed by the Cinema Commission of Enquiry in England. Two classes of boys, 23 in all, and five classes of girls 75 in all, were used. The groups were stated to be "Approximately equal in ability", but no grades nor ages are given and no intelligence tests were used. The tests in this experiment were confined entirely to "essays" written by the children after they had seen the films. In marking the essays which the children used as tests, the investigator compiles a Register of Facts, that is, separate statements of all the unitary facts mentioned in the essays. These statements of fact were classified into categories of (1) Action, (2) Living Things, (3) Inanimate Objects, (4) Locality. The essay material was again analyzed into (1) References to the Pictures and (2) References to the Sub-titles. Each of the sub-divisions was again subdivided into (a) Direct Reports and (b) Interpretations. The author, in part, summarizes the results as follows:

"(a) Mode of Expression - It has been shown that film essays are much more given to reports in particular terms than are any of the other essays.

(b) Common Elements - As a result of similarities between the lessons, essays tended to be full of common elements.

(c) Variable Elements - The more the film dominates the situation, the greater the tendency to describe the pictures themselves, and that in Particular terms".

An experiment to measure the value of Motion-pictures as supplementary aids in regular classroom instruction was conducted by Wood and Freeman. This investigation was the result of the action taken by the National Education Association in 1922, in appointing a Committee on Visual Education. This committee conferred with officials of Motion Picture Producers and Distributors of America, Inc. and representatives of the Eastman Company. The cooperation of all concerned was gained and the Eastman Company decided to undertake a practical experiment in the use of films in the schools to study the following questions:

"Can films be produced which are correlated with standard courses of study ?

Can the teaching value of these films, when used to supplement the usual pedagogical devices of the teacher in the classroom, be measured ?

Is the educational value of the contributions of the films sufficient to justify the expenditure required to make them a regular part of the equipment of the schools ?"

The sponsors of the experiment requested the authors to report specifically upon these questions:

"Are the motion-pictures which have been produced for this experiment adapted to classroom instruction ?

Do these films have a measurable value in supplementing class instruction ?

What are the values and influences of these films as nearly as you are able to determine ?

What are the objections, if any, to the use of films for teaching purposes ?

Does the value of the films in supplementing instruction outweigh objections sufficiently to justify their use in classroom work ?"

Ben D. Wood and Frank N. Freeman, Motion Pictures in the Classroom, pp. xix.

Ibid. p. xx.

To scientifically answer these questions, the authors attempted to determine the contributions made by twenty teaching films to the regular classroom work. Classes in which the films were a regular part of the instruction were compared with classes which did not have the advantage of this device. Almost 11,000 children were used in the experiment. In the fields of geography and general science the instruction was from February to May. Both objective and essay tests were used to measure achievement. The statistical evidence from the experiment showed that the experimental groups gained more than those that were taught by the usual method. Questionnaires circulated among the teachers revealed an overwhelming opinion to the effect that the films were highly effective in arousing interest and improving the project work, classroom discussion, and writing. In stating their opinions as to the place of films in the classroom this is what the authors have to say:

"If the motion picture film is to be of maximum service in instruction it should form an integral and regular part of the curriculum and of classroom work. The causal introduction of films into the curriculum without careful planning and careful organization is of comparatively little value. In so far as possible, a classroom film should always be used for some definite and particular purpose. It should be a necessary link in the chain of development of the subject.....

Classroom films, therefore, should have a definite sequence. They should have a pedagogical relationship to each other, to the discussion which takes place in the class, and to the pupil's reading in the textbooks and other reference works.....

Again, the film should be used in close relationship to explanatory discussion. The film itself will not ordinarily be completely self-explanatory. It will supplant none of the ordinary media of instruction, - least of all the teacher. "

Knowlton and Tilton attempted to measure the contribution of

⁶ Ibid. pp. 222-224.

⁷ Daniel C. Knowlton and J. Warren Tilton, Motion Pictures in History Teaching, pp. 87-93.

photographs to the enrichment, retention and creation of interest. They used ten historical dramas setting forth important developments in American history. Some of the titles of the films used were: Jamestown, The Pilgrims, and The Declaration of Independence. Progress was measured by giving a test at the beginning and again at the end of the experiment. Enrichment was determined by noting progress along four lines: (1) knowledge of time; (2) knowledge of historical geography; (3) knowledge of persons; and (4) knowledge of the interaction of events. Interest was measured by observing classroom participation, by opinion of the pupils, by the record of history reading outside of class and by the amount of voluntary reading under controlled classroom conditions. The subjects of the study were 521 pupils of the seventh grade. They were divided into fifteen sections of approximately thirty-five pupils each. Six sections formed the control group and six sections were the experimental group. Among the conclusions were the following:

"The ten photoplays increased the learning of pupils by about 20 percent.

The movies were particularly helpful in teaching the inter-relationships involved between events and forces.

The pupils who were taught by photoplays remembered 20 percent more after three months.

Photoplays increased noticeably the amount of participation in classroom discussion.

The photoplays had no apparent effect upon the rank given to history in relation to the other school subjects.

Pupils who were subjected to the photoplays did not read more history in the school library nor did they read more history outside of school, altho they did read more in connection with the regular class instruction ".

~~The experiment in photoplay appreciation, made by a committee of the National Council of Teachers of English under the chairmanship of Dr. William Lewin, has great value. It is a valid~~

scientific experiment, with findings and interpretations that are

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useful. They are :

- "1. Photoplay appreciation can be taught successfully to American boys and girls of normal intelligence in Grades 9 to 12, inclusive, provided the unit includes discussion of not less than seven current photoplays and devotes approximately two class periods to each photoplay.
2. More than seven pictures and more than fourteen periods of discussion are required in Grade 9, but less than this amount may be effective in Grade 12.
3. Pupil interest in the study of motion pictures as a part of English work and as a phase of training in the right use of leisure runs high.
4. The professional interest of the experimental teachers in the units of instruction was uniformly high, was sustained throughout the experiment, and was in most cases increased to enthusiasm by the end of the experiment.
5. The habits of high-school students in relation to the selection of movies can be significantly improved through the guidance of English teachers.
6. Nearly three-quarters of the students in American high schools have never prepared a theme or a talk on a photoplay in connection with their school work, but if given the opportunity students are greatly interested in such assignments.
7. Asking a teacher's advice about movies is very rarely thought of among high-school pupils, but the use of the new units of instruction results in a strong trend toward seeking the opinions of teachers.
8. Pupils readily learn to consider who produced a picture, who directed it, and what critics say about it, before selecting one to see.
9. The notion that adolescents generally insist on the happy ending in movies is erroneous.
10. Pupils can learn standards for evaluating current films and can readily follow criteria acceptable to English teachers.
11. Class instruction excels in developing appreciation of high ideals of character in screen portrayals, the greatest gain being in appreciation of honesty, with large gains reg-

gistered also for bravery, devotion, and self-sacrifice.

12. Normal students without guidance in photoplay appreciation generally report little specific influence of movies on their behavior, but students with guidance show 85 per cent greater influence.

13. Movie influence on instructed pupils, judging by the reports of the pupils themselves, is generally in the direction of higher ideals.

14. There is a close, reciprocal relationship between the outside reading habits of high-school students and their attendance at motion pictures:

a. A majority of pupils are stimulated to read books as a result of having seen enjoyable screen versions of those books.

b. A majority of pupils tend to select photoplays they know to be based on books they have enjoyed reading.

The book-film relationship becomes more significant as a result of classroom instruction.

15. The criteria of English teachers are at variance with the criteria of professional movie critics, so that teachers often rate certain pictures high while critics rate them low, and vice versa. However, as to some productions, there is unanimity of approval.

16. Teachers sometimes vary significantly among themselves as to the comparative value of individual pictures, but generally agree in giving high ratings to most of the pictures recommended by the steering committee for the experiment.

17. Many teachers of English are willing and able to cooperate in large-scale research in a field that seems vital to them.

18. Neighborhood theaters can be used as educational laboratories, and neighborhood-theater managers are generally willing to cooperate with educators along constructive lines."

At the request of the Motion Picture Council and supported by the Payne Fund, a group of university psychologists, sociologists and educators met to confer about the possibility of discovering just what effect motion pictures have upon children. They were unanimous in their opinion that the motion picture is powerful to an unexpected degree in affecting the information, attitudes, emotional experiences and conduct patterns of children. The conclusions of each contributor in his field are given in the ensuing reports: Holaday and others.

in determining the information and ideas that children obtain from the movies state,

"If parents take their 8 year old child to the movies he will catch three out of every five items that the parents catch, his 11 or 12 year old child will see 3 out of 4, and his 15 or 16 year old will catch 9 out of 10. Or perhaps it would be easier to state the findings in this manner the 8 or 9 year old sees half of what is to be seen, the 11 or 12 year old two thirds, and the 15 or 16 year old four fifths of what is to be seen. This would indicate that amount of information acquired is very high".

Another fact ascertained from these findings relates to the surprising count the children remember about a picture six weeks and three months later.

"In general the second-third grade children at the end of six weeks remember 90 per cent of what they know on the day following the show. Three months after seeing the picture they remember as much as they did six weeks after seeing it. In some cases they remember more at the end of six weeks and still more at the end of three months. At all ages including the adults the slow drop of the curve of forgetting is striking."

The investigators conclude that motion pictures appear to make a greater contribution to visual education than was previously suspected. It was also found that children of all ages tend to accept as authentic what they see in the movies. Types of fact that children remember best consist of: action when it concerns sports, general conversation, crime, fighting, when it had a high emotional tone and when it occurred in familiar surroundings such as home, school, or tenement. It was understood least when it concerned unfamiliar activities such as bootlegging and business, when it had no emotional tone and when it occurred in surroundings of unfamiliar and interesting type such as cafe and frontier.

In studying the effect of movies on the normal sleep of children, the normal sleep patterns in terms of motility were ascertained and then changes in these sleep patterns were observed following

the attendance at motion-pictures. The findings in Renshaw are as follows:

"Successive groups of children were shown fifty-eight different motion-pictures programs in the evening before retiring. There is a change in sleep motility which is a consequent of viewing the film and is not due to the "holiday" effect or to "Normal" periodic variations in motility.

The change in motility during the night after seeing the film may be either in the direction of increase or decrease. The increases occur more often than the decreases. Either sort of change represents a state in which the normal recuperative function of sleep is reduced.

Increases in motility of a relatively small number of added active minutes per hour have great effect on the average length of the quiet periods. This influence is to reduce them whereas in recovery from all fatigue states they need to be lengthened.

The increases in motility following the movies ranged from 0 to over 90 percent. On the average, boys showed about 26 percent and girls about 14 percent greater hourly motility after movies than in normal sleep. Some notion of the significance of a 25 percent increase in motility for boys can be gained from the fact that this increase is equal to half the normal amount of increase resulting from the average growth changes occurring between the ages 8 and 15.

The changes in motility are greatest in the fore part of the night, that is at the time when sleep is at its maximum. Increased motility in the fore part of the night, that is at the time when sleep is at its maximum. Increased motility in the fore part of the night is not compensated by increased quiet in the latter part of the night. Recuperative sleep lost during the night following a motion picture brings the child to the new day incompletely recovered from fatigue. The amount of increased fatigue is a highly individual characteristic.

Children below about ten years of age show relatively less influence from the movies than do older children. The younger children frequently exhibit decreases in motility.

About two and one half times as many children show significant increases from all types of films as show corresponding decreases.

The movie influence is not limited to the one night immediately following the viewing of the film. The persistence of the effect is dependent upon the age, sex, and 'set' of the individual child.

19 percent were accelerated in school, 24 percent were normal, and 57 percent were retarded. Of those who attended once a week or less 34 percent were accelerated, 33 percent

12 Samuel Renshaw, Vernon Miller and Dorothy Marquis, Children's Sleep, pp.95-155.

The magnitude of the movie influence does not seem to be so much a function of mental age or brightness as it does of chronological or physiological age. The maximal effects seem to occur at about the age of puberty".

In general the findings state that seeing some films does induce a disturbance of relaxed, recuperative sleep in children to a degree which, if indulged with sufficient frequency, can be regarded as detrimental to normal health and growth. For certain highly sensitive or weak and unstable children the best hygienic policy would be to recommend very infrequent attendance at carefully selected films.

Two groups of school children in grades 5 to 9, one attending the movies two or more times a week and the other attending the movies once a month or less, were equated in respect to sex, age, intelligence, school grade, home background, nationality, and community, and were compared in respect to a wide variety of measures of attitude and conduct. They were compared as to reputation in school among teachers and classmates. The report on this investigation is by Shuttleworth,⁹

"We have found that the movie children average lower deportment records, do on the average poorer work in their school subjects, are rated lower in reputation by teachers on two rating forms, are rated lower by their classmates on the 'Guess Who' test are less cooperative and less controlled as measured both by ratings and conduct tests, are slightly more deceptive in school situations, are slightly less skillful in judging what is the most useful and helpful and sensible thing to do, and are slightly less emotionally stable."

In Charter's¹⁰ study, we find a congested area in New York City where 949 boys were studied, and found that about one quarter were retarded and another quarter were accelerated in school.

"Of those who attended the movies 4 times a week or more 19 percent were accelerated in school, 24 percent were normal, and 57 percent were retarded. Of those who attended once a week or less 35 percent were accelerated, 33 percent were normal, and 32 percent were retarded. The movie group

⁹. Frank Shuttleworth and Mark A. May, The Social Conduct and Attitudes of Movie Fans, pp.84-93.

¹⁰. W.W. Charters, W.W., Motion Pictures and Youth, pp.12-14.

contained nearly twice as many retarded pupils and half as many accelerated pupils as the non-movie children".

In studying the effect of motion-pictures upon the emotions of children Dysinger and Ruckmick worked with a galvanometer to measure galvanic responses and with the pneumo-cardiograph to measure changes in the circulatory system. They worked with 89 subjects in their laboratory and with 61 subjects in the theaters. In age the subjects ranged from six years to fifty and were divided between those under 11 years, 11 to 12 years; 13 to 15 years; 16 to 18 years; 19 to 25 years; and over 25 years. In the theater under theater conditions they used 61 subjects in three age groups; around 9 years, 16 years, and 22 years. Children of average intelligence were chosen with intelligence quotients between 90 and 110 when available, or with normal age-grade placement in other cases. The subjects were about equally divided between the sexes.

The apparatus was attached to the 150 individual children in the laboratory and in the balcony or the rear seats of theaters. The records of the reactions of the subjects were taken on films. Two types of scene were used: those that depicted dangerous situations and those that contained sex content. Their findings are stated:

"The records show first that scenes of danger, conflict, or tragedy produce the greatest effect as measured by the galvanometer upon the 0 year old group (from 6 to 12 years old); the curve falls rapidly among the 16 year olds (from 13 to 18 years) and is weakest with the adult group (over 19 years). There is a real difference in the reactions from one age level to the next. The reaction of adults is small compared with that of the 9 year olds because of their consciousness of the unreality of the scenes, the quality of the acting, or their ability to forecast what is going to happen.

The records show a second trend in connection with the romantic and erotic scenes. In this case the 9 year olds (6 to 12 years old) are on the average least affected.

The greatest deflections from normal patterns in viewing erotic scenes was located among the 16 year olds (ages 12 to 18). The average is the largest of the three age levels. They are most often extreme, and verbal reports in the interviews seldom mention the factors which influence adults called "adult discount" - the factor of realizing the unreality of the drama, observing the quality of the acting, and the like. Compared with the other groups the 16 year old group gives the most extreme responses.

Most children of 9 gave very little response to love scenes. At 10 some were found to respond. At 11 and 12 others responded. Above 13 there was usually a definite response. The peak in intensity of reaction does not seem to be reached until the age of 16 years".

It appears from this report that while children of ages

6 to 12 are on the average not likely to react to love scenes, individual children in the group will show significant reactions and similarly the 13 to 15 year group will contain individuals who show important reactions. In the 16 to 18 year group it appears that none is free from the influence of love scenes. They also conclude that there are no clear sex differences in reaction to love scenes. Males and females are equally influenced. Differences within each sex are greater than differences between the sexes.

Another technique studying the effects of motion pictures upon the emotional life of children is given by Blumer. He used motion-picture autobiographies supplemented by interviews. The autobiographies were secured from about 1,800 college and high-school students, office workers, and factory workers. Four types of experiences were studied: fright, sorrow love and excitement. Stating his conclusions in relation to the emotion of fright as typical of the influence of motion pictures upon the four areas, Blumer says:

"That the experience of fright, horror, or agony as

16 Herbert Blumer, Movies and Conduct, pp. 56, 126 and 187-194.

a result of witnessing certain kinds of motion-pictures seems common from the accounts of children and of high-school and college students. The experience is most conspicuous in the case of children although it is not infrequently shown by those of greater age. Its manifestations vary from shielding the eyes at crucial scenes during the showing of the pictures to nightmares and terrifying dreams, including sometimes experiences of distinct shock, almost of neurotic proportions.

The extent of fright among children is quite large. Of 237 children in the fourth to seventh grades in one school who were asked if they had ever been frightened or horrified by any motion picture 93 percent answered in the affirmative. Of 458 high-school students who wrote autobiographies 61 percent mentioned such experiences and 17 percent said they never had been frightened by pictures.

Among the movie objects which produce fear in the young are: spooks, ghosts, phantoms, devils, gorillas, bears, tigers, bandits, 'bad men', grabbing hands and claws, fighting, shooting, falling or hanging from high places, drowning, wrecks, collisions, fire and flood.

Expressions of emotions during the witnessing of fearful pictures are such as: biting finger nails, crunching teeth, twisting caps, grabbing one's neighbor, feeling shivery, hiding the eyes until the scene changes, looking away, screaming jumping out of the seat, and getting under the seat. On the way home fear induced such actions as: running home, being frightened at shadows, avoiding dark streets, and holding on to others. At home the effects shown were: staying close to mother, looking back of one's chair, fear of going to bed, looking under the bed, closing the window, begging for a light to be left burning, hiding the head under the covers, seeing devils dancing in the dark, wanting to sleep with some one, bad dreams, calling out in sleep, sleep walking, and others.

Such expressions of fright are short lived. The child regains control of his thoughts and feelings with the passage of time, sometimes by the next day, sometimes in the course of the next few days. But in the case of some individuals fear or fright becomes fixed and lasts for a long time.

In conclusion, suffice to establish the point that motion pictures may play very vividly upon a given emotion of the individual; his impulses may be so aroused and his imagery so fixed that for a period of time he is transposed out of his normal conduct and is completely subjugated to his impulses".

A popular summary based on all the scientific investigations in this field was prepared by Henry James Forman, in his book entitled, Our Movie Made Children. In this book he shows a fine grasp of the facts and admits that the motion picture is powerful to an unexpected degree in affecting the information, attitudes, emotional experiences and conduct patterns of children.

ADVANTAGES AND HINDRANCES TO THE USE OF MOTION-PICTURES IN EDUCATION.

The motion picture is extremely fascinating to the children of all ages. It is their fairy house, their story book, their picture book, their world of fancy and imagination made real before their eyes. They actually see and hear Alice and her strange companions in Wonderland. In westerns they share the thrilling Wild West of Buffalo Bill.

That they love the movies is shown by their attendance, their eager pressure upon parents to allow them to go, and the things they will do to get tickets. Very early it became apparent to keen observers that children are quick to get the points of a picture, that they soon look at them critically, that they have surprisingly sound movie judgments and that they recognize falsifications.

Professor Kirtley F. Mather, describing a study by the departments of education and science and the Film Foundation of Harvard University, reports in the National Board of Review Magazine for April 1932, that the motion picture, used to supplement instruction, increases the process of acquiring scientific knowledge from 20 to 40 percent. There is a phenomenal increase of interest, a powerful stimulus to mental activity, a new accuracy in the grasp of details, and a corresponding vividness of retention. The motion picture will of course, exert the same force with all subject matter.

It is realized that pictures are able to standardize impressions and make them clear and complete, uniform, lasting and specific. By them the abstract can be made concrete, the absent present. They can bring into the classroom faithful representations of objects which are too far distant or too small or too large or too rare or expensive or dangerous or otherwise inconvenient or unsuited for direct classroom examination. Pictures of an object can frequently

reach simultaneously and equally a greater number of spectators than can the object itself.

The motion-picture is able to present objects as they actually exist, move and have their being, bring distant peoples into the classroom and show them actually going about their ordinary pursuits as they really did in the distant land when the picture was being taken. It is possible by means of the cinema to overcome time and space. Rapid processes can be slowed down and analyzed; slow processes can be accelerated; inanimate objects animated; dead facts made to live and palpitate. Attention can be held and concentrated and the memory more deeply impressed by the moving image projected on a brightly illuminated screen in a darkened room than by ordinary teaching methods.

Scientific experiments and demonstrations performed with ideal equipment and under the best possible conditions, can by means of motion-pictures, be repeated indefinitely anywhere and at small expense. Schoolroom instruction can by this newer medium be made more pleasant, less expensive in the long run and immeasurably more efficient.

~~Motion-pictures mean bringing life into the schoolroom.~~

Rushing rivers, the bubbling lava, caldrons of great volcanoes, waving fields of grain, vast forest fires, the mighty ocean and its pounding surf, the storm clouds, all are by means of this medium more than by any other means brought into the school. It acquaints the pupil with life and nature, the deer and bear in the forest, the tiger and elephant in the jungle, the life in sea and river, the unseen life under the microscope. The pupil is made to live his lessons, not just to read about them abstractly, coldly, as in his textbook.

It is possible by means of these pictures to guide children

in seeing the actual world progresses. Rapid development of transportation and communication and to broaden their horizons. The automobile, the aeroplane, the new speedy trains on the railroads all may be brought to the very walls of our classrooms.

About fifteen years of intensive research in visual instruction has demonstrated that it has great value in education.

The test of classroom experience has proven that visual instruction is valuable as an educational adjunct and that it is practical.

The experience of institutions such as museums, libraries, newspapers and advertisers has clearly demonstrated the potent power of visual approach to the development of human intelligence.

The actual market for visual materials is growing rapidly and has already reached a point of considerable magnitude. This is based on standard requirements announced by educators. The success of visual education depends in largest measure on gaining full cooperation between educators and producers of visual materials.

It may be further stated that the film is a stimulant. It is more likely to wake up the dull or lazy child than to send him to sleep. Our generation of film going children, is learning to pick up points and impressions on the screen very quickly. There is sustained concentration because both the senses of seeing and hearing are directed and irresistibly help by the sound picture. This concentration is essential to clear thinking and it quite definitely helps to develop the ability to define accurately what one has seen and consequently to become more alert and to form sounder judgments.

The stimulant makes for original and clear thinking. The use of the film forces children to find their own words to express opinions and to describe scenes, not merely to borrow those of the

teacher or of the text-book. In this way the film encourages originality. They encourage the children to read more widely, increase the pupil's ability to discuss topics and to write about them. They enlarge the vocabulary, enrich personal experience, correlate the work of the classroom with the life of the world outside the school and develop the ability to concentrate mental activities.

The quality of the recollection is improved. The influence of the illustration may make just the difference between unintelligent and intelligent recollection.

The film leaves a remarkably permanent impression. This was shown by means of tests, which proved that cinema impressions are more lasting than oral.

The film provides a stimulus to the retarded child. The backward children find it difficult to put their ideas into words, and the showing of a film often stirrs them to words or to making of drawings for written explanations.

Lastly, the film may be admirably adapted to individual instruction of children because its uniform presentation of the subject in subsequent showings of the film, strengthens the initial images and allows the backward child to grasp that which the more alert attained at the first showing.

There are, however, a number of hindrances to its present use. In February, 1926, Mr. George Eastman conducted a survey of the whole field of teaching films, which showed the following:

"That few pictures adapted to classroom use had been produced.

That the cost of equipment and films had made the use of films as regular classroom instrumentalities prohibitive.

That large capital investment would be required to produce films on a scale adequate to school needs.

That adequate experiments had not been made in the practical use of films in classroom work to establish their value as aids to teaching.

That school authorities would not be justified in making the expenditures required for film service until adequate experiments were made and the value of films as teaching aids definitely determined".

Since the survey it is evident that the market is not being supplied by quality material in quantity. The curriculum of the modern American school is both extensive and varied. There has been to date no organized commercial effort resulting in the continuous production, distribution, sale and rental of pedagogical motion pictures as it relates to the entire scope of the school curriculum.

The producers seem to have little sympathy with the school needs and do not cooperate with the officials because they find the profits in the school business not large or rapid enough to suit their investment requirements. They have an idea that the non-theatrical exhibitors are poor business men and unreliable in that they are far from being a steady customer.

Some claim there is danger to eye strain in viewing too many films, but experiments along this line prove that if eyes were strained it was due to physically defective eyes and not by motion pictures properly projected. The most serious cause of eye strain, weak or defective eyes, is a problem of the exceptional child, not of pedagogical practices and is usually encountered and satisfactorily dealt with by the individual principals or teachers.

Many schools are not using films because of the mechanical difficulties it would involve, such as those having to do with the current, wiring, booths, screens, securing the right kind of projector for a given hall or auditorium and the required permits from local

fire and insurance authorities. ~~Teacher organizations do not give proper~~ The cost of installing the necessary equipment requires too great an investment for individual schools and there are very few appropriations made for this purpose from public funds. The present depression had a very great effect upon deterring the investment in this field and is responsible for educators being materially slower in getting into the use of motion pictures as a teaching aid than perhaps they would have been otherwise.

Lack of knowledge as to sources of proper materials is another drawback. It is very difficult for teachers and schools using motion pictures to discover what is in a motion-picture. The materials which are available are not properly evaluated.

In film production, as in book publishing, the manufacture and distribution of a product for the use of schools seems to demand specialization. There is an evident scarcity of producers qualified both in teaching and in motion picture technique.

Teachers must become acquainted with the proper use of motion-picture and thoroughly correlating them with the curriculum in order to teach with these aids effectively and efficiently. The mechanical routine of handling the projection equipment must be acquired. A teacher must become adept in correcting such troubles as clouded illumination, too small or too large a picture, failure of lamps to light, poor focus, optical system out of alignment, and spectrum colors on the margin of the screen.

There is prevalent a lack of understanding of the values of the film in instruction. School officials fail to adapt available films to the curriculum.

Administrative officers fail to budget money for film material and necessary equipment.

THE MOTION-PICTURE IN SPECIAL SCHOOL SUBJECTS.

It is evident that the primary purpose of the classroom film is not merely to entertain pupils but to instruct. The ordinary motion pictures shown in our theatres are more or less planned not to make people think, but to make them feel. Their chief purpose is entertainment. Certain motion pictures shown in public theatres are very illuminating and instructive and influence reflective thinking. This led Carl Millikan, Secretary of the Motion Picture Producers and Distributors of America, in an address before the National Education Association to say,

"Why not training in appreciation of motion pictures, the leisure pursuit of the millions.....For every man and woman who reads a good book a week, a hundred go to the motion picture theater. For every one who goes to a concert or to opera, 10,000 go to the movies. For every one who has access to good paintings and good sculpture, probably 100,000 go to the movies".

Keeping pace with the upward trend of American public taste in photoplays, the leading producers are offering an increasing number of pictures which will interest educators. Encouraged by this movement, the leaders of the photoplay appreciation movement, which was begun under the auspices of the National Council of Teachers of English, are extending the scope of their materials and activities so as to include the interests not only of English teachers, but of all in the profession. Study guides are prepared for the outstanding productions and these are used for purposes of stimulating proper appreciation of literature and art among high school students and adults. These photoplay appreciation classes are growing rapidly throughout the country.

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Carl Millikan, "How the Movies Will Affect Life", Proceedings of the Sixty-ninth Annual Meeting, The National Education Association, Washington, D.C., 1931, p.73.

In evaluating a picture in these classes this procedure is² generally applied:

1. The theme and the story. What is the underlying idea: By what action is the theme developed ? Is it significant ?
2. The type of picture. Farce, comedy, social, drama, mystery, etc. Is the type adapted to the theme ?
3. Direction. Has the director made a consistent, balanced and unified dramatic pictorial production ?
4. Characterization. Are the players well chosen ? Are they sincere ? Consistent ?
5. Technical Treatment. Discuss photography, lighting, sound effects and their relation to the total impression.
6. Values. Does the picture hold interest ? Is it wholesome ? Would you invite your friends ? What are the best scenes ? Are there outstanding features ?
7. What other arts are used as contributing factors to the picture ? (Music, dance, architecture) "

In studying the motion picture the students are induced to study serious drama. An attempt to interest a class in the direct study of Shakespearian plays proved ineffectual at one of the High Schools at New Jersey, until the head of the English department of the school, coaxed the students into analyzing some current motion pictures with which they were familiar. Finding themselves greatly intrigued by a study of the introduction of plot and characters and of the plot structure they were gradually persuaded to apply the same methods of analysis to such plays as Twelfth Night, Julius Caesar and Mid-Summer Nights' Dream. Through this method, material which has previously been characterized as boring proved intensely fascinating.

In arithmetic, group diagnostic tests show that children make errors in all kinds of problems. Yet intelligence test results

may indicate a normal or even superior mental capacity. When individual diagnostic tests detect their wasteful methods of working, and when individual remedial teaching is given, these pupils with "special disabilities" improve at a rapid pace and frequently reach or surpass the "norm" of their grade in a remarkably short period of time.

In the sound film Individual Differences in Arithmetic, Dr. Buswell describes and demonstrates the use of his techniques in diagnosing the difficulties which pupils encounter in solving arithmetical problems. Three methods of individual analysis are shown. The first method utilizes a complicated laboratory technique; the second method involves a less elaborate technique and can be used by properly trained teachers in the classroom; the third method is a simple technique which can be applied in any classroom.

Another film entitled Creative Work in Fractions³ is the first teaching film of which there is record. This film closely correlated the subject with the prescribed curriculum for the grade. It brings the subject down to the level of the children and is developed in such a way that the pupils comprehend the difficult subject readily and are ultimately eager to do original work in fractions. It teaches the students to identify units, halves, fourths, etc. by examining concrete objects and drawings on the blackboard. There follows the introduction of numerator and denominator, with the use of colored charts to identify fractional values, reduction of proper and improper fractions, changing to higher terms and comparison of fractions. This unit of work is divided into ten lessons of one 8mm reel each and has a total footage of 1,705 feet. The satisfactory use of this size of film indicates that it is sufficiently large

for an ordinary size classroom and is ideal for individual instruction, which is superior to any other method of teaching.

The serious student of life drawings in art, cannot remain satisfied with his studies of the static figure. These acquaint him only with the characteristics of human structure at rest. As soon as he desires to represent a figure in action he has either to imagine it, or having taken means to witness the appropriate action by someone, somewhere, and to make rapid sketches of it, he may draw it from memory. Now by means of the motion picture a recording of every continuous phase of any action is possible, and also of separating it minutely for deliberate observation. A teacher capable of using the slow motion film intelligently, finds that the possibilities of really practical use are endless. All types of movement can be made available for interesting and profitable class lessons.

Character education films made their debut as a factor in visual education program of the New York City public schools, under the direction of Dr. Howard M. LeSourd, dean of the Graduate School of Boston University. These are designed to teach children such fundamental traits as loyalty, kindness, team-work, a sense of duty, reliability and self-control. Each film is made the bases of class discussion. These films not only teach children the fundamental virtues, but also give parents a technique for dealing with child problems.

In geography an industrial reel portraying the pursuits of people or the phases of a particular industry becomes to the child a living reality. He not merely gathers knowledge, but actually lives through the experience. The sense of sight is the clearest and most accurate of the senses, and the complicated processes of industry, hard to render in words, are easily followed by the eye. The motion picture has untold possibilities and in geography especially adapts itself unusually well in that it is possible to quite realistically

take the spectators to "seeing the world". Travel photoplays are a means of stimulating interest in travel, knowledge about other lands, and establishing better international understanding and good will. The health education in this country is being directed to children because with them the lessons will endure. This period is the habit forming age, and so there has begun the production of health films especially for children. Adult audiences are as much impressed by the teachings of these juvenile pictures as they are by those designed especially for adults. Pictures for children are more carefully designed, every effort is made to give maximum interest to every foot of scene and maximum simplicity and clarity to the titles. At the present time there is a crying need for new and better films dealing with almost every phase of health. The general effect of the Historical teaching film is astounding. It stimulates imagination. The children realize the past, gain some sympathetic insight into the lives and feelings of the men and women of the past, and get a fuller and clearer picture of the environment. In this way, they can better imaginatively reconstruct for themselves other scenes of the same period as those seen on the films. It helps children to enjoy history more. News reels are an agency for keeping the public informed about the history making events of the times. Schools have frequently made too little use of these bits of news that large numbers of children have seen pictured at the motion picture theaters. Much of this information might vitalize the social studies program. Films will arouse the interest and hold the attention of the pupils in household arts and manual training. Films showing the

desirability of knowing how to cook and sew provide the girls with a motive for seeking to learn about these things. Films illustrating various dresses, coats and other garments are as yet not easily available, though their exhibition on the screen of the theater is not uncommon. Properly selected pictures illustrating various style combinations and suitable types of clothing for short and tall persons, as well as the most becoming lines in design, will do much to cultivate the pupils' taste in the right direction.

An experiment was performed at Oak Park, Illinois with the film How to Make an Omelet. The film alone secured better results than oral instruction alone, but not as good as where oral instruction was combined with demonstration.

Schools in Richmond, Va., have stamped their approval upon the educational value of films by making selected foreign language pictures a part of the modern language curriculum. The films spoken in foreign languages thus far used by American schools and colleges consist almost exclusively of theatrical feature films. When carefully selected, they proved a sharp stimulus to student interest by bringing France, Spain, Spanish America, and Germany vividly and tangibly, as explanations and goals into the study process. Nothing short of the ability to give each student a trip to Europe, can replace films in importance as a means of conveying the actual customs, spirit, and geographic setting of a foreign country to the American language student. Great many students who attended several performances of foreign talking pictures showed an improved understanding of pronunciation, not merely of words, but of phrases, and a valuable grasp of the rhythm of speech in the particular foreign language.

The theater frequently combines the screen and the orchestra

in an artistic manner. Films of this type may be used in training children in appreciation of good music, because many of the country's finest instrumentalists are now playing for motion-pictures. By means of sound the various kinds of music may be portrayed forcefully. Our country utilizes music in a remarkable way in the cinema and Europeans send their representatives to study our methods.

The National Vocational Guidance Association realizes that occupational information is taught in various ways but that the pupil learns best about the work done on the job by actually watching the worker, or by observing a moving picture of him at work. Through these avenues of learning he obtains rather definite concepts of the kind of people who are engaged in a certain field of work, and the conditions under which they work, and he develops an attitude toward this particular job in the presence of the actual occupational environment.

In teaching the correct position in penmanship, Dr. Freeman points out that the film is superior to the directions of the teacher. Since proper position is assumed to be so essential to good writing the use of motion-pictures encourages it thoroughly. The film which helped to come to this conclusion was made for the specific purpose of teaching position in handwriting. It gave examples of good and poor positions of the head, body, arms, hand and the manner of holding the pen. Proper sub-titles were inserted to describe the desirability of the positions.

Teaching physical education by means of motion picture stills of noted dancers is the latest development in film instruction at the Terre Haute, Indiana, High School. This method produced such excellent results that the physical education teacher has made a request for stills of feature pictures in which noted dancers appear so that from them her pupils may learn something of posture and rhythm.

Dr. Herzberg informs us that motion pictures have another value in that they stimulate reading of the best books. When Les Miserables was running in Cleveland, the 51 copies of that volume which were on the shelves of the Public Library were constantly in demand. The experience was the same with 83 copies of Of Human Bondage and 40 copies of The Count of Monte Cristo while the filming of The Barretts of Wimpole Street created a great demand for the poetry of the Brownings. One hundred and forty-eight copies of David Copperfield in the Newark Public Library were constantly in circulation before, during and after the run of the film in that city.

Motion pictures are today supplementing the printed page as a feature of the regular story hour in the library at Watertown, Wisconsin. When story telling time comes on Saturday morning the children who gather are entertained not only with narratives about famous characters of fiction and fairy lore, but also with films which have educational and story value.

The safety educational motion picture showing the common type of accidents has a better and more lasting effect than the distribution of much printed matter or long, frequent lectures. The picture in addition to depicting accidents, their causes and inevitable, deplorable results, will best maintain the interest of the audience if there is incorporated in it a story, that will maintain the interest until the end of the showing and aid in fixing in memory the lesson. The fact is being recognized that the picture appeals most strongly and teaches most thoroughly.

Teachers of science have been among the first to accept and advocate sound pictures as an integral part of classroom activities. The university Film Foundation, Cambridge, Massachusetts, is investigating the science film on the junior high school level, while

the Erpi Picture Consultants, Inc., New York are making a study of sound pictures in science teaching as applied to the intermediate grades of the elementary school.

The University of Chicago produced six geological films which are superb in the field of education. They consist of: The Work of Ground Water, The Work of the Atmosphere, The Work of Ice, Volcanoes in Action, The Work of Rivers, and Mountain Building.

Professor of Geology, Carey Croneis, was director of the films and has this to say:

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"It is most unfortunate that some people have been led to believe that these and similar pictures are substitutes for teachers. This belief is the perfect counterpart of the medieval fixation that the invention of the printing press and the attendant deluge of printed books would surely displace the scholars. Even the most ignorant today know that books are the tools of the scholars -- they will soon learn that this modern medium of visual education is the indispensable tool of successful teachers".

Public schools of the nation will rapidly organize courses in visual instruction.

The American press and society in general will become conscious of the possibilities of the motion picture in education.

Investigations and research in motion pictures as aids to learning will continue on a larger scale.

Better instructional films will be made available for school use.

Departments in visual education in various states and districts will be organized with full time directors in charge, devoting their entire efforts to improving this field of instruction.

Cooperation between publishers of text books and producers

DESIRABLE OBJECTIVES IN FUTURE DEVELOPMENT OF TEACHING FILMS.

Many claim that so far as education is concerned the motion picture may be a greater invention than the printing press was. It may to some extent supplant the printing press. It is absurd to claim as much as this for the new medium, because printing can never be entirely replaced by anything else, but the possibilities ahead for the use and development of motion-pictures in education are enormous.

Experimental studies, research, and surveys have revealed definite and important values for visual-sensory aids. This material and its use requires special preparation. This should be evidence enough for teacher training institutions to provide courses and require from every one preparing to teach in the schools of the country, a laboratory course in visual-sensory aids. No doubt in the future, teachers' colleges will rapidly organize courses in visual instruction.

Public schools of the nation will make systematic use of the motion picture for instruction.

The American press and society in general will become conscious of the possibilities of the motion-picture in education.

Investigations and research in motion pictures as aids to learning will continue on a larger scale.

Better instructional films will be made available for school use.

Departments in visual education in various school districts will be organized with full time directors in charge, devoting their entire efforts in improving this field of instruction.

Cooperation between publishers of text books and producers

of pictures, will be brought about, so that each might complement the other. to facilitate the proper use of various visual aids.

Educators will assume a more active role in the development of the new technic and the acquisition of facilities for its use.

The resistance which exists at the present time will be eventually broken down because visual material can never supplant the teacher. Properly used, visual material will repay its cost in the conservation of the teacher's time and energy.

Most encouragement will be given to production, and improvement of quality by the willing cooperation of educators with those preparing plans for the production of pedagogical pictures. The comment of teachers, on their use of pictures is of equal value to the producer, for his own checking of the product and for the stimulation of its further use.

Closer contacts with the sources of production must be established in order to fully benefit the classroom.

To put films into the schools does involve labor, expense and knowledge of the subject. No well equipped school of tomorrow will go without motion picture equipment merely because of the mechanical difficulties.

In the future the pedagogical motion-picture will be considered as much a part of school equipment and supplies as maps and textbooks, and provision will be made for them accordingly.

Improved methods of utilizing conceptions from viewing films will be inaugurated.

Film libraries will be established at easily accessible centers, so that films will be easily available to teachers at a moments notice.

Some form of projector maintenance and service will be organized to facilitate the proper use of various visual aids. and
 vitalized Schools will be built with proper installation of sound and projection apparatus also daylight screens which will enable to use this forceful medium at any time of the day without necessarily darkening the rooms.

data show that it does - that it is a responsibility of professional organizations to bring these facts to the attention of school officials and teachers so that necessary materials may be made available to the schools, and teachers be trained that school children may profit by their use.

Modern education has become very critical. It is the fashion to criticize its methods and practices. Progress is being sought to bear on educators to their children in all phases of modern life. Present methods will not suffice for that purpose. But through the greater efficiency of visual aids and the opportunity to expand to accomplish the desired goal. The vital key will be integration of the varied subject matter presented, so that all are working to achieve the function of the teacher.

The dominant note in education today is the improvement of the quality of instruction. If money can be supplied for the purchase of necessary visual materials, if these visual materials are definitely related to the units of instruction, if the presentation of materials in the technique of visual materials is made modern, and if these visual materials are used effectively in the classrooms of America, there will result one of the greatest contributions to the improvement of instruction our country has ever witnessed.

CONCLUSION.

If the effective use of pictorial materials enriches and vitalizes instruction; effects an economy of time and money in instruction; increases initial learning; increases permanence of learning; aids in teaching backward children; increases interest, attention, self-activity, and voluntary reading - and scientific data show that it does - then it is a responsibility of professional organizations to bring these facts to the attention of school officials and teachers so that necessary materials may be made available to the schools, and teachers so trained that school children may profit by their use.

Modern education has become very complex. It is the fashion to criticize its methods and practices. Pressure is being brought to bear on educators to train children in all phases of modern life. Present methods will not suffice for that accomplishment. Only through the greater efficiency of visual aids can the curriculum be expanded to accomplish the desired goal. The vital need will be integration of the varied subject matter presented, and that will increasingly become the function of the teacher.

The dominant note in education today is the improvement of the quality of instruction. If money can be supplied for the purchase of necessary visual materials, if these visual materials are definitely related to the units of instruction, if the preparation of teachers in the techniques of visual materials is made mandatory, and if these visual materials are used effectively in the schoolrooms of America, there will result one of the greatest contributions to the improvement of instruction our country has ever witnessed.

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Approved

John P. Inaug

Major Professor

W. J. Grace, Jr.

Dean

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