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MEDIA MESSAGE

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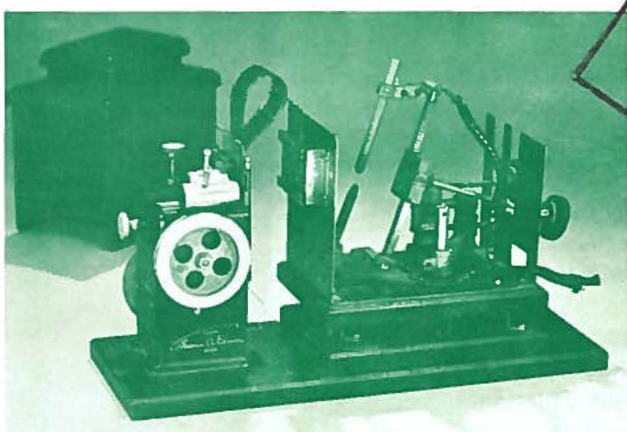
Back To The Basics

Aladdin's Lamp: Glimmer To Glamour



PLUS:

THE CHANGING ROLE OF THE RESOURCE LIBRARIAN; THE OPAQUE PROJECTOR RE-EXAMINED; TECHNOLOGY AND EDUCATION; OPEN EDUCATION; THE BIRTH OF APTE; SELF-INSTRUCTIONAL MODULES ON THE USE OF MEDIA.

L'ASSOCIATION des MEDIA et de la TECHNOLOGIE en EDUCATION au CANADA
ASSOCIATION for MEDIA and TECHNOLOGY in EDUCATION in CANADA

AMTEC
L'ASSOCIATION des MEDIA et de la TECHNOLOGIE en EDUCATION au CANADA
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MEDIA MESSAGE

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REPORT FROM THE PRESIDENT

by Gar Fizzard

In late October a new organization of francophone audiovisual specialists was founded in Montreal. The tentative name of the organization is: l'association pour la promotion de la technologie en éducation (APTE). Its president is Jean-Claude Thouin. An organizing committee has been elected, representing special interest groups: schools, colleges, universities, hospitals, government departments, audiovisual libraries, and language laboratories.

The founding of APTE has raised the question of the operational language/s of AMTEC. While AMTEC's constitution does not make reference to language, and while there has been no formal policy statement on the matter, in practice AMTEC has made a limited effort to be a bilingual organization. For example, for some time in Media Message, articles have been published in the language in which they were received, with a synopsis in the second language. Also, the annual conference has been as bilingual as possible: promotional materials have been bilingual, presentations have been made in French and in English, and simultaneous translation facilities have been provided. With the formation of a unilingual francophone association of media specialists in Canada, the Board of Directors was faced with the question of whether or not AMTEC should continue these efforts in bilingualism or should establish a policy of operating in English only.

In making its decision, the Board's primary concern was the obligation of AMTEC to its francophone members, a concern that is related to the geographical boundaries of the new organization. If it was to be restricted in its membership to residents of Quebec, the professional needs of our francophone members outside Quebec would still have to be met, and AMTEC would have an obligation to meet those needs. Hence, the case for the continuation of a bilingual AMTEC would be strong. On the other hand, if APTE was to be a Canada-wide organization, francophone audiovisual specialists across Canada would have access to a professional organization in their own language, and the need for bilingualism would be considerably diminished.

The question of the geographical boundary was put to the promoters of the new organization and the Board received unequivocal assurance that the new organization is to be open to audiovisual specialists across Canada and is not to be limited to Quebec. With that assurance the Board decided that with the existence of a Canadian unilingual francophone organization, on the basis of logic and expediency, AMTEC has little choice but to become a unilingual anglophone organization.

From now on all functions of AMTEC – conferences, correspondence, publications, etc. – will be conducted in English only.

It is perhaps unecessary to point out that this policy refers to the language of operation of the organization only and does not impose a restriction on membership. As in the past AMTEC is open to all who are committed to the improvement of education and promotion of public welfare through the use of media and technology, regardless of their linguistic, cultural, or geographical backgrounds.

The Board of Directors is anxious to establish a close and friendly relationship between AMTEC and APTE. The Board has let APTE know of this interest and, while APTE prefers not to enter in to any formal relationship at this time, it has not ruled out the possiblility for the future. It is our hope that this link can be established soon.

When I was informed of the formation of APTE, I sent M. Thouin a letter, a translation of which follows:

Dear M. Thouin:

I have been informed by Gilles Carrier that you have been elected President of l'association pour la promotion de la technologie en éducation (APTE).

First, let me congratulate you and wish you well in your new office. I am sure you will find the development of the new organization a challenging and stimulating experience. From the reports of your founding conference, the prospects among the francophone audiovisual specialists across Canada are indeed bright and promising.

As undoubtedly Gilles reported to your group, AMTEC has expressed the hope that a formal link might exist between the two associations. It is AMTEC's view that on at least two dimensions, a close relationship between the organizations could be mutually useful. In the first place, the sharing of practical experiences, theoretical developments, and research results among groups in the same profession can only be beneficial, regardless of language, political entities, or any other categorization of the individuals. Secondly, some of the legislation that affects our daily operations in audiovisual media, in both languages, originates with the federal government. Clearly, when legislation and policies are being developed in Ottawa that affects us all, the more opportunities we have for input, the better the chances of beneficial outcomes. It appears to us that with respect to the federal decision makers in our field, a joint approach from the two national organizations in audiovisual media will be more effective than two separate representations.

I understand from Gilles that APTE prefers not to be formally associated with AMTEC at this time. This is a reasonable position: the energies of the members of a new

organization can be expected to be directed primarily to the internal structures and processes of that organization. On behalf of AMTEC, however, I wish to ask you and your organization to keep in mind the possibility of a future formal link between the two organizations. At this time we have no position as to the form such a link would take, but would like to discuss the matter with APTE as soon as you consider the time to be appropriate.

Again, best wishes to you and your organization.

The following is a translation of M. Thouin's reply:

Dear Sir:

Thank you for your letter of December 17 and the wishes of success for our future association. Our association hopes to get together the people working in the audiovisual field, more particularly those in Quebec and in other French-speaking universities. We hope to have an establishing conference next Autumn.

Our first priority lies in the creation of a solid and efficient association, capable of assuring its successful operation, and to accomplish common goals. This in no way means that we do not wish to collaborate with other professional associations like AMTEC, but we think it more important to establish ourselves firmly.

I would be happy to discuss with you the possibility of sharing experiences between your association and the one we are in the process of organizing, and to establish fields of eventual cooperation.

* * * * * * * *

A word to the bilingual francophone members of AMTEC, both inside and outside Quebec:

It is our sincere hope that, whether or not you join APTE, you will continue your membership in AMTEC. We believe strongly that the sharing of experiences can enhance our insights, raise our awareness, enlarge our knowledge, and increase our alternatives concerning the questions of communication, media, technology, and education, which are frequently the same for both linguistic communities. Every opportunity for dialogue between individuals with these interests and concerns, then, should be eagerly grasped.

We have been impressed with the vitality, imagination, and creativity that have characterized the media melieu in the francophone community. Hence, it is our professional interests to continue to be informed of your activities. Our conferences and publications, therefore, will continue to be vehicles for you to let us know of your ideas and your projects. And we hope that you will feel the need to maintain contacts with us.

So, we hope for professional reasons that you will remain with us in AMTEC. But not only, perhaps not primarily for professional reasons. I speak for all anglophone members of AMTEC when I assure you that we have valued the friendships with you that have developed within AMTEC. It is our hope that the Association will continue to be the framework within which these friendships can be nurtured and strengthened.

RAPPORT DU CONSEIL D'ADMINISTRATION

C'est à la fin d'octobre que fût fondé, à Montréal un nouvel organisme de spécialistes audio-visuels de langue française. L'Association pour la promotion de la technologie en éducation (APTE): nom provisoire de l'organisme, est présidée par M. Jean-Claude Thouin. On a élu un comité organisateur qui représente des groupes d'intérêt spécial, notamment: écoles, collèges, universités, hôpitaux, ministères gouvernementaux, audio-vidéothèques et laboratoires de langues.

La fondation de l'APTE a soulevé la question de la (des) langue(s) de travail de l'AMTEC. Bien que l'acte constitutif de l:AMTEC ne fait aucune allusion à la langue, et bien qu'il n'existe aucune prise de position officielle à ce propos, en pratique, l'AMTEC a fait certains efforts visant à devenir organisme bilingue. Notamment, depuis quelque temps. les articles qui parviennent à Media Message sont publiés dans la langue de rédaction originale, tout en offrant un résumé dans la langue seconde. Dans la mesure du possible, le congrès annuel a également été bilingue, démontré par la publicité bilingue, les exposés en français et en anglais, ainsi que par les services de traduction simultanée. La création d'une association francophone unilingue de spécialistes en média a obligé le Comité d'administration à prendre une décision, à savoir si l'AMTEC doit viser a devenir bilingue ou si elle doit adopter l'anglais comme unique langue de travail.

Lors de la prise de décision, le comité a dû, en premier abord, tenir compte des obligations de l'AMTEC envers ses membres francophones; question relative à l'envergure géographique du nouvel organisme. Si les membres ne devaient compter que des résidents du Québec, les besoins professionnels des membres francophones hors du Quebec ne seraient pas rencontrés, alors l'AMTEC serait obligé à satisfaire à ces besoins. Par conséquent, l'AMTEC aurait forte cause pour devenir bilingue. Par contre, si l'APTE devait être un organisme pour tout le Canada, les spécialistes audio-visuels de langue française du Canada en entier auraient accès à un organisme fonctionnant dans leur propre langue; ce qui amoindri le besoin d'un organisme bilingue.

Le Comité a présenté cette question aux fondateurs du nouvel organisme et a reçu de ce dernier la certitude que les spécialistes de par tout le Canada pourront devenir membres. Le Comité, muni de cette assurance et du fait de l'existence d'un organisme francophone unilingue canadien, a procédé à conclure que l'AMTEC ne pouvait faire autre que devenir organisme unilingue anglais.

A compter de maintenant, toutes fonctions de l'AMTEC; congrès,

correspondance, publications, etc. seront effectuées uniquement en anglais.

Il est sans doute inutile de signaler que cette politique ne s'applique qu'à la langue de travail de l'organisme et ne change aucunement les conditions d'admission. Comme auparavant, peut devenir membre de l'AMTEC toute personne dévouée à la'amélioration de l'éducation et à la promotion du bien-être public par l'entremise des média et de la technologie, peu importe les antécédents linguistiques, culturels ou géographiques de cette personne.

Le Comité d'administration de l'AMTEC a hâte d'établir des relations étroites et bienveillantes avec l'APTE. Le Comité a informé l'APTE de cet intérêt et bien que l'APTE, pour le moment ne désire pas former de rapports officiels, il existe un espoir pour l'avenir, avenir que nous souhaitons proche.

Dès réception des nouvelles de la formation de l'APTE, j'ai fait parvenir à M. Thouin la lettre suivante.

Monsieur,

J'apprends de la part de M. Gilles Carrier que vous avez été élu président de l'Association pour la promotion de la technologie en éducation (APTE).

Je désire, tout d'abord, vous féliciter et vous souhaiter les meilleurs succès dans votre nouveau mandat. Je crois que l'épanouissement de la nouvelle association sera pour vous une expérience stimulante et intéressante. Selon les rapports de votre congrès de fondation, les perspectives qui existent chez les spécialistes francophones en audio-visuel au Canada en effet s'annoncent bien et promettent d'être frunctueuses.

Gilles a sans doute reporté à votre groupe que l'AMTEC souhaite qu'il puisse exister une liaison officielle entre les deux associations. Selon l'AMTEC, un lien rapproché pourrait bénéficier les deux organismes en au moins deux cas. Premièrement, l'échange d'expériences pratiques, d'avancements théoriques, et de résultats de recherches entre les groupes de la même profession ne peut qu'offrir des avantages, peu importe la langue, les convictions politiques ou tout autre classement d'individus. En second lieu, certaines mesures législatives qui se rapportent aux moyens audio-visuels dans les opérations quotidiennes, dans les deux langues, trouvent leurs origines au sein du gouvernement fédéral. Bien entendu, lorsque des mesures législatives et politiques nous concernant tous, sont prises à Ottawa, le plus d'occasions nous avons d'y ajouter notre part, le mieux sont les chances d'obtenir des résultats avantageux. Une approche conjointe des deux organismes nationaux en moyens audio-visuels auprès des représentants fédéraux sera plus efficace que deux représentations séparées.

Selon Gilles, l'APTE préfère ne pas être relié à l'AMTEC à ce moment; ce qui constitue une position raisonnable. L'énergie des membres d'un nouvel organisme doit d'abord viser à régler la structure interne ainsi que le fonctionnement de cet organisme. Au nom de l'AMTEC cependant, je demande à vous et à votre association de ne pas rejeter la possibilité d'une future liaison officielle des deux organismes. A ce moment, nous n'avons pas d'idées concrètes quant à la forme que prendrait une telle liaison, mais nous aimerions en discuter avec l'Apte dès que se présentera l'occasion propice.

De nouveau, veuillez recevoir nos meilleurs voeux pour le succès de votre association.

Voici la réponse de M. Thouin:

Monsieur,

Je vous remercie de votre lettre du 17 décembre et des voeux que vous faites pour la réussite de notre future association. Celle-ci devrait regrouper l'ensemble des gens oeuvrant dans le domaine audio-visuel particulièrement au Québec et dans les autres universités francophones. Nous espérons pouvoir tenir un congrès de fondation à l'automne prochain.

Dans un premier temps tout au moins nous voulons créer une association solide et efficace capable d'assurer son fonctionnement et de réaliser des actions communes. Cela ne signifie nullement que nous ne désirons pas collaborer avec les autres associations professionnelles comme l'AMTEC mais il nous paraît important d'abord de nous donner une structure solide.

Je serais heureux d'avoir l'occasion de discuter avec vous des échanges possibles entre l'association que vous présidez et celle que nous sommes en voie de créer et d'envisager des champs de collaboration possible.

Veuillez agréer, Monsieur, l'expression de mes sentiments les meilleurs.

Ces quelques paroles sont adressées aux membres francophones de l'AMTEC, ceux du Québec comme ceux de l'extérieur.

Si vous devenez membre ou non de l'APTE, nous espérons que vous retiendrez votre adhésion à l'AMTEC. Nous sommes convaincus que l'échange d'expériences peut apporter une hausse de notre compétence, une amélioration de compréhension, une augmentation de connaissances et la multiplication des options dans le domaine des problèmes de communication, de média, de technologie et d'éducation qui sont souvent les mêmes pour les deux groupes linguistiques. Tous ceux qui auront l'occasion d'entrer en discussion de ces sujets devraient le faire avec enthousiasme.

La vitalité, l'imagination et l'esprit créateur qui ont été caractéristiques des groupes francophones oeuvrant dans le domaine des média nous a vraiment impressionné. En conséquence, il en tient à nos intérêts professionnels de continuer à nous tenir au courant de vos activités. Nos congrès et nos publications vous serviront de véhicules par lesquels vous pourrez nous mettre au courant de vos

idées et projets. Nous espérons aussi que vous ressentirez le besoin de maintenir des contacts avec nous.

Alors à des fins professionnelles, nous espérons que vous resterez membres de l'AMTEC. Il n'est pas uniquement question de fins professionnelles, car je parle au nom de tous les membres anglophones de l'AMTEC lorsque je vous assure que nous avons placé une forte valeur sur les liens d'amitié qui ont été réalisés au sein de l'AMTEC. Nous souhaitons que l'Association demeurera le milieu où pourront être entretenus et consolidés ces liens d'amitié.

Gar Fizzard
président

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DIRECTORY OF MEDIA AND RELATED PERSONNEL IN CANADA — Gerald Brown

During 1974–75, Media Message published a list of Media and Related Personnel in Canada. Many have remarked on its usefulness.

Gerald Brown of Winnipeg School Division No. 1 is heading up a small committee with the responsibility for compiling an up-dated directory to be published at the earliest opportunity.

Individuals or members of organizations wishing to be included in such a directory are requested to contact Gerald Brown and forward necessary information to him.

Write to:
Gerald R. Brown
Consultant, Educational Resource Services Centre
The Winnipeg School Division No.1
436 William Avenue
Winnipeg, Manitoba
R3A 0J4

ALADDIN'S LAMP: GLIMMER TO GLAMOUR

by William Nassau

For some of us, this will bring back memories long since forgotten; for some it will be a new experience – educational in that you will hear something of media history. We'll be taken on an interesting expedition into the past and while on that trip, together we will trace some of the origins of current audio visual media.

Mr. William Nassau is a man who has eminent qualifications for this particular assignment. He has been making films since the 1930's. He began his career in Vienna and for some time worked in Berlin during the second World War and then returned to Vienna. He has been making and teaching film ever since. Currently the Director of Audio Visual Services at Wilfred Laurier University, he annually teaches nearly 100 students in the history, aesthetics and tehniques of film making and still photography.

Over a period of years, Mr. Nassau has assembled a photo-historical collection at Wilfred Laurier University – one of the largest collections of early audio visual equipment in Canada. Dr. A. Moore, University of Guelph.

What does it really mean to communicate by sound, (by noise sometimes) and by something that you see. We don't have to be proud that we invented that. It was invented long before us. Nature communicates audio visually; particularly animals, and plants do the same thing. They attract bees in order to be pollinated and to continue the species. They have, of course, an extra dimension of communication – smell. Plants seldom make sounds, although there are some which can make noises. And, of course, man has always tried to enhance his natural outward vision by audio visual performances of some kind to improve his communication.

If we go back to the cave paintings, although we do not really know exactly what was being communicated, it obviously had to do with the powers that man wished to have over the animals that he hunted.

The first methods of writing came from a visual communication where the image eventually led to letters, and we have, of course, a form of audio visual communication that is a very important source of Greek history and mythology and Greek habits and natural customs, namely paintings on pottery and glass. When writing began, it seems that for awhile all our emphasis and all of our interest went on to the written word. Writing by hand was replaced by the printing press and after Gutenberg gave us books, librarians placed considerable emphasis on the written word and visual communication fell into the background. Sometimes, however, the written word needed extra interpretation or there were people who couldn't read and for their sake the interpretation of the text was still given in pictures. We know that paintings in churches were not only done for the purpose of beautifying the church, but also to bring stories of the saints, or of the patron of the church to the people who could not read.

Another form of audio visual communication as a show for an audience also has a long history. Shadow plays originated in the ancient Near East and though we haven't got exact proof, we do have translations of Hitite writings which speak of customs in the temple that suggest shadow plays were performed. I'm quite convinced that it was so easy to create an impression with shadows that probably all temple rites in the Near East and the Middle East (if they used flames at all) would have also used shadows to impress people and it was a short step from merely using shadows to actually performing little plays behind the fire to deliberately create a shadow play on the wall. We know that in Turkey up to this day there are popular shadow plays performed on the market place. And we know, of course, that in Indonesia you have wonderful cut out figures that are used for shadow projections in puppet theatres. All these things are really ancient predecessors of audio visual performances.

If you add early technology, for example, the camera obscura, we know it is possible to create or to reproduce a picture on a wall with the help of a fine hole but even better with the help of a lens. There is evidence of thinking about this in Aristotle and from the Greeks (obviously via the Arabs because most of our technical knowledge was transmitted really via the Arabs). It came eventually back to the Western world and the evidence that you find in books describes the camera obscura as a chamber where you could trace on the wall a picture that was actually projected from an object outside. Camera obscuras of that form were a little cumbersome but the projection of pictures was certainly known. It was the church that tried it first and some other groups who were more concerned with pagan worship. It seems that the association of audio visual with the devil has considerable precedence and some say traces prevail on our campuses today.

Nevertheless, we have a book written by a Jesuit monk in the 17th Century "Ars Magna de Lucis et Umbrae" – The Great Art of Lights and Shadows. In this book, Athanasius Kircher writes about the use of projectors to throw images and amazingly enough he also projects the image of the devil onto the church wall to throw a good scare into the believers. But, our friend Athanasius made a few mistakes in that book when he described the magic lantern and in a later edition when he added a picture. He made a basic mistake putting a lens behind the picture, not in front of the picture.

I've talked to some people who did a lot of research on Athanasius Kircher and they say they believe he wrote of the equipment on hearsay and the people who really used the projector and knew about it were other monks who were just acquainted with him. Obviously, Athanasius Kircher had an audio visual department which did the shows for him.

From then onwards, you will find right through the Renaissance and for a long time to come the association of projection with the magic arts. Of course, the other thing we are concerned with is the gathering of images. The camera obscura eventually was scaled down so it was easily portable and so that people could use it to trace an image on a matte screen, a 45 degree mirror was added to make the upside down picture right side up.

In the 17th century there was a mechanic at the University of Artof near Nuremburg with the name of Johannes Zahn who actually provided the first audio visual show like the Canadian Educational Showplace held annually in Toronto. He invited people to Nuremburg to come and see his magic lanterns, and teaching devices, hoping they might take them home to their own universities. Thus he was selling specially made wooden audio visual equipment. The equipment became also, a medium of entertainment, not only for dissemination of knowledge, but the devil or the dead were always present in one form or another; the entertainments were sometimes for high society and sometimes strictly academic.

Johannes Kepler, the physicist and geographer, was challenged by the Austrian emperor in the 17th century to map the Austrian Alps and unwilling to climb all the mountains Kepler felt there was an easier way of getting images, so he created a camera obscura of his own that projected an image of the countryside on his drafting board.

We know that lenses existed in Egypt, and I recently saw in the British Museum a lens dated about 700 BC — obviously made as some form of enlarging glass. Glass lenses were definitely known through the ages and it was a simple step to replace the pin hole in the camera obscura with a lens. We now have all the components of a modern camera save the chemistry to catch the image. But you still had to trace it on a matte screen by hand. People knew though, that if they wanted to project a positive image from a shadow directly, they had to cut out a negative to yield a positive on the wall. So they just hand cut negatives; the term negative was known before the photographic negative was really invented by Professor Heinrich Schulze at the University of Achen who discovered that silver nitrate was sensitive to light.

The real start in photography, of course, was made by a Frenchman by the name of Nicephore Niepce who lived in Chalon sur Saone about 1826. He was a well educated man, knew about chemistry and wanted really to create a process that could be used for printing. He knew about the camera obscura and he had a local carpenter make a nice little mouse trap camera. He hoped to create on a pewter surface an image to replace hand made printing plates. He used as his light sensitive material—bitumen of Judea which is an asphalt that hardens under the influence of the sun, and if washed after such exposure with lavender oil, the non hardened parts dissolve and the hardened parts remain resulting in a surface that would either attract or reject printing ink. So Niepce developed the first photo-mechanical process, but he was looking, of course, for a system that was a little more light sensitive and he began experimenting with iodine and silver.

In Paris Niepce joined with a man named Jacques Mandel Daguerre who was a rather interesting character by himself. Daguerre was a tight rope walker, artist and showman who ran a diorama that people of Paris could visit where they were shown representations of the North Pole and when the stage turned around they were shown the pyramids complete with camels and so on — all cut out of paper. Daguerre too was looking for a process to make and paint quicker pictures — but for his diorama. So when he met with Niepce in Paris, the two got together and Daguerre offered to market this process. We'll find later in the history of audio visual that some smart guy gets together with an inventor and says "I'll help you. . . I'll market your process". Usually what happens is the marketing person gets all the credit and money. So it happened with photography. Niepce died and Mandel introduced the Daguerreotype and had it announced by the Association of French Scientists to the Royal Academy in 1839. Within two years Daguerreotype salons had started all over the world, and everybody had forgotten that Daguerre himself was not really the inventor of photography. Daguerreotypes were done on a small silver plate exposed to iodine which would, of course, create a photographic image when the light fell on it. The silver plate was a quite suitable replacement for the rather expensive miniature paintings. So the first photographs were done in that style, a very classy gift for those years. They were often round or oval and very small and Daguerre thought that they would sell for the same price as the hand painted miniatures and indeed they did for a long time. There was a certain class, a certain dignity to that photography that we perhaps are missing today and the Viennese got so excited that they even composed a waltz in honour of Daguerre.

There was another man, Fox-Talbot, who claimed that he had actually taken photographs before or around 1839 on paper impregnated with silver nitrate and potassium iodine and other substances and developed after exposure in pyrogallic acid, yielding a paper negative. Actually, Fox-Talbot's process was a little more practical for photographic purposes than Daguerrotype because he could easily make prints. When he waxed his paper it became transparent and he could make positive prints. You can see in Fox-Talbot's prints that the fibres

of the paper gave a certain characteristic that is rather pleasant to look at and again like Daguerre's, his pictures had some dignity that we sometimes miss in modern photography.

The first glass negative as we know it today was done by the famous physicist and general scientist Herschel, in England, also in the year 1839. The first negative on a thin piece of collodium was preserved under oil, as the substance would not last when dry. Herschel also was the discoverer of the fixing salt or hypo as we know it today.

Lenses were made in a rather casual way in those years. They were not based on mathematical calculations as they are today but rather the lens makers would take a piece of glass and based on long experience but still a process of trial and error, happily grind away until a lens resulted and then the makers would determine the focal length of the lens and its potential use.

Also around the year 1839, Professor Petzval at the University in Vienna ordered his instrument maker, who was actually a telescope maker, Voigtlaender, to build him a camera obscura while he would design a lens on a mathematical basis. Well, Voigtlaender built the camera which looked more like a telescope. It was the first all metal camera and it took perfect pictures. It was round; (they wanted round Daguerrotypes anyway) and contained the first portrait lens based on mathematical calculations by Petzval and built by Voigtlaender. This first Voigtlaender lens had an opening of 3.8 as opposed to F11 and F16 of all the other photographic lenses known at that time.

Finally, we hear about a man named Baron Von Uchatius, an Austrian artillary officer who was an engineer, interested in optics, and also a friend of Anton Prokes, a Viennese mechanic working for the University. The Baron wanted to use audio visual aids to instruct his troops, and thought by projecting slides he could train soldiers how to handle their guns – so he was actually interested in audio visual teaching methods. He built a projector with distinct advantages over previous models – he used a calcium carbide light source – a very white burning flame that was used later not only for cars and bicycles but also many other models of projection equipment. Uchatius also had, via the technician Prokes, met another man who was a magician. His name was Doebler and he put on magic shows in the Vienna theatres. You can imagine that at this time an officer of the Imperial Army does not really associate himself with magic shows in the theatre. If Uchatius thought that his projectors could be used in the theatre, he certainly couldn't do it himself. So for a hundred guilders he sold his invention to the man Doebler and as with the Daguerre/Niepce liaison, Doebler became a millionaire while poor Baron Uchatius much later shot himself, unable to pay debts incurred while playing in the casinos. Doebler used audio visual methods to project the shadow of the devil or ghosts on the stage and eventually in October, 1842 he used the first actual slide projector, by Uchatius, not only in the theatre in Vienna, but in England as well.

About this time, a man name Plateau in France and an artillery officer named Simon Stampfer, who was a colleague of Uchatius, also discovered simultaneously a device that they called stroboscope or the wheel of life. By combination of progressive drawings of movement and a wheel with slots that provided a shutter, this device gave the illusion of movement by a phenomena that we now know as persistence of vision. It's a deception of the eye which makes us see something as a continuous movement which in reality is more than twelve single pictures per second projected in rapid progression. Our eye cannot see this as a quick slide show. It will eventually see it as a movement or at least it will believe it to be a movement. We could not see television or motion pictures if it weren't for persistence of vision. So this first experiment by Plateau and Stampfer which had so far led only to toys, was taken up by Uchatius again.

He built a projector on the basis of the wheel of life, making a simple drawing on a glass plate, and putting it behind a shutter. In other words, he packed the whole Stampher invention inside a projector with a simple coal oil lamp and he actually projected the first motion pictures. This was in the year 1847. His next model was a little more elaborate with twelve lenses instead of one and it was Doebler who in the year 1847 was the first to show motion pictures on a screen for a paying audience in the Vienna Theatre on the Josephstadt. And again, Doebler got all the credit and again nobody in Vienna knew that it was really Baron Von Uchatius' invention. In the meantime others tried, including Prokes with more lenses, and rotating arrangements of pictures and lenses to overcome the problem of the light that always was lacking for projection of motion pictures.

The magic lantern in the meantime became a popular instrument for the entertainment of children. It was mass produced in Germany, in England and in France and then exported all over the world, and yet somehow while they were really a Western European idea they still retained the magic and magic was associated with the Eastern culture. When making the lanterns, they tried in the decor to give them the glamour of the Far East. Most of the slides were usually hand painted in Germany though eventually American hand painted slides were made as well.

If we return to photography now, we'll find that the camera hadn't really changed very much. However, in 1851, Scott Archer developed the wet collodium process that was certainly a more practical system but required that the photographer travel with a darkroom because as the name suggests you had to make your plate, put it in the camera, expose and develop it still wet, then wash it. When dry, you had a permanent negative. So the travelling photographer had a bit of a problem and had to take his darkroom with him. You should know that the wet collodium system required ether and alcohol to be poured into the tray. You stuck your head into the

tent and stayed there for ten minutes; I'm still wondering how a photographer could focus after that!! The wet collodium eventually had to be replaced with something a little more practical for the travelling photographer. And, in 1871 an English physician Alexander Maddox perfected the dry plates by suspending the photographic emulsion in gelatine and interestingly enough, he didn't patent it. Claiming this was an invention that should be used by the whole world, he publicized it through the Royal Society. Dozens of photo factories started all over the world, making millions while Alexander Maddox happily sat back and said he had done something for mankind by inventing perhaps the most important photographic process, the dry plate. Now, photography left the studio and photography brought home the knowledge of other countries. Photography really became audio visual because people like you and I could go and bore other audiences with their slide shows!!

True colour photographs and lantern slides were unknown, though colouring or tinting by hand was fairly common. The physicist Maxwell in 1870's had already laid the basic groundwork for the discovery that by taking black and white photographs through red, blue and green filters, you could separate the three primary colours and by a re-combination of the three primary colours you could create the illusion of colour if not real colour photography. And, in fact, a slide projector based on Maxwell's system was actually constructed. Three black and white slides were projected through three filters and the re-combination of the three primary colours resulted in a coloured projection.

A man, Reynaud, in France built a machine that he used for the projection of hand drawn slides to yield motion pictures. It was called the praxinoscope and eventually became the first home movie projector, if you want to call it that, in the late 1870's. Reynaud brought his own theatre and eventually in the 1880's on a boulevard in Paris he set up a motion picture theatre using hand painted slides mounted on a big band and although it was not a film, he could project fifteen minutes of story telling in continuous motion pictures. He operated that first motion picture theatre in Paris until about 1895. The real motion pictures, of course, put him out of business.

Anschuetz, who we remember as the inventor of the aerial camera and the focal plane shutter, also invented around 1885 the tachiscope which was again the principle of the rotating motion picture – but the lighting mechanism was interesting because he used an electronic flash.

In the meanwhile, in America, a rather colourful man named Muybridge, a photographer and rather a ladies' man was interested in motion photography and was challenged by the governor of California, to prove whether a racing horse at some time lifted all four legs off the ground. Now Muybridge is commonly regarded in North America as the inventor of motion pictures. I question this as he merely used all the knowledge that was available to him including that of the Uchatius projector. Using that system and a row of, at first, 24 single cameras, and eventually a camera that would expose on one round plate, he actually produced motion pictures of sorts before Edison. Muybridge had a counterpart, a physicist and physician, Marey, in France who was interested in movement studies also and who built a camera using film, but without perforations; he constructed a sort of beater movement that ripped the film along but produced intermittent movement. It was finally Thomas Alva Edison who put motion pictures on a more practical basis. He did so in his lab in West Orange with the help of Laurie Dixon, a young technician who had come from England to work with the famous Edison. Now because Edison was so successful with the phonograph, he had the idea that he would like to add motion pictures to the sound. And he couldn't get away from the idea of the turning cylinder so he challenged Dixon with the idea whether pictures could be impressed photographically onto a cylinder. While they experimented for two years, they couldn't really get anywhere. And so they wasted valuable time until they eventually bought some film from Eastman and then Edison and Dixon succeeded in getting underway. By around 1895 they had finally quite a good working model of a 35mm film camera. The size of the film that we have today was determined by the chance cutting of the film delivered by Eastman into 35mm wide strips!

The first film studio in the world was the "Black Maria" that Laurie Dixon built for Edison – a little shack that they could turn around so the roof could be opened towards the sun and this is where they made the first, (about 40 feet long) motion picture strips. They were still concerned with sound-motion-pictures, trying to synchronize film with the Edison phonograph. Edison didn't believe in projection; he thought that he would sell more equipment if only one person at a time could see a film. So he designed peep-hole shows where you had to throw a penny in the slot. He thought: if everybody throws a penny in, I don't have to worry about all seeing it at the same time. Perhaps he was thinking of pay TV! Around 1893-94-95 Dixon, and his wife Antonia, wrote the first history of the kinetograph and the kinetophonograph and publicized them, and soon after fell out with Edison, and left, and told everyone in competition all they had learned from Edison.

In the meantime, the Lumiere brothers who ran a photo factory in France designed a simpler and more portable system which they called cinematograph. Their camera could be used as a camera, as a printer, and could also be used as a projector. Unlike Edison, who wanted to rent his films and the viewing equipment, never letting the camera out of his hands and collecting license fees, the Lumiere brothers hoped to sell a camera to everybody because they were not only interested in selling the cameras but as film manufacturers, they were also interested in selling raw stock.

In the meantime, Laurie Dixon together with Kasler and some other mechanics in Binghamton, N.Y. started a company from which eventually the American Biograph and Mutoscope arose. They also used another system, the flip book that was certainly not their invention as it had been known since the middle of the 19th century. They developed their motion picture camera first for the flip book shows as we still can see them in some penny arcades. Encouraged by this success, they developed motion picture projectors, becoming the Biograph Company, really one of the first American feature film companies. Another flip book company came from Pathe, a daughter company to the Lumiere brothers which developed the Kenora. Motion pictures went all over the world and nobody really paid any attention to Edison who claimed that he had the only patent rights. Even a carpenter in Vienna built a camera in his backyard, got together with the son of a butcher and opened the first film production in Vienna in 1902, mainly (as he writes in his memoirs) because movie making gave him a good occasion to meet nice girls!

Trying vainly to combine the phonograph with the motion pictures, Edison in 1913 designed a bigger phonograph and a bigger projector and again tried to connect them with a bicycle chain. This was rather an interesting affair, still set up in West Orange. There is a projection room with projector in the back, but the phonograph is in the front and right through the audience was a long bicycle chain that synchronized the projector with the phonograph. I just wonder what the ladies did with their skirts when they sat near the bicycle chain!

Eventually a trio of three German engineers under the name of Tri Er Gon managed to put optical sound, photographically on the side of film in about 1924. This was, of course, the first practical way to have the sound right on the film. Again the film industry wasn't interested; silent films were selling very well.

The Warner Brothers' system that brought the Jazz Singer onto the screen in 1927 was not a sound on film system. It was a system that was based on Western Electric patents that used discs synchronized with the film. So you had the awkward running of discs separately from the movie projector and making sure that the two of them went together. When the success of the Warner Brothers' system was proven, optical sound on film re-emerged.

Kodak eventually brought out their first 16mm camera in 1924, the model A which was built after a big Hollywood camera. It was a beautiful camera but certainly too awkward for the amateur and didn't sell very well. The first really practical motion picture camera for 16mm film was brought out by Bell and Howell.

It was really via the amateur that 16mm got into instruction and education. Only after the amateurs proved that the travelogue could be shot quickly and cheaply with smaller cameras did film find its way gradually back into education. So we are really, from an educational viewpoint, latecomers. The first real impact of audio visual as we know it today came in troop instruction during the Second World War. That really broke the ice, not only in America but also in Germany where a lot of 16mm equipment and photography were used as a basis for instruction.

While Edison had the technical know-how but somehow misinterpreted the potential of motion pictures, Eastman, who started out with the same far-sighted ideas, as a good American business man, really brought photography to the masses. When you think about George Eastman with his box camera, remember that he and far-sighted people like him are responsible for the state of the audio visual art as we know it today.

This address, "Aladdin's Lamp: Glimmer to Glamour" was delivered to a lay audience at the University of Guelph on March 5th, 1976. As a "popular" presentation, this transcription of the text is informal, often colloquial. While it includes most of the major contributions to the development of audio visual equipment, Mr. Nassau would like to emphasize that it merely scratches the surface of a deep and complicated historical development.

MAGIC LANTERN: MAGIC VILLAGE

The advent of relatively inexpensive audio visual equipment, its ease of use, and its entry into the classroom has changed both the nature of education and the equipment itself. With this in mind, the Office of Audio Visual Services at the University of Guelph, and with assistance from the Curator of Art, decided to mount an exhibition of early audio visual equipment in the showcases of the Arts Building corridor during March and April, 1976. Examples were drawn from the photo-historical collection at Wilfrid Laurier University, the Ontario Ministry of Agriculture and Food, the Guelph Civic Museum, private collections and the University of Guelph campus itself.

We took as our premise that the magic lantern of the church hall, and the parlour stereoscope of the Victorians have given way to the "U-Matic videocassette" and "super-eight-with-sound" devices of the 1970's.

The Magic Lantern

The magic lantern, from which the cinematograph projector evolved was first described nearly three centuries ago, by Francesco Eschinardi in 1668.

Athanasius Kircher, inventor, scientist and German Jesuit, also described the 'Lucerna Magica' in the second edition of his Ars Magna in 1671. He maintained that he was the inventor, and remarked that the lantern was 'not the work of the Devil, but the result of contemplation'. The lantern had a double convex lens, the light being provided by an oil lamp. A long glass slide with a series of pictures painted on it was placed in front of the lens, and was moved so as to project each subject in turn upon a screen. Through Kircher's book knowledge of the

magic lantern became fairly widespread; and in 1692 the scientist William Molyneus, F.R.S, greatly improved its power by adding a condenser to concentrate the light.

The lantern was precisely a magic toy for entertainment. Kircher had used it in a darkened room at the Jesuit College in Rome to give performances of comedies and tragedies, to the great admiration of the audience; and he also mentioned that a Danish mathematician, Thomas Walgestein, had given public performances of some kind in Rome a short while before, projecting numerous pictures by means of a lantern, which was on sale in the principal towns of Italy.

The slides used in lantern shows gradually became more elaborate, a great variety of them were skilfully painted, and early in the eighteenth century the first mechanical movable slides were made, by means of which figures could be shown in different positions, giving the effect of life and action.

Magic lantern shows were a speciality of travelling magicians and showmen in the eighteenth and early nineteenth centuries; often accompanied by two or three musicians, they gave performances at the houses of the well-to-do, particularly where there were children.

From 1840 on the new oxy-hydrogen light provided brilliant illumination — and therefore greater magnification — for the dissolving views, and other lantern shows. Thus at the Manchester Mechanics' Institution in 1858 there were daily lantern shows accompanied by organ music, the slides being magnified to cover a screen thirty feet square. In the eighteen-sixties scenic stage effects by the magic lantern were for the first time employed, at the Haymarket Theatre, in London.

By the eighties and nineties dramatic lantern shows had given way to instructive lectures (chiefly topographical), now showing photographic slides, which had been introduced by the brothers Langenheim of Philadelphia in 1850. This was a highly popular form of entertainment, until the coming of the cinema in the early years of this century. The use of the magic lantern for lectures on geography, natural history, etc., however, went back to the early years of the eighteenth century, when such lectures were first devised by a professor at Tubingen, in Germany. The now familiar epidiascope, which is simply a modication of the magic lantern for projecting the image of opaque bodies, was described by its Swiss inventor, the mathematician Leonhard Euler, in 1753.

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Sound Recording

The first gramophone was invented by the American inventor, Thomas Alva Edison, in 1877. Edison's phonograph, as it was called, used a cylindrical record instead of a flat disc. As the cylinder rotated, a needle traced out the grooves in its surface and the vibrations of the needle produced corresponding vibrations in a diaphragm to which the needle was connected. This diaphragm was fitted to one end of a horn, which played a similar part to that of the sounding board of a violine or of a megaphone.

The apparatus based on the disc principle was invented by E. Berliner in the late 1890's and by the 1920's was the most common record player — giving rise to the slower speeds (from 78 revolutions per minute to 33 1/3 and 45) thinner needles, motors in place of spring drives, and electronic components to replace the mechanical sound reproduction devices.

Magnetic recording of sound is not a recent invention. The first wire recorder was developed by Valdemar Poulsen in Denmark before 1900, and his Telegraphone was sold and used for commercial purposes to some extent in the ensuing several years. A limited number were used in the United States.

The Telegraphone was seriously hampered by the lack of suitable amplifiers, and by the type of wire which was available. As amplifiers and magnetic materials developed, magnetic recorders of slightly better quality became possible in the 1930's, leading the Germans to a number of solid metal wire and tape designs, principally for business dictation. Several models of comparable sound quality were built in the United States, also using solid metal tape. During World War II a large number of wire recorders were used for speech, and considerable research on magnetic recording was started. Nevertheless, U.S. World War II wire recording was definitely of non-professional quality.

When U.S. Armed Forces occupied Germany, they found that tape recorders were in wide broadcast use, and that the results were far superior in fidelity to those obtained with wire recorders. The use of a plastic tape coated with a thin layer of fine particles of magnetic iron oxide had made it possible to achieve results of high professional quality.

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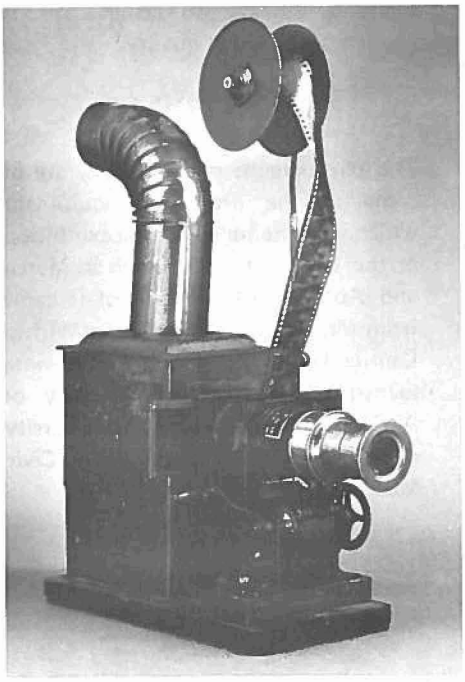
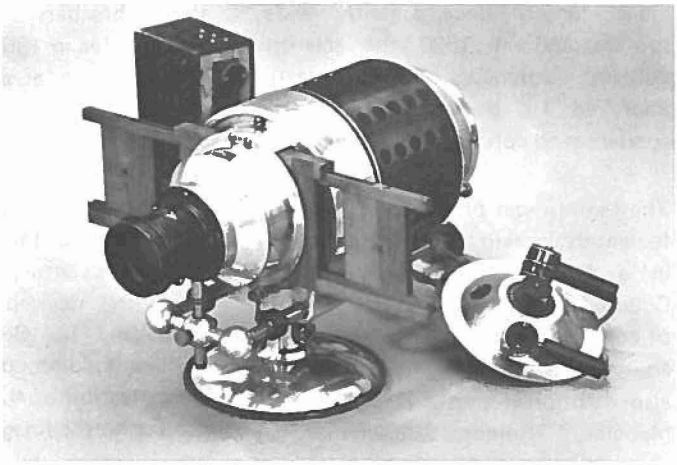
The photographs which follow are of some of the projection equipment which was assembled for the exhibition at the University of Guelph in March and April of 1976. Much of it came from Mr. Nassau's collection at Wilfrid Laurier University. Other pieces were loaned by the Ontario Ministry of Agriculture and Food, the University of Guelph and the Guelph Civic Museum.

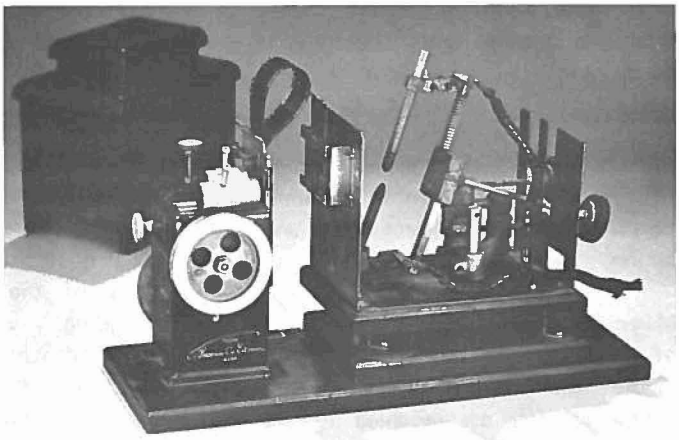
PROJECTOR FOR GLASS SLIDES,
ENGLAND, 1849
ILLUMINATION BY COAL OIL LAMP WITH
FOUR ADJUSTABLE WICKS



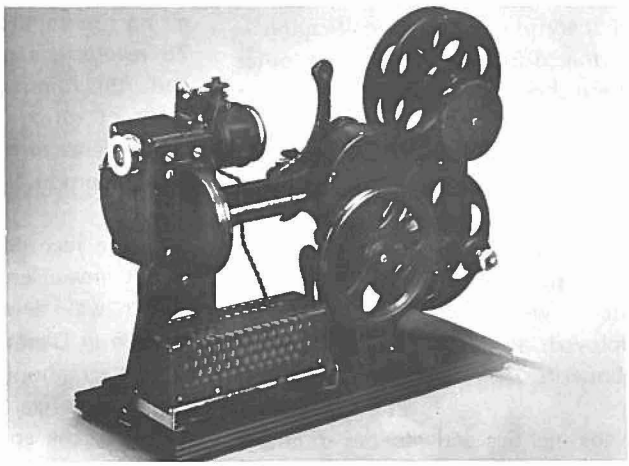
PROJECTOR FOR GLASS SLIDES /35 MM FILM,
GERMANY, 1898
ILLUMINATION BY COAL OIL LAMP



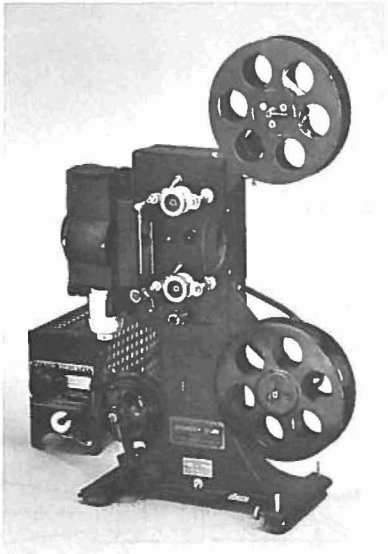
PROJECTOR FOR GLASS SLIDES, VICTOR ANIMATOGRAPH,
U.S.A., 1910
INTERCHANGEABLE BACK PLATES ALLOWED ACETYLENE OR
CARBON ARC ILLUMINATION



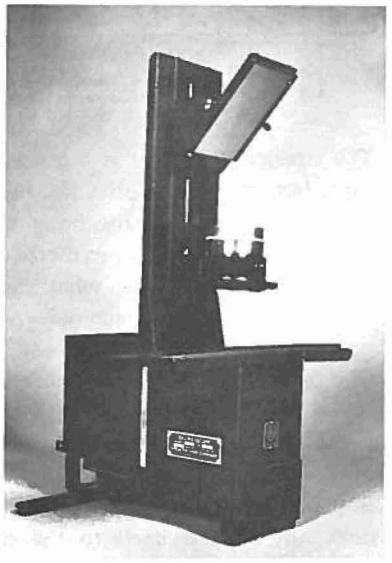
PROJECTOR FOR GLASS SLIDES/24 (?) MM FILM, THOMAS EDISON,
U.S.A., 1912
"HOME KINETOSCOPE" – ILLUMINATED BY CARBON ARC



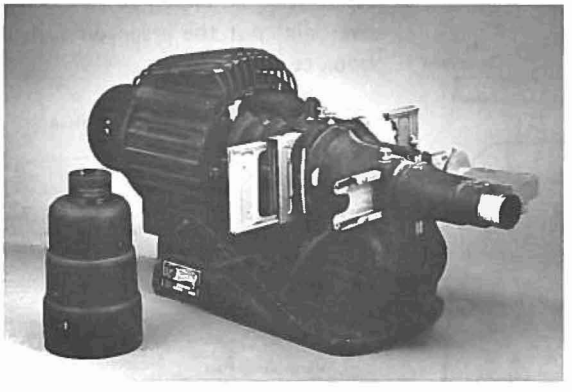
PROJECTOR FOR 28 MM FILM, PATHE,
FRANCE, 1920
HAND CRANKED – ILLUMINATED BY A 24 WATT BULB –
ACCOMPANIED BY A 50 LB BATTERY PACK



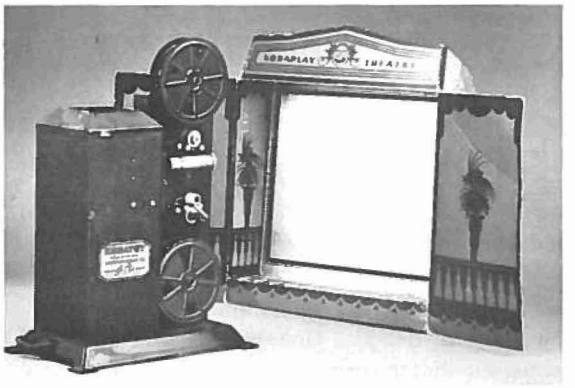
PROJECTOR FOR 28 MM FILM, VICTOR ANIMATOGRAPH, U.S.A., 1920
"VICTOR SAFETY CINEMA"



PROJECTOR FOR GLASS SLIDES (OVER-HEAD), SPENCER LENS CO., U.S.A., 1930
DELINEASCOPE – MODEL B – AMERICAN OPTICAL

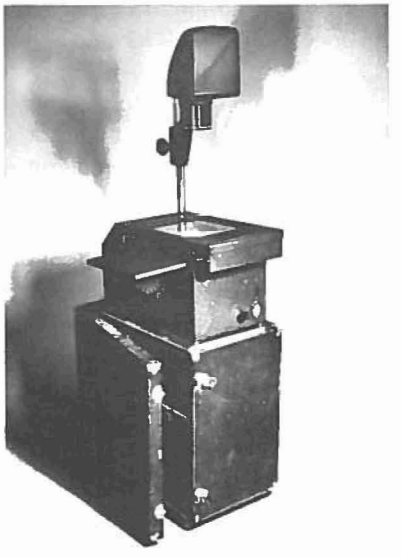


PROJECTOR FOR GLASS SLIDES/2" X 2" SLIDES/FILM-STRIP, GOLDE MANUFACTURING CO., U.S.A., 1940
"ALL PURPOSE PROJECTOR" – MODEL 1048 – THIS UNIT COULD PROJECT 3¼" X 4" GLASS SLIDES – OR BY INTER-CHANGING THE FRONT LENS SYSTEMS, THE NOW COMMON 2" X 2" SLIDES, OR 35 MM FILMSTRIP (MISSING)



PROJECTOR FOR 16 MM FILM, EASTMAN KODAK, U.S.A., 1925
"KODATOY"

PROJECTOR FOR 16 MM FILM, BELL & HOWELL, U.S.A., 1935
"FILMO" – MODEL 129C



PROJECTOR FOR OVERHEAD TRANS-PARENCIES, CHAS. BESELER CO., U.S.A 1940
"MASTER VUGRAPH" – ONE OF THE FIRST MODELS USED DURING WORLD WAR II FOR TROOP TRAINING

THE OPAQUE PROJECTOR

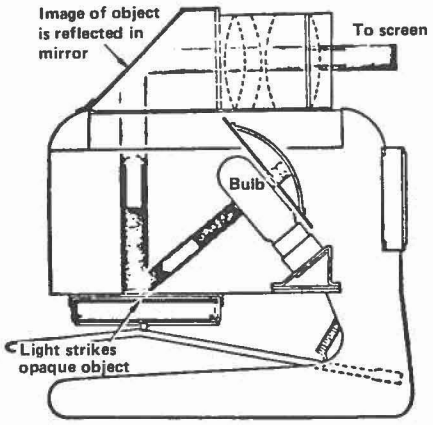
by D. L. Burt

The opaque projector has been around the educational scene for a very long time. Many of the models that are available today are really very similar to the original designs. One would almost believe that the original patterns are being used to stamp out the cases for some of the projectors being sold today. While some makers have given their products a distinctive shape, the light source (1000 watt incandescent) is the same and the arrangement of the light source, platen, mirror and projection lens is virtually a carbon copy from one machine to another. One relatively recent change has been the addition of a built-in pointer. The older machines have accomodated this "revolutionary innovation" by attaching a flashlight-like pointer on a ball joint to the operator side of the projector. A heat shield is also an item that is available on most machines.

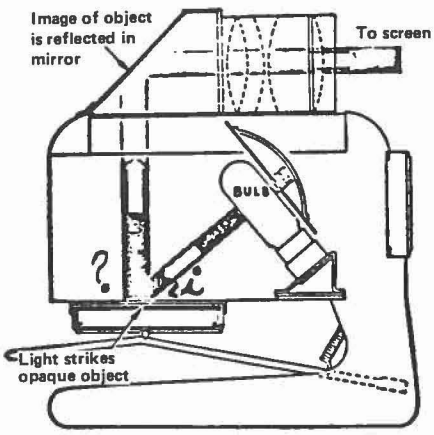
The advantage of the opaque projector is that materials (still-flat pictures) are readily available. The pictures can be from books, magazines or calenders. Literally any two dimensional visual up to about 10' x 10' can be used in the opaque. When one adds some three dimensional materials to this it can be seen that there is no limit to materials and the price is right. Or is it?

What is the price one pays to use this wondrous machine? Well, it is not without problems. Since it operates on the basis of reflected light, the projector should be used in a very dark room for best results. Few schools old or new have complete room darkening. The size and weight of the machine makes a cart an absolute necessity. The lens system forces the user to be close to the front of the classroom. In that position the machine and the teacher block the view of many students. Because reflected light is not very efficient (too much absorbtion and diffusion) a very large bulb has to be used (1000 watts) and this results in a great amount of heat. Heat is the enemy of most materials one might want to put in the projector. It bakes the spine of glued books resulting in cracked hinges and losss of pages. It can cause a shift in the colors of some color prints, and has been known to turn some white pages slightly brown. This latter condition is not a simple color shift but an actual scorching of the page.

Why does a machine which looks so good have so many problems? This writer would suggest that the problem is inherent in the basic design.

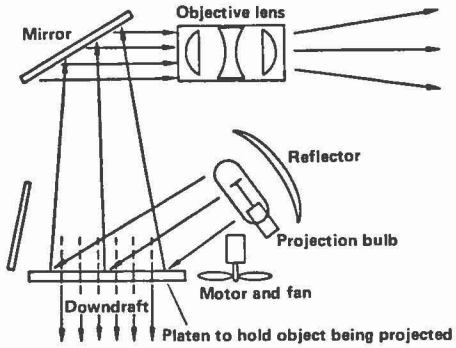


You will notice if you check almost any introductory AV text that the designers of this machine have "bent" the laws of reflection all out of shape. As I recall from my first exposure to mirrors, the angle of incidence is supposed to be equal to the angle of reflection.



At the surface of the material to be projected, it is obvious that this law is in trouble — or the projector is. Some texts go so far as to show light coming back towards the light source — amazing.

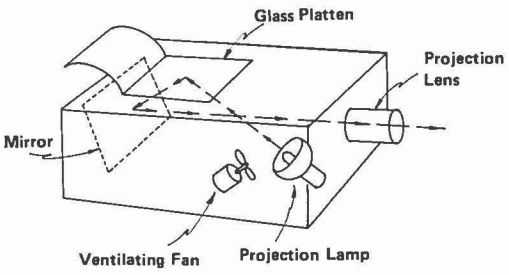
A generalized opaque projector



The opaque projector is a good concept, but this writer does not believe that it has been properly thought out. It is relatively easy to criticize, but rather than stop there, what can be done to improve this machine?

One relatively simple change might be to use quartz-halogen or "peanut reflector" bulbs in the existing design. This would give light with less heat. But perhaps that is too simple and does not address itself to the other problems of size and weight etc. It could be that the whole machine should be re-designed. So let's try.

What would happen if you turned it over and put the stage on top like a book copier?



Make the case low and rectangular. Place a "modern" light source in the front near the bottom of the case and

the mirror in the back. Be sure to watch angles of incidence and reflection at the object and at the mirror. The lens then goes low and to the front. Since small or single page materials would allow light to spill into the room a heavy cloth "drape" could be used over the opening. A fan to cool the inside of the projector and an off-on switch should just about complete the picture.

The opaque projector is a good idea. Do you think that by re-designing it (as shown or in any one of several other ways) the changes might allow it to perform better for the teacher?

D. L. (Larry) Burt is an Associate Professor at the Nova Scotia Teachers' College, Truro, Nova Scotia.

A COOPERATIVE APPROACH TO THE DEVELOPMENT OF SELF-INSTRUCTIONAL MODULES ON THE USE OF MEDIA

by Frank Winter

A report of a cooperative project by a consortium of five community colleges in the Toronto area in the development of self-instructional modules on the use of media. The modules are being used for inservice training among the instructors of the participating colleges.

The Ontario Community College Media Directors have a province wide organization which is divided into 4 regions, and these regions have meetings from time to time to discuss common problems. The Central Region is represented by Centennial College, Humber College, Ryerson Polytechnical Institute, Seneca College and Sheridan College.

During a meeting in December 1975, it was decided that the colleges of the Central region would each produce a media program which when combined would create a series which could be used for faculty and student orientation to the use of media.

Although it wasn't necessarily the best medium, the sound slide mode was chosen for compatability. Each program was to be approximately 10 minutes in length, have no more than 80 slides (horizontal format), and to be automatic advance of 1000 hz.

In order to create a series, the following topics were chosen:

1. Will Media Teach?
2. Which Medium?
3. Planning and Using Overhead Projectuals
4. Planning and Using Sound Visuals
5. Planning and Using Instructional Television and Film

Three deadlines were established: —

1. January 16, 1976 (3 weeks after topics chosen) for Storyboard (content critique)
2. February 5, 1976 (3 weeks later) for Graphics and Picture critique
3. February 25, 1976 (3 weeks later) — showing of finished product

Needless to say, there was a great deal of scrambling in order to meet the deadlines, but all colleges did indeed make all deadlines.

On March 1st, the five programs were shown at the annual Ontario Community College Media Directors Conference. These programs were again shown at the College Librarians Conference and a final time at AMTEC in June. Because of the number of requests for copies, it was decided that 50 sets would be produced and sold on a first come, first served basis and that there would be no others produced beyond this number.

Labels and library descriptions were done by one college; audio dubs by another, slide dupes, numbering and packaging by another. The length and content of the programs are as follows:

1. Will Media Teach?
   13 min.

   A summary of research studies made in the use of mediated instruction, that proves by results, the advantages of slide/cassette, audio tutorial, film, television and computer assisted learning programs for instructional purposes.

2. Which Medium?
   8 min.

   This program explores the idea of "The Decision Tree" as a method of choosing the most appropriate media for your message.

3. Planning & Using Overhead Projectuals
   13 min. 19 sec.

   This presentation discusses and demonstrates the planning, production, and utilization of a variety of visuals which can be effectively used with most overhead projectors. The inter-relationships of materials, presentation techniques, and the communications environment are clearly illustrated.

4. Planning & Using Sound Visuals
   7 min.

   The steps required to produce a

sound visual presentation are discussed and the advantages and disadvantages of the format are discussed. The presentation illustrates how the need to communicate a message can be expanded from a basic idea into a visual format.

5. Planning & Using Instructional Television & Film
9 min. 30 sec.

A look at the research and controversy surrounding the use and abuse of instructional television and film. The presentation then looks at developing suitable material for instructional television or film production.

Each set of five programs, in slide trays and boxed, complete with cataloging was sold for $250.00. Because of the problems involved, no single programs were sold. There are still a few sets left and they may be ordered by sending a P. O. to Mr. Alistair Stewart, Seneca College, Finch Campus, Toronto, Ontario. These orders will be filled as long as the supply lasts.

Was it worth it? In discussion with all colleges concerned, the unanimous answer was 'yes.' Certainly there were numerous problems, but these were overcome and the feeling of accomplishment when the final product was shown was certainly worth the effort.

All colleges involved have agreed to another series and we are now in the process of deciding topic and format.

Frank Winter is Dean of Instructional Development at Sheridan College, Oakville, Ontario.

ELEMENTARY SCHOOL LIBRARIAN'S ATTITUDES TO THE TOTAL RESOURCE SPECTRUM

by Ken Everest and Dave MacDougall

The Changing Role of the Resource Librarian — Information Retrieval

The prime function of the school librarian has been shifting away from that of a keeper of catalogued books, operating within a library, to that of being a multi-media resource person responsible for the school's entire media program.

The goal implicit within this shift in responsibility, duties, attitude and complexity of the collection is that the school librarian would appreicate all media as meaningful sources of retrievable information each with its own peculiar strengths and weaknesses.

Furthermore, not only would the resource librarian be aware of these peculiarities, but would also develop the expertise to direct the students to the particular medium which is most appropriate to his/her behavioural objectives.

While this is the ultimate goal, we must face the reality of today. It is somewhat optimistic to envisage an elderly resource librarian setting aside the cataloguing of a book entitled, "Maple Syrup" to set out on a field trip armed with a port-a-pak to video tape farmers tapping their maple trees.

The Changing Role of the Resource Librarian — Utilization and Production

This example, however, illuminates another aspect of the shift that must occur in the librarian's role. The library collection, even if its emphasis shifts so that it becomes completely multimedia in its spectrum, still permits but one activity, that is information retrieval. The resource librarian has a role to play in the effective utilization of equipment and materials within the classroom so that these resources can enhance the learning process. Further, while it probably would receive the least emphasis of the trilogy of media activities, media production, e.g. slide, film, video tape and graphic preparation, should enjoy the resource librarian's proficiency and enthusiasm.

Meaningful appreciation of the trilogy by the resource librarian must become a reality for a successful media program to be implemented within the school.

The Changing Role of the Resource Librarian — Mini-Consultant

Unfortunately, movement towards this goal has been hampered by the initial confusion that has resulted from the merger of audio-visual and library departments, the reductions in the ranks of the consultants, and the reduction in library budgets.

Therefore, it is up to the librarian to pick up this slack and become a "Mini-consultant" operating within the school environment. However, it is obvious that a vicious circle is being created. The resource librarian must develop the proficiency, knowledge, attitude and enthusiasm to counteract the aforementioned reductions in support staff. Yet it is the very support staff that are needed to build that same resource librarian's proficiency.

The Ontario Ministry of Education Elementary School Librarians' Courses

The Ontario Ministry of Education's school librarians courses offer an ideal environment for the acquisition of the necessary concepts, skills and attitudes.

Since the investigators were also enrolled within this programme, they were able to assure themselves that the course instructors were indeed urging concepts conducive to this ideal upon the students.

Criteria for the Analysis of Resource Librarians' Attitudes

However, were the students accepting these conceptual attitudes? Do their attitudes towards a true multi-media awareness augment with successive years of the course? Does the formal education, library experience or student age affect the development of the desired attitudes?

The investigators selected nine facets of the student profile to test the relationship between these independent variables and the dependent variables of attitude and implementation.

The course offered a laboratory of 375 students; 196 from the first year, 62 from the second and 171 from the third.

The investigators prepared a survey that would be administered to all course students at the same time. The survey consisted of three facets. The first called personal data concerning sex, course year, academic education, teaching experience, library experience, etc. The second segment analyzed one dependent variable, that is the balance of the library collection and the librarian's competency with various pieces of audio-visual equipment. The third aspect evaluated the librarian's attitude towards non-print media. This section represents the crux of the entire survey and is the more important of the two dependent variables.

Administration of the Questionnaire

The 305 questionnaires that were returned by the deadline, were consecutively numbered and scored manually. These scores along with the student profiles were fed into an IBM 360-60 computer by punch card. Analyses of variance were performed for the nine independent variables versus the dependent variable "attitude". One two-way analysis and one three-way analysis were also performed.

Conclusions

The most significant conclusion was that the sensitivity to the total resource spectrum increased with the course level, with the students of the third year revealing the greatest sensitivity and students of the first year level the least. This conclusion was significant at the 0.01 level.

The other significant conclusion was that sensitivity to the total resource spectrum increased with years of library experience. However, since there were no students in the entire course with more than ten years experience, caution should be taken in the interpretation of these results.

Both the factors of course year and library experience are mutually exclusive factors. A two-way analysis produced no significant difference.

The other independent factors of sex, completion of the Learning Materials Methodology course, education, teacher experience, present position, age and type of school indicated no significant difference. However, education was significant at the 0.1 level and might indicate a trend to greater sensitivity as formal education increases.

The students overwhelmingly accepted the concept that utilization equipment should be within the resource centre.

An awareness of the librarian's role in production was indicated by the percentage that felt that not only should they be proficient in the operation of the 35mm camera, the super 8mm camera, the port-a-pak and the dry mount press, but they also should supervise the activities of the media technician.

An overwhelming majority rejected the title "librarian" in favour of other terms that would reflect their new role and new responsibilities.

Comments on Student Profile

(1) More than three-quarters (76.7%) of the students were female.

(2) More than half (55.5%) of the students who answered the questionnaire were in first year. The percentage of students registered in first year was 52.3%.

(3) The low return in third year (69.3%) compared to second year (88.8%) and first year (86.4%) was probably due to the third year timetable. Some third year students did not have a class in the period the questionnaires were done. These students were handed questionnaires later to be completed and returned. No doubt some of these were misplaced or forgotten. Twenty lost questionnaires would account for this percentage drop. This was confirmed by the fact that all but one of the questionnaires returned too late to be processed were for third year.

(4) Very few students (15.4%) had completed the media course, Learning Materials Methodology. However, twice the percentage (24.0%) of males had completed this course as females (11.5%) had.

(5) The education level of the students was high. More than half (55.1%) had a B.A. degree or higher. As the percentage of degrees increased with the year of the course we assumed that many of the people in first and second year were working on their degrees simultaneously with the library courses. This was born out by the fact 28.5% of the students had some university credits though

not enough for a degree. More than 85% of the students had done or were doing university work. Twenty-six (8.5%) students were going on to post-graduate work.

(6) Most students (69.2%) enter these courses with 10 years or less of teaching experience.

(7) More than half (53.8%) of the students had no library experience. 81.6% had no library experience or less than two years experience. No one had more than 10 years experience in the library. Only 14 students had 6 to 10 years experience and 12 of these were in third year.

(8) More than half (56.5%) of the students were elementary librarians, while 28.5% were teachers. More than half (53.8%) said they had no library experience, yet 62.8% said they were librarians. These were not incompatible as many students had been appointed librarians to start in September 1974.

(9) Nearly half (47.3%) of the students were between 20 and 30 years of age while 82.9% were between 20 and 40 years of age.

(10) Most students (86.6%) were in a traditional or combination traditional and open plan school.

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OPEN EDUCATION

by Sieglinde Stieda-Levasseur

Part 1

ASSUMPTIONS OF OPEN EDUCATION

In the current English language pedagogical literature, the following jargon terms are found: open plan school, informal education, the integrated day, the open classroom, the developmental classroom, free schools, schools without walls, storefront schools. Although these terms are not necessarily synonymous they represent a counteracting against the dehumanization of the educational process. The concern with values, attitudes and emotions in education was legitimized on this side of the Atlantic, with the 1964 publication of Krathwohl's Taxonomy of Educational Objectives, Handbook II: The Affective Domain.[1] This book triggered off a series of studies and articles which tried to come to grips with the problem of humaneness in education (see Appendix A for details). All the above concerns have two general themes in common:

1. The rejection of traditional - formal academically oriented education. . .

2. The adoption of a rhetoric emphasizing commitment to "humanistic" values, including self-determination, freedom of choice, and aesthetic appreciation.[2]

For the purposes of this paper, the concepts, free schools, schools without walls and storefront schools, will only be acknowledged in so far as they relate to the above themes. The concept open plan school which Brunetti describes as an open space school which "is composed of instructional areas without interior walls, ranging in size from two to over thirty equivalent classroom,"[3] will only be briefly touched upon in this paper, since the architectural openness of a school is not a determining factor in open education. Furthermore, it must be noted that all these labels are potentially dangerous since "it is all too easy to buy the label without buying or understanding the underlying premises."[4] This concern for understanding the underlying premises, assumptions and concepts was evident in many of the American and British works studied. However much of the little Canadian material that was studied, did not share this view. Two administrators who travelled across Canada to study open area schools, seem to have grasped only a very surface understanding of the concepts open education and library resource centre:

The Library Resource Centre could

[1] *David R. Krathwohl, Benjamin Bloom and Bertram B. Masia, Taxonomy of Educational Objectives; The Classification of Educational Goals Handbook II: Affective Domain (New York: D. McKay, 1964)*

[2] *Lilian Katz, Research on Open Education: Problems and Issues (Bethesda, Md.: ERIC Document Reproduction Service, ED 068 202, 1972), p. 2.*

[3] *Frank A. Brunetti et al., "Studies of Team Teaching in the Open-Space School." Interchange 3 (No. 2/3, 1972): 86.*

[4] *Edward A. Chittenden and Anne M. Bussis, Open Education: Research and Assessment Strategies. (Bethesda, Md.: ERIC Documentation Reproduction Service, ED 060 932, 1971), p. 1.*

be part of any school, but I think it's a more effective part of an open-area school, probably BECAUSE TEACHERS IN AN OPEN-AREA SCHOOL CAN SEE THEIR CHILDREN WHEN THEY'RE IN THE RESOURCE CENTRE. Surely, the Resource Centre was begun originally to be an extension of the classroom, and teachers in a conventional school would not use this as such BECAUSE THEY WOULD BE AFRAID DISCIPLINE WOULD FALL APART, especially if there were no librarian in the library. In an open-area school, it seems to be much easier. There's much greater use of the Library Resource Centre.[5]

Such shallow understanding of open learning, leaves one to wonder about the educational future of this country.

This paper then will concern itself with trying to understand the related concepts of informal education, the integrated day, the open classroom, the developmental classroom and open education. Furthermore, since "the vital factor for the proper functioning of any open education system is the existence of a symbiosis of education, communications and technology,"[6] an attempt will be made to relate the open education concept to the concept of library resource person.

Open education is an open ended and questioning approach to learning which does not already have all the answers in mind?[7] This nonprescriptive approach to learning can occur anywhere along the age continuum as long as a basic respect for the learner is maintained.

> I believe that only actual participation constitutes socially valuable learning, a participation by the learner in every stage of the learning process, including not only a free choice of what is to be learned and how it is to be learned but also a free detemination by each learner of his own reason for living and learning — the part that his knowledge is to play in his life.[8]

Participation by the learner in every stage of the learning process is best exemplified by the British Open University as well as by a third of the British primary schools which the Plowden Report had documented as practicing the free or integrated day. It is difficult to pinpoint all the influences that helped teachers of British infant schools develop an informal approach to learning based on the children's needs. Featherstone identified the beliefs that underly the British infant school:

1. young children have distinct needs, distinct aptitudes for active learning in the concrete mode;
2. the influence of various developmental theories;
3. the relative autonomy of principals and teachers;
4. the existence of advisors to support teachers and spread good work;
5. the value of good work setting new standards.[9]

These beliefs may have come from a variety of sources. "Almost all the great theoreticians in the history of pedagogy caught some glimpse of one or other of the many aspects of our present conceptions."[10] Rousseau acknowledged the fact that we cannot educate the child until we know him: "Commencez conc par mieux etudier vous eleves, car tres assurement vous ne les connaissez point."[11] This child which we must study is not a minature adult already capable of rational thought. "La nature veut que les enfants soient enfants avant d'etre homme."[12] So we must treat this child according to its age.

Other glimpses of the informal classroom can be seen in John Dewey's concern for providing a school environment of inquiry for the reconstruction of experience.[13] Maria Montessori contributed the idea that the teacher be a close observer of the child's development while at the same time providing her/him with a carefully supplied and organized environment.[14] The idea of informality of schooling, proposed as early as 1861 by Leo Tolstoy[15] was given official recognition in Britain by the 1931 Hadow Report which was of the opinion "that the curriculum of the primary school is to be thought of in terms of activity and experience, rather than of knowledge to be acquired and facts to be stored."[16] A year later, more impetus was given to the open education movement through the publication of a book by Susan Isaacs,

[5] *Some Personal Impressions of Open-Area Schools Across Canada. (Toronto: Canadian Education Association, 1973) p. 2.*

[6] *Waniewicz, Ignacy, "Conference on Open Learning in Higher Education," Media Message 3 (Summer 1974): 14.*

[7] *Basil Bernstein, Class, Codes and Control (London: Routledge and Kegan Paul, 1975).*

[8] *Ivan Illich, "After Deschooling What?" in After Deschooling What? edited by Alan Gartner (New York: Perennial Library, 1973): 16.*

[9] *Joseph Featherstone, Schools Where Children Learn (New York: Liveright, 1971), p. 82.*

[10] *Jean Piaget, Science of Education and the Psychology of the Child, Trans. Derek Coltman (New York: Grossman Publisher, 1969, 1970), p. 139.*

[11] *J.J.Rousseau, Emile (Paris: La Renaissance du Livre nd), p. 8.*

[12] *Ibid., p. 84.*

[13] *Richard Pratte, Contemporary Theories in Education (Scranton: Intex Educational Publishers, 1971), p. 130.*

[14] *S. J. Curtis and M. E. A. Boultwood, A Short History of Educational Ideas (London: University Tutorial Press, 1953, 1975), p. 496-500.*

[15] *Ibid.*

[16] *W. H. Hadow, Report of the Consultative Committee on the Primary School (London: His Majesty's Stationery Office, 1931), p. 139.*

The Children We Teach[17] in which she details the child's psychological development and her/his needs in the classroom.

At this stage it should be pointed out that while the theoretical and practical pedagogues were concerning themselves with open learning based on the individual learner's needs, there developed a service which put into practice many of the concerns of the open education movement. Such noble concepts as the continuous learning society in which grade levels and examinations are meaningless, have been practiced in public libraries throughout this century. It is in the public library that the informational and aesthetic needs of many people are met through the provision of materials (books, films, records, art prints, etc.) and informal programming (film study, book discussions, video recording, story hour etc.). One of the more exciting areas of the public library service, has been the work with children. From its early proponent, Anne Carroll Moore at the New York Public Library, to its modern practioners, such as Genevieve Patte at La Joie Par Les Livres in Paris, and Lily Arjomand at The Institute for Intellectual Development of Children and Young Adults in Tehran, (see photos in Appendix B), the children's librarian's main concern has been the respect of the child. Early in the century, Anne Carroll Moore provided story hours to whatever child wished to hear them. While this tradition has been continued to the present day, new activities have entered the public library programmes: ". . .painting, handicrats, puppet shows, films and filmstrips, and field trips to museums, exhibitions, factories, and scientific and technical organizations,"[18] are all part of the Iranian children's library programme. Today Iranian children also have access to participatory music and drama programmes. At the same time, the children in the children's library at Clamart, Paris, France, supervise their library with a minimum of adult interference. In addition to some of the Iranian activities, these French children run their own printing press. And even in Canada, children's libraries have been the scenes of filmmaking, puppet making, and book making by children.

Is then the children's library just another version of the integrated day school, the informal school, the free school, the open education school? Since the writer of this essay has never seen or heard these similarities discussed, she will have to come to her own tentative conclusions on the matter. There are two major differences between open education schools and childrens libraries: 1. With the exception of Tolstoy's school in Yasnaya Polyana, and some free schools, there is compulsory attendance in schools. The children's library on the other hand has never desired or required compulsory attendance. Similarly, during the day, children may come and go as they please, in a children's library. This freedom to come and go, reinforces the children's librarian's basic idea of respect for the child. At the same time, any person, regardless of age, sex, religion, political belief, economic status, etc. may enter a children's library. 2. Though the ideals and activities of open schools and children's libraries are similar there is a crucial difference. Despite the children's librarian's intuitive and practical knowledge of childhood, she/he has little or no knowledge in diagnosing the psychomotor and cognitive developmental stages of the individual child. Much of the success of the British integrated day, is due to the comprehensive and systematic system of record keeping done by the British teacher on each child. Their major skill lies in diagnosing the child's needs according to his developmental stage, and then planning activities and environments that will help the child to develop further.

It was Jean Piaget who established the body of psychology necessary for the working out of educational techniques that are truly adapted to the laws of mental development:

> The observations of Jean Piaget opened new areas of knowledge about how young children think and how they learn. Jerome Bruner pointed out that any subject can be taught in some intellectually respectable way to any child at any age. Benjamin Bloom contended that environmental stimulation has its greatest effect during the early period of rapid development.[19]

Piaget's concern with "the implicit logical theory on which the child proceeds in dealing with intellectual tasks",[20] is of crucial concern to the process of diagnosis in the open learning situation. To Piaget, learning in the narrow sense, i.e. the mere acquisition of specific responses to particular situations,[21] is a superficial learning which is "Unstable, impermanent, and unlikely to generalize."[22]

> Learning in the wider sense is based on development. It occurs when the

[17] *Susan Isaacs, The Children we Teach: Seven to Eleven Years (London: University of London Press, 1932).*

[18] *Alice Lohrer, "School Libraries in Iran and the Near East" in School Libraries: International Developments edited by Jean E. Lowrie (Metuchen, N.J.: Scarecrow Press, 1972), p. 105.*

[19] *Jean K. Mowbray and Helen H. Salisbury, Diagnosing Individual Needs for Early Childhood Education (Columbus: C. E. Merrill, 1975), p. 122.*

[20] *Jerome S. Bruner, Toward a Theory of Instruction (Cambridge: Balknap, 1969), p. 7.*

[21] *This narrow sense of learning is described as data packaged learning in the second part of this essay.*

[22] *Herbert Ginsburg and Sylvia Opper, Piaget's Theory of Intellectual Development: An Introduction (Englewood Cliffs: Prentice-Hall, 1969), p. 177.*

> child has available the cognitive structures necessary for assimilating new information.[23]

Diagnosing the child's cognitive structure at any given time, is the basis of assessing her/his cognitive needs. (Similar diagnoses should be done for the psychomotor and affective domains.) Based on the child's needs, the skilful teacher then plans a curriculum for that child. No matter how informal or open the learning environment is, the teacher must still devise a plan for learning (i.e. Taba's definition of a curriculum,)[24] for each child. After the diagnosis of needs, objectives are formulated which in turn determine the selection and organization of content, as well as the selection organization of learning experiences. In an open classsroom, these learning experiences include both real life experiences such as taking care of pets and interacting with the outside community, and vicarious experiences. These vicarious experiences are made possible through the provision of learning resource materials. In an open concept school, these learning materials are part of a thoughtfully planned environment which,

> permit choices from an array of materials — water, sand, clay, pottery kilns, pets, practical maths apparatus and science equipment, all kinds of reference books and books for individual reading, private notebooks and free writing notebooks, powder paint, easels, puppet theatres,[25]

plus records, films and video tapes.

Part II

ASSUMPTIONS OF THE LEARNING RESOURCE CENTRE

Diagnosis of the resource needs of teachers and students whose learning objectives include an open concept of education may turn up points which cast doubt on commonly used library practices or on the assumptions underlying them. For example, in an egg-carton-type school, (physically as well as mentally), one of the holes may be designated as the library, media centre, or learning resource centre. This room may even house (store?) the majority of the printed and non-printed learning resources available in the school. A so-called progressive school administration may even go so far as to hire a media/library specialist who will select, create, organize and disseminate the learning resource media. The above described activities can occur and yet not a single educational process need necessarily change within the walls of that school. The superimposing of non-textbookish print and non-print materials on a rigid pattern of school organization, becomes an expensive embellishment.

If the underlying assumptions of the existing patterns of teaching and administration are not examined and challenged, the setting up of a library resource centre with all its paraphernalia, is a waste of time and money. One of the educational assumptions that has been challenged by Canadian media guru, Marshall McLuhan, is the notion of data packaging:

> Education on all levels has to move from packaging to probing, from the mere conveying of data to the experimental discovering of new dimensions of experience. The search will have to be for patterns of experience and discovery of principles or organization which have universal application, not for facts.[26]

Is the skilful production and consumption of data packages an end in itself in our educational institutions? If the act of consuming or producing such data packages is meaningless to the consumer or producer, why do educational institutions propagate such acts? Is there really much difference between the data packages of forty identical textbooks and the sophisticated data packages consisting of beautifully crafted but irrelevant (i.e. irrelevant to the needs of the learners in that particular school) data on celluloid? Is there really much difference in the situation of the five-year old who is asked to spend meaningless hours of colouring teacher-created ducks and trees, with teacher-determined colours, and the situation of the graduate student who is asked to spend meaningless hours in the production of a technically perfect but meaningless slide-tape production? What are the underlying assumptions when teachers and professors ask their students to produce meaningless products?

What happens to people who consistently commission or create products devoid of genuine spiritual enthusiasm? Is there any difference between the consumption of meaningless data packages and the production of meaningless data packages? To the author of this essay, the assumption expressed by the above examples is that life is a series of meaningless acts, varied only by their consuming or producing nature. A school library resource centre could conceivably be filled with such meaningless acts.

There are, however, still optimists in this world. This optimism is best expressed by the animation artist Philip Stapp:

> The current protest of young people the whole world over seems to suggest a salutary wish to destroy the undergrowth of hypocrisy

[23] *Ibid.*

[24] *Hilda Taba, Curriculum Development: Theory and Practice (New York: Harcourt, Brace & World, 1962), p. 11.*

[25] *Joseph Featherstone, An Introduction (Toronto, Macmillan, 1971), p. 10.*

[26] *Marshall McLuhan, "Electronics and the Psychic Drop-Out" in This Book Is About Schools edited by Satu Repo. New York: Vintage Books, 1970, p. 389.*

which chokes industrial societies. One senses an appetite for honest, a rejection of the idea that the material well being of the body justifies the ersatz food of the spirit, a refusal to accept the inequalities of power and privilege for a few. . . [27]

These optimists believe that a student's needs and a student's environmental structure can be related to educational procedures. Such educational procedures are based on the following assumptions:[28]

1. People are innately curious.
2. People will explore their environment provided it is not threatening.
3. People have the competence and the right to make significant decisions concerning their own learning.
4. People who learn something of importance to themselves wish to share it with others.
5. People develop intellectually at their own rate and in their own style.
6. Intellectual growth and development best take place in a sequence of concrete experiences followed by (verbal) abstractions.
7. Errors are an essential part of learning.
8. A person's learning is best assessed by close observation over a long period of time.

In McLuhan's words, "our whole world, in shifting from the old mechanical forms to the new electronic feed-back forms, has already shifted from data packaging to PROBING OF PATTERNS. "[29]

As children and other learning creatures probe for patterns in their environment both inside and outside the walls of a school, they can be guided to discover their own situation in the world. In an open concept school both teachers and librarians become facilitators to the young human being who is trying to understnad her/his situation in the microcosmic world within the school as well as in the macrocosm outside. As John Culkin puts it,

> The new communications' technologies have become so interwoven with out lives that we can't really understand ourselves unless we understand the media . . . The media cannot be policed very well at their source. We must, therefore, provide each child with his or her own powers of criticism, selectivity, and taste.[30]

But where in the school is it that the student is helped to understand her/his place in the world? The assumptions of many librarians and media people is that the probing and discovering by the student must take place in the centrally located egg-carton-hole called the library resource centre. Is the assumption valid? The learning/teaching practices which have evolved into the concept of open education, and which train students to work independently in an environment thoughtfully laid out to permit choices from an array of materials, are not necessarily dependent on a centrally located library resource centre. Most of the studies and descriptions of open education that are listed in the bibliography of this paper, did not mention the use of a centrally located school library resource centre. Instead, many of the teachers involved in open education, seem to structure the learning stations and learning centres. A learning centre can be defined as "a group of learning stations designed to present related or sequential concepts."[31] Whereas the individual learning station represents "a gathering of visual, and/or manipulative materials to reinforce or teach a single concept, or to add enrichment to your program."[32] Learning stations can be anywhere in the classroom, the hall, the pod, or, for that matter, anywhere in the school. In an open school students can move from station to station without regard to grade. The role of the library resource person in such an open school could be the co-coordinator of the learning stations, an advisor to the teachers creating the learning stations, and as a team teacher in creating the curriculum for the students. No doubt, much practical experimenting is needed to see how a library resource person can best be integrated into an open school. Nevertheless, it is clear to the writer of this essay, that the role of the library resource person is neither limited nor defined by that distinct room known as the library resource centre.

Perhaps the last word as to what the library resource centre should be all about, should be given to the president of the International Association of School Librarians, Dr.Jean E. Lowrie:

> The school library has come to the brink, so to speak; it must decide its role in the future. Will it remain primarily a centralized collection of materials – perhaps more heavily oriented to print than non-print – or will it embrace the entire technological world and try to do all things for all people in all educational communities. I submit to you that now and for the forseeable future the school library must take its rightful place as a catalyst in the educational program. It

[27] *Philip Stapp, "Technique Without Content as Medium Becomes Message," Film Library Quarterly 1 (Summer 1968): 34.*

[28] *Based on R. E. Traub et al., "Closure on Openness: Describing and Quantifying Education" Interchange 3 (1972): 70-71.*

[29] *Marshall McLuhan, Ibid, p. 389.*

[30] *John Culkin, "Understanding Media Means Understanding Me," Sightlines 6 (March/April 1973): 4.*

[31] *John Pflum and Anita Hanks Waterman, Open Education for Me? (Washington: Acropolis Books, 1974), p. 137.*

[32] *Ibid.*

must be a flexible centre for learning where walls are pushed out, literally and figuratively, to permit a flow of all instructional materials to and from the study areas. It should be a centre where personnel are or will be employed because they are subject specialists, graphic arts or TV specialists, book specialists, non-print specialists, clerical specialists and administrative specialists. It is a centre where students, teachers, and library specialists converge to plan for their learning experiences at the individual and at the group level. It is a centre where private, quiet, provocative reading takes place side by side with dial access learning systems. It is, if you please, the centre for revolution in today's educational program. This new centre can be the basis for the creative, individual, exciting, learning experiment for which today's youth are asking and which today's educators say they are trying to provide. If fully developed, it could reshape education![33]

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APPENDIX

Kelley, in his chapter in Strom and Torrance's Education for Affective Achievement acknowledges that "we in education are slowly waking up to the fact that feelings are really important".[34] Larson sees the art as not only "conveyors of cultural consciousness and humane values but also as primary means of perceiving, knowing, learning and feeling".[35] Gribble goes further and actually assumes the existence of publicly acceptable criteria for making moral or aesthetic evaluations.[36] Dillner emphasizes the need for behavioural objectives in the affective domain and then concerns herself with a few selected components of the affective domain.[37] Schmitt recognizes that children "need to know more about themselves as human beings and the world around them and this demands the planning of meaningful experiences in the affective domain.[38]

These studies are only a few of those available which attempt to collect evidence of growth in affective objectives.

The interesting thing that emerges from looking at the post 1964 Krathwohl studies is that educators in a great variety of fields were now grappling with the concept of the affective domain.

[34] Robert D. Stom, E. Paul Torrance. Education for Affective Achievement (Chicago: Rand McNally, 1973), p. 235.

[35] Richard C. Larson, "Behaviours and Values: Creating a Synthesis," Music Educators Journal 60 (October 1973: 41.

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TECHNOLOGY AND EDUCATION

by D.L. Burt

Education today is buffeted by many diverse forces. The profession itself is applying pressure to ensure that highly qualified teachers face today's eager young students. Other forces within the profession are suggesting changes that could drastically change the face of education. Business is exerting pressure by such diverse means as the materials and equipment it chooses to make available to the school systems and its own recent venture into performance contracting. The taxpayer is showing his frustration with the existing system by exerting more control over funding. The rising cost of education is beginning to "pinch" (especially since the increased cost

yields little or no return in increased productivity, and in some cases shows a decrease in productivity (Bowker 1970). There are more and more students with more diverse interests demanding their right to a relevant education. There is an ever increasing pool of knowledge from which to select what the student will be exposed to.

Major problems faced by education have to do with the roots of its goals and its form. The educational system we presently employ was taken, with slight modification, from an era in which education was an activity for a select few. This "elitist" system was modified only slightly in order to make it responsible for the basic education of the masses. This use of an older system for a new purpose was done without regard for the really significant changes that were necessary to accomplish this task. It could be argued that, when the goal became mass education, there was no other alternative but to take the best model available at the time, and let it adapt to the problems faced by the system. While it may have been the best approach in the early days of trying to cope with the problems, the question must be raised about the present suitability, of this model, and the present options. We are still using a technique that worked, more or less, in a specialized situation, to accomplish the extremely difficult task of providing an education for everyone. It is becoming more and more evident that there are problems with the present educational system. For example, one of the strengths of the original model was its emphasis on interaction . . . a meeting of the minds. With the pressures previously mentioned the school has taken on the shape and mode of operation of a factory. The sad aspect of this is that the teachers have become machines and the students are rapidly losing the human contact that was the prior system's strength. Without the introduction of technology the system has become dehumanized.

This dehumanizing has occurred at all levels of education from grade school to grade school (The Fourth Revolution, 1972). We are pressing on as though teaching were an art, though there are precious few Leonardo De Vincis for whom the system could work, and a very large percentage of teachers who are literally "painting by number". With the variety and intensity of demands that are made on our citizens now and will be made on them in the future, it is sobering to know that we have an educational system that produces a very high proportion of citizens whose experiences in school were by and large painful, who learned that they were losers, and who are just beginning to realize that these feelings were produced by human teachers.

That there is a need for change is gradually dawning on the nation.

There are many forces working to change the fact of education. One important force is the result of a growing understanding of the possible role of technology in education, of the growing availability of technological materials and devices, and the obvious success of the application of technological know how in nearly every other aspect of modern life. There is a growing awareness of the power of technological solutions to man's most pressing problems, and education is rapidly becoming a pressing problem.

Just what does technology offer to education? If we can generalize from its roles in other applications, technology can help to improve productivity, can increase overall quality, can change the human input, and could reverse the present condition of dehumanizing teachers dehumanizing education. If educational technology could be introduced, taking into consideration the effects in other sub-systems when tradition and technology interface, with the knowledge of the roles that should be assigned to technology and the roles that should be reserved for the human participant in the teaching process, we would have a good chance of greatly improving our educational system, while at the same time making the face-to-face interactions of the student and "teacher" more humane.

If we accept even our present research findings, it is obvious that many individual elements of technology, applied in limited control situations, have done as well as the traditional approaches. This is attested to by the very large body of research in our field which has yielded no significant difference results. Some would suggest that this means that the domain of the classroom is safe from technological invasion. The interpretation of the N.S.D. results could be that since there is no difference why introduce technology. Just as valid a conclusion might be, since there is no difference why continue with the teacher. Certainly the answer lies somewhere in the middle-ground. Given the systematic assignment of tasks to each of the two elements, one might assume that by taking advantage of the unique strengths of technology and of man and thereby compensating for the weaknesses, the results should be better.

Does this apparent desire to revolutionize the education system mean the teacher is out of date, or that machines will take over teaching? It may very well mean the teacher as we now know him/her is out of date. This does not mean that a technologically based educational system would function without people. It does mean that the tasks performed by the people may be very different from the tasks they perform now. If one conceives of an educational system which is based on the knowledgeable application of systems theory, then one might envision a division of labor (man-machine) which takes the goals of the system, a knowledge of the unique strengths of each of the elements of the technological system (separately and in integrated units), the unique strengths of the human elements, and orchestrates them into a system more capable of achieving the goals for more students in a more humane manner.

What role might technology play in such a system? Much of the presenta-

tion of material that teachers now do could be done by technological means. The drill exercises that take much of a teacher's time could be done mechanically. The marking of objective evaluations could be relegated to the machine. Much of the recordkeeping in terms of student progress would be more complete and accurate if it were done by machine. In short, nearly any task that is mechanical, redundant or repetitive could more profitably be done by machines.

What role might "teachers" play in this hypothetical system? Many of the teachers would be "moved to the other side of the machine" (Heinich, 1970). They would function as Educational Systems Design Engineers, as curriculum content specialists, as program developers, as programmers, as student data analyzers, as consultants or as individual tutors, as small group discussion leaders and as materials design specialists to name a few. In general the tasks undertaken by man would be those tasks that emphasize and take advantage of the uniquely human characteristics of man. This role differentiation could mean that the very best programs would be designed for very large numbers of students, that the resulting programs could be very flexible in terms of the numbers of paths through them, that students would be monitored more fully then is possible now, that human intervention as programmed or as needed would be more effective than the present fleeting attempts at individualization, and that the human-to-human contacts would put both "teacher" and student into a more humane situation.

This approach to instructional technology could be carried out in the present school situation, but there would be problems. There would be teachers whose expectations of their place in education would be incompatible with the technological system. In Skinner's terms, the reinforcement they get from their present role would not be present in the new situation and they might not be able to adjust to the new demands with a different kind of reinforcement (Skinner, 1971). It is possible that their "dignity" could not accept such a change. The community, both students and parents, have developed expectations about the "way it spozed to be" (Herndon, 1965). There would be mixed reactions from the community.

A more likely solution, though admittedly far in the future, would involve the abandonment of the centralized school or at the very least, the bulk of its present functions. With the introduction and use of telecommunications there would be little need for classrooms and cafeterias. If there were still schools, as we know them, they could become community centers with year-round access to gyms, pools, libraries, laboratories and conference rooms. Much of a student's education could take place at home on multimedia terminals. The programs of study undertaken by a student might include small group discussion meetings, trips to museums, factories, farms, etc., as the student and a small group of others like him come to the segments of their program that call for that activity. Education could go on year-round, anytime day or night, and be a life time activity which started, stopped and changed direction under the control of the student though with counselling from his advisors.

There is not much question that the changes discussed to this point cannot be accomplished by the process of "addition", (simply adding these elements to the existing system). It would seem more likely that the changes could be accomplished by instituting the plan as a complete unit in new schools, converting entire older schools (over a period of time), and finally integrating entire school systems. This would mean massive re-training programs for practicing teachers, and a significant shift in teacher training institutions. It may also mean that during the transition period, teachers who could not or would not change - might be accommodated in remaining traditional schools. A generation of teachers may be the measure of the amount of time necessary for the conversion. There are problems that this move into the fourth revolution could cause, but there are checks, balances and precedents which would help the designers of the system maintain their perspective. There would be the constant feedback from the students which would indicate how well the objectives were being met. Writers like Jacques Ellul (Ellul, 1964), who denounce the growth and intrusion of technology, through they put forth a gloomy evaluation of the situation, have the effect of causing us to re-evaluate what we are doing in order to guard against their concerns and prophesies. On the other hand, writers like Lynn White Jr. (White, 1968) also help us to maintain a balanced perspective that points out the benefits that may be gained by not separating the human and the technical, and by using man's creative abilities aided by technology, to bring about positive changes for mankind.

It does seem strange, in a world so influenced by technology, that education has resisted the implementation of instructional systems. While this may appear to be a serious deficiency, one of the benefits of this late entry into the technological age may be that we can learn from the mistakes made by others who introduced technology in many other areas. We can learn that productivity will be increased, that the quality will be more uniform, that removing the teacher from some aspects of the educative act will give him a chance to be more human, and that far from causing unemployment, technology will create many jobs "on the other side of the machine". Knowledge of these past experiences should help us to create, institute and maintain an educational system based on instructional technology which does not meet with violent resistance, which is understood by all who will be affected by it, and which gives all a chance to learn, live and work with dignity.

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