

GRAPHICS IN EDUCATION

by

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of

MASTER OF APPLIED ART

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ABSTRACT

Graphics represent or symbolize reality and are a substitute for a first-hand experience.

The importance of graphics in the world of mass communication is vital. Words alone have proven inefficient.

The purpose of a course in Graphics in Education would be to explore the techniques, processes and methods for preparing modern visual instructional media. It would be geared towards the classroom teacher lacking skills in drawing, design and printing. The goal would be preparation of worthwhile instructional materials so the messages in the learning process would be better understood and retained.

Chapter I

To introduce my paper and proposed course outline, I would like to define the term Graphics as it applies to modern day technological communication.

Webster's Third New International Dictionary lists the word graphic as an adjective, but the plural form as a noun.

"Graphics . . . n. 1a. a product of graphic art (as printing, water color, print). 2a. the graphic media s as photography, the multiple arts. 2b. a picture, map or graph used for illustration s, these embody widely accepted principles of visual education."¹

"Graphics are materials of several different types serving as a universal shorthand to assist in understanding the torrent of information that now deluges the world. As world communication becomes faster, as the globe becomes almost instantly available, the mass of communication materials makes graphic forms of presentation more and more important."²

Graphics are materials that are intended not to "re-present" the direct reality but merely to represent or symbolize it. Such symbols vary from a realistic photograph to an abstract symbol resembling the original in only a limited way; a substitute for the first-hand experience. A little can mean a lot.³

¹Webster's Third New International Dictionary, 1961, p. 990.

²Brown, Harclerod, Lewis, A-V Instruction: Media and Methods, McGraw-Hill, 1969, p. 159.

³Dale, Edgar, Audiovisual Methods in Teaching, Holt, Rinehart, Winston, 1969, p. 508.

"Graphics are among the commonest of the communication media. The term is used to represent the closely related forms which include symbols, words, pictures or drawings. The word "graphics" comes from the Greek and means drawing or representation by lines."

Through the use of such media as illustrations, drawings, cartoons, projected and non-projected pictures, displays and lettering, the communication process is greatly strengthened. Reference will be made to these media as Educational Graphics.

The purpose of the paper is to design a course that will enable the unskilled person to create and produce modern instructional visual media and introduce the skilled person to new approaches in graphic production.

⁴Kinder, James, Using Audio-Visual Materials in Education, American Book, 1965, p. 62.

Chapter II

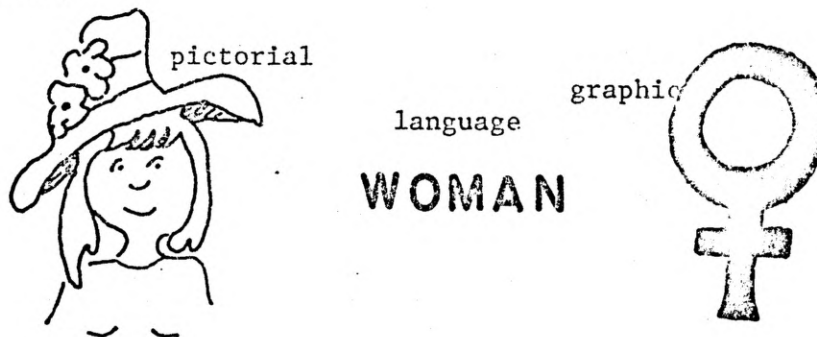
Graphics have a genuine purpose and function in the learning experience; they should be an integral part of the situation; they must not distract from the main idea being presented. When discussing graphics it is necessary to analyze them and discover some of their basic characteristics.

The characteristics of the three kinds of symbols in graphics are:

1. Pictorial symbols: Combinations of lines, colors, shapes, forms and textures similar in appearance to the objects they are to represent.

2. Language symbols: The letters are characters that form the printed language itself.

3. Graphic symbols: Adaptations of pictorial and language symbols especially suited for transmitting a large amount of information quickly.⁴



⁴Linker, Jerry Mac, Designing Instructional Materials, p. 9.

Each type of symbol has certain advantages and disadvantages in trying to visualize information. Language symbols are a part of most instructional visuals because of their superior ability to present abstract, generalized information. They are, however, lacking in visual appeal. Pictorial symbols, on the other hand, have visual appeal, are more realistic and carry a clearer picture, but require more space in presenting their information. They are ideally suited to lending dramatic appeal and interest, and to transmitting subtle messages or reinforcing them. Graphic symbols are most useful for showing relationships between the parts of a whole and for presenting information that may be interpreted quickly.

Chapter III

The importance of Graphics in the ever-changing, fast-moving world of mass communication is vital. Individuals receive messages through the five sense channels of sight, sound, touch, smell and taste, and the sense of vision is considered to be the most highly developed of the five senses. This statement is not an attempt to devalue the other senses, rather it is meant to present the known fact that individuals have greater confidence in what they see and therefore accept messages in this manner more readily.

In support of this theory of the value of visual stimuli, four studies are cited. The Socony Oil Company recently published the results of research that showed that we learn one percent through taste, one and one-half percent through touch, three and one-half percent through smell, eleven percent through sound, and eighty-three percent through sight.

Another study published by the same company resulted with the formulation of this chart:

Method of Communication	Recall 3 hours later	Recall 3 days later
Verbal form only	70%	10%
Illustration alone	72%	20%
Combination of verbal and illustrations	85%	65%

Not long ago in Cambridge, Massachusetts, two psychologists conducted a fascinating experiment. At a meeting of psychologists they recorded the discussion that took place following the presentation of a research study. Two weeks later the psychologists questioned those people who took part in the discussion. These people were asked to recall what they could of the discussion in as much detail as possible. The results showed only eight percent of the pertinent facts or points of discussion were recalled. It showed that even an active attitude of participation in a discussion yields a fairly inefficient result in learning, in this case measured by recall.

An even more alarming result of this experiment was that of the eight percent of the information recalled, forty-two percent of it was wrong. This means that in many cases the audience is inferring meaning to words, phrases, and gestures which was not intended.

The results of another study accomplished in the field of Zoology by R.W. Tyler found that after fifteen months, students remembered only twenty-eight percent of the technical terms with which they had been familiar. At the same time they remembered seventy-eight percent of the facts which were associated with an illustration or picture during the course.

We can deduce from these results that words alone are insufficient when it comes to communication. Graphics are necessary.

Our concern in education is to shift from textbook centered

teaching to student centered learning. There is greater concern for the learner, his needs, his interests and how to motivate him to "want to learn."

Methods now include everything from computerized instruction, simulated situations to learning by discovery. The teacher now finds himself the organizer of the learning process. He needs many innovative techniques to get his messages across without losing the interest of his students. Positive motivators are necessary. These motivators may be in the form of instructional media in all forms. Such media aid the instructor in keeping the close attention of the student so he will put forth an effort to learn, respond, and practice.

Chapter IV

There is a definite need for a course in the field of Graphics in Education as most teachers are unskilled and untrained in the areas of design and drawing. Their inability to see form and design, their lack of knowledge of ready-made materials or how to produce their own inexpensive ones, their ignorance of new commercial machines, or the capabilities of the old ones cause frustrations which prevent their making full use of all the instructional media.

Even though there is a never-ending source of valuable visual material available in books, magazines, newspapers and other printed sources, the teacher fails to utilize these media in developing a visual approach in instruction. The great potential of visual communication makes learning more interesting and challenging when appropriately used.

Chapter V

There is not a Graphics course of any kind offered on the Montana State University campus at this time. The Lettering and Layout course is no longer available through the School of Art, and the commercial graphics courses are limited only to art majors. Nothing is offered for non-art majors.

The purpose of a course in Graphics in Education would be to explore the techniques, processes, and methods for preparing modern visual instructional media. It would be geared towards the classroom teacher lacking skills in drawing, design and printing. The goal would be preparation of worthwhile instructional materials so the messages in the learning process would be better understood and retained. This would be reaching toward "visual literacy."

Chapter VI

Course Outline

A. Name of course: Graphics in Education

B. Mechanics

1. Three credit hours--graduate or undergraduate
2. A scheduled three-hour lecture and demonstration class with laboratory time to be arranged
3. Evaluation will be the completion of and the grading of a visual graphics notebook
4. Text will be Techniques for Producing Visual Instructional Media, by Minor and Frye

C. Objectives

1. To acquire an understanding of the nature of a graphic presentation and its importance in effective communication in the classroom.
2. To investigate the educational values and applications of graphic media and their effective use, with emphasis on the characteristics of each type covered in the course.
3. To develop an understanding of basic principles in execution of design and what constitutes good visual graphics.
4. To acquire skill in preparation of unique educational graphics.
5. To gain confidence in one's own ability to plan, produce, and use educational graphics.

D. Introduction

A three-hour lecture the first week will introduce the course, orient the students to the lab and the materials, familiarize them with the course outline and requirements for evaluation, etc. The instructor will give a short transparency lecture on communication theory and introduce the students to graphics in this manner. Three short 16mm films will be shown, "Using Visuals in Your

Speech," "Graphic Design," and "Discovering Color." The last film will lead into the principles of form and design. Legibility standards will be discussed and demonstrated. The basic principles discussed in this lecture will be quite general as opportunities for greater detail in the different areas will occur throughout the course.

Each course project will be demonstrated and discussed individually. The prepared outline and the text are merely reinforcements to aid the students. Several handouts will be given, and films and slides will be shown in each area to simulate first-hand experiences where the lab cannot fulfill the necessary requirements.

Each student will be presented with a series of problems relating to mounting, displaying, and transparency production. The student will be required to solve each problem by developing graphics using the specified materials. Grading will be based on criteria enumerated for each particular problem.

The following outlines describe each specific problem in detail.

Project Number One - Rubber Cement Mounting, textbook p. 60-61

A. Problem

1. Using a picture from magazine or calendar prepare a mount using rubber cement. A colored back may be used.
2. If rubber cement is too thick, thin with solution called "thinner."
3. Follow steps in text.
4. Coat both surfaces and allow to dry.
5. Avoid getting cement on picture.
6. Work on newsprint to avoid getting cement on table surface.

B. Points for Grading

1. Placement of picture on mount



2. Trimming of picture
3. No blisters or air bubbles
4. General neatness
5. Tightness of adhesion
6. No foreign matter or dirt under picture surface

C. Materials

1. Rubber cement and thinner
2. Wax paper
3. Brush
4. Paper or cardboard

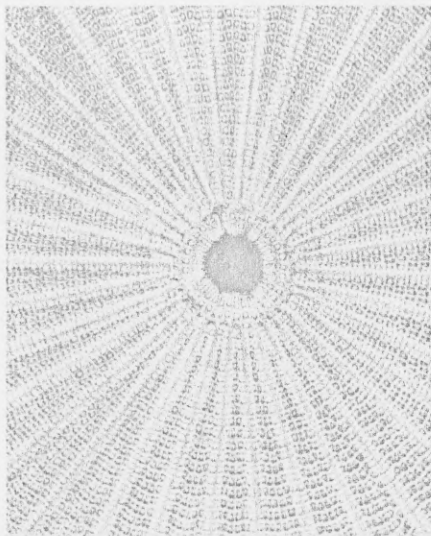
Project Number Two - Dry Mounting, textbook p. 70-73

A. Problem

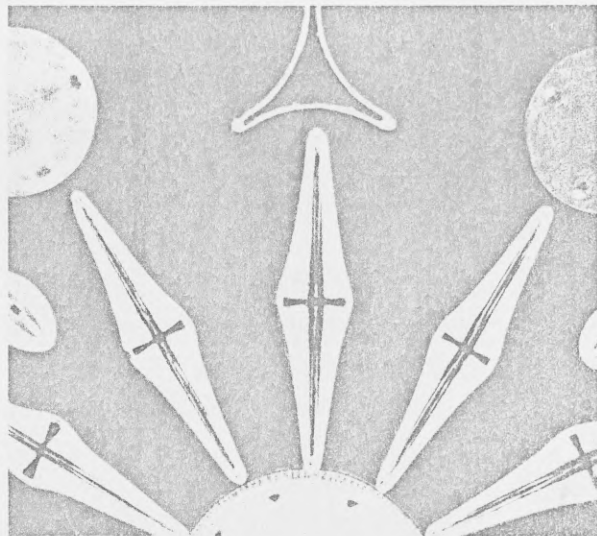
1. Find a tear sheet from magazine or calendar.
2. Using seal or kodak tissue mount picture on cardboard. Use grey, white or colored surface.
3. Set heat press at 225°.
4. Always use protective sheet over picture when placing in heat press.
5. Follow instructions in text, page 72-73.

B. Points for Grading

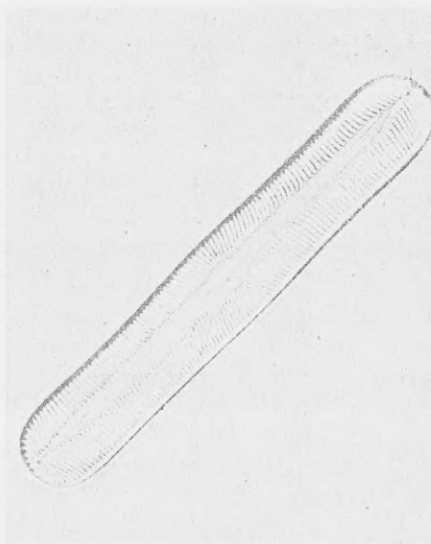
1. Placement of picture on mount
2. Dry mount tissue protruding
3. No blisters



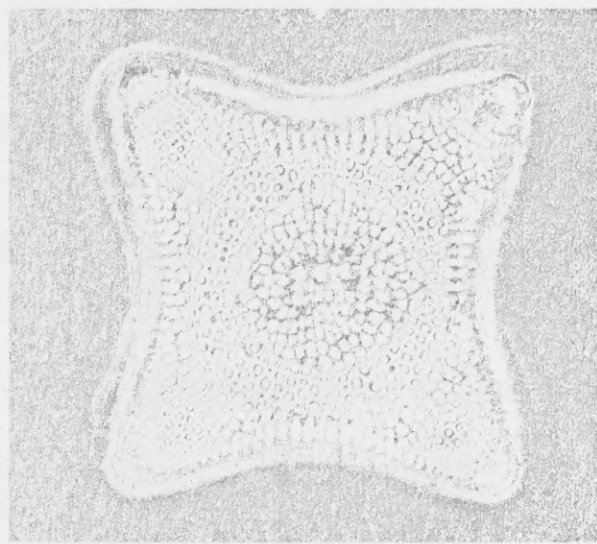
Arachnoidiscus — a study of op art.



These diatoms resemble a galaxy of stars.



Navicula nobilis, a Pennale nobly ridged.



Trilartium antediluvianum, a dotted Centrale.

4. Permanency of mount
5. No tacking blemishes
6. Overall neatness

C. Materials

1. Dry mount tissue
2. Cardboard
3. Newsprint
4. Tacking iron

Project Number Three - Dry Backing Cloth Mounting, textbook p. 76-77

A. Problem - You decide

1. Because this backing is so strong, it is very versatile for maps to be rolled, accordin-folded material, notebook covers, displays, wall hangings, etc. Find a problem or project to fit your needs and incorporate the cloth backing.
2. Be sure to put protective cover over material if heat press is used.

B. Points for Grading

1. Quality of mounting
2. Overall neatness
3. Function
4. Quality of work
5. Tightness of adhesion
6. Placement

C. Materials

1. Material to be mounted
2. Chartex
3. Newsprint
4. Heat press or iron

Project Number Four - Cold Laminating Acetate, textbook p. 78

A. Problem

1. Find six inch by nine inch picture to preserve. Can be photograph, chart, map or magazine picture.
2. Laminate one or both sides by following instructions on pages seventy-eight and seventy-nine.

B. Points for Grading

1. Trimming of picture and acetate
2. No air bubbles under surface
3. No particles under picture surface
4. Overall neatness

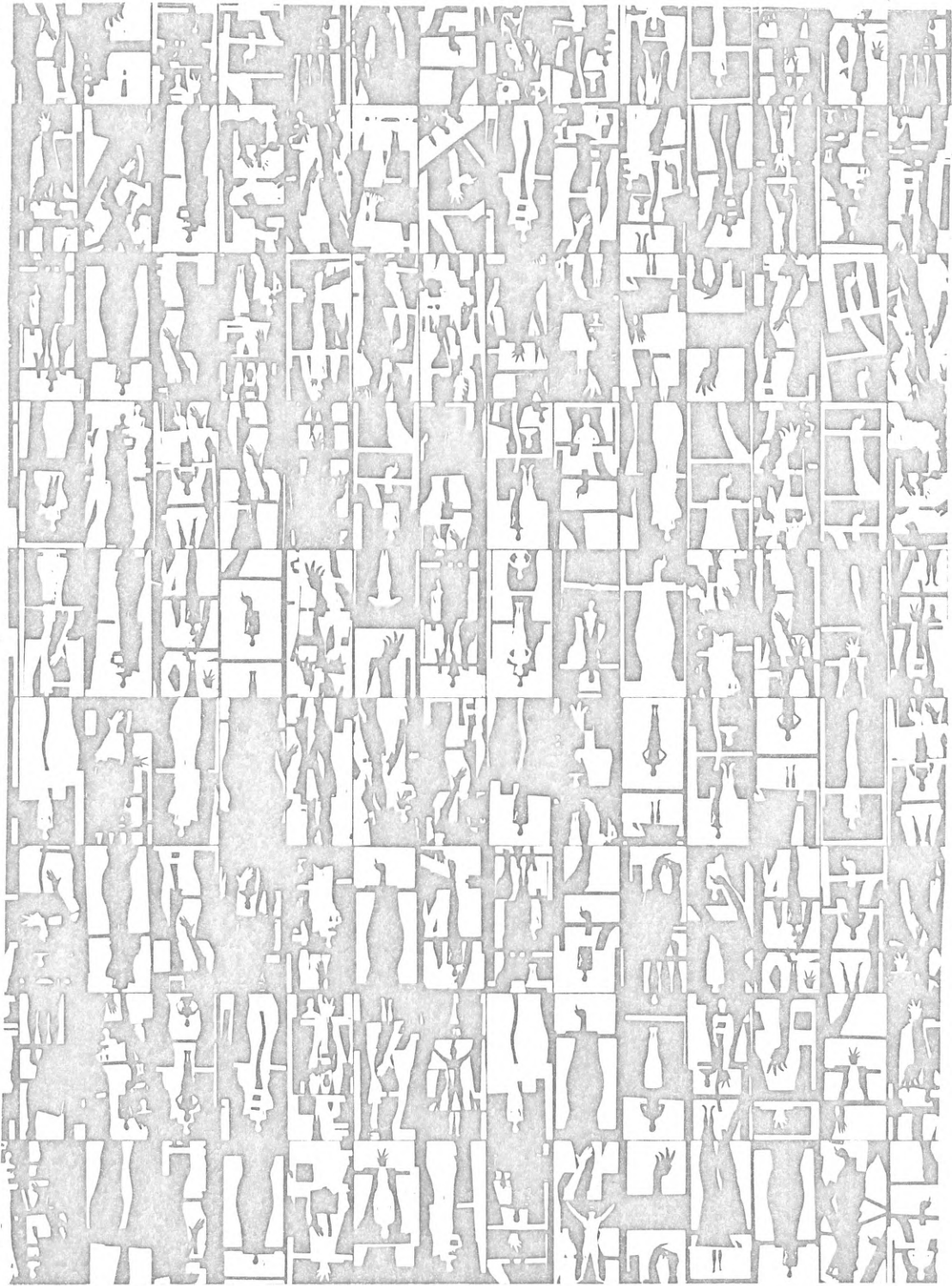
C. Materials

1. Picture
2. Adhesive acetate

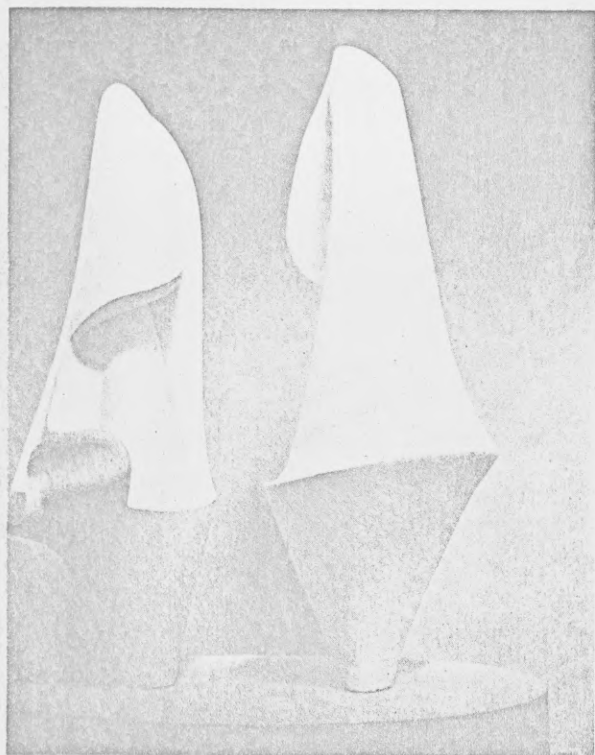
Project Number Five - Laminating Using GBC Laminator, textbook pp. 30-31

A. Problem

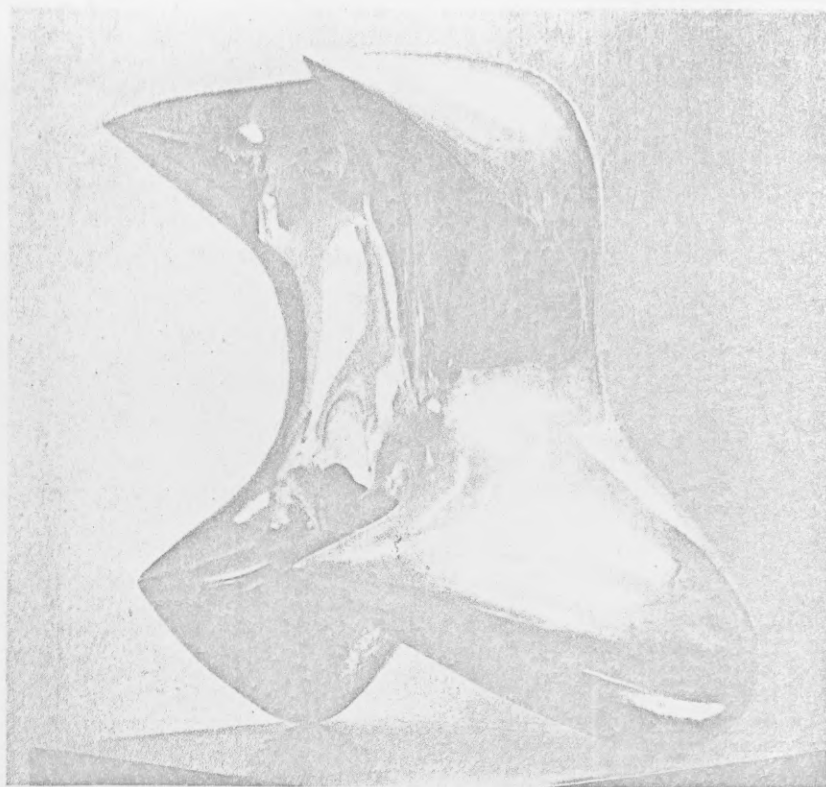
1. Laminate both sides of a picture or use two pictures to fill the eighteen inch width of the machine. Be economical.
2. Laminate only one time.
3. Do not put leaves or specimens through if they have not been completely dried and pressed.



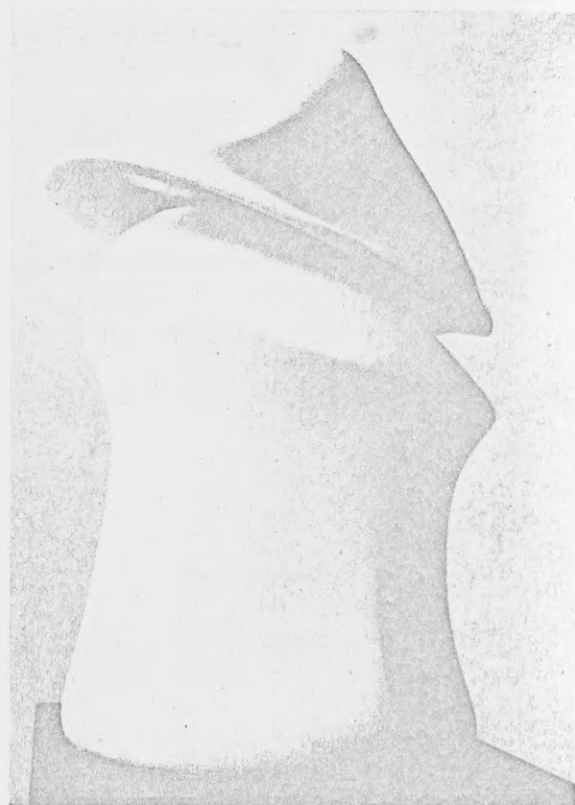
MOORE'S SEVENTH DECADE



Two Nuns (1968)



Pointed Torso (1969)



Bust of a Girl (1968)



Helmet Head No. 4 (1963)

4. Push pre-heat button and red light will come on. The press is ready to operate when the amber light comes on.
 5. Grab the film in the back of the press before you press the run button. (To prevent material from rolling around heated elements in press.)
 6. Trim to one-eighth inch of edge to finish process.
- B. Points of Grading
1. Particles in picture
 2. Proper trimming
 3. Overall neatness
 4. finished trim on acetate

Project Number Six - Laminating Using Heat Press, textbook pp. 81-85

A. Problem

1. Laminate a dry mounted picture in heat press. (Do not use a rubber cement mount.)
2. Cut seal-lamin one-half inch larger all the way around the picture.
3. With shiny side up, tack edges to back of picture using tacking iron.
4. Place in press with protective cover over it.
5. Place under metal weight after removing from press.

B. Points of Grading

1. Air bubbles
2. Particles under surface
3. Overall neatness

No museum is complete without a great Cézanne. Los Angeles is blessed with the recent gift of a classic "Still Life." Vibrating with color, this work exudes a sense of the inner life of objects



4. Neatness of trim on back of mount

5. Finish on edges

C. Materials

1. Heat press

2. Dry mounted picture

3. Seal-lamin

4. Tacking iron

Project Number Seven - Unusual Techniques, textbook pp. 81-83

A. Problem

1. Using suggestions on page eighty-four, prepare a lamination using an unusual or different technique.

2. Can be a combination of previous methods of dry mounting.

B. Points of Grading

1. Functional

2. Neatness

3. Creativity

4. Quality of work

Project Number Eight - Attached Easels, textbook pp. 93-94

A. Problem

1. Prepare one of the two display easels described on pages ninety-three and ninety-four.

2. Dimension is up to you but make them to display two of the dry mounts or laminates you have made.



*WINTERTIME is FUNTIME in MONTANA with Winter Wonderland scenes beckoning the nation's skiers, snowmobilers, ice fishermen, photographers and other true outdoor enthusiasts.
(above) Skalkaho Creek in the Bitterroot Valley.*

B. Points of Grading

1. Straight lines
2. Functional
3. Durability
4. Overall neatness

Project Number Nine - Lettering

A. Problem

1. Prepare five samples of lettering techniques following legibility standards for use on a flannel or bulletin board.
2. Read letter layout, spacing and designs, pages 101 and 102.
3. Prepare an example using the techniques of
 - a. Stencils, pages 103 and 104
 - b. Pre-cut cardboard, page 111
 - c. Pressure-sensitive instant lettering, pages 142 and 143
 - d. Cut-out letters - demonstration
 - e. An original technique - show example

B. Points of Grading

1. Spacing
2. Neatness
3. Size
4. Appropriateness
5. Creativity
6. Overall appearance

7. Method of execution
8. Legibility

Project Number Ten - Bulletin Boards, textbook p. 41

A. Problem

1. Enlarge cartoon figure using opaque projector
2. Follow instructions on page forty-one in text
3. Use enlargement for title, emphasis in a bulletin board display or character on a poster
4. Incorporate lettering of some sort

B. Points of Grading

1. Originality
2. Lettering technique
3. Presentation method
4. Overall neatness

C. Materials

1. Films
2. Movies
3. Slides
4. 3-Dimensional examples

Project Number Eleven - Handmade Transparencies, textbook pp. 163-165

A. Problem

1. Prepare a clear acetate transparency



2. Follow instructions on pages 166-167

B. Problem

1. Prepare a frosted acetate transparency
2. Follow instructions on pages 167-168

C. Points of Grading

1. Legibility
2. Mounting technique
3. Lettering standards
4. Overall neatness

Project Number Twelve - Thermocopy Transparencies, textbook pp. 180-183

A. Problem

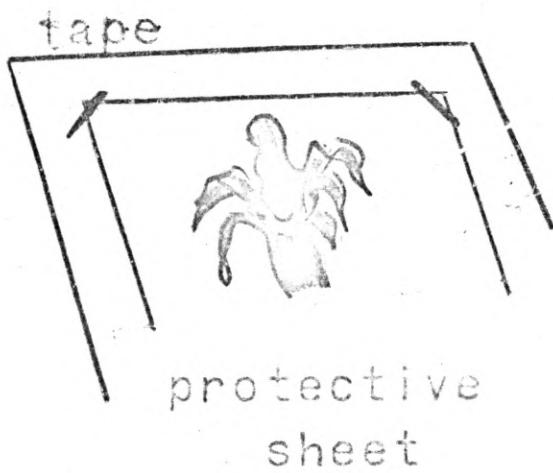
1. Prepare thermofax transparency using type 127 film
2. Prepare your own master using primary typewriter and #2 lead pencil
3. Read pages 182-183 for specific instructions

B. Problem

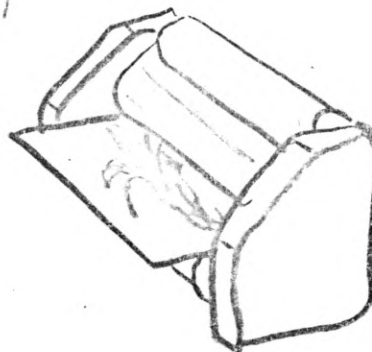
1. Prepare thermofax transparency using type 888 film
2. Use a prepared master available in lab

C. Points of Grading

1. Proper density of print
2. Legibility
3. Appropriateness
4. Overall neatness



matte acetate
original visual

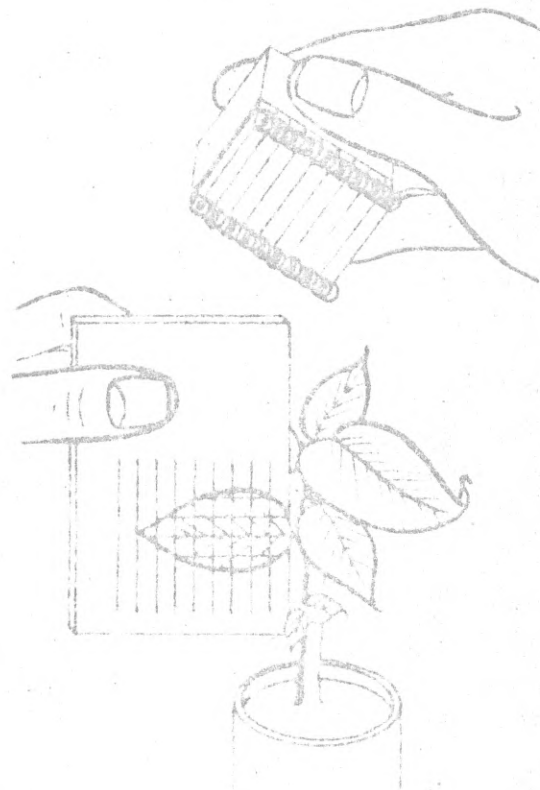
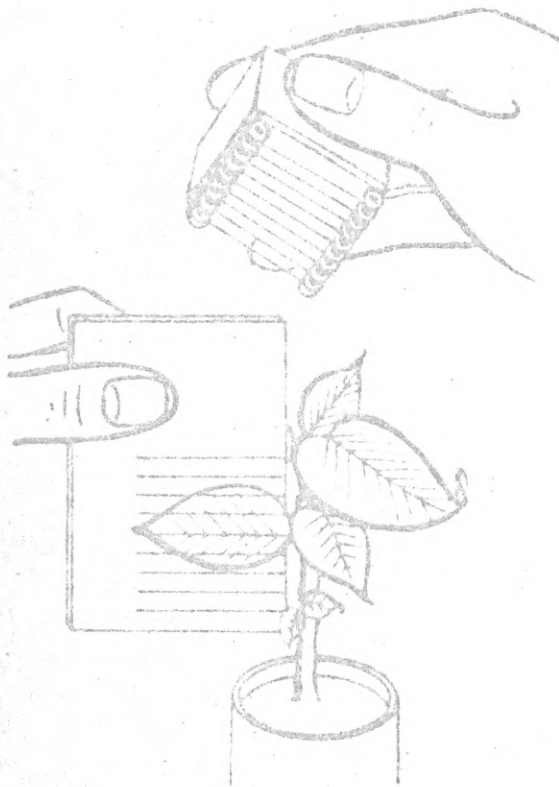


NORTH AMERICA

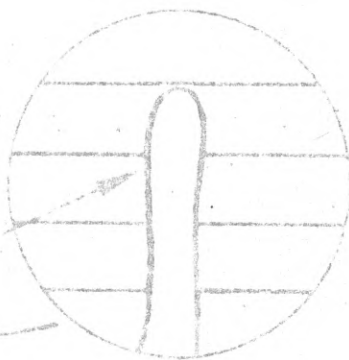


GROWTH PATTERNS

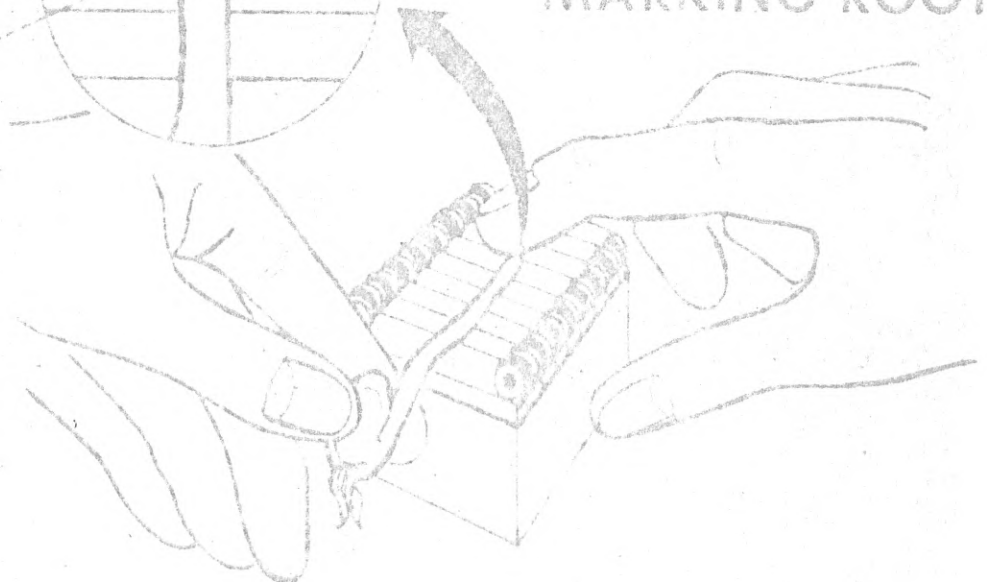
MARKING LEAVES



NOTE
PLACEMENT
OF FIRST
MARK



MARKING ROOTS



5. Mounting technique

Project Number Thirteen - Diazo Transparencies, textbook p. 189

A. Problem

1. Make a two-color Diazo transparency from two hand-drawn masters (one for each color)
2. Use Albanene tracing paper and india ink
3. Color in or block out the image you want colored (use razor blade for correcting)
4. Following instructions on page 190 - with light source at the bottom figure 594a
5. Mount on frame as an overlay or a static transparency - read pages 222-226 (any masking, sliding or folding techniques may be used)

B. Points of Grading

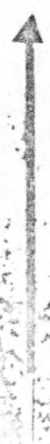
1. Following projection legibility standards
2. Neatness of master and density of line
3. Quality of colors
4. Framing technique
5. Overall quality and neatness of work

Project Number Fourteen - Adhesive Acetate Lift, textbook pp. 204-206

A. Problem

1. Make color lift transparency using adhesive acetate film
2. Discover clay coating, page 200
3. Follow instructions on pages 204-206
4. Mount color lift on clear acetate instead of placing in frame

OUTER PORTION
(ELECTRON CLOUD)
NUCLEUS (PROTONS
AND NEUTRONS)





B. Points of Grading

1. No foreign matter causing spots
2. No air bubbles
3. Quality of projected image
4. Free of clay base
5. Fingerprints
6. Mounting on plastic
7. Overall neatness

C. Material

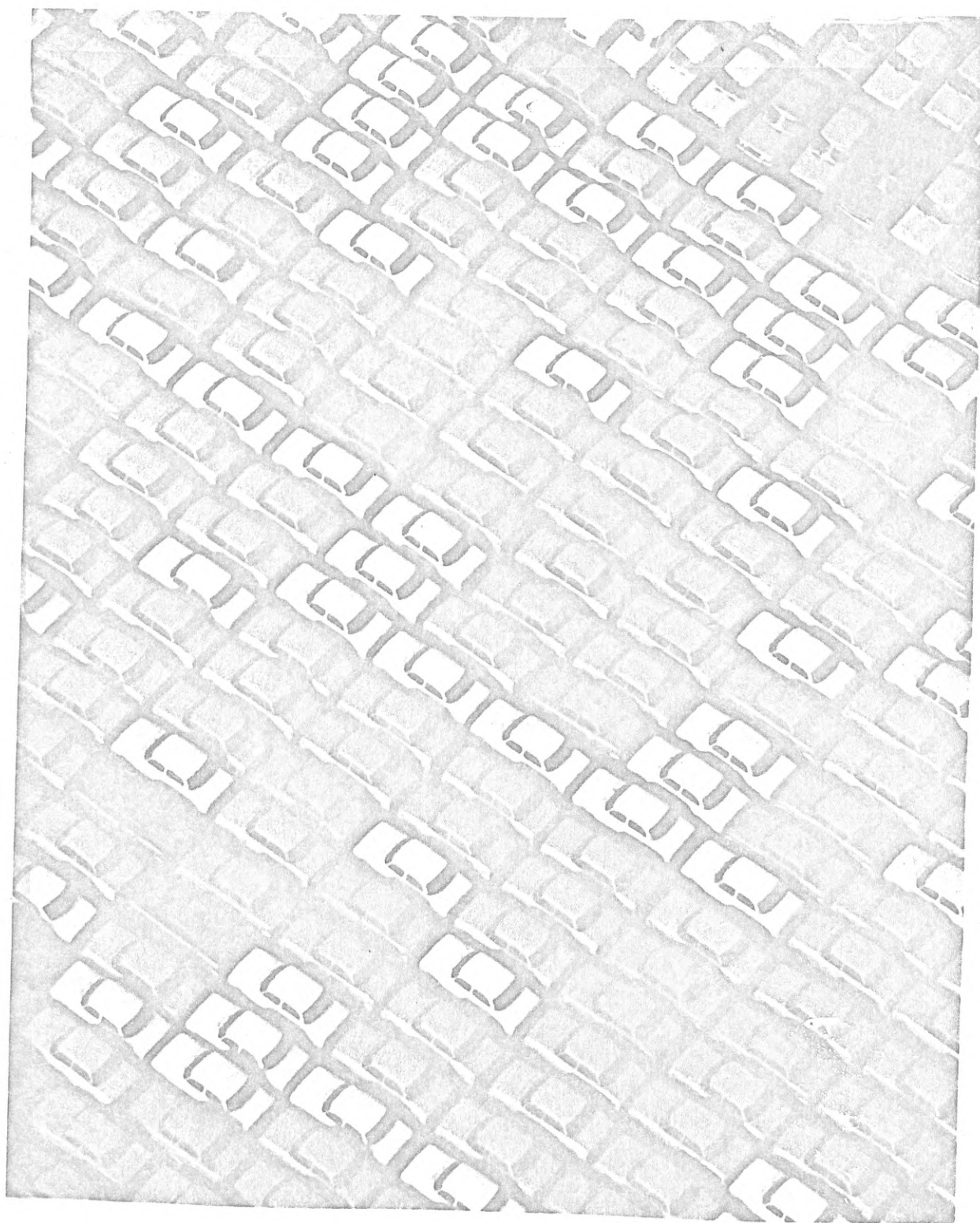
1. Contact adhesive acetate
2. Clay base picture
3. Clear plastic spray
4. Clear plastic sheet
5. Pan of water

Project Number Fifteen - Color Lift Using GBC Laminator, textbook 210-212

A. Problem

1. Prepare two color lifts using GBC laminator
2. Place two pictures the same size together and laminate twice
3. Follow instructions on pages 210-212
4. Instead of following step 668, page 212, spray with plastic spray - do not laminate third time
5. Can mount in frame or scotch tape to a sheet of clear plastic

B. Points of Grading



1. No clay base remaining
2. Quality of projected image
3. No foreign matter causing air bubbles

C. Materials

1. Laminator
2. Picture
3. Pan of water
4. Clear plastic spray

Chapter VII

Evaluation of the student enrolled in the course will be based on the completion of a sample notebook or portfolio containing the prepared projects in the course outline. Class notes, handouts, and personal reactions will be included. Examples of student handouts are located in the Appendix.

How the notebook is presented will be considered along with very critical evaluation of each project included. Students may approach the problem in different ways, but it should be designed for practical use and aesthetic satisfaction.

Chapter VIII

Educational Television is playing an ever-increasing role in education. As it continues to expand in Montana it will be necessary to train instructors to use the medium constructively. The importance of graphics will be recognized and a unit on TV Graphics should be incorporated in this course. With the limited information at present and personal experimentation, a few rules have become apparent on how graphics should be used in the classroom and in front of the camera.

Graphics in television differ somewhat from graphics used in a classroom in that their manifestation is purely momentary. The idea or message must be communicated and immediately understood upon first sight of the visual. The time allowed for any visual to remain on the screen is relative to its importance and the amount of information that has to be absorbed. But, there is a once and once only chance; the viewer has no way of turning back the picture to refresh his memory or take a second look.

The television camera dictates certain limitations which must be observed when planning graphics: size and clarity, color and gray-scale, ease of operation, and style of lettering.

Size and Clarity: The proportions of the television screen are three to four. That is, the picture is always three units high and four units wide and all material must conform to this aspect ratio.

Color and gray-scale: All black and white television graphics

must be worked within the limitations of the gray scale. Colors can be used very effectively if they are not the same level of gray. Complete contrasts produce "burn ins" and should be avoided.

Ease of operation: A standard sized card will greatly simplify the problems of art work, studio operation, and storage. There are many types of easels and various means of operating the "flip cards" during a show. If the cards are not the same size, it is inconvenient to refocus each card.

Lettering styles and methods: The most common lettering methods used in television graphics are 1) handlettering, 2) handlettering with lettering guides, 3) Artype and Fototype, and 4) printing.

The size of print is another consideration. 24pt or approximately three-eighth inch lettering would be the smallest type permissible if legibility is to be maintained. Larger type naturally makes it more certain.

The thinking behind stressing these rules of thumb are to propose a plan to prepare our visual graphics so they could be adapted to a classroom situation and also be used on television. If one keeps in mind the limitations of the camera, it would be feasible and economical in the long run. The possibilities for success are so great that we should experiment along these lines. Following is a discussion of each type of visual and suggested ways in which it could be adapted to this plan.

All graphics and visual aids which are used in the classroom can be easily adapted to a camera. Slides, transparencies, pictures, photographs, charts, and graphs could be adapted and used in either situation if their preparation were done for use with the television camera.

Two by two slides are widely used in both areas. They should be double framed with the picture horizontally positioned to fit the three by four screen ratio. Aluminum mounts would alleviate the possibility of the taped slides getting stuck in the automatic changer.

Overhead transparencies can be easily adapted to both situations by the use of the overhead camera in the television studio. Through experimentation the discovery was made that the regular transparency in the horizontal format, using 24pt letters, is clearly legible on the overhead camera. Crop the edges one-half inch on the top and the bottom so the completed work would measure seven by ten instead of the usual eight by ten inch transparency. All colors project except the orange and yellow families; but even on the overhead projector screen, these colors are weak.

Opaque pictures should be mounted on stiff cardboard to prevent warping or bending and to facilitate handling in front of the camera. Mounting could easily be adapted to a class situation as most pictures would show up better with a mount and the stiffness would work ideally when using an opaque projector.

Photographs should be printed on matte surface paper to eliminate the glare of the television light. Once again, this is true in the classroom situation as even the room lights bounce off a glossy print.

Graphs and charts should be drawn with heavy black or gray lines and few words should be used. The material must be well centered with adequate margin allowed.

The chalkboard used in the classroom is not as effective on camera. Low contrasts discourages its use. Erasing makes it almost impossible to read and, because of the narrow chalkline, distant reading is difficult and, in some cases, impossible.

It would not be much of a task to standardize graphics to fit the needs of the classroom and meet the limitations of the camera. Television is a tool which is becoming more vital in our fast-changing, communication-oriented world. Like other instructional media, television is not an end in itself, but a means to better instruction. The surface of its possibilities have only been scratched.

Chapter IX

The purpose of this proposed course is to develop visual literacy and competence in graphic production as an aid to effective communication.

It is the firm conviction of the writer of this proposal that the course herein described should be instituted as soon as it is feasible to do so in this University. The need for such a course is evident today across the state as well as across the campus. This course must be forthcoming or else we as educators shall be guilty of continuing to operate an educational system geared to yesterday while giving only lip service to a more effective educational system for tomorrow.

APPENDIX

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Instructional Purposes Served by Pictures

Recall Experiences. To help young children to express themselves freely and to develop readiness for reading, the teacher capitalizes on what is familiar. He selects pictures of children's everyday activities to help his pupils recall their own related experiences.

Aid Detailed Study. Air views, close-ups, diagrams, magnifications, reduced images, and X-ray prints make possible detailed study of subjects which otherwise would be impossible.

Correct Misconceptions. Because children's concepts are frequently formed on the basis of limited experience or faulty interpretation of verbal explanation, they develop misconceptions which they hold, sometimes, for years. Pictures carefully selected can be powerful experiences for correcting false impressions.

Prevent Misconceptions. The wise director of learning experiences anticipates concepts and terminology that may not be clearly understood without visual imagery and supplies pictures to help understanding. For example, when a student first hears the word "seahorse," to describe a species of small fish, he will be confused--already familiar with the word horse as designating a well-known hooved quadruped--unless he is shown a picture of this new horse.

Compare and Contrast. When two or more pictures of comparable objects are placed side by side, study of the pictures makes possible

identification of similarities and differences between the objects. Pictures also permit comparison of items too delicate to withstand the handling close examination would require.

Build New Experiences. Often, horizons must be extended by vicarious rather than by first-hand experiences. For example, when a place as remote as ancient Egypt is studied, a set of study prints best helps the learners to visualize and understand early Egyptian civilization.

Give Meaning to Word Symbols. A picture and a brief explanation can make even the most difficult word a meaningful part of a student's vocabulary. Consider how much easier explaining aqueduct, blockhouse, combine, sextant, or zebra would be with the aid of a picture. Specialized vocabulary for a topic of study is often more readily mastered when a group makes its own picture dictionary.

Demonstrate a Process. By means of pictures, it is possible to present, a step at a time, in proper sequence, all stages in a how-to-do-it procedure, for example: linoleum block printing--all phases of a developmental process--for example: the embryonic development of a chick. Discussion completed, the pictures serve for easy summary and review; when displayed, they provide an excellent reference for students until they have mastered each procedure.

Form Value Judgments. Pictures play a major role in propaganda techniques. Through guided picture study students can learn to search

for facts, to recognize half-truths and misleading information, and to acquire the ability to form value judgments. By studying the dramatic appeal of illustrated posters issued for fund-raising campaigns, students will become aware of the motivation behind the pictures. For example, by studying the dramatic appeal of illustrated advertisements, along with the accompanying text, students will discover their underlying assumptions and anticipate the conclusions unwary consumers are likely to reach.

Create an Atmosphere. Pictures can turn a drab classroom into an attractive setting; a colorful textile print of performing circus animals for a kindergarten room; a wall on which fourth grade children have placed pictures of favorite book characters for a reading corner; or, for a sixth grade class studying the country, travel posters on Switzerland.

Prepare for Further Experiences. In preparation for a study trip, a laboratory experiment, or a complicated demonstration, pictures may be used to sharpen insights and focus attention on what to look for and how to look for it.

Motivate Learning. Introduction of pictures can motivate learning, especially if the teacher provides time for reading and discussion to build awareness of differences in interpretation among themselves and to raise questions suggested by the pictures.

Publicize Events. Pictures can arouse interest in both current

and forthcoming events. The opening of a local zoo, the inauguration of a president, or the completion of a bridge becomes meaningful for students when they have been pictures of the events.

Develop Insight and Appreciation. By evoking emotional responses, pictures can develop in students greater appreciation of life around them. The artist and the camera can record scenes which children would never see or, without assistance from the teacher, never fully appreciate: the awesomeness of the Grand Canyon, the joy of a child at a circus, the grimness of war.

Dramatize a Point. A cleverly dramatized point is usually a point well made and long remembered. An English teacher sketched a single hat stretched across three heads to illustrate the faulty use of pronouns in a student's sentence, "Each of the three boys wore their hat." Then, he drew another sketch showing each boy wearing a different hat. The two pictures convinced the class that, for the sake of common sense, the sentence must read, "Each of the three boys wore his hat."

Raise Questions and Present Problems. A teacher can start a good discussion by presenting a picture and asking such questions as "What is the problem presented in this picture?" "Do the measures taken in this picture indicate a solution to the underlying problem?" Pictures used as the basis for discussion encourage young people to think critically, observe carefully, and question intelligently.

Stimulate Reading. Pictures can arouse enough interest in a specific story, object, or subject that, in order to satisfy their curiosity, boys and girls will explore whatever library facilities the school and community offer.

Foster Individual Interest. Many a child has been encouraged by pictures thoughtfully provided for his use by a teacher who "remembered" his personal interest or ambition. Opportunity to browse through a picture collection is especially valuable for children who have meager picture resources at home. Such an opportunity may lead a child to discover a special area of interest.

Provide Setting. Pictures can provide the setting and background needed by a reader for full appreciation of an historical novel, a book on world travel, or a factual account of a technical experiment.

Complete Research. Pictures and reading matter supplement each other so well that without both research is incomplete. A pictorial record documents findings and supplements a written account.

Provide Reference. Well-selected pictures are invaluable guides for preparing scenery and costumes for an historical play, international festival, or a mural.

Enrich and Enliven Reports. To make an effective presentation before his classmates--for his own growth and for the benefit of his listeners--the student inexperienced in public speaking should employ every resource at his command. Teachers, therefore, should guide

activities so that students use pictures in the preparation and presentation of reports. For example, an eighth grader's use of his own photos or slides during a talk on a local community problem.

Invites Participation. Displays addressed to the viewers often encourage them to participate in an activity. For example, pictures of important steps in the process of linoleum block printings with wall hangings, yearbook illustrations, and greeting cards of block prints as samples, brought requests to learn the process.

Help Learners Understand Themselves. Pictures showing attitudes, behavior patterns, and problems of teenagers are not too difficult to find. Such pictures help students realize that the problems which trouble them are not unique. They also provide situations for discussion without the embarrassment of personal identification.

Build Background. Often both the meaning and significance of a potentially valuable experience are lost to the learner because no one has had the foresight to build the background essential for understanding. For instance, to understand the word pictures in the poem "The Chambered Nautilus," one needs to have seen a picture of a cross section of the nautilus shell if he has never seen the object itself.

Create Centers of Interest. A few carefully selected items combined with a few well-chosen pictures can be used to create conversation pieces. For example, a few book jackets, models, pictures of rockets and space capsules stimulated an interest in wanting to study

about space travel. The objects had been arranged in a corner of the room.

Develop Critical Judgment. Critical judgment is developed if students assume responsibility for selecting, from among the pictures which they have used in the course of a special study, those which present a point of view, develop a sequence, convey impressions consistent with one another, and the like.

Stimulate Creative Effort. Sometimes a picture supplies the imagination with the germ of an idea which the student develops into a song, a poem, a story, or another picture.

Introduce a Topic of Study. Well-chosen pictures may be used effectively to launch a new topic. For example, a teacher of dramatics used several still close-up shots to introduce a study of how to make facial expressions carry part of the burden of communication.

Test Learning. Pictures can add interest and variety to test situations and provide a reliable means of gauging mastery of the subject matter.

Bulletin Boards as Part of
Classroom Environment

A. Purpose

1. Illustrate phases of classroom work
2. Supplement textbook and other materials
3. Stimulate interest and further study
4. Display students' work
5. Collect items of general interest
6. Sell desired behavior
7. Add decorative elements to the classroom

B. Type

1. Permanent wall installation
2. Shallow display cases
3. Hanging wall panels
4. Self-standing panels
5. Portable easel-type boards

C. Viewing Distance

1. Purpose
2. Placement in room
3. Size of components

D. Materials

1. Cork board
2. Wall board

3. Peg board
4. Cloth covered plywood
5. Flannel board
6. Cardboard
7. Seamless paper

E. Fasteners

1. Thumbtacks
2. Straight pins
3. Paper fasteners
4. Peg board clips and hangers
5. Double-sided masking tape
6. Bulletin board wax

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