Chapter 7

Working With the Engraver

The staff of the annual should make full use of the advice and help which the engraver working on the book is usually glad to extend. Many engraving concerns make a specialty of school-annual engraving and often do the work for half a dozen to several hundred books in one year. Most of the larger companies have representatives who call on the schools at intervals during the year and help the staff mark copy and estimate the cost of the cuts for the proposed book. Some of the more qualified men can give excellent advice on how to develop the theme, plan the dummy, get pictures, write copy and finance the undertaking. Instruction books loaned by some engravers to the staff are a valuable service.

Discounts for Early Copy

Most engravers specializing in yearbook production offer price inducements for copy sent in early. This schedule usually begins in December, graduating to February. The editor who gets his book planned in the summer or fall can thus make a real saving. The engraving company also benefits from early copy because its work in this way is extended over several months, enabling it to produce a larger volume without increasing the size of the plant.

How Plates Are Made

It is not the purpose of this book to explain in detail how photo-engravings are made. However, anyone ordering cuts should know the basic processes in order to give the engraver properly prepared copy and instructions.

Broadly speaking, there are two general kinds of photo-engravings:

- Line etchings (commonly known as zinc etchings) are used to reproduce line drawings or other copy made up of solid blacks and clear whites. Figure 7.1 is printed from a zinc etching made from a line drawing.

- Halftones are required to reproduce photographs, wash drawings and any other copy containing not only black and white but the intermediate gray shades or halftones (hence the name). Figure 7.2 shows a halftone made from a photograph, and Figure 7.3, a halftone from a wash drawing.

In either case, the first step is to make a photographic copy. The drawing or photograph is placed in a frame before a large copying camera and is brilliantly lighted by powerful arc or flood lamps. The time of the exposure and the “stop” or opening used behind the lens are scaled to the individual requirements of the photograph or drawing. The resulting negative is then developed in a dark room.

But even in this first step, line plates and halftones require separate treatment.

Making a Line Etching

Occasionally, when unusually fine results are necessary, line etchings are made on copper. But the cost is much greater, and it is quite unlikely that the average annual will require such a plate. Therefore only the line-zinc process will be described.
From the line negative, a photographic print is made on a sheet of zinc of high purity and even thickness which has been coated with a light-sensitive emulsion. The print is then inked with a roller. Under running water, the plate is gently rubbed with a tuft of cotton or soft brush; and in those portions of the plate which are not to print, the ink floats loose and takes the emulsion with it, thus leaving bare zinc. But on the lines that make up the drawing (or other image) the ink welds firmly. This ink acts as a buffer against the action of the acid bath into which the plate is now placed. The acid eats away the bared zinc, a process known as etching.

Under careful control, the acid is splashed or sprayed against the plate. If allowed to continue without interruption, the acid would eat not only downward on the bare metal, but also would undercut the lines whose top surfaces are protected by the ink. This undercutting would tend to weaken and eventually eat away the lines which form the image on the plate. Several times during the process, therefore, the plate is taken out of the acid, washed and dried, then brushed with a resinous powder which sticks to the lines and, under heat, melts, just enough to flow down to cover the bare shoulders of the lines, thus protecting them from the sideways action of the acid.

At the conclusion of the etching process, the lines stand up in relief, surrounded by areas eaten away to such depth that they will not print. The plate is next “routed” with a whirling tool which cuts away the metal entirely in the more open areas; and then a “finisher” inspects it carefully under an enlarging glass and improves any rough edges left by the etching or routing. The plate is then fastened or anchored (usually by tape that is adhesive on both sides) on a wood block to bring it up to the height of the type with which it is to be printed. The final step is to make a proof.

Making a Halftone

If the engraver made a photographic negative from a photograph or wash drawing just as from a line drawing, the darker grays would reproduce as blacks, while the lighter grays would not reproduce at all and would thus become whites. When printed, the image would be distorted or wholly unrecognizable.

To avoid this, a “screen” is placed in the camera, just in front of the negative, so that the image picked up by the lens and directed into the negative must pass through this screen. It consists of opaque lines in glass, crossing each other like the wires in a window screen, except that they are set at an angle.

The screen breaks up the image into a pattern of square dots, which would be much like a checker board except that after the plate is etched the dots vary greatly in size. Some are so large that they appear to overlap each other. These (in the finished plate) are in the dark areas of the copy. Others are very small dots, well separated from each other; these being in the lightest portions. Between these extremes are a wide variety of dot-sizes, which reproduce the various shades of gray.

Selecting the Halftone Screen

Selection of a halftone screen will be governed by the smoothness of the paper on which the plate is to be printed. For coarse papers such as newsprint, screens range from 55 to 100 lines per inch. For the fine enamel papers used in yearbooks, the screens almost universally used are 120 or 133 lines per inch; with a strong preference for the finer, or 133-line, because it tends to hold detail better when printed. However, there are other considerations, and the editor should consult his printer as well as the engraver, before ordering any plates.

The fine screen halftone is made on copper because copper’s texture is finer than zinc, this being necessary for good formation of the tiny dots. There are more than 17,000 dots per square inch in a 133-line halftone! The etching process is basically the same, with even more emphasis on handwork. The plate is not usually routed since it does not have open areas. Finishers inspect and touch up portions of the plate, and tool the white lines between pictures mounted together on a panel or other composite. The plate is proofed, and is then ready for printing.
FIGURE 7.1. A zinc etching made from a line drawing.

FIGURE 7.2. A square finished halftone made from a photograph.

FIGURE 7.3. A square finished halftone made from a wash drawing.

FIGURE 7.4. Outlined halftone usually costs 50 per cent more than a square halftone of the same size.

FIGURE 7.5. A circle finished halftone is charged for at the rate of 331/3 per cent above the standard price, as are oval halftones.
Estimating Cost of Engraving

It is not always possible to estimate exactly how much a photo-engraving will cost until the copy is ready for the engraver. Some copy requires special treatment to obtain the desired results. However, if the editor will send the complete dummy, with a list of all cuts and the exact size and finish of each engraving, to the concern doing the work on the annual, the engraver can figure the approximate cost of the complete job.

The standard charge set forth in the Photo-Engraving Scale is for square or rectangular finished halftones, as illustrated in Figure 7.2. An outlined halftone, Figure 7.4, is usually 50 per cent extra, plus an additional charge for painting out the background on the photograph with china white before the copy is photographed by the engraver. Circle finished halftones, Figure 7.5, are usually 33 1/3 per cent extra, as are oval shaped halftones. When it is necessary to mortise an engraving, that is, cut out part of the plate so type may be inserted, an extra charge is made. A simple, or outside mortise, in the corner of the plate as shown in Figure 7.6 is much less expensive than an inside mortise shown in Figure 7.7. Often it is possible to eliminate the necessity of mortising the plate by arranging the photographs as shown in Figure 7.8 and placing the copy at the bottom, side or top of the plate as illustrated in Figures 7.8 and 7.9. Some engravers make an extra charge for re-etching each face appearing on a panel as illustrated by Figure 7.9, and for tooling a white line around each individual photograph shown in the same illustrations.

In planning the dummy and figuring the cost of the finished plates all these details must be taken into consideration if a close approximation of the final cost is to be made.

How To Save Money on Engravings

While many of the operations mentioned cost extra, they are sometimes justified by the results achieved in the finished book. However, if the staff is operating on a limited budget, it can make substantial savings by planning the dummy carefully and avoiding some of the more expensive frills. For example, the book usually will be just as effective if many of the outline, oval and irregular shaped cuts are eliminated. If only a few cuts of this kind are used, they will give real emphasis to the illustrations finished in this manner.

It is often possible to mount two or more pictures together on one piece of cardboard and have one cut made of the entire mounting. Figure 7.10 illustrates how four group pictures that are to be used on the same page can be mounted together and one cut made from the mounting. To illustrate the saving made by mounting the pictures in this manner, an engraver estimated the cost of the cut shown at $16.20, including cost of tooling white lines between each group. If a separate cut for each group had been ordered exactly the same size as shown, the charge for the four cuts was estimated at $31.20. Both prices quoted are gross, before discount has been deducted. A larger saving is made when several pictures are mounted to form a snapshot page or a class panel.

Copy can be reduced or enlarged by the engraver within reasonable limits at no extra cost. It is preferable in most cases to send copy to the engraver that is larger than the finished engraving desired. The process of reducing the copy to the size desired in the finished engraving helps minimize any defects that may exist in the original copy. Occasionally it may be necessary to have the original copy enlarged to make the size of engraving desired, but this process accentuates any defects in the copy. For this reason, the editor should keep in mind the size of the finished engraving he wants when giving instructions to his staff for taking photographs or making drawings.

Determine Whether Copy Will Make Size

There are several common methods used to determine if copy will “make size,” that is, reduce or enlarge so that a plate can be made to fit the dummy plan. Perhaps the quickest and easiest method is to use a Logarithmic Scale of Proportions, one type of which is shown in Figure 7.11. This scale is made of two pieces of circular cardboard, the smaller fitting over the larger, and fastened together in the center with a metal rivet in such a
FIGURE 7.6. A simple corner or outside mortise is inexpensive. This copy is set in a mortised space cut in the corner of the halftone.

FIGURE 7.7. An inside mortise is expensive because of the time required to do the difficult operation. This copy is set in an inside mortise.
Figure 7.9. Some engravers make an extra charge for re-etching each face appearing on a panel and for tooling a white line around each individual photograph.

Figure 7.8. Often it is possible to eliminate the necessity of mortising the plate by arranging the photographs as shown and placing the cutline above, below or at the end of the illustration.
FIGURE 7.10. A substantial saving is made by mounting several pictures together and making one engraving of the composite. The white space at the side of the engraving could be used effectively to print the names of the individuals in each group.
manner that the inside or smaller circle of cardboard can be turned to the right or left to bring any number shown on the margin of the inside circle in direct alignment with any number shown on the outside or larger circle. A scale of this kind, or one working on the same mathematical principle, is often loaned by the engraver or sold at a nominal price to the yearbook staff.

How To Use the Scale

To illustrate how the scale is used to determine if copy will make size, a 10 by 7 inch picture is shown actual size in Figure 7.12. Assume that the finished halftone should be 7 by 3 inches. First, rotate the inside circle on the scale so the numeral 3 is in direct alignment with the numeral 7 on the outside circle. This represents the size of the desired cut. Second, hold the scale in this exact position and look for the number 10 on the outside scale (the actual width of the photograph is 10 inches). It will be found to the left of the number 7 and in almost exact alignment with 4¼ on the inside circle. This indicates that it will be necessary to eliminate from the finished cut a portion from the top or bottom of the photograph, or both, so that only 4¼ inches in height will actually be included in the finished halftone. By placing a ruler on the photograph it is evident the “cropping” can be done.

The picture, when reproduced in the printed book, will be just as effective with the elimination of part of the background and foreground shown in the original photograph. Indicate, with a grease pencil or a light blue pencil on the margin of the photograph, as illustrated in Figure 7.12, approximately where the engraver is to trim the finished negative after he has photographed the copy. These marks are called “trim marks.” It is a much safer method than actually trimming the photograph to this size, because if an error is made in the calculation it will show up on the ground glass of the engraver’s camera when he is making the cut. This plan will allow him to take in a little more of the photograph if necessary to make size. If too much of the photograph is actually trimmed away he cannot make size and will have to request a new photograph thus delaying the work and causing extra expense to the staff in obtaining a new print.

A grease pencil is most convenient for making trim marks, because any mark made in the wrong place can easily be removed by rubbing with the finger, without injury to the photograph. Some prefer to use a light blue pencil because the marks made in light blue do not rephotograph in making a black-and-white halftone. However, these marks are not easily removed without injury to the photograph, and, in case of error, it is sometimes desirable to change the trim marks on a photograph before it is finally sent to the engraver.

A Mathematical Formula for Estimating Size of Cuts

If a Logarithmic Scale of Proportions is not available when ordering engravings, it is
easily possible to determine if copy will make size by employing the following formula:

\[
\text{Height} = \frac{\text{Width} \times \text{HEIGHT}}{\text{WIDTH}}
\]

Using the same problem as solved above, the formula would be

\[
\text{Height} = \frac{10 \times 3}{7} = 4 \frac{2}{7} \text{ inches}
\]

As can be seen by using the two methods the mathematical formula is actually the more accurate of the two, due to the fact that the Logarithmic Scale used is divided into \( \frac{1}{2} \) inches. However, the difference between \( 4 \frac{2}{7} \) inches and \( 4 \frac{1}{4} \) is so slight that it would not affect the final results, if trim marks are used instead of actually trimming the copy with a cutter.

**Give Engraver Complete Instructions**

In addition to the trim marks on the front of the copy it is important to give the engraver complete instructions as to the size of cut wanted, finish, bleed, screen (if a halftone) and the identification of the annual or school or both. Some engravers furnish stickers on which this information can be written and pasted on the back of each photograph as shown in Figure 7.13. If stickers are not available, the information can be written on the back of the copy. However, if instructions are written on the back of a photograph, a very soft pencil must be used, and care must be taken not to press down when writing. If this precaution is not observed, the writing may show through on the front of the photograph, and a new print must be obtained before a satisfactory engraving can be made.

Most engravers specializing in school annuals request that staffs designate size of cuts wanted in inches and fractions of not less than \( \frac{1}{8} \) inch. It is common practice to place the width of the cut first, width meaning the left-to-right dimensions of the illustration. As an example, suppose the cut shown in Figure 7.14 is being ordered and that the copy sticker, Figure 7.13, is being used.

**Seven Points To Cover**

First, write in name of annual on the top line. Sometimes it is advisable to write in the name of the school if name of annual is a common one that might be used by some other school.

Second, indicate the number the cut is to be given. It is a good plan to number each cut in the book in the order in which they are sent to engraver. Halftones usually are numbered from 1 to 1,000 and zinc etchings from 1,000 up. When the cut is finished, the engraver can write the number on the edge of the plate, if mounted on wood, and the cuts can then be arranged in numerical order on a shelf when received by the printer. This enables the printer to find, without difficulty, any cut needed to make-up a page. The number given the cut also is marked with ink or pencil on the margin of the proof sent by the engraver to the yearbook staff.

Third, the size of the cut would be marked as \( \frac{8}{5} \) by \( \frac{4}{5} \)". The cut showing on the trimmed page of this book is only \( 8\frac{1}{2} \) by \( 4\frac{1}{2} \) inches. An additional \( \frac{1}{8} \) inch must be added to the dimensions of any cut that "bleeds" off

![FIGURE 7.13. A sticker giving detailed instructions to the engraver can be prepared and pasted on the back of each piece of photographic copy.](image-url)
the page as is done at the left and bottom of the page as illustrated in Figure 7.14.

Fourth, the finish of the halftone is rectangular so the finish would be checked as “square.” If another finish such as oval, circle or outline is desired, that too should be indicated.

Fifth, the halftone illustrated in Figure 7.14 should be checked for bleed left and bottom. It is important to inform the engraver which edges of the cut are to bleed so he can be sure to make the cut in such a way that nothing essential or important in the illustration will be included in that part of the printed engraving that will be cut away when the pages of the book are trimmed.

Sixth, under remarks for this particular cut, the words “flush right” should be written on the sticker. When an engraver is instructed to mount a cut “flush,” he will not bevel and tack the cut on that side because he is warned that the cut on that particular side may fit against the printing chase so that no white space is left exposed in the gutter of the book as would happen in this particular case if the cut were not mounted flush on the right side. Sometimes it is necessary for two cuts to be side-by-side on the printed page with no white space showing between them. These cuts must be mounted flush on the sides that come together and should be ordered with that purpose in mind. Most engravers, at the present time, are using a pressure sensitive tape to mount all plates instead of tacking them to the wood base. Where this new method is in use, plates are mounted flush on all four sides. If the engraver making the cuts uses this method of anchoring plates, it will not be necessary to instruct him to mount plates flush.

Seventh, if the screen and material to be used have not been agreed upon with the engraver, the words “133 line copper” also should be written under remarks. If a finer or coarser screen is desired, or if a zinc half-tone is wanted, that would be indicated.

Make a Record of Each Cut Ordered

A complete and easily understood record of each cut ordered is desirable. This record may be important if copy is lost in shipping or in the engraver’s plant. Then too, the editor always will know just what plates have been ordered and the date the order was mailed or taken to the engraver.

Many yearbook engravers furnish order blanks similar to the one shown in Figure 7.15. These forms are made in duplicate and bound into a pad. By inserting a sheet of carbon paper between the original and the duplicate, two copies of the order are made. The original is perforated along the top and can be torn out and sent to the engraver with each order for engraving. The carbon copy remains on the pad and is a permanent record for the annual staff. In ordering the cut in Figure 7.14, the blank is filled out as shown. It is not necessary to wait until enough copy is available to fill out every space provided on one blank before sending in the order. If order blanks are not furnished by the engraver, the permanent record of all cuts ordered can be kept in a notebook, and the same information called for by the order blank can be recorded.

It is a good plan to have at least two members of the staff work together in ordering cuts. One can fill out the order blank, and the other can put the proper information on the copy sticker. They can check the photographs to determine if they will reduce or enlarge to the size cut indicated in the dummy. By checking all details together, they often eliminate errors that might otherwise occur. If the faculty adviser is familiar with ordering cuts, he can give valuable assistance to the staff in this particular phase of the work.

Mounting Photographs

As previously indicated, a substantial saving in the cost of photo-engravings can be made by mounting several photographs on one cardboard and having one cut made of the composite, or panel, as it usually is called. Then too, a more effective layout for the page often results. It also is a valuable method of saving space in the book, thus allowing the introduction of features that might otherwise be omitted because of space limitations.
The materials needed for the proper mounting of photographs are:
1. Mounting board
2. Rubber cement
3. Drawing board and T-square
4. An accurate ruler
5. A good paper cutter

How To Mount a Snapshot Page

Snapshot or feature pages, as illustrated in Figure 7.16, often are mounted by some member of the yearbook staff. The size of the cardboard to be used must be correctly proportioned so the finished mounting will reduce to the size cut wanted.

First, fasten the mounting board with thumb tacks to the drawing board and, by use of the T-square draw in lines AB and BC as shown in Figure 7.17. These lines must form a perfect right angle, so the drawing board and T-square used must be true and accurate.

Second, draw in the lower left-hand corner a rectangle exactly the size of the finished halftone desired. This rectangle is represented by lines EF, FG, BG and EB of the same illustration.

FIGURE 7.14. A halftone made to bleed at the left and bottom of the page and prin. flush to the gutter.

FIGURE 7.15. An order blank properly filled out provides the editor with a record of all plates ordered.
Third, draw line BD with a ruler or the T-square. Be sure that the line passes directly through the corners of the rectangle as shown. At any point on line FD where a perpendicular and a horizontal line are drawn, as represented by the dotted lines, the area thus enclosed will reduce to the size cut represented by the rectangle originally drawn in the left-hand corner of the mounting board.
Fourth, select the pictures to be mounted. Arrange them in the left-hand corner of the cardboard, spacing and trimming them with the paper cutter to size desired. In this way, determine where the permanent line for the top and right-hand edge of the cardboard shall be drawn. Remember they must meet at some point on line BD. Indicate with a number where each picture is to be cemented to the board and place the same number on the back of the picture. In order to eliminate any chance of error, check the size of the cardboard at this point with the Logarithmic Scale to determine if it will reduce to the size cut wanted.

Fifth, cover the entire surface of the cardboard to be used with a thin coating of rubber cement using a small stiff brush. Allow to dry for a few minutes. Next, coat the back of the first picture to be mounted with rubber cement, allow it to dry for about 10 seconds and place in the space previously marked. Press down gently until it is firmly cemented. After all pictures have been cemented into place, remove any rubber cement left on the exposed surface of the mounting board, or on the face of the pictures by rubbing gently with the fingers or a soft piece of Art Gum. If it is desirable to remove one of the prints from the mounting and replace it with another print, it can easily be removed or pulled off. The copy is now ready for the engraver and should be marked in the same manner as previously discussed.

**Mounting Class Panels**

Class panels can be mounted by using the method just described, but more care and
skill is required in trimming the photographs to size so they will fit exactly the space provided for them on the mounting board. The individual photographs for class panels are usually cut in rectangular shapes as shown in Figure 7.18. They are mounted in such a manner that a straight white line can be tooled between each row of faces. If a paper cutter is used to trim the photographs, it must be sharp and carefully adjusted so it will cut a perfect rectangle. It is a good plan to test the paper cutter and the skill of the individual using it on some old photographs that are not to be used in the annual. This “practice run” may show the way to properly trim the class pictures so they will appear to best advantage in the finished book.

Avoid Strip-ins When Possible

When mounting snapshot pages, class panels or other composite panels, it is often found that one or more of the pictures to be used are either too small or too large to fit into the space allotted to them on the mounting board. These pictures can be sent unattached to the panel, and the space indicated where they are to appear in the composite. The engraver can then photograph them separately, enlarging or reducing them so that the resulting negatives will fit into place on the negative made from the composite. This is called a “strip-in,” and is charged for on a time basis.

It often is more economical for the staff to get the proper enlargements or reductions of such pictures from the photographer and cement them in place when the panel is mounted. If the engraver is doing the mounting work, care should be taken to supply prints that will fit without necessitating the strip-in method. If it is impossible to get negatives from which the original misfit prints were made, the strip-in method of course must be used.

Send Copy to Engraver Often

Copy should be sent to the engraver just as soon as it is ready. The advantages are fourfold:

First, photo prints sometimes fade or get broken or soiled if kept around the yearbook office.

Second, discounts usually are given for copy sent in before specified dates.

Third, proofs usually are returned promptly by the engraver. If an error has been made, there will be more time to make the needed correction.

Fourth, just as soon as all proofs for a given page have been returned, the staff can prepare the page for the printer and thus avoid the “last minute rush” that often results in inferior copy and workmanship.

Shipping Copy to Engraver

If copy is shipped to an engraver in another city, it must be well-wrapped and protected by heavy cardboard. Care should be taken to see that the photographs are not bent or
broken in either the wrapping or shipping process. Do not clip pictures together or clip instructions to prints with a metal clip, as this often mars the photograph. Copy should be sent by insured mail or express.

Preparing Drawings or Art Work

In preparing pen, pencil, charcoal or wash drawings for plate reproduction by the engraver, the artist should draw them so they will reduce to the size of cut wanted. They usually are made one and one-half times as large as the desired cut. It is desirable to make the drawing larger than the plate wanted since reduction minimizes any imperfections or irregularities.

Pen Drawings for Zinc Etchings

Pen drawings to be reproduced as zinc etchings must be made on good quality white drawing board. The rough outline of the drawing is made with a pencil, and then inked in with black water-proof drawing ink. The lines made in ink will reproduce best if they are strong, clean and black. Light or gray lines do not reproduce satisfactorily.

Pencil, Charcoal or Wash Drawings

Pencil, charcoal and wash drawings generally are reproduced by the halftone method, hence more detail and shading can be used in preparing them. White drawing board should be used. Pencil or charcoal drawings made on coarse drawing board, with heavy black lines and not too much detail, can be reproduced by the zinc etching process.

Wash drawings are made with a brush on white illustration or water color board with diluted India ink, lamp black or Sepia, and are reproduced by the halftone method.

Any drawing that is to be printed in more than one color should be discussed in detail with the engraver before the art work is done. The technique employed will determine to no small degree the cost of the plates and effectiveness of the finished product.

Good Photographs Make Good Engravings

The following four pages illustrate some of the problems commonly facing yearbook staffs in selecting photographs that will reproduce well in the finished book. This material has been made available through the courtesy of the Southwestern Photoengravers Association.

The importance of selecting only top quality photographs for the yearbook cannot be overemphasized. No amount of skillful handling by the engraver can compensate for poorly lighted, improperly developed or carelessly handled photographs. Each time a photographic image is transferred from one medium to another — from print to engraving, from engraving to printed page — it loses a certain amount of its original clarity. Good photography and competent photoengraving will add much to the attractiveness of any yearbook.
FIGURE 7.19. Enlargement of a halftone to show the dot pattern and screen effect produced by the halftone screen. Note that in the light areas of the skin the dots are small and widely separated, while in the dark areas of the hair the dots overlap. Notice how the eye blends the dots together into a recognizable image when this enlargement is viewed from a distance of six feet or more.
A good halftone reproduction is dependent on not one but many skilled craftsmen: the artist, the photographer, the photoengraver, the printer and, in the case of newspapers, the stereotyper. If any of these fails in his job, we have a poor reproduction. Since the photographer is one of the first links in the chain, he can in many ways be considered the most important.

There are probably more poor halftones chargeable to poor photography than any other cause. It is impossible, of course, to always make a perfect photograph, but it would help a great deal if every photograph were made as perfect as possible. It is true that the engraver often can improve on the photograph, but do not expect him to be a magician.

The important requirements of a photograph for general reproduction are few and, if followed, the final results will be greatly improved.

A photograph for reproduction should have a clean sharp image with proper contrast and a clear gradation of tones from highlights to shadows. It should be on glossy paper with a cold black tone.

The halftone screen has a tendency to soften and slightly diffuse and, for this reason, if a sharp engraving with plenty of detail is expected, the photograph must be in sharp focus and not diffused at the camera or enlarger.
ing these fine gradations when reproduced with sixty or sixty-five line screens. The chief reason for this is that the fine gradations are broken up by the coarse dot formation of the coarse screens. It has been shown that only about a sixty per cent rendition of tonal range is possible in coarse screen halftones.

Prints for reproduction should be on glossy stock. Semi-matte prints are acceptable but they do not render as much in tone separation and detail as a good glossy print. Prints on rough paper, although very pleasing to the eye, do not reproduce well because the uneven surface shows in the halftone as a defect and sometimes gives a muddy appearance. Prints on a silk or linen-finish paper usually make poor halftones, as the pebbled surface causes reflections which combine with the screen of the halftone to form a pattern or moire effect. Prints should be on white stock, not on buff or cream paper. The print should have a cold bluish-black tone, not a warm tone.

Engraving film is not sensitive to tones on the red end of the spectrum and, therefore, hand-colored, sepia and brown-toned prints have a tendency to reproduce much darker than the photographs.

The majority of faults found in most photographs could have been corrected either at the camera or in the darkroom and the prints shown with this story illustrate the most common faults.

Fig. 7.22

Contrast is of great importance. There is some misunderstanding between photographers and photoengravers on the word contrast. Many photographers seem to think when the engraver says he wants a print with good contrast, he means strong black shadows and chalky highlights with very little or no middle tones. Such is far from the case. Prints of this type cause the engraver a lot of trouble and usually result in poor reproductions.

The engraver can not reproduce tones that are washed out in the highlights and blocked up in the shadows to the point of being so delicate as to be hardly visible in the print. A print on the slightly flat side is preferred to one of extreme contrast. On the other hand, while a photograph with very delicate gradation and long tonal ranges can be reproduced satisfactorily by use of fine screens and letterpress printing on good paper, too much should not be expected toward show-

Fig. 7.23

FIGURE 7.22 (top). The photographs on this page were made with a medium gray background which, generally speaking, is best for reproduction. However, this print has an altogether too common fault — flat lighting.

FIGURE 7.23 (middle). This picture shows the best type of photograph for reproduction. It was made with well rounded lighting giving a nice range of tone values from highlights to shadows, and has good separation from the background.

FIGURE 7.24 (right). This print has another fault often produced by some photographers — contrasty lighting.
FIGURE 7.25. Do not write on back of print. It often shows through and the engraver cannot eliminate it. Write instructions or copy on a separate sheet and fasten to print with paste.

FIGURE 7.26. When packing prints for mailing, be very careful to do it properly. Breaks or cracks usually spoil the print for reproduction and show prominently in the finished halftone.

FIGURE 7.27. Crop marks should not be drawn on face of print. These may give the engraver trouble in squaring up the plate, and also spoil the photograph for other uses.

FIGURE 7.28. When paper clips are used to fasten copy or other material to the print, a mark is often left which the engraver cannot eliminate.

FIGURE 7.29. The proper way to mark a print is in the margins with ink or hard pencil, indicating the most important dimension with arrows. If there are no margins, use an overlay, being careful not to write heavily enough to make indentations in the face of the print.