PRACTICE IN THE FUNDAMENTALS OF PRINTING

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Bibliography

Ives, George B., Text, Type and Style, The Atlantic Monthly Press, 1921.
Levitas, Arnold, Printing and Typography for Beginners, 1924.
Robertson, Willard E., Practical Typography, Fostoria Vocational Printing School, 1930.

Robb, E. G., Presswork, The William Hood Dunwoody Industrial Institute, 1918.

Bothwell, J. W., Book Composition, United Typothetae of America, 1918.
Hamilton, Frederick W., The Uses of Italic, United Typothetae of America, 1918.
Sheldon, E. E., Applied Arithmetic, United Typothetae of America, 1918.

Seaver, Robert, Tabular Composition, United Typothetae of America, 1918.


, *Elements of Composition*, United Typothetæ of America, 1926.


Spicher, Craig R., *The Practice of Presswork*, Published by the author, 1929.

The California Job Case

With typesetting machines largely taking the place of hand composition because of their greater speed— but not because of the better quality of their work—a change was found desirable in the arrangement of the printer's case. Formerly, one case which contained the capital letters, the small capitals, dashes, braces, brackets, fractions, and many seldom-used characters was placed in a raised position and at a convenient angle in front of the compositor. In the lower position was a second case which contained the small letters. From this fact, printers and especially proof-readers, name the capitals or "caps" the upper case letters and universally call the small letters the lower case letters. When machine composition made large quantities of type unnecessary, the upper and lower cases were combined, the most common of the combination cases being called the California Job Case. This ingenious device was modeled and built by Mr. W. P. Deering, who at the time was living in California. He returned to the East with his invention hoping to interest one of the large manufacturers of printers' equipment in producing it. In this he was only partially successful. A firm in Boston undertook to make them on a production basis, but at first the printers did not take kindly to the new case. At this time, Mr. Deering had given it the rather prosaic name of "Our Own" case. Coming under the observation of Mr. Henry Lewis Bullen, now curator of the library and museum of the American Type Founders Co., of Jersey City, N. J., he renamed the invention the California Job case. In the meantime, printers were beginning to see the value of the new case.
and the demand for it increased. Its popularity has continued to grow until today it is recognized as the standard of the country for the uses to which it is put.

The Use of the Case

A heavy wooden bar separates the "cap" and lower case sections. On the "cap" side, the letters run in alphabetical order except that "J" does not follow "I" and "U" does not follow "T." The "J" and "U" are added after the letter "Z." The lower case letters are arranged with reference to the frequency of use and convenience to the compositor. For example, the letter "e" which is most frequently used has the largest box, and is placed at the most convenient location. The instructor is expected to explain to the student the location of the various letters and allow him to begin to use type at once. The loss sustained in getting a few letters out of place is more than balanced by the gain afforded in securing increased interest.

The greatest difficulty in identifying letters will be with the b, d, p and q. Observe that each piece of type in the case has one or more nicks in it and that these nicks are the same in a certain case. Assume that the printing position of the letter is with the nick down. Hold the piece of type close to the hand and try to visualize what the letter would be if it were printed there. If this scheme is used whenever there is any doubt about one of these four similar letters, there will be no occasion for getting them mixed. The "O" and "O" are somewhat alike to the beginner, but may be distinguished by the fact that the "O" is a much broader letter.
Similarly, in the case of the "1" and "I" the I is thicker and has a somewhat longer stroke at the top.

**The Type**

The size of type in the direction of the height of the letter is measured in points. Presumably, the type being used by the student is ten point, because it has been found that this size is best adapted to the use of beginners.

Since type is composed largely of lead, a soft metal, extreme care should be used to avoid damage to the face. The letters should always be dropped "feet first" into the case; never drive one piece of type down with another; and never allow type to lie on top of the cabinets and on the floor.

Mixed type is called pi. No well-regulated school or commercial shop will allow pi to accumulate. All equipment should be ready for use when needed and if a large or small amount of type is mixed, it should be set in the same manner as when setting from the case and afterward each letter returned to its proper place.

**Leads and Slugs**

These are spacing materials used to separate lines of type from each other. The lead is two points thick or one-fifth the thickness of ten point type. In most composition, one lead is placed between the type lines. The slug is six points thick or the equivalent of three leads. Often more spacing is needed between the head and the first line of a piece of composition than between the other lines and a slug is used for this purpose. The length of leads and slugs
is measured in picas. A pica is the square or em of twelve point type.

The Stick

The compositor's stick is so called, because originally type was composed in a piece of wood hollowed out for that purpose. The modern stick is made of steel, usually graduated in picas and half picas, and so constructed as to be both convenient and comfortable to the user. To set the stick, raise the lever, place the knee on the number representing the required measure, and clamp down the lever. The stick is held in the left hand with the lower end tilted slightly downward. The thumb is placed inside the stick and as the letters are inserted, raised slightly, to be at once placed on the new letter after it is dropped. A lead is placed in the empty stick to make it easier to dump and as an aid in setting the first line. Care should be taken to avoid having two leads between consecutive lines of the text.

Beginning students should not try to dump a stick full of type—only two or three lines at a time should be attempted—because of the danger of pi-ing the work. Place the two thumbs at the head of the composition, the two first fingers at the end, and with the two second fingers forming a runway, slide the type from the stick. Then with moderate pressure on all four sides, pick up the type and place it on a galley. This is a shallow tray of metal, usually made of steel or brass, and of various shapes and sizes. The composition is now ready to be tied up.
Tying Up

After the type has been placed on the galley it is ready to be tied up. A piece of twine, preferably that made especially for the purpose, and long enough to go around the composition four or five times is procured. Starting at the side opposite the corner of the galley which holds the type, wrap the twine tightly around the type as many times as its length will permit, tucking the loose end between the form and the laps made. It is best not to allow any of the layers to overlap.

Taking a Stone Proof

The galley is now placed on a stone or other solid surface. A small quantity of ink is thoroughly distributed on a piece of glass, stone, or steel plate with a small roller or brayer. Use very little ink. The brayer is then passed over the type lightly until it is well covered. Procure a piece of proofing paper, preferably the so-called dry proofing paper made especially for the purpose. Proofs may be taken with most kinds of soft paper by dampening them on one side with a wet sponge and placing the dry side on the type. The dry proofing paper has a dull and a glossy side. Always place the glossy side next to the type. Take the proof planer, a block of wood with the under surface or face covered with felt, and place it firmly on the paper. With a mallet, tap the planer lightly, catch one end of the proofing paper and "peel" it from the type. If sufficient care has been exercised, a sharp, easily read proof results.
Spaces and Spacing

The type spaces, starting with the largest, are the two and three em quads, both occupying the same box. Next is the em quad, the square space. The en-quad is half the thickness of the em and the three-em spaces require four and five of their number respectively to make an em. It is more correct to call these spaces three-to-em, four-to-em and five-to-em, but custom has led to the using of the shorter term.

The three-em space is sometimes called the "normal" space, because it is the average amount of space between words and, when setting a line of lower case, the space that is always used. Lines of capitals, are spaced with en-quads.

A line of type in the stick should be snugly tight, that is, not so loose that the letters can be moved with the fingers, and not so tight that spacing material has been driven in. It very seldom happens that the last word or syllable in a line will make it just fit the measure of the stick. The final letters at the right-hand side of the column should always be in line, except at the end of a paragraph, where there is a break unless the last line is a full one. The process of tightening a line to fit the measure of the stick is called justification. All of the spacing between words in the same line should be the same. If the last word or syllable does not completely fill the line, then more space must be added between words.

If the line can be made to contain a letter or two which will end a word or syllable by reducing the space between words, this procedure is permitted.

The amount of justification required for any line may be deter-
mined with mathematical precision. It will be observed, that start-
ing with the em-quad as a unit which is 1, then the en-quad is 2, the "normal" space 3, the 4-em space 4 and the 5-em space 5. The least common multiple of these numbers is 60. Considering the em-quad as having 60 units, then the em-quad will have 30, the 3-em space 20, the 4-em space 15, and the 5-em space 12. If a line is normally spaced with 20 units and the line is loose, the next size unit is a combination of 12 and 12 or a 24 unit space. If the line is still too loose, the next step is to place the 27-em unit or a 4-em and a 5-em space in place of the 24 unit combination. If the line is not yet sufficiently tight, replace the 27 unit space with 30 units or the en-quad. In this manner, by increasing the unit-space combinations, the line may be justified with perfect accuracy.

The paragraph indentation in short measures is normally the em-quad. In longer measures it may be increased, but is rarely decreased in very short measures. The size and face of the type often determine the amount of indentation. Broad or expanded faces normally require greater indentation than do the narrower or "skinny" faces. Typography is undergoing such radical changes in modern times that it is hazardous to attempt to establish any hard and fast rules for indentation and spacing. The beginner, as well as the expert compositor, will acquire much knowledge by carefully studying the typography of the leading magazines or any other printed material in which a serious attempt has been made to procure a piece of high-grade printing.
Proofs are taken in two ways—the stone proof and by means of the proof press. In taking either kind of proof, ink must be placed on the type. Dry proofing paper is recommended because it is easy to use and because its transparent quality is often serviceable to the instructor.

The process in taking stone proofs has been fully explained in an earlier section. Even if a proof press is available, students should be required to take stone proofs for a period of six weeks or more. The galley holding the type should be placed on a stone and a mallet and proof planer procured. The difference between the proof planer and the type planer should be carefully noted. The former has its bottom surface or face covered with felt, while the latter is plain—its purpose being to make level all the type of a form. Remove the planer and paper, using extreme care in the latter operation in order to prevent slurring. The first few attempts at taking a stone proof are likely to be unsuccessful, but patience and perseverance will bring their reward.

Always lay the planer on its side. Particles of dirt or metal may stick to the face of a planer if it is laid on that surface and be driven into the type with resulting damage the next time it is used. A good habit to acquire is to wipe the face of the planer on the apron before using it.

The margins of the proof should be wide enough that corrections can easily be indicated and not so large as to waste paper.

If a proof press is used, place the galley on the bed of the press and after the form has been inked and the paper placed in position as in the first method, roll the cylinder over the surface...
of the type and the process is completed. Adjustments for heavier or lighter impressions may be made by increasing or reducing the number of sheets of packing on the cylinder.

The proof is now ready to be marked for corrections. After the errors are clearly indicated on the proof, the compositor will untie the form, remove the line in which the error occurs, place it in a stick, make the corrections, rejustify if necessary, and place the line back in the form. This process is repeated with each line that requires a correction.

For places hard to reach with the fingers, tweezers are sometimes employed, but their use should be strictly limited because of the constant danger of damage to the type.

After all corrections have been made, a second proof should be taken and this, together with the corrected proof, submitted to the instructor for final O.K. An accurate record should be kept of these final proofs.

Distributing Type

The type is now "dead" and ready for distribution. Untie the form and with its head toward the compositor lift two or three lines with both hands. Transfer the lines to the left hand with the thumb at the beginning of the lines and the second finger at the end, using the first finger as brace or stabilizer. The face of the type will now be toward the compositor and the nicks will be up. Remove the top lead and beginning at the right end of the line, remove a short word or a few syllables of a long word and drop the letters on their feet into their respective boxes.
The number of lines that can be handled can gradually be increased as the student becomes more proficient. Leads, slugs and all material pertaining to the job should be carefully put in their proper places before the job can be said to be really finished.

Too much care cannot be exercised in distributing type. One careless student in distribution can hamper the work of several excellent compositors. Never place a single letter in any case until you are sure it belongs there. Select a letter from the case from which you think the type was taken and lay it alongside the same letter in the line about to be distributed. Compare sizes, nicks, faces, thickness of letters—apply every test you can think of, and then if there is the slightest doubt, refer the matter to the instructor. Hours of time can be saved and much nervous energy conserved by using a little extra care in distributing type.

**Making Corrections**

Before the stick is dumped, the type should be carefully read and all errors corrected. With the head of the composition toward the compositor, the lines containing errors should be worked up with the fingers a little higher than the other lines. Take out the wrong letter and insert the correct one, rejustifying the line if there is a difference in the thickness of the letters. Be sure that the spacing is uniform.
In determining the relation between the size of the page and the size of the form, the principle of proportion is employed. The number of square units of white space on a page should equal the number of square units of type. The dimensions of the page are proportional to the dimensions of the form whatever the shape of the form may be, but some shapes are much more pleasing to the eye than others. A page with equal dimensions is monotonous, one with no mathematical relationship is not pleasing, one with a two to one ratio is somewhat better, and the three-to-two ratio is considered almost ideal.

The length of the type form of a given measure depends somewhat on the nature of the work. Four so-called oblongs are recognized by printers, each having a given mathematical value: the printer's oblong, 1.73; the golden oblong, 1.62; the regular oblong, 1.50; and the hypotenuse oblong, 1.41. To determine the length of a type form, having given the width, simply multiply the width by one of these numbers. For example, if the measure is twenty-five picas and the golden ratio is used, multiply 25 by 1.62 and the length of the form is 41 picas.

Persons with normal vision have an illusion that printers must recognize, namely, that the optical center is slightly above the geometric center. Thus, in printing a name on a card or a page of a book on a sheet, the center of the type mass, should be spaced slightly above the center of the paper.

The shape of the type and ornaments should harmonize with the
shape of the page. On a long narrow page, a condensed face of type should be used if set the short way of the form and an extended face used if set the long way of the form. Care must be exercised, if more than one series of type is used, that the faces harmonize. A heavy face and a light face in the same form usually clash, but, at this time, several typographers are producing very pleasing effects with this combination, especially with some of the sans serif series.

The weight of type and border should be equal; that is, a heavy type with a light border destroys the harmonious effect and a light type with heavy border produces the same result, though here again experts may produce pleasing effects through violent contrasts.
The Layout

The making of layouts has developed so much in recent years that the compositor's opportunity to show originality has been considerably reduced. The layout is a sketch used to show the customer how the finished product will appear and to guide the compositor in establishing margins, selecting type faces, sizes, and ornaments and in maintaining harmony, tone, balance, etc.

Layout blanks in convenient sizes can be purchased or easily made in any shop. Use one set of rules to run across the page, so that the space between them when printed is exactly one pica and another set to run vertically with the page, the space being the same. This forms a number of one pica squares. Number the spaces both horizontally and vertically.

The layout serves an important purpose in modern printing. What is lost to the compositor in originality, is more than offset by preventing spoiled work, dissatisfied customers, and a loss in time and labor.

In the larger plants, specially trained men devote all their time to the preparation of layouts. In the smaller plants, the foreman does this work. In the school shop, the teacher should provide some and the students should be trained to prepare them.
Cutting Stock

The first consideration in cutting stock is to get the greatest possible number of pieces of required size from a sheet of given size. In a few shops, the stock is cut according to the grain of the paper even if it causes considerable waste in doing so.

Cancellation is the method usually employed in figuring stock. If the problem is to determine the number of 3" x 5" cards that can be cut from a sheet of 25½" x 30½" index bristol, the larger combination of numbers is placed above a line and the smaller below. Three is contained in 30½ ten times with a remainder of one-half and 5 is contained into 25½ five times with a remainder of one-half. The one-half inch in each case must be regarded as waste. Therefore, fifty cards can be cut from the sheet. If the divisors were reversed only forty-eight cards could be cut from the sheet and the waste would be greater.

The problem is not always so simple. Sometimes, it may be necessary to cut the sheet two ways or more to provide the greatest economy. If it is required to cut 8½" x 11" sizes from the 25" x 30½" sheet, 8½ is contained into 25½ three times. Eleven is contained into 30½ two times with a remainder of 8½. This leaves a strip 8½" x 25½" long which is divisible by the original divisor. From this strip, two more 8½" x 11" cards can be obtained, making eight in all. Notice that it is necessary to cut the original size along the 30½" side first in order to get the 8½" x 25½" strip.
In order to do accurate work, the cutter must be accurately adjusted. The knife and back guide must be exactly parallel. In case this adjustment is not exact, lower the knife and let it rest on the cutting stick. Place iron or metal furniture between the knife and the guide near the ends of the knife. Draw in the guide until it just touches the furniture on one end. By means of the adjusting nut, the guide can then be made parallel to the furniture and therefore the knife.

Two systems of cutting are used. In the first, the guide is set to cut the required measure and as each cut is made, that which remains is fed to the guide for the next cut. By the second system, the largest possible cut is made each time. If the required size is nine inches and the stock is thirty-six inches, the first cut will be eighteen inches, the guide reset, and the second cut made—nine inches.

Cutting machines cause little trouble if given ordinary attention. Do not permit the knife to sink deeply into the cutting stick. This dulls the knife and makes necessary frequent replacements of cutting sticks. Always keep the knife sharp and be sure it is accurately ground.

Cutting machines are dangerous! Be careful!
The ream used by printers consists of 500 sheets. In designating nearly all classes of paper, the two dimensions are given, followed by a third number which indicates the weight of a ream. For example, 17" x 22" - 20 lb. means that the paper is 17 inches wide, 22 inches long, and 500 sheets weigh 20 pounds. It is often necessary to resolve a number representing given size and weight into another number representing a given different size and unknown weight. For example, we may know the weight of a ream of 17" x 22" stock to be 20 pounds, but not the weight of a ream of 17" x 28" of the same sheet thickness. The result is obtained through the principle of proportion. Since the product of the means is equal to the product of the extremes, and since it is known that a ream of 17" x 28" will weigh more than a ream of 17" x 22", then the larger size number should be multiplied by the known weight and be divided by the smaller size number. Then we shall have 17" x 28" x 20 lb. to be divided by 17" x 22" which gives approximately 23.1 pounds.

It is very often necessary to find the cost of an odd number of sheets of known weight per ream. We may have 45 sheets of 60 pound book and be required to find the cost at 18 cents a pound. Double the ream weight which in this case is 120. Multiply this by the number of sheets, 45, and the cost per pound, 18 cents. Point off three decimal places for the division by 1000 and two additional places for the multiplication by 18 cents and the result is 97 cents, the required cost.
Imposition

Where printing is done on both sides of a sheet, from small jobs to books, it saves time and expense to print more than one page at a time. Arrangement of the type matter so that it will print in the proper place is called imposition.

Forms may be printed either work and turn or sheetwise. By the former method, a given number of pages is printed on one side of the sheet, the paper is then turned over and the same pages printed on the opposite side. The paper is then cut through the center, making two complete units. If the sheet is printed on one side with one form and on the reverse side with another form, it is called the sheetwise method. By this method, the sheet is twice as large and contains twice as many pages, but makes only half the number of units or signatures as the former method. The nature of the job and the size of the press and folding machine will be determining factors in which method to use.

After determining the method, the novice should always make up a dummy before attempting to lay out the pages. By the work and turn method, the number of pages in the dummy should be twice the number required for the printed job, that is, for a single sheet printed on both sides, use as a dummy a sheet with one fold or four pages; for an eight page pamphlet, fold the dummy three times, making sixteen pages. When dealing with this class of work, always be sure to remember that type is in reverse of the printed page. Since the same type is to be used to print both sides of the sheet, the folios, or page numbers, must occur on one side of the sheet only. Lay the dummy in the natural position in which books are read
with the folded edge to the left. If the job is a four-page folder make two right angle folds on the dummy and mark the first page 1, then skip two pages, mark 2 and 3, skip two and mark 4. Open the dummy and the position of the four pages is marked—but in reverse order. If the sheet is then turned with the numbers down, the position of the numbers and the position of the type pages will be in the same order.

By the sheetwise method, the number of pages in the dummy and in the form are equal. All of the pages are numbered in regular order and the type pages in a given form correspond with the folios on one side of the dummy. This form is then backed up with the pages indicated by the opposite side of the dummy.

**Laying the Form**

For simplicity, assume that there is one sheet 6" x 9" printed on both sides. The form is 25 picas wide and 41 picas long. (There will be no folios.) The stock will be cut 12" x 9" with only half as many pieces as are required for the job, since each sheet will make two copies of the finished product. Set the two forms so that the measure from the outside edge of the one to the inside edge of the other is exactly the width of the stock, 6 inches or 36 picas. This will center each page on its half—the 12-inch way of the sheet.

Instead of using a line gauge or ruler to measure the position of the pages, a sheet of the stock to be used may be folded and placed over the form with one edge of the paper parallel to the outside edge of one page and the opposite edge of the paper parallel to the inside edge of the other page.

If the folder is four pages with the same dimensions, arrange the two pairs of pages laterally in the same manner. Place them head
to head and in the position indicated by the dummy. The measure from the foot of one page to the head of the adjacent page (1 and 4 or 2 and 3) should be 9 inches or 54 picas to exactly center it the long way of the sheet. As a matter of fact, this dimension should be somewhat short of 54 picas in order to provide a greater margin at the bottom than at the top of the page.

Determining Margins

Practically all folded material of more than four pages requires trimming, and allowance for this should be made when the form is imposed. For example, in working sixteen 6" x 9" pages on 25" x 38" stock with a page 25 picas x 43 picas, three sides, top, bottom, and outside margin will be trimmed. The head margin is usually least, the inside next, followed by the outside margin, with the greatest margin at the bottom. First, determine the width of the inside margin and lay the furniture for that. Five picas for each page will therefore require a ten-pica piece of furniture between pages 3, 6, 5, and 4 and 14, 11, 12, and 13 and the corresponding pages of the other half of the form. Next, determine the head margins. Since the page is to be nine inches, in depth, the measure from the bottom of page 1 to the top of page 8 should be nine inches or 54 picas. Folios should be disregarded in making these measurements as the folios run into the margins when placed at the foot of the page. If the pages are 43 picas long, it will require 11 picas between the heads of the pages to make the required measure. Any additional space within the limits of the size of the stock may be added for trim. If one-eighth inch trim is allowed for each page, a quarter-inch or one and a half picas must be added to the eleven picas making a total of thirteen and
a half pica between the heads of the pages. Sufficient space must be placed between the pages separated by the bar which runs the long way of the chase, so that the corresponding edges of pages 1 and 13 measure twelve and a half inches. The pages separated by the bar which runs the short way of the chase should be separated by space sufficient to make the measure from the foot of page 1 to the foot of page 7, nineteen inches. Other corresponding pages may as well be used. It is perhaps better to use a sheet of the stock to be printed which has been carefully squared and folded in quarters for each measure, than a ruler or yardstick.

If two type pages of unequal size are each to be centered on stock pages of the same size, draw diagonals across the face of each type page with a piece of crayon. The intersection of these diagonals is the center of each. Set the pages so that the distance between the two intersections is numerically equal to the width of the sheet, and blank out the smaller page until it equals the larger one. The longitudinal measure may be established in the same manner.

After the form has been locked it should be measured again. A column rule or other equipment of known accuracy may be laid along the heads, feet, and sides of each row of pages to test for squareness.
Look-up

After galley proofs have been O.K.'d the form is ready to be looked up for the press. Place the galley on the stone, slide the form near the open end, and pull the galley from under it. Place the head of the form to your left. Take pieces of furniture somewhat longer than each dimension of the form, allowing them to run flush with the form on one side and extend beyond it on the other. By this method the form is completely enclosed on all four sides. Place a chase around the work already done so that the form stands near the center. Continue to add furniture on the left and bottom until the chase is filled on these two sides. Untie the form. Fill the remaining two sides with furniture leaving sufficient space for a quoin on each side.

Place a piece of furniture between the quoins and the chase so that metal does not touch metal. Pieces of reglet are often placed on each side of the quoins to prevent damage to the furniture. Set the point of the inside quoin on each side, in the direction of the solid side, that is, in the direction opposite the other quoin. Tighten the quoins with the fingers, place a planer on the surface of the type and tap lightly with a mallet. With a quoin key, tighten the quoins through two or three quarter turns. Do not use unnecessary force. Lift the chase slightly and try to push the type down with the fingers. If none can be pushed down, it shows that the form has been properly justified; if some letters can be pushed down, the lines in which they occur must be rejustified. To do this, it is necessary to unlock. Make the adjustment, plane, and look again. Never plane a form after it is locked. This results in driving any
high material into the planer, damaging the letters and also the planer.

Make-ready

The form is now ready to be placed on the press. If the press requires inking, take a small quantity of ink and place it on the center of the plate. The beginner will have a tendency to use too much ink. Use only a small amount and remember it is easier to add more than it is to take off any. Turn on the power and allow the ink to become thoroughly distributed. If ink has to be added during the run, place it on the lower left hand side of the plate just outside the line of the type.

With the rollers as far down as they will go, and with the student standing in front of the press, set the chase on the lugs at the bottom side of the bed. Raise the clamp at the top of the bed, place the chase solidly against the bed and release the clamp.

Use the press wrench to remove the gripper fingers out of the line of the type. Never fail to do this. Failure inevitably means that the type will be smashed and damage to the press may result. With the fingers or press wrench, lift the tympan bales. Take one or two sheets of manila somewhat larger than the form and clamp under the lower bale. If only one sheet is used, double the part under the bale to prevent slipping. Place a piece of pressboard on the platen, draw the manila tightly over it and clamp down the top bale. It is highly essential that the top sheet be drawn tight and that there be no wrinkles. Do not overpack the platen. More sheets can easily be added if the impression is light, while too much packing results in damaged type and makes it necessary to build up a new tympan.

Pull back the throw-off lever and turn the press by hand until
the type and top sheet almost meet. Look down between the bed and platen to see that there is nothing there to damage the type. Continue turning the fly wheel until the print has been made and the press is in its resting position. If more impression is required lift the top bale and insert a sheet of "hard" paper such as, S.&S.C., under the pressboard. Take a sheet of the stock to be printed and by placing it above the print on the top sheet, draw a pencil line below and to the left as a location for the guides. The right bottom guide should be set near the margin of the sheet. The left bottom guide should be located so that there will be the least danger of missing it with a sheet of stock while feeding, usually about an inch from the left margin. The side guide also should be set to be most convenient to the feeder, generally a little less than half the length of the sheet on that side.

The gripper may now be set. Usually, the right one is sufficient. Move the gripper over and pull it down so that it misses the right side of the form, as shown by the print, by a few points—the margin of safety. Be sure to tighten the nut. See that the left gripper does not strike the side guide. Set a sheet of the stock to be printed on the guides and allow the press to turn over. Take the printed sheet, hold opposite corners together, allowing the light to shine through and check for register. If corresponding parts of the print do not coincide, change the guides in the direction needed to make them do so, print another sheet, and again check. Make adjustments with the guides until perfect register is obtained. The same process applies to both dimensions but it should be remembered that all forms should be spaced slightly above the geometric center of the page.
For large forms, a complicated system of evening all of their parts is necessary. It involves principally the making of overlays which can be done skillfully only by experts. The instructor should explain the process and give the student as much practice as is possible in this important field.

The Press

A few, but highly important rules, must be observed if the press is to give the kind of service expected of it.

1. Oil the press each morning.

2. Be sure the rollers never rest on the type or plate. They should always be at the bottom of their track when the press is not running.

3. Give the fly wheel a start before turning on the power.


5. Wash the press each evening, or better still, place light oil on the plate and run the rollers over it several times in the same manner as ink is distributed, then wash the press in the usual way the next morning.

6. Use a fresh top sheet for each job.

7. Equip the press with adjustable gudgeons to insure just the right "bearing" on the form and to decrease noise.
Type Pages and Paper Pages

The space occupied by the type on a page and the white space should be the same. The mathematical relationship often used is that the width of the type page should be half the length of the paper page and the length of the type page should equal the width of the paper page. In determining the four margins on the page, multiply the difference between the length and width of the type page by three-eights, for the inside margin and five-eights for the outside margin. One-half of this difference may be allowed for the head margin and the remainder for the foot margin.

Holding the Printed Sheet on the Tympan

Under ordinary conditions properly-set grippers will keep the sheet from adhering to the type after it is printed, but occasionally a special and difficult problem arises. Sometimes a piece of string stretched tightly between the grippers will pull the sheet off the type. Extensions made of brass that fit over the grippers are also available and may be purchased from printers' supply houses. As a last resort a frisket may be made. A piece of manila paper somewhat larger than the form is glued to each gripper and pulled tight. An impression is taken on the manila and all the printing cut away. The type will then print through these holes and the paper will pull off the type the most unruly sheets.

Parts of a Piece of Type

The various parts of a piece of type have all been named. The shoulder is that which extends beyond the base of the letter, the
Heavy elements are the thick lines as the two lines forming the angle of the letter "A"; the light elements are the lighter strokes as the cross line in the letter "A"; the letter rests on two bases called the feet between which is the groove; the sunken space between elements is the counter; the light strokes at the extremities of the elements are serifs; the deep groove on the body of the letter is the nick; that part of the letter which extends from the body to the face is the neck or beard.

The stems on such letters as "b" and "p" are called ascenders or descenders, the former extending upward, the latter downward.

**Type Faces**

There is an almost unlimited number of type faces, but a careful analysis will show that all of these may be grouped into only a few classes. The Roman group contains by far the greatest number of members. These are characterized by their light and heavy elements with serifs at the extremities of the latter.

Modern type faces give the impression of positiveness and stability through their regularity and uniformity. The serifs are thin and straight and the light elements strongly contrasted with the heavy ones.

The oldstyle faces are those which resemble in fundamental particulars the types of the early printers. Uniformity of elements and angular serifs characterize this class. The reaction to the reader is grace, beauty, and friendliness.
Printers' Inks

Inks are made in various grades, colors and textures to meet the almost unlimited demands of modern press rooms. An ink adapted to the platen press will not give satisfactory results on cylinder presses. Inks made to be absorbed by the stock cannot be used on coated papers. Halftone inks fail to produce good results with shaded type faces. The subject of inks is so broad that a full treatment would require a volume of considerable size. Ink manufacturing concerns are always willing to study the printer's ink problems and offer helpful advice. It is suggested that young printers take full advantage of this service which is so graciously offered and which has proved so helpful to older printers for a long time.
LESSON 1

Instructions and procedure. Take a position before the center division of the lower case side of the case. Procure a stick and three or four 13-em leads. Set the stick at 13 picaa and place one of the leads inside it. Grasp the stick in the left hand and place the end closest to the body somewhat lower than the opposite end. Allow the thumb to rest inside the stick. Do not allow the left hand and arm to become tense—be comfortable. It is assumed that the student has read the preliminary matter in this book, or that the instructor has taught him how to recognize some of the tricky letters such as b, p, d, q, o, 0, 0, 1 and I.

Take a letter "a", drop it, nick up, in the lower left-hand corner of the stick, and immediately place the thumb on it to hold it in position. Repeat the process until a full line of a's has been set, removing the left thumb each time to allow the insertion of another letter. When no more letters will be contained in the line, take three or four of them between the thumb and first finger of the right hand and drop them back, one at a time, and feet first into the box from which they were taken. In like manner, set up and throw back one line of each of the following. Call the attention of the instructor to each line when it is completed.

```
a a a a a a a 
c c c c c c c 
e e e e e e e 
h h h h h h h 
o o o o o o o 
m m m m m m m 
i i i i i i i 
t t t t t t t 
s s s s s s s 
r r r r r r r 
```
LESSON 2

Instructions and procedure. Use extreme care in setting up this lesson. Apply the test suggested in the introduction of this book, or some other given by the instructor, before setting each line. Drop a 3-em space between each of the letters in the line.

```
  b  b  b  b  b  b  b  b  b  
  u  u  u  u  u  u  u  u  u  
  q  q  q  q  q  q  q  q  q  
  l  l  l  l  l  l  l  l  l  
  n  n  n  n  n  n  n  n  n  
  o  o  o  o  o  o  o  o  o  
  d  d  d  d  d  d  d  d  d  
  l  l  l  l  l  l  l  l  l  
  p  p  p  p  p  p  p  p  p  
  o  o  o  o  o  o  o  o  o  
  0  0  0  0  0  0  0  0  0  
```
LESSON 3

Instructions and procedure. Set and throw in the following, placing a 4-em space between the letters.

\[
\begin{array}{cccccccc}
 v & v & v & v & v & v & v & v \\
v & y & y & y & y & y & y & y \\
g & g & g & g & g & g & g & g \\
w & w & w & w & w & w & w & w \\
z & z & z & z & z & z & z & z \\
f & f & f & f & f & f & f & f \\
x & x & x & x & x & x & x & x \\
\end{array}
\]
LESSON 4

Instructions and procedure. On the capital side of the case, the letters run in alphabetical order with the exceptions noted in the preliminary discussion. Set up a few letters from each box, placing an en-quad between each. Learn the position of the capital letters in the case, both down and across; that is, A, B, C, D, E, F, and G; and A, H, P, and X. Do this for each row of boxes.

A    A    A    B    B    B
C    C    C    D    D    D    E    E
F    F    G    G    G    H    H    I    I
K    K    L    L    L    M    M    M    N    N    N    N    O    O    O
P    P    P    Q    Q    R    R    R    S    S    S    T    T    T
V    V    V    W    W    W    X    X    Y    Y    Y    Z    Z    J    J    N    N
A    H    P    X    B    1    2    Y    C    K    R    Z    D    L    S    J
E    M    T    U    ,    F    N    V    ,    G    O    W    2    ;    .    :    !    ?
LESSON 5

Instructions and procedure. Set the stick at 15 picas. Drop an em quad for paragraph indentation. Reasonably short measures require this space for the paragraph indentation; longer measures and smaller type may require more.

Drop a 3-em space between the words. The first sentence will not make a full line. Use the largest quads to finish the line and if it is not tight in the stick, place smaller spaces next to the period and not at the end of the line. This process of tightening the line in the stick is called justification. The line should be barely tight enough that the letters will not fall over when the stick is tilted. The second line will be set in the same manner as the first. The third paragraph will make more than one line. Set as much of it as the stick will hold to the end of a given word or syllable. There probably will be some space at the end. The line is now ready to be justified, so proceed to remove the 3-em spaces and replace with larger ones or use combinations of spaces between all the words until it is sufficiently tight. The beginner will do well to use the mathematical system already described, but after a time, he will be able to estimate the additional space required between words with considerable accuracy and will not be forced to rely entirely on the trial-and-error method.

If the last word of the line consists of more than one syllable, it may be divided by placing a hyphen after the last syllable that the line will contain and setting the rest of the word on the following line. Good typography discourages the use of hyphens
in more than two consecutive lines and the division of either member of a hyphenated word is never permitted.

In straight composition, there should be no space on the end of any line except the end of the paragraph. If at least an em quad can be used at the end of a paragraph, it is permissible; otherwise, the space should be placed between the words and the line made a full one.

Type should be read in the stick and all errors corrected before it is dumped onto the galley. The line in which an error occurs should be raised slightly higher than the others in the stick by placing two fingers at the ends of the line and gradually working it up. The wrong letter should be removed and the correct one inserted in its place, respacing the line if there is a difference in the thickness of the two letters.

The composed type is now ready to be dumped onto the galley and a proof taken in the manner described in the preliminary instructions.

Tie up this form, take a proof, and submit both form and proof to the instructor, who will indicate corrections or mark O.K. All following work must be approved by the instructor.

Type is made of metal.

It is an alloy of lead, antimony, and tin.

Because the metal is soft, type must be carefully handled.
LESSON 6

Instructions and procedure. Set the stick at 13 picas. The columns of words should be in line on the left hand side and the last letter of the longest word should be spaced flush with the stick on the right hand side. The instructor should carefully examine the type form and the proof in this lesson. It is intended to be a test of ingenuity and may prove helpful to both student and teacher.

<table>
<thead>
<tr>
<th>no</th>
<th>no</th>
<th>no</th>
<th>no</th>
</tr>
</thead>
<tbody>
<tr>
<td>yet</td>
<td>yet</td>
<td>yet</td>
<td>yet</td>
</tr>
<tr>
<td>aisle</td>
<td>aisle</td>
<td>aisle</td>
<td>aisle</td>
</tr>
<tr>
<td>went</td>
<td>went</td>
<td>went</td>
<td>went</td>
</tr>
<tr>
<td>ring</td>
<td>ring</td>
<td>ring</td>
<td>ring</td>
</tr>
<tr>
<td>hover</td>
<td>hover</td>
<td>hover</td>
<td>hover</td>
</tr>
<tr>
<td>thank</td>
<td>thank</td>
<td>thank</td>
<td>thank</td>
</tr>
</tbody>
</table>
LESSON 7

Instructions and procedure. The heading of this lesson is centered on the measure of the stick. There must be the same amount of spacing material on each side of the word and the line properly justified. Set the heading in caps of the size of the type being used and drop a slug between it and the body.

The normal space between sentences in the same paragraph is the en-quad; however, in a wide-spaced line, it may be increased to an em-quad, but never greater. The spacing following the colon and semi-colon is the same as between all the words of the line.

Set the stick at 14 picas.

PRINTING

Educated men always have regarded the invention of printing as a matter of the greatest importance. Although the origin of the first printed books and the lives of the earliest printers are shrouded in obscurity, modern civilization is eager to accord proper recognition to these men and their work. There is no mechanical art, nor are there any of the fine arts, about whose early history so many books have been written. Young printers should not hesitate to enter upon a trade with such a historic background and such rich traditions.
LESSON 8

Instructions and procedure. The normal space for words set in capitals is the en-quad. Double quotation marks are made by turning two commas nick-down for the beginning of the quotation and two apostrophes nick-up for the end. For a quotation within a quotation, use single marks set off from the double marks by a thin space. When a quotation runs through several paragraphs, repeat the marks at the beginning of each paragraph, and close only at the end of the last paragraph. An unusual or technical word should be enclosed in quotation marks. In aligning two or more lines, one of which has quotation marks, the marks should be set "in the clear" or outside the line of alignment. Do not place quotation marks before an initial letter.

Most fonts or cases of type contain a few characters consisting of two letters cast on the same body as "fi", "fl," etc., called ligatures. The student should become familiar with the ligatures in his case at this point and be responsible for their use in all the following lessons.

Set 15 picas.

Setting Type

Any good compositor will read his copy carefully to get its meaning before putting it into type. He probably can memorize six or eight words or more, depending on the nature of the copy. Place the first letter in the stick in the proper manner and while this is being done, "spot" the next letter to be used. It is important in acquiring speed to select the letter in the case that can be placed in the stick with the fewest turnings. No time should
be lost in looking at the letter after it has been picked up.

With practice, the compositor will be able to tell by the "feel,"
certain pieces of type of different thicknesses.
LESSON 9

Instructions and procedure. At the present time there are several prepared type washes on the market that are very effective, but because they are expensive most printers continue to use benzine, the standard type wash for many years. Commercial gasoline should not be used because of the oil it contains which makes the letters difficult to handle and "kills" the ink when the form is put on the press unless great care is exercised in wiping the type perfectly dry. A weak solution of lye water makes a good type wash, but care must be used to prevent its coming in contact with any wood. The type must be thoroughly rinsed with clear water after being washed with lye. The solution is most effective when a heaping tablespoon to the gallon of water is used.

Type Cleaning

The beginning printer should understand how and why type must be thoroughly cleaned before being thrown back into the case. If ink dries on the type, it is impossible to get the sharp, clear effect, so essential to good printing. Rather there is a blur, the letters run into each other, and many of them like the "e" and the "a" fill up. Failure to remove all of the ink will cause the type to stick together when being thrown back into the case.

Take a clean wiping rag, place a small amount of benzine on it, and rub it lightly over the type surface. Too little benzine will fail to clean and too much will dissolve the ink and allow it to run down between the letters. A little practice will show just how much to use. It is a good practice to take a clean rag and rub the face of the type perfectly dry after it has been washed.
LESSON 10

Instructions and procedure. Although not considered essential to the technique of the trade, a knowledge of the origins and history of printing is considered highly important. Students should be encouraged to read the history of printing and be given occasional definite assignments for class reports.

Set the stick at 18 picas.

The Origin of Printing

The early development of printing is still mysterious to us of today. "There are records and traditions which cannot be reconciled of at least three distinct inventions of printing," states Theo. L. DeVinne.

The Germans insist that Gutenberg was the first to invent printing: while the Dutch insist that Coster was the first, and that Gutenberg stole the invention from him.

The early chronicles of printing were written in a dead language. Latin was used in the valuable works of Meerman, Mattaire, and Schoepflin. These were written for the information of librarians, and are of little interest to printers. Furthermore, our largest libraries do not have translations that are complete enough for us to be able to interpret exactly. The mechanical features of typography were apparently neglected, as of little importance and beneath the dignity of history.

Two of the first men to try to trace back the origin of printing were August Bernard and Dr. A. Van DerLinde.
LESSON 11

Instructions and procedure. A comparison of the excellence and cheapness of printing today with the slow and laborious hand copying of the Middle Ages, is really the history of education.

Set the stick at 13 picas.

Education by Printing

When the priests of old took upon themselves the task of copying by hand the worthy literature of the world, they had an immense job. Much credit is due them for preserving many of the gems of thought of the ancient world and the history of antiquity. Without their patient labor, much of this would have been lost during the troublous times of the Middle Ages. Their work was reasonably accurate and much of it was highly artistic. Some of the illuminated pages produced by these patient monks have been studied by printers for many years. Although styles in printing change and these pages are hardly adapted to modern usages, still in several fundamental particulars, there are valuable lessons in harmony, proportion, and balance that can be used by printers today.

Because of the need of a quicker and more economical process of producing books, a simple form of printing from movable types was worked out. Great progress through development and invention has been made until today the printing industry is one of the largest and most highly skilled of the trades and professions.

Modern composing machines are capable of producing amounts of composed material undreamed of a few years ago and modern presses run at almost incredible speed. A visit to an up-to-date newspaper or job plant will be intensely interesting and highly instructive.
LESSON 12

Instructions and procedure. The beginning printer should become familiar with the names and lives of some of the great men in his chosen trade. So far as library facilities will permit, assignments by the teacher should be made from time to time on the lives and work of outstanding printers.

Set the stick at 15 picas.

Bradley as a Printer

Will Bradley, who has been a vital force in the field of typography within the last few years, gained his prominence about 1891 because of his originality shown in poster designing. He became quite interested in typography and was, for a short time, apprentice, journeyman, and foreman in a small country printing office.

In 1896 he opened an office of his own in Springfield, Massachusetts where he began his career as a designer. His type faces were a combination of Jenson and Caslon types. Although he used a very simple type face, his pages were very highly decorated with original designs.

In 1905 Mr. Bradley made a connection with the American Type Founders Company and after a short time attempted to introduce a new style of typography, especially characterized by its marks of original genius and peculiar ideas. Mr. Bradley pushed ornamentation to the verge of excess and originality to the verge of extravagance, while Mr. DeVinne, another great artist and typographer and a contemporary, represented the very simplest forms of typography.
LESSON 14

Instructions and procedure. Set the stick at 18 picas.

The Invention of the Linotype

Because of the great progress made in printing and improved presses, the printers of the early nineteenth century felt the need of more speed in setting type. No improvement had been made in methods of composition for 350 years and all type was still set by hand.

Some attempts had been made to construct a machine that would pick up type, but they were for the most part unsuccessful. Finally, three machines, the Rogers, the Thorne and the Simplex were put on the market, but they were more interesting than practical and never came into wide-spread use.

The first commercially successful machine was the linotype, a combination type composing and casting machine. It was invented by Ottmar Mergenthaler, a German electrical mechanic, who had come to the United States in 1872.

The first machine was set up in the New York Tribune. The editor of that paper named it the linotype, which name is still applied to the machine. Many improvements have been made since its invention, but the fundamental principles still remain. Today, the linotype, or a similar machine, is an indispensable piece of equipment around any up-to-date print shop.

The Mergenthaler Linotype Co. is still in operation and is one of the largest plants of its kind.
LESSON 15

Instructions and procedure. The instructor should demonstrate the sizes and use of metal furniture. He should also demonstrate the metal saw or mitering machine. Let the student take three or four linotype border slugs, cut two of them 13 picas and the other two 17 picas over all. Then using the metal furniture to blank out, construct a panel with the border, tie up, and take proof. This form should be made up on a galley and not in the stick. Pay particular attention to the fit of the border at the corners. If the border is marked off with designs in any way, make sure before mitering that these marks will be equally spaced.
LESSON 16

Instructions and procedure. In most school shops, brass rule is contained in cases with compartments on the left side for the rule from 1 to 36 by whole picas. On the right of the case are compartments for rule from 1½ to 9½ picas by picas. Take two pieces of side face, one point rule (two points thick). The faces of the top and bottom rules should be turned in and the faces of the side rules should be turned out. Blank out with metal furniture and leads, making sure that the corners fit perfectly and that there is no bow in the rule when you lift it. Tie up and take proof.
LESSON 17

Instructions and procedure. The story of printing, forms not only an interesting, but a very important page in the world's history. The ancient Egyptians, Assyrians, Babylonians, Persians, Chinese, Greeks and Romans all tried in their crude way to record their thoughts in permanent form, that later generations might have the advantage of their discoveries. The Chinese probably made most progress, but owing to the fact that these people were so self-centered and guarded their discoveries so jealously, the western world knew little of what was taking place.

Set the stick at 15 picas.

Printing in Ancient China

The Chinese methods of printing were practiced at a very ancient date. As early as 50 B.C., the Chinese had originated a method of printing on paper by means of engraved blocks, although it was not until nearly 100 years later that printing in this manner was extensively practiced.

In 925 A.D., the principal Chinese classics were printed for the Imperial College of Peking from blocks of wood engraved in relief. By this process, a separate engraved block had to be prepared for each printed sheet or page.

The Chinese are also credited with having used movable type as early as the twelfth and thirteenth centuries, and such types are now extensively used by the European missions in China for printing Chinese books and papers. The chief difficulty in using movable types for printing Chinese is due to the fact that each Chinese word requires a separate character instead, as in the European languages, of being composed of characters which are resolvable into an alphabet.
LESSON 18

Instructions and procedure. There is much controversy over who invented movable type. The question may never be settled owing to a lack of authoritative records, but among printers and historians generally, the honor is bestowed on Johannes Gutenberg. A study of the biography of Gutenberg and a history of the times in which he lived will be interesting and profitable to the student of printing.

Set the stick at 13 picas.

Johannes Gutenberg

Johannes Gutenberg was born in Mainz, Germany about 1400. He became a teacher of stone cutting, mirror polishing and similar arts in Strassburg and was well known as a man of considerable mechanical skill. When he began his experiments in the art of printing is not known, but in 1449 or 1450, he set up a shop in his native city of Mainz. His partner was Johannes Frist, a wealthy goldsmith, who seems to have furnished the capital for the enterprise. After a few years, the partnership was dissolved and in a lawsuit to recover the sums he had advanced, Frist came into possession of the shop which was then operated by Peter Schaffer of Gernsheim. Gutenberg, with the assistance of Dr. Homery, later set up another press with considerable financial success to the partners. To Gutenberg is usually ascribed the honor of being the first to print from movable type. He died in Mainz, February 24, 1468.
LESSON 19

Instructions and procedure. Not many years ago, the various sizes of type were indicated by name. Lack of uniformity in type sizes of the same name and the need for a simplification of the whole system led to the adoption of the point system. Two of these names are still used extensively by printers, namely, nonpareil and pica.

In setting this lesson on 12 picas, begin at the right of the line with the words "6 point." Since there are some one and some two digit numbers, place an en-quad before the one digit numbers to make all of them equal. Next drop an em-quad, then a period, another em-quad and another period until the line will just about contain the word "nonpareil." Then justify between the last letter of the word and the first period. In like manner, proceed with the other words and figures. All the dots or leaders will then be in line.

<table>
<thead>
<tr>
<th>Nonpareil</th>
<th>6 point</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minion</td>
<td>7 point</td>
</tr>
<tr>
<td>Brevier</td>
<td>8 point</td>
</tr>
<tr>
<td>Bourgeois</td>
<td>9 point</td>
</tr>
<tr>
<td>Long Primer</td>
<td>10 point</td>
</tr>
<tr>
<td>Small Pica</td>
<td>11 point</td>
</tr>
<tr>
<td>Pica</td>
<td>12 point</td>
</tr>
</tbody>
</table>
LESSON 20

Instructions and procedure. The printers' unit of measure is called the point which is roughly the dot made by placing a pencil on paper. But this unit is usually too small for practical purposes. Twelve of these dots placed side by side are called a pica and this unit is most often used in measuring type matter. Sometimes it is convenient to reduce points or picas to inches or vice versa. This is easily done by simple arithmetic. The square or em of 12 point type is one pica.

Set the stick at 12 picas.

The Point System

The point system is the universal standard of measurement of all composed material throughout America and a number of other countries. The unit of the point system is the point, which is about one seventy-second of an inch. One inch is divided into six equal parts called picas, and these in turn into two parts called nonpareils. The standard of printers' measurement is therefore as follows:

6 points -- 1 nonpareil
2 nonpareils -- 1 pica
6 picas -- 1 inch
72 points -- 1 inch
LESSON 21

Instructions and procedure. Some of the most important rules for capitalization as applied to printing are given here. The list should be supplemented by references to late editions of books dealing with the subject. 1. Capitalize all proper nouns, but words derived from proper nouns and used in a special sense should begin with a lower case letter; e.g. Pasteur; pasteurize.

2. Capitalize the following: Divine names, titles of respect, office and position, days of the week, the months, holidays, titles of high rank: e.g. Jesus, Mr. Smith, Admiral Dewey, the President of Indiana University, The Governor, Monday, June, Christmas Day.

3. Capitalize the first word of a sentence and the first word of each line of poetry. 4. The words "I" and "O" should always be capitalized; the exclamatory "oh" should be capitalized only when standing alone or as the first word of a sentence. 5. In direct discourse, the first word of the quotation is capitalized, but the first word of an indirect quotation should begin with a lower case letter. 6. Abbreviations for college degrees should be capitalized and set without spaces; e.g. A.B., Ph.D.

Set the stick at 13 picas and set in two columns in corrected form, the following:

<table>
<thead>
<tr>
<th>God</th>
<th>Clover leaf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fig. 2</td>
<td>Lookout mountain</td>
</tr>
<tr>
<td>Proper name</td>
<td>Liberal party</td>
</tr>
<tr>
<td>World War</td>
<td>Centigrade</td>
</tr>
<tr>
<td>Wabash Ave.</td>
<td>Me</td>
</tr>
<tr>
<td>Peace Treaty</td>
<td>Negroes</td>
</tr>
<tr>
<td>Southern Continent</td>
<td>Master of arts</td>
</tr>
<tr>
<td>The Far West</td>
<td>The Bible</td>
</tr>
<tr>
<td>Communism</td>
<td>President Hoover</td>
</tr>
<tr>
<td>Deming Park</td>
<td>Treaty of Paris</td>
</tr>
</tbody>
</table>
LESSON 22

Instructions and procedure. Small capitals are not very extensively used, but in a few places custom demands that nothing else may take their place. The names of newspapers and magazines are set in capitals and small capitals. In letters, the date line, the salutation, the signature and the writer's address are set in capitals and small capitals. The same rule applies to chapter headings, the first word of a chapter, and occasionally words within a paragraph that deserve special stress and for some reason are not to be printed in italic. The words "Whereas," "Section," and "Note" are usually printed in caps and small caps. The name of the author following a quotation should be similarly printed.

In case there is no figure number, the description of a cut or legend may be set in caps and small caps or all small caps. If there is a figure number, it is set in caps and small caps and the legend in lower case.

Ellipses are made with four periods, separated by em quads. Set the stick at 18 picas.

So, like a shattered column, lay the king.--Tennyson

Section 1. This association shall be called . . . .

Dear Mr. Jones: In reply to your letter . . . .

Note--In a recent conversation with the author he stated that pluck and perseverance were largely responsible for his success.--The Editor.

Whereas, In this year of our Lord . . . .
A section of the main dining room.

The Campus Sycamore which has seen generations of students come and go and which will welcome the grandchildren of the class of 1931.

Fig. 10—These two machines recently have been added.
Instructions and procedure. In the troublesome subject of word division there is one standard authority—the dictionary. But even the information obtained from the dictionary may be misleading. For example, it is a universal rule that a one-letter syllable shall not stand alone on a line as _a-part, i-on, e-nough, i-tem_, etc.

The larger publishing concerns have their own style sheets which vary considerably, but there are a few general rules that will be helpful to the young compositor. In this country, words are divided between syllables or as they are pronounced—and in no other way. Not more than two consecutive lines should end with a hyphen. Division of hyphenated compounds should be avoided, e.g., _word-com-pounding; object-les-son_. Words of two syllables pronounced as one should not be divided, e.g., _often, dreamed, water_. Avoid dividing the initials of a name, the last word of a paragraph, a number, or an abbreviation. If the pronunciation will allow, divide between two consonants that stand between two vowels.

Set the following words in two columns on a 15-pica measure and place a hyphen where the words can be divided if they can be divided at all.

- through
- passing
- digestible
- incumbrance
- children
- money
- separate
- horses
- engine
- pasture

- physical
- judgment
- envelope
- unbeatable
- procrastinate
- aided
- partial
- entertaining
- precious
- session
LESSON 24

Instructions and procedure. In the lead and slug cases used in the average school shop, the measures do not run above 25 picas. Brass rule is usually limited to 36 picas. When setting longer measures or because of lack of material, it is often necessary to piece leads, slugs and brass rule. If the measure is 17 picas and it is convenient to use 10-em and 7-em pieces, the joints should be broken, that is, place a 10-em piece before the 7-em piece on one line and reverse the position of the pieces on the next line. Do this on alternate lines throughout the composition. The following will illustrate the process.

```

```

Set the stick at 17 picas and with 10-em and 7-em leads set the following.

**Training for Citizenship**

One of the most important services performed for the community by the home is that of training its members for citizenship. The family has been called "a school of all the virtues" that go to make good citizenship. It is a school in which not only the children, but also the parents; not only the men and boys; but also the women and girls, receive training by practice. If the qualities of good citizenship are not cultivated in the home, it is not in a healthful condition, nor performing the proper service to the community.
LESSON 25

Instructions and procedure. With a few exceptions, no abbreviations are used in composition of a formal nature, for example, Mr., Mrs., Jr., Sr., Dr., Rev., Hon., and St. For ordinary composition, a few rules should be thoroughly learned. Numbers of less than three digits should be spelled out unless the page contains several numbers, in which case, Arabic numerals may be used, e.g., five dollars; fourteen pages. In a series of numbers, if one number contains three digits, do not disturb uniformity, e.g., 5, 14, 117. Use the ampersand or short "and" with Co. to designate business organizations or firms when personal names are used, e.g., John W. Thame & Co.; Henry Huet & Co. Never begin a sentence with a figure—spell out the number, e.g., Two thousand years ago . . . . Noughts should be used with numbers from one to ten to designate sums of money, e.g., $3.00; $9.00; $12. Number approximations should be spelled out, e.g., about twelve hundred people.

In the following list (a) set the items in corrected form and in list (b) supply the correct abbreviations.

(a)

tables & chairs
4 years old
Professor L. D. King
Reverend M. L. Porter
George W. Alter

Indiana R. R. Co.
Mister Otho van Slyke
Mowery Brothers
Fort Harrison
8 o'clock A. M.

(b)

abbreviation
parenthesis
Doctor of Philosophy
honorable
compare

boulevard
manuscript
railway
Limited
volume
LESSON 26

Instructions and procedure. Quotation marks, commonly called *quotes* by printers, are formed by turning two commas nick down for the beginning of the quotation and two apostrophes, nick up, for the close. Periods and commas should always be placed inside the quotes; the other marks should be placed according to the meaning of the text.

In a quotation that runs through several paragraphs, quotes are used at the beginning of each paragraph, but not closed till the end of the last paragraph.

Set the following on eighteen ems measure.

Instructor: "How many points are there to the pica?"
Student: "There are twelve points to the pica."

Instructor: "State the number of picas to the inch."
Student: "There are six picas to the inch."

Instructor: "How is the number of points to the inch found?"
Student: "The number of points to the inch is the product of six and twelve which is seventy-two."

Instructor: "If a line is set twenty picas in ten point type, how many ems will it contain?"
Student: "It will contain twenty-four ten point ems; twenty picas equal two hundred forty points and the quotient of this number divided by ten, the size of the type, is twenty-four."
Instructions and procedure. A review of the uses of punctuation marks should accompany this lesson, using an up-to-date authority on the subject. A few rules of special interest to printers are given here. Omit periods after display lines, roman numerals, the term "per cent," and chemical symbols. Brackets are used for parenthetical expressions within a parenthesis. Use the dash with a period and no other punctuation. Indicate differences in time by means of dashes; if the elements are short, e.g., 13-50, use the en-dash; if rather long, use the em-dash. Numerals, a series of initials in an abbreviation, and single letters form their plurals by adding the apostrophe and s.

Set the following on a measure of twelve picas.

**Punctuation Marks**

Punctuation marks are used to show inflection of voice in reading and to separate parts of phrases, clauses, or sentences, in order to make the meaning clear. The modern trend is to omit all punctuation that is not absolutely necessary to make the author's thoughts understood. The punctuation marks, or points, as they are called by printers, are: (.) Period, (,) Comma, (-) Hyphen, (: ) Colon, (;) Semi-colon, (') Apostrophe, (!) Exclamation Mark, and (?) Interrogation Point.

The spacing after the punctuation mark is the usual space or less. For example, in all classes of composition, if the 3-em space is used, it is best to decrease the space after the punctuation mark before decreasing it at other places.
LESSON 28

Instructions and procedure. There are various faces of brass rule and cases for holding it. Probably the quarter-size rule case is most practical for the average school shop. Each shop should have at least three faces of rule: the hair-line center-face, the one-point side-face, and the two-point full-face. In using the one-point and two-point rules, the corners may be butted, but on account of the bevel on each side of the hair-line, mitered corners are necessary in order to make perfect joints. Both right and left miters are necessary and eight are required for each panel. The type and rule should harmonize, that is, a light face rule should not be used with a heavy face type and vice versa. When brass rule is used with type, both should be in perfect alignment, the rule being neither higher nor lower than the bottom of the type. Often beveled rule without a lead is placed under the type for the full measure. Sometimes leaders are substituted for brass rule which saves considerable time, but the effect is not so pleasing.

Set the following on a measure of twenty picas.

(a)

Indiana State Teachers College

This certifies that ____________________________ has paid the sum of _______dollars in full payment of fees for the ______quarter.

____________________Controller
<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street</td>
<td>Telephone</td>
</tr>
<tr>
<td>Parent's Name</td>
<td>Occupation</td>
</tr>
<tr>
<td>Principal's Remarks</td>
<td></td>
</tr>
</tbody>
</table>
LESSON 29

Instructions and procedure. The instrument used in measuring printer's material is called the line gauge. This is made of wood or metal, marked or scratched to measure picas and half picas, the long marks designating picas and the shorter ones half picas. The gauge is usually twelve inches or seventy-two picas long. In the following exercise, by laying the line gauge along the top rule, it is found to be thirteen picas. Set the stick at this measure and place the rule in it. The side rules measure one and one-half picas, or the thickness of three slugs. Place the side rules in the stick in proper position and lay three twelve pica slugs between them. There are now twelve picas and four points or eight points short of thirteen picas. By adding four leads cut to eighteen points measure, the line will be perfectly justified. The space between the next two horizontal rules and the measure of the vertical rules is one pica. From either of the rules to the outside edge of the form is six picas. Place the two six pica slugs at opposite ends of the stick, add the rules and justify with twelve point spaces. In like manner, measure the other parts of the copy and construct a form exactly like the one given here.
LESSON 30

Instructions and procedure. Construct the two rule forms according to the instructions given in Lesson 29. The instructor should supply twelve point spaces of various thicknesses and the student should justify unfilled spaces, which are one pica wide, with these in the same manner as a line of type.

(a)

(b)
LESSON 31

Instructions and procedure. In this lesson, set the stick at thirteen picas. The type is composed in the usual manner. Place at least six points at the top of the form and a few points more at the bottom, especially if the last line is a full one. Measure the length of the form with a line gauge. Lay a slug equal to this length along each side and cut the linotype border, mitering the pieces on the saw or mitering machine one pica over all longer each way than the form. Be sure to cut the miters opposite each other and not parallel. To do this turn the slug on its face to cut the miter on one end and on its feet for the opposite end. Place the border around the type and tie up. Add leads if necessary to make the form fit snugly inside the border.

Early Printing

When the people of today look at the older magazines or periodicals, they little realize how much tedious work went into those printed materials. The earlier printers had to set all of the type by hand and then run their crude presses by hand. But their work had just begun then, for they had to wash all the type, throw it back into the cases, clean up their shops, and be ready for their next run.

The demand for quicker and better methods than these was the cause for the invention of the linotype and improved presses.
LESSON 32

Instructions and procedure. Set the stick at thirteen picas. The same instructions apply here as in Lesson 31. This lesson is inserted to give more practice in this type of composition and may be omitted if time is limited.

Block Printing

During the Middle Ages, when all the writing, transcribing, illuminating, etc., principally done by monks, had reached its period of greatest development, the art of printing from wooden blocks on silk, cloth, vellum, and paper made its appearance in Europe. This process seems to have been practiced, so far as we have evidence, on cloth and vellum as early as the twelfth century, and on paper as far back as the second half of the fourteenth century. It was largely employed in the early part of the fifteenth century in the production of separate leaves or a piece of text or both together. Whole blocks were used in the making of books, sometimes consisting of half picture and half text, wholly of text or altogether of picture.
Instructions and procedure. In using an initial letter, care must be exercised to make it harmonize with the text. A good rule is to use an initial of the same series as the type of the body. When using the letters "W," "T," "V," or "P" the type may be set flush against the letters. Sometimes in using "A" or "L" it is necessary to mortise the letter to partially close the wide natural gap between the initial and the first letter of the word. The space at the side and bottom should be the same. In order to simplify spacing, an initial "O" is often inverted. The first word after the initial is capitalized, unless it is the name of a person, firm, etc., in which case the whole expression is set in capitals.

Set the stick at fifteen picas.

The leading objects of the compositor should be expedition, correctness, and in the artistic branches of the business, a manifestation of good taste. None of these objects can be attained if the compositor is not endowed with a fair degree of intelligence, all the general knowledge he can acquire will help to guard against errors and also promote speed.

The compositor is often required to change orthography, punctuation, and capitalization. He must avoid taking liberties with the copy and only when the error is very evident, should he make any corrections. It should be his first duty to cultivate his intellect and memory in the observation of differences in little things. The smallest detail is always worthy of serious consideration.
LESSON 34

Instructions and procedure. Set the stick at twelve picas. It is suggested that the instructor supplement this lesson with reading references on the subject of electrotyping. It has no direct relation to the use of initial letters, but the subject should prove interesting and profitable to the student. Occasional oral reports during the class period are of considerable value.

Electrotyping

FOR fine bookwork and for duplicating engraved illustrations, electrotyping is the process preferred.

By this process, the type page is impressed on a thin sheet of wax dusted with a coat of powdered graphite and iron filings. The wax mold is then immersed in a solution of copper, through which passes an electric current from a dynamo. This deposits a thin film of copper on the mold. When the film is thick enough, it is backed with type-metal applied in a melted state.

This type-metal is then placed on a thicker base of hard wood or iron to make it type-high so it can then be printed.
Instructions and procedure. In composition where figures are used in columns, they should be made to line on the right side. If decimals are used, the decimal points should always be in line.

In case of composition of this character, the number containing the most figures is found and used as a basis for calculations. In most fonts of body type, the figures are cast on a body one-em wide. Thus, in a column of numbers, some of which contain two figures or more and some only one figure, it is necessary to place an en-quad for each digit before the single-figured numbers, in order to keep the column straight on the right side. Use larger quads for more than one digit. Fractions are always placed at the right of the column. Sometimes when fractions are not available, they are made by placing the numerator first and separating it from the denominator by a hyphen without space.

When the stick is dumped, replace the last line set, to be used as a guide in keeping perfect alignment.

Set the following list of figures in three columns on fifteen picas.

26, 101, 2, 17, 84, 71, 176, 3, 79, 52, 47, 101, 6, 12, 18, 5, 199, 41, 132, 148, 9, 18, 37, 14, 137, 112, 18, 111, 86, 102, 58, 83, 16, 127, 113, 196, 175, 131, 3, 1, 182, and 7.
LESSON 36

Instructions and procedure. No period is placed after roman numerals unless grammatical construction requires it or an awkward appearance would result from its omission. These numerals line on the right as in the arabic system, but because of lack of uniformity in the thickness of the numbers (or letters, since they are formed from either caps or lower case letters), it is necessary to determine a measure by the length of the longest numeral. Caps are most often used, but lower case letters are used to number the pages of the introductory matter of a book.

On a measure of twelve picas, set in two columns the roman equivalents of the following arabic numerals.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 24, 30, 36, 40, 49, 50, 58, 60, 65, 70, 72, 80, 87, 90, 95, 100, 500, 1000.
LESSON 37

Instructions and procedure. Italics should be used rather sparingly because they tend to disturb the uniformity of a page set in roman. Italic is used to emphasize a particular word and for titles of books, magazines and newspapers. A single line under a word or group of words, indicates that italic is to be used for the part underlined.

More than ordinary care should be taken with italic on account of the kerned letters. These kerned letters are necessary in order to prevent too much space between certain letters but since they are easily broken off they must be handled accordingly.

Some typographers object to a line set in italic capitals. In the light faces, italic capitals seem to lack positiveness and produce a weak effect. As a matter of fact, most lines of capitals set in any face of type could be improved by using lower case.

Set the following on fourteen picas, using italic where it is required.

This is just what he did not desire.
John has finished reading Irving's Life of Washington.
Resolved: That the Community Chest is a worthy cause.
The letter was signed, John W. Jones, President.
To stop the press, turn off the power and step on the brake.
This is a letter w.
LESSON 38

Instructions and procedure. The normal space for lines of capitals or small capitals is the en quad. The extensive use of capitals is discouraged because they are difficult to read when standing alone. Interspacing with one point leads or thin pieces of cardboard increases legibility, but the difference in effect is hardly worth the effort expended. A condensed or "skinny" face of type requires thinner spacing than an expanded face. Too much space between words in a condensed face gives a sense of word isolation while too little space, especially in an extended face, causes the words to run together and makes reading slow and difficult.

Set the following in caps on twenty picas measure.

IN ORDER TO REDUCE THE NUMBER OF DIVIDED WORDS TO A MINIMUM, LINES OF CAPITALS SHOULD BE SET IN AS WIDE A MEASURE AS POSSIBLE. SPECIAL CARE SHOULD BE USED IN SPACING LINES OF CAPITALS. THE SPACE BETWEEN WORDS ENDING AND BEGINNING WITH CURVED OR ANGULAR LETTERS LIKE A, W, O, AND C SHOULD BE LESS THAN WITH SUCH LETTERS AS E, I, M, OR N.
LESSON 39

Instructions and procedure. Set the stick at thirteen picas for the following composition and enclose in a two-point rule border. Place two leads or four points on each side to make even picas.

Use of the Linotype

Linotype machines are employed chiefly for newspaper printing. In quality, the product of the machine is sometimes claimed to be inferior to hand work, although in most instances, only an experienced eye can detect the difference. The linotype reduces the cost of composition—a fair operator being able to set type three or four times as fast as can be done by hand, and an expert operator, six or eight times faster than a hand-compositor. It is only by employing the linotype that our newspapers can afford to furnish the public the vast amount of reading matter it receives.
LESSON 40

This lesson may be used at the discretion of the instructor for students who have made greater progress than the class average or for extra practice work.

History of Printing Presses

Gutenberg used at an early period in his career a mechanical press of some kind, which was constructed of wood. The first press consisted of an upright frame, the power being exerted by a movable handle placed in a screw. This was tightened to secure requisite impression and was loosened again after the impression was obtained.

The type pages were placed on a flat bed of solid wood and later, stone. It was a slow and laborious task to run this bed into its proper position. There was another fault with the machine; the labor had to be repeated in order to release the printed sheet.

The need of improvements was soon recognized, leading to a different type of machine called the "new fashion" which was introduced in England during the last half of the seventeenth century.
This lesson may be used for extra work.

**The Type Mold**

Printing owes its development first and chiefly to movable type. Through the invention of the type mold this development has been made possible. The type mold has been proven to be the only means by which type of the same size can be made.

Type is composed of lead, tin, and antimony. All standard type is .918 of an inch in height. Each piece is cast on a separate mold with the printing character in bold relief on one end. The mold makes possible exact uniformity in the type so that it may be held securely in a chase by pressure.
This lesson may be used as extra work.

The Lower Case

Starting at the left of the case on the lower case side and reading down, we find the ffi, j, ?, !, z, x, and q. In the second row are f, b, l, and v. In the third row, there are two boxes, one with 4-em and one with 5-em spaces. These two boxes together are of the same width as each of the three under them that contain c, m, and u. In the fourth position are the ' and k, and under these d, n, and t. The fifth row contains e, h, and 3-em spaces. In the sixth row, we have two boxes side by side containing l, and 2 and under these i, o, and a. The seventh row has two boxes side by side that contain 3 and 4, and under these s, the next lower being equally divided for the letters y and p followed by r. The eighth row contains 5, f, w, ; : - and . The tenth row contains 7, ff, fi, and en-quads. The eleventh row has 8, 9, 0, and em-quads and under the en and em-quads, we have the 2-em and 3-em quads.
LESSON 43

This lesson may be used as extra work.

(a)

(b)
LESSON 44

Instructions and procedure. Paragraphs are used by authors to mark a break in the continuity of thought; from the standpoint of the mechanics of printing, they improve the artistic effect of a page by breaking the monotonous sequence of fully spaced lines. Expert compositors are sometimes able to make a beautiful page through the use of paragraph signs and through studied violations of the usual rules, but beginners should make no such attempts.

Instructions for the use of various indentions with relation to the length of measure are given in the paragraph below. Set the stick at eighteen picas.

The Paragraph Indention

The paragraph indention is governed principally by the length of the measure and the size of the type. The modern tendency is toward thinner indentions, but conservative authors and compositors still insist on a rather deep margin at the beginning of a paragraph. In short measures, one em is sufficient, but for longer measures one and a half ems, two, or even more are allowed. The nature of the work and the size of the type are important considerations in determining the amount of indention. In general, from ten to twenty picas of eight to fourteen-point should be indented one em and from twenty to thirty ems of the same size type should be indented two ems. Larger sizes take less indention; smaller sizes require more.
LESSON 45

Instructions and procedure. The commonest form of indention is the paragraph, considered in Lesson 44. Second in importance is the hanging form, in which the first line is set full measure and the following lines indented one or more ems according to measure. A third form is diagonal indention. The words must be of equal value, be arranged diagonally, and be without punctuation. The lines should be of approximately the same length.

The half-diamond indention is used effectively in long titles or in jobs that lend themselves to the making of each line shorter than the preceding one, the first line being full and normally spaced and all lines being centered.

Squared indention was used a few years ago much more than it is now. Some of the grotesque effects produced by careless compositors caused a really artistic type form to fall into disrepute. The lines must all be of the same length, no quadding out being permitted on the final line. The combination of long words and short measures are ruinous to this form of indention and letter-spacing must frequently be resorted to.

Set the stick at thirteen picas.

**Hanging Indention**

The feeder should watch the appearance of the sheet. If the impression gets too light, more ink should be placed on the disk. If the printing is not straight on the sheet, the gauge pins should be adjusted.
Diagonal Indention

SCHOOL MEN MEET
TO HEAR LECTURE
BY NOTED AUTHOR

Half-Diamond Indention

Being the Experiences of John Doe
at One Time Teacher and Later
Master of the Boys' School
of Lancaster, Indiana

Squared Indention

PRINTERS TO INDIANA
STATE TEACHERS COLLEGE
TERRE HAUTE, INDIANA
Instructions and procedure. Poetry should appear to be centered on the page. In order to determine the amount of indentation, set the longest line first and make other indentions that the style of poetry may require from this. Avoid the use of thin spaces at the beginning of the line unless there is some particular reason for their use. The heading should be set last and be centered on an average line of the poem rather than the measure being used. A general rule is that rhyming lines should have the same indentation, but some exceptions to this will be discussed in Lesson 47.

Set the following poem correctly on a convenient measure.

The Patter of Little Feet

Up with the sun at morning
Away to the garden he hies,
To see if the sleepy blossoms
Have begun to open their eyes.
Running a race with the winds,
His steps as light and fleet,
Under my window I hear
The patter of little feet.

Anon to the brook he wanders,
In swift and noiseless flight;
Splashing the sparkling waters,
Like a fairy water sprite.
No sand under fabled river
Has gleams like his golden hair;
No pearly seashell is fairer
Than his slender ankles bare;
Nor the rosiest stem of coral
That blushes in Ocean's bed,
Is sweet as the flush that follows
Our darling's airy tread.
LESSON 47

Instructions and procedure. The amount of indention of lines of poetry varies with meters and rhyming lines. Sometimes the author indicates the indentions; sometimes, only occasional lines will be indented; and again, as in blank verse, the indention of all lines is the same. Quotation marks should always be set "in the clear" to get perfect alignment on the left side. Rhyming couplets are not indented. In case a line runs over the measure, the second line should be indented one em more than the greatest indention of any single line.

Set the following lines correctly on a convenient measure.

(a)

In words, as fashions, the same rule will hold;
Alike fantastic if too new or old;
Be not the first by whom the new are tried,
Nor yet the last to lay the old aside.

(b)

Maude Muller on a summer's day
Raked the meadow, sweet with hay.

"My father should wear a broadcloth coat;
My brother should sail a painted boat.

(c)

So live, that when thy summons comes to join
The innumerable caravan that moves
To that mysterious realm, where each shall take
His chamber in the silent halls of death . . . .

(d)

And if I should live to be
The last leaf upon the tree
In the Spring,
Let them smile as I do now
At the old forsaken bough
Where I cling.
LESSON 48

Instructions and procedure. In reproducing a letter, set the address of the heading and date on the same line if both are short and indent one em from the right margin. The address of the heading should be set in caps and small caps and the date in caps and lower case. If the address is a long one, it should be set flush and the date line centered under it. The address of the letter should be set in italic, the first line flush with the left margin and the second line indented two ems. The salutation is set in caps and small caps, followed by a colon and em-quad and the body follows on the same line unless the address is placed at the close of the letter in which case the salutation is placed alone on a line. The signature is set in caps and small caps with an indentation of one em from the right margin and the complimentary close above it indented sufficiently more to produce a pleasing effect. If a title is used with the signature, it is set in italic and run in the same line, if it is short. In case the title is longer than the name, set the title flush with the right margin and center the signature above it.

The heading, address, and signature are considered display matter and require no punctuation at the end of the lines.

Set the following letter correctly on a measure of twenty picas.
Brazil, Clay County, Ind.
June 21, 1932

Mr. Harrison L. Rathburn
Terre Haute, Indiana
My dear Mr. Rathburn

It is with great pleasure that I accept your invitation to speak at the formal dedication exercises of beautiful Forest Park on July 4. Because of the broad and intensely interesting historical background of this scenic plot, I feel that my audience will rejoice with me at the generous action of the Board of Trustees in making it accessible to the general public.

I am looking forward to a very pleasant afternoon with you on this occasion.

Very truly yours,

Andrew L. Durkinger
Judge of Clay County Circuit Court
LESSON 49

Instructions and procedure. In using the dollar mark ($) in columns of figures, the mark should be placed in a column immediately to the left of the one representing the greatest number of digits and with the first and final numbers only. Since in most fonts of type, the figures are cast on a body one en thick, the location of the mark can be determined by counting the number of digits in the largest number. If the first number is not the longest one, insert the correct amount of space and place the mark outside that space to the left. Allow extra space between the numbers and the result.

Set the following numbers in columns on a measure of twelve picas.

$34.25; 146.88; 12.17; 4.36; 1,473.03; 19.48; 87.35; 10.18; 1.12; 5,416.10; 4.93; 155.12; 2.37; 4,210.19; 8.17. 11,575.52

$1746.38 x 14 = $24,449.32  
$5,317.62 - 4,832.64 = $484.98
Instructions and procedure. Both roman and arabic numerals should align vertically on the right side. Use periods as leaders, placing an em-quad between each pair. Also place an em-quad between the roman numerals and the first dot and between the last dot and the longest arabic numeral. Determine the measure by setting first the line containing the longest roman numeral, leaving a little space before the arabic 1 to make it equal in width to the number 1000, set the remainder of the line from right to left instead of the usual way and justify on the left side. This will insure exact alignment of all parts that require it.

Determine the measure in the manner mentioned above.
LESSON 51

Instructions and procedure. Set the stick at fifteen picas. First, determine the amount of space that must be left on the right margin in order to center "No. Points" on the column of figures. Proceed as in Lesson 50, but use as many dots as are necessary. Make the space between the last letter of the word and the first dot at least an em-quad and as much extra space as is necessary to justify the line.

| No. Points |  
|------------|---|
| Health     | 100 |
| Posture    | 85  |
| Voice      | 22  |
| Personality| 50  |
| Industry   | 75  |
| Agreeableness | 15  |
| Cooperation| 40  |
| Helpfulness| 18  |
| Accuracy   | 50  |
| Speed      | 45  |
LESSON 52

Instructions and procedure. Set the stick at twenty-five picas. Leave the heading and the line containing "Place" and the three dates till the last. Set the body according to instructions given in the two preceding lessons, leaving space for the commas wherever necessary. The space between the state and the first column of figures is short enough that no leaders are necessary. Center the word "Place" on the longest line of that column and the three dates on the longest figures in their respective columns. Blank out on each side of the form with metal furniture and leads until it measures twenty-two picas. Set the heading, place it in the proper position, tie-up, and take proof.

<table>
<thead>
<tr>
<th>Place</th>
<th>1920</th>
<th>1910</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baltimore, Maryland</td>
<td>773,826</td>
<td>558,485</td>
</tr>
<tr>
<td>Chicago, Illinois</td>
<td>2,701,705</td>
<td>2,185,283</td>
</tr>
<tr>
<td>Cleveland, Ohio</td>
<td>796,836</td>
<td>560,663</td>
</tr>
<tr>
<td>Detroit, Michigan</td>
<td>993,739</td>
<td>465,766</td>
</tr>
<tr>
<td>Los Angeles, California</td>
<td>576,673</td>
<td>319,198</td>
</tr>
<tr>
<td>New York, New York</td>
<td>5,621,151</td>
<td>4,766,883</td>
</tr>
<tr>
<td>Philadelphia, Pennsylvania</td>
<td>1,823,158</td>
<td>1,539,008</td>
</tr>
<tr>
<td>Pittsburg, Pennsylvania</td>
<td>588,193</td>
<td>533,300</td>
</tr>
<tr>
<td>St. Louis, Missouri</td>
<td>772,897</td>
<td>687,029</td>
</tr>
<tr>
<td>San Francisco, California</td>
<td>508,410</td>
<td>416,912</td>
</tr>
<tr>
<td>Washington, D. C.</td>
<td>437,571</td>
<td>331,069</td>
</tr>
</tbody>
</table>
LESSON 53

Instructions and procedure. No new principles are involved in this lesson. It is placed here to afford additional practice in this type of composition, if time will permit.

Farmers Bank $19,450
Michigantown Bank 150,385
American National Bank 1,280,694
First National Bank 25,743,576
Prudential Bank 350,893,435

Total Resources $378,087,540
LESSON 54

Instructions and procedure. Set the stick at twelve picas. As the name indicates, in double justification each line requires two justifications in order to keep the columns straight. First, determine the width of each column by setting the longest line in the column, adding a sufficient amount of space at the end to give a pleasing appearance. Take an accurately cut slug that nearly fills the remaining space in the stick and justify the line perfectly. Remove this slug, place the required number on the right of the stick and then center the initials on the remaining space.

DOUBLE JUSTIFICATION

<table>
<thead>
<tr>
<th>Area</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Print Shop</td>
<td>VA 1</td>
</tr>
<tr>
<td></td>
<td>VA 2</td>
</tr>
<tr>
<td></td>
<td>VA 3</td>
</tr>
<tr>
<td>Machine Shop</td>
<td>VA 4</td>
</tr>
<tr>
<td>Forge Shop</td>
<td>VA 5</td>
</tr>
<tr>
<td>Foundry</td>
<td>VA 6</td>
</tr>
<tr>
<td>Office</td>
<td>VB 1</td>
</tr>
<tr>
<td>Electricity</td>
<td>VB 2</td>
</tr>
<tr>
<td>Cabinet Shop</td>
<td>VB 3</td>
</tr>
<tr>
<td>Mill Room</td>
<td>VB 4</td>
</tr>
<tr>
<td>Lathe Room</td>
<td>VB 5</td>
</tr>
</tbody>
</table>
Instructions and procedure. In triple justification, three justifications are necessary. Set the line with the longest word or words in the center column, in this case the words, "quarter back." Take a slug the exact measure from the end of the letter "k" to the left side of the stick or from the beginning of the letter "q" to the right side of the stick. Place this slug on the right side of the stick, set the first word with leaders and justify. Remove the part of a line already set, place the slug on the opposite side of the stick and set the second name with the leaders and carefully justify. Remove the slug. Replace the part of the line and center the position, "left end", etc. on the remaining space.

Set the stick at eighteen picas.

TRIPLE JUSTIFICATION

Lineup and summary:
Teachers College (37) Oakland City (6)
Crook ........ left tackle ...... Schafer
Crites ........ left end ...... Wilder
Albright .... left guard ...... Douglas
Humphrey .... center ...... Hargrave
Chambers .... right guard ...... Albin
Robbins (c) ... right tackle ...... Snyder
Gennicks .... right end ...... Fuller
Buckner ...... full back ...... Kelley
Johnson .... left half ...... Houchin
Wampler .... right half .... McKown (c)
Willis ...... quarter back ...... Stone

Score by quarters:
Teachers College 19 6 6 6—37
Oakland City 0 0 0 6—6
LESSON 56

Instructions and procedure. In multiple justification, there are many justifications. Set one line and divide the columns in such a way that there will be sufficient room in each for the longest word or words that are to be placed there, allowing for some space at the end. In this particular composition, place an en-quad before the single-digit numbers to insure proper alignment in the first column. Set the number 2. The space following requires no justification as it should be made constant all the way down the column. In the line already set, measure the length of the line from the beginning of the word "Federalist" to the right side of the stick, set the words "J. Adams" and carefully justify. Another slug from the first figure in "1789" to the right side of the stick is required for the justification after the word "Federalist." A third slug from the word "December" to the side of the stick will allow "years served" to be centered between "age" and the month of "time of death." The final justification follows the word "December" for which a slug measuring the space from one in fourteen to the end of the line must be used.

All justifications must be very carefully made in order to secure perfect vertical alignment.

MULTIPLE JUSTIFICATION

<table>
<thead>
<tr>
<th>No.</th>
<th>President</th>
<th>Politics</th>
<th>Inaug. Age</th>
<th>Years Served</th>
<th>Time of Death</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Washington</td>
<td>Federalist</td>
<td>1789 57 7 y. 10 mo. 4 da. December</td>
<td>14, 1799 67</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>J. Adams</td>
<td>Republican</td>
<td>1801 57 8</td>
<td>June</td>
<td>28, 1828 65</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Jefferson</td>
<td>Republican</td>
<td>1809 57 8</td>
<td>June</td>
<td>28, 1828 65</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Madison</td>
<td>Republican</td>
<td>1817 58 8</td>
<td>July</td>
<td>4, 1831 78</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Monroe</td>
<td>Republican</td>
<td>1825 57 8</td>
<td>February</td>
<td>23, 1848 80</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>J. Q. Adams</td>
<td>Republican</td>
<td>1837 54 4</td>
<td>July</td>
<td>24, 1862 78</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Jackson</td>
<td>Democrat</td>
<td>1850 61 8</td>
<td>June</td>
<td>8, 1858 78</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Van Buren</td>
<td>Democrat</td>
<td>1853 54 4</td>
<td>July</td>
<td>24, 1862 78</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Harrison</td>
<td>Whig</td>
<td>1841 68 1 mo.</td>
<td>April</td>
<td>4, 1841 88</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Tyler</td>
<td>Democrat</td>
<td>1841 51 3 y. 11 mo.</td>
<td>January</td>
<td>17, 1862 71</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Polk</td>
<td>Democrat</td>
<td>1845 49 4</td>
<td>June</td>
<td>16, 1849 62</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Taylor</td>
<td>Whig</td>
<td>1849 64 1 y. 4 mo. 5 da.</td>
<td>July</td>
<td>9, 1860 65</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Fillmore</td>
<td>Whig</td>
<td>1850 50 2 y. 7 mo. 26 da. March</td>
<td>8, 1854 74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Pierce</td>
<td>Democrat</td>
<td>1853 48 4</td>
<td>October</td>
<td>8, 1859 64</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Buchanan</td>
<td>Democrat</td>
<td>1857 65 4</td>
<td>June</td>
<td>1, 1868 77</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Lincoln</td>
<td>Republican</td>
<td>1861 52 4 y. 1 mo. 11 da. April</td>
<td>15, 1865 56</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LESSON 57

Instructions and procedure. Set the stick at twenty picas. Before beginning to set any form of tabular matter, the width of each column should be determined. This is called the casting up process. In the example given below, the largest number in the last column contains seven digits. Since the numbers are cast on a body one en wide, each figure is five points thick, and the whole number measures thirty-five points. In like manner, the largest number of the center column contains thirty points and in the first column forty points, the sum being 105 points. Add to this number six points for the three two-point column rules and the total is 111 points. Since the measure is twenty picas or 240 points, the difference is 129 points, twelve and three-fourths picas or twelve picas and nine points. This is the column containing what may be called the subject and is named the stub.

Hand-set tabular matter is seldom leaded. In this exercise, there are three lines of ten-point type, thirty points, or two and one-half picas. Place three pieces of rule two and one-half picas long on the right side of the stick and insert in their proper places after the table is set. Leaders should be used in the stub with the justification between the last letter of the word and the first dot.

Place a double rule at the top and bottom of the table.

<table>
<thead>
<tr>
<th>Table I</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Indianapolis</td>
<td>23,357,642</td>
<td>8,645</td>
<td>975,361</td>
</tr>
<tr>
<td>Terre Haute</td>
<td>785,763</td>
<td>487,324</td>
<td>45,254</td>
</tr>
<tr>
<td>Evansville</td>
<td>857,741</td>
<td>864</td>
<td>2,217,823</td>
</tr>
</tbody>
</table>
LESSON 58

Instructions and procedure. Tables in which the numbers are short, and would, therefore, make the figure side of the table, if set to a measure their own width be out of proportion to the stub, usually have spaces on each side except the last column which is set flush on the right.

In the following exercise, set to a measure of twelve picas, place an em-quad on each side of the numbers with the exception noted above.

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Purdue</td>
<td>1 2 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiana</td>
<td>3 1 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers College</td>
<td>2 4 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ball State</td>
<td>4 3 4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Instructions and procedure. In tabular composition, the column rules should run the full length from top to bottom of a given part of the form and the cross rules cut the column. There are certain exceptions, but the above statement is the general rule. The rules should never be pieced, especially the column rules, as the joints are sure to show. Use quads wherever possible for spacing material because leads or even slugs are apt to make a spongy form with consequent imperfect horizontal alignment of the short rules.

Cast up the following table and make it up on a galley. Use the stick only for the short measures or where justification is required.

<table>
<thead>
<tr>
<th>Name of School</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purdue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indiana</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teachers College</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ball State</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Instructions and procedure. In the following exercise, set the first phrase in caps, the second in small caps and the last in italic, all centered on the full measure of the table. Use double rule for the top and bottom. Set the stub heading "Names of Pupils," in caps and small caps. On account of the shortness of the measure the heading of the second column of figures should be set in the manner indicated in the copy though in smaller type and in two lines.

Insert column rules and cross rules where required.

TABLE IV

Record of Attendance—State High School—Compiled by the Teachers.

<table>
<thead>
<tr>
<th>Names of Pupils</th>
<th>No. Days</th>
<th>Department</th>
<th>Per Cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Jones</td>
<td>200</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Wm. Brown</td>
<td>194</td>
<td>100</td>
<td>95.5</td>
</tr>
<tr>
<td>Henry Smith</td>
<td>199</td>
<td>100</td>
<td>98.7</td>
</tr>
<tr>
<td>Frank Doe</td>
<td>195</td>
<td>100</td>
<td>96.5</td>
</tr>
</tbody>
</table>
LESSON 61

Instructions and procedure. Set the stick at twelve picas. The word "Easter" should fill the measure. In order to do this, it may have to be letter-spaced, that is, thin spaces placed between the letters. If thin spaces are not available, pieces of cardboard will do, but do not throw these in the case when the form is distributed. The second line will have to be set in a more condensed face than the rest of the composition in order to be contained in this measure. Select a face that harmonizes with the rest of the type—neither too light nor too bold. Space the whole form a little closer to the top of the panel than the bottom.

Three sizes and two faces of type are used here. Make careful note of that fact when the form is being distributed.

Make an exact reprint of this job so far as equipment will permit.

---

EASTER

One Week From Next Sunday

Easter garb for clergy, clerical clothing, Latin and Anglica cassocks, albs, and surplices, and pulpit gowns; in fact, everything that the clergy wears. Easter garb for choristers can be found here in a fine line of cassocks in black and colors, also cottas; all styles guaranteed correct.

HANCOCK & GORDEND
The Broadway Department Store
LESSON 62

Instructions and procedure. Use one-point, side-face, brass rule throughout this lesson and metal furniture, whenever possible, in blanking out large white spaces, in order not to tie up too many slugs and to secure a more rigid form. In centering the lines vertically, make allowance for the bevel of the rule on one side. Run in the side rules after the form is placed in the galley.

Notice that in this lesson the face is turned in on the side rules and out on the cross rules at the head and foot.
Instructions and procedure. Set the first two lines to the measure of the copy in this note head. Change the measure for the following three lines to secure perfect alignment and blank out with metal furniture. Change the measure again for the address lines in order to exactly center "New York City" under the preceding line. Set the stick at thirty picas.
LESSON 64

Instructions and procedure. Set to the same measure of the copy and reproduce as closely as type equipment will permit. The brass rule should be exactly in line with the bottom of the face in all sizes of type. The line, "The Second National Bank" is set in two sizes of type to give the effect of caps and small caps. These letters also should be in perfect alignment.

The Second National Bank

Port Huron, Mich., 192-

Pay to the order of __________________________________________________________________________

the sum of ________________________________________________________________________________

and charge to the account of

THE AMERICAN PRINTING COMPANY

$__________

President
LESSON 65

Instructions and procedure. Set the stick at eleven picas. The first line in the copy below should occupy the full measure, letter spacing it if necessary. Use half-diamond indention for the second type mass and squared indention for the third. The signature should fill the measure and the last line be centered. Use a one point side-face rule for the border.

THANK YOU

We appreciate this order, which it is hoped has been filled to your liking and will lead to future business relationship between us.

HIGH - GRADE ADVERTISING TYPOGRAPHY

STATE COLLEGE PRESS
Terre Haute, Indiana
Instructions and procedure. Formal announcements are most often printed in text type as in the following example. The compositor should be thoroughly familiar with all of the characters of these peculiar faces and if any doubt arises concerning any letter, consult a reliable specimen book. Never set a word or line in caps of any text letter.

Reproduce the following copy at the same measure or change the measure to fit a given announcement card if advisable.

Yourself and company are cordially invited to attend an

August Garden Musicale

to be rendered by

The Herman Bauerstein Symphony Orchestra

to be held on the lawn of Grace Church

Wednesday evening August sixteenth

eight-thirty to ten-thirty
LESSON 67

Instructions and procedure. Make a reprint of this menu card. Use one-point side-face rule and three-point parallel rule with mitered corners. Do not crowd this type of composition.

\begin{center}
\begin{tikzpicture}
\node[draw,inner sep=0.5cm] (menu) {
\begin{tabular}{|l|}
\hline
\textbf{The Eureka Cafe} \\
\hline
\textbf{Menu} \\
\hline
\textbf{SOUPS} \\
Consomme & Mock Turtle \\
Tomato with Rice \\
\hline
\textbf{FISH} \\
Broiled Halibut Steak & Sea Bass & Blue Fish \\
\hline
\textbf{ROASTS} \\
Spring Duckling & Spring Lamb & Young Turkey \\
\hline
\textbf{SALADS} \\
Watercress & Romaine & Chicken & Lobster \\
\hline
\textbf{VEGETABLES} \\
Mashed Potatoes & Stuffed Onions & Green Corn & Lettuce \\
\hline
\textbf{DESSERT} \\
Fancy Cake & Ice Cream & Wine Jelly & Eclairs \\
\hline
\end{tabular}
\end{tikzpicture}
\end{center}
LESSON 68

Instructions and procedure. Make a reprint of this ad. Observe principles of harmony, balance, and tone. Be sure the "weight" of the border is not too great for the type, because the principal attraction should be the type matter and not the decorative material which may be used in "dressing" it.

Come Next Friday and Help Us

CELEBRATE

Our Furniture Sale

We have just completed the new addition to our furniture store in time to accommodate a very large shipment of new stock. We intend celebrating the event on Friday, September first, and will offer some rare bargains in furniture and carpets. Many pieces have been marked down below cost. We must make room for the new. From the many bargains we display below three samples:

- Morris Chairs sold for $5.00, on this Friday $5
- Parlor Suits in various styles to go for... $15
- Brass Beds in Mission styles on this Friday $8

M. S. JONES & CO.
294 OSBORNE STREET
Instructions and procedure. This is a business card. In this class of work, type faces should reflect to a considerable extent, the nature of the business. For example, the faces used for a beauty or millinery shop and a hardware store or machine shop would hardly be the same. Considerable variation is allowed in the sizes of business cards, but practice limits them to sizes conveniently handled.

The inside border on this card is linotype material cast thirty pica long. In cutting short pieces on a saw or slug cutter, it is necessary to place pieces of other material of similar thickness and known length closest to the guide and the material to be cut closest to the cutting tool.

Avoid thin spacing material with consequent spongy form.
LESSON 70

Instructions and procedure. In this lesson both the color of ink and the "weight" of the type should harmonize with the occasion. Set the exercise exactly as if it were to be run in a solid color. Since blue predominates, remove those parts from the form which are to run in red. Fill with spacing material of exactly the same dimensions the "holes" left by removing the parts to be printed in red. Use quads, metal furniture, or slugs for this purpose. Make a second form for red, using in this case spacing material where all the blue is to run. Make the calculations by points with extreme accuracy and be sure to insert two or three leads in order to make it easy to shift the form slightly, if necessary, to secure perfect register. Take proofs of both forms on dry proofing paper and place one proof on the other in order to test preliminary register. If the register is faulty, shift the type as needed to secure a correct one. Lock up one form and print it, then place the second form in the position of the first, after it has been removed from the chase and print it. Two chases may be used, but care must be exercised to make sure that all conditions of the second form are exactly like the first, including amount and position of furniture, tension of quoins, etc.

Do not try to hurry on your first two-color job and be sure that all of your measurements are absolutely accurate. Corrections are always considered difficult, tedious and expensive.

Be sure that the press is thoroughly clean and that the rollers are in good condition. If the surface of the rollers is broken in several places, it may be necessary to ink the press with white ink and then wash it before applying one of the required colors.
A jolly good time is being prepared for every man, woman and child in Wheatfield and the surrounding country. This event is intended to bring together old acquaintances and to make new ones and for all to join in and make next July 4th doubly memorable. A committee has secured some of the most amusing attractions of Bill's Big Buffalo Show. Great display of fireworks at night.
Instructions and procedure. The principles given in Lesson 70 apply also to this exercise. This lesson gives further practice in "breaking up for color." Other colors may be substituted for the ones used here, but care must be exercised that there be no clash. The weight of type is enhanced by certain colors, so the compositor must use discretion in setting display lines to run in a dark color, else the typographic balance of his work will appear to be disturbed.

ANNUAL STATEMENT
JUNE FIRST

Hudmor Banking Company
Depository for the County
of Hudson

Capital and Surplus
$580,000

Interest Paid on Deposits
Safe Deposit Boxes
Instructions and procedure. Work-and-twist printing is practical only when the run in which it is to be used is a long one. It is a difficult type of composition and requires extreme accuracy at every step, spacing the forms, locking up, cutting the stock, and feeding the press. If the run is reasonably short, time and expense will be saved by making two runs, printing one form over the other.

The cross rules and column rules may all be run in one form, but owing to the bevel of the rule, there is sure to be much open space where the rules fail to meet, there is likely to be faulty alignment of the cross rules, and the use of many short pieces of rule which have to be cut and probably cannot be used for another job, makes the cost prohibitive.

Set two forms, spacing the type and rules in such a manner as will make it easiest to secure perfect register. Cut the stock twice the size of the finished product, making sure that it is perfectly squared. Place the two forms in such relation to each other that when put on the press and printed once, the sheet can be turned half-way around, printed again and each form will strike just where it should on the sheet to make a perfect copy.

If the two forms are made exactly the same size, the distance from the outside edge of one to the inside edge of the other will be equal to half the width of the sheets to be printed. This measurement is highly important in centering the type matter on the page and should be carefully checked after the form is locked up.

Since the stock is cut double-size and each sheet makes two com-
Better results will be obtained if it is possible to avoid piecing either the cross rules or column rules.

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LESSON 73

Instructions and procedure. Take a sheet of layout paper and sketch the job below. Indicate on the margin the kind of rule to be used, the sizes and faces of type, the margins, and all other necessary details to make an exact reproduction within the limits of particular shop equipment. Close the book, and working entirely from the layout, set the job. Take proof and register with original copy to prove correctness of work or discover errors. Make any needed corrections, put the job on the press, and print a few copies.

ORDER OF DANCE

PART ONE

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<tr>
<th>WALTZ</th>
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<td>TWO-STEP</td>
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<td>QUADRILLE</td>
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<tr>
<td>WALTZ</td>
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</tbody>
</table>

INTERMISSION
LESSON 74

Instructions and procedure. Besides the admission feature, a ticket should have some advertising value. There may be considerable variation in size, so long as general principles of proportion are maintained. Tickets are usually printed on cardboard and this furnishes a way to use scrap paper stock.

Cut the stock 2" x 3 1/2" for this job. Make a layout and submit it to the instructor for approval or corrections. Set the type from the layout and print a few copies.

Phi Beta Kappa Formal
Deming Ballroom
March 15, 1931 Admission $1.00
Instructions and procedure. This is a ticket job with stub attached. Cut the stock 2" x 6." Make a layout and submit it to the instructor. When it is approved, set the type from the layout. Between the body of the ticket and the stub, run a perforating rule or a line of leaders long enough to "bleed" off the margins on both sides. See that the margin on the perforated side is equal to that on the opposite side. Be careful not to get the perforations too deep as there is danger that the stub will fall off. Perforating rule, being more than type high will soon ruin a set of rollers if the rule is set parallel to the direction in which the rollers run. Some shops have a set of old rollers to use with perforating rule, some set the form at an angle to avoid damage, or the form may be printed without the rule and perforated on a second run with the rollers removed if no perforating machine is available.

KRYL AND HIS BAND
Physical Education Building
The Greatest Concert of the Season
November 20, 1931
Sec..............
Row..............
Seat..............
One Dollar
LESSON 76

Instructions and procedure. The standard size for letterheads is 8½" x 11" which fit conveniently into the No. 6½ envelope with three folds or into the No. 9 or No. 10 envelope with two folds. Many professional men and women are now using what is called the bi-fold size which is 7¼" x 10½" and fits a No. 7½ envelope with two folds.

Since business and professional people are often judged according to their stationery, much care should be used in its production. In general, use one series of type, not too bold, and with few sizes; avoid large sizes and highly colored work; decorations and cuts should be used with discretion.

Make a layout using the following copy. Set the type from the layout and print a few copies.
LESSON 77

Instructions and procedure. The kind of paper and the style of typography for the envelope should be the same as the letterhead. For business purposes, the No. 6½ envelope is most used and for professional purposes, the No. 7½. As in letterheads, the style of typography and type faces should be suitable to the business they represent. In most cases, the printing is done on the upper left-hand corner, though on personal stationery it is often placed on the flap. Printing an envelope corner presents a special make-ready problem. After properly setting the guides, print a copy. If the type extends over a part of the flap, seal it, and with a sharp make-ready knife, carefully cut around the flap and through both thicknesses and paste it on the top sheet of the tympan or on a make-ready sheet under this one, in either case being careful to register perfectly. Set the following copy from a layout which has been approved by the instructor.

Teachers College Press
Indiana State Teachers College
Terre Haute, Indiana
LESSON 78

Instructions and procedure. The rule used in this lesson is one-point side-face and two-point full-face. The type for this job should be bold to properly fit the kind of business it represents. Make as nearly an exact reprint of the copy as equipment will permit. Use the colors black and red.

Wrought Iron Designs

Ornamental Lawn Decorators
Hothouse Supporters
Iron Fences

Send For Illustrated Catalogue

MENDEL IRON FOUNDRY
AKRON, OHIO
Instructions and procedure. Make a layout from the copy below for an announcement thirty picas wide by twenty-three picas long and submit to the instructor for approval. Use italic type faces, one-point brass rule, light-face linotype or foundry border and an initial "W." Break up the form for two colors.

Madison Avenue and Bard Street

We wish to call your attention to the special display which we are now making of new fall and winter fancy dress materials. This display comprises the choicest patterns of the leading European manufacturers and was personally selected by our own expert representative. An early inspection will assure you of the opportunities to be derived from this display.

Franklyn Edwardson & Company
LESSON 80

Instructions and procedure. For the personal card, a large variety of type faces may be used, but sizes are well standardized. The following sizes are accepted as proper: Mr., 1½" x 3½"; Miss, 2" x 3"; Mrs., 2¼" x 3½". In setting the guides, remember that the optical center is slightly above the geometric center and make proper allowances for this fact. Set up and print the following.

Mr. Harold G. Berringer
Miss Ruth Sharver
Mrs. John D. Goldfern
LESSON 81

Instructions and procedure. The standard sizes for the professional card are 1 11/16" x 3 1/16" and 1 15/16" x 3 7/16". Business sizes vary from 2 1/8" x 3 7/8" to 2 5/8" x 4 9/16". For the professional card, the copperplate gothics or some other plain and dignified type face is used. The business card will admit of a wide variety of faces, but the style should always reflect the nature of the business.

Set and print cards from the following copy.

(a)

George M. Hays, M.D.

Practice Limited to
Eye, Ear, Nose and Throat

South Bend, Indiana

(b)

Staple and Fancy Groceries

Fresh Fruit and Vegetables

The Gem City Grocery

V. A. Pruitt, Prop.

Opposite Conley Theatre

49 South Jackson St.

Frankfort, Indiana
LESSON 82

Instructions and procedure. Cover pages offer a wide variety of opportunities for the expression of the artistic ability of the compositor. There are no hard and fast rules governing this type of composition excepting the general rules of good typography. The principle precaution, especially in short titles, is to avoid getting the type too large. Colored stock usually requires larger type than white or delicately tinted paper.

Lay out, set and print on 3" x 5" stock a cover page from the following copy.

Specimen Book
Actual Sizes
For the Benefit
of all Students
LESSON 83

Instructions and procedure. On cover stock, size 6" x 9" print a cover page from the following copy. A layout approved by the instructor is assumed before composition is begun.

Microcosm and Macrocosm

John L. Thomas, M. D.
LESSON 84

Instructions and procedure. Make a layout proportional to a 4" x 6" cover page using the following copy. Use a simple type design and print in two colors.

The Complete Works of James Henry Humperdinck
Second Edition

Volume XXVIII

THE LIVES AND WORKS OF THE EARLY COMPOSERS

JAPANESE IMPERIAL VELLUM EDITION
LESSON 85

Instructions and procedure. There are no standard sizes or type styles used for the printing of programs. In a music program, the name of the composer is usually set in italic, the name of the selection in caps and lower case and the name of the performer in small caps or caps and small caps. The nature of the copy may make this plan impractical but in any case, monotony should be avoided. Sometimes the name of a musical composition is enclosed in quotation marks.

After the layout has been approved, set and print the following program.

Piano Recital
by
Jane Huntington
Music Hall, April 5, 1932

Programme

I

Les Sylphs
Spanish Dance No. 4
Valsette

Bechmann
Moskowski
Ralfe

II

Moment Musicale
Lain du Ball
Largo from the New World Symphony
Seraphila

Schubert
Gillet
Dvorak
Brown

III

Melody Poetique
Carmeucita
Hark! Hark! The Lark!

Huerter
Hackh
Shubert

IV

Scherzino
The Butterfly
Spanish Dance No. 1

Moskowski
Merkel
Moskowski
LESSON 86

Instructions and procedure. In the folder type of program if only two pages are to be printed, they should be the first and third—the title on the first page and the program on the third page. Typographic style of the two pages should be the same, preferably the same series being used for both. If more than one face is used, they should harmonize in all respects.

Indiana State Teachers College
Annual Presentation of
Handel’s Messiah
Physical Education Building
Sunday, December 20, 1931
2:30 o’clock
By
Teachers College Chorus
and
Orchestra
Soloists
Soprano -- Miss Mary Margaret Beeson
Contralto -- Mrs. Wayne Fuerstenberger
Tenors -- Harry Bell and Benj. Muncie
Bass -- Horace Capps
Director, L. M. Tilson
Concert-Master, W. H. Bryant

Program
1. Overture
2. "Comfort Ye My People" -- Mr. Bell
3. "Every Valley Shall Be Exalted" -- Mr. Bell
4. "And The Glory Of The Lord" -- Chorus
5. "Thus Saith the Lord" -- Mr. Capps
6. "But Who May Abide The Day of His Coming" -- Mr. Capps
7. "For, Behold, Darkness" -- Mr. Capps
8. "The People That Walked in Darkness" -- Mr. Capps
9. "For Unto Us A Child Is Born" -- Chorus
10. "There Were Shepherds"
11. "And The Angel Said Unto Them"
12. "And Suddenly There Was With The Angel" -- Miss Beeson
13. "Glory To God" -- Chorus
14. "Rejoice Greatly, O Daughter of Zion" -- Mrs. Conrad
15. "Then Shall The Eyss Of The Blind" -- Mrs. Fuerstenberger
16. "He Shall Feed His Flock" -- Miss Beeson
17. "And With His Stripes We Are Healed" -- Chorus
18. "All We Like Sheep Have Gone Astray" -- Chorus
19. "Thy Rebuke Hast Broken His Heart" -- Mr. Muncie
20. "Hallelujah" -- Chorus
LESSON 87

Instructions and procedure. Make a layout, using the copy at the end of this lesson, for a play program in two colors. Use type faces, borders, and ornaments suitable to this class of work and observe rules of harmony. Do not use strongly contrasting colors.

The Maid and the Middy
A Three Act Operetta
Presented By
Greencastle High School Chorus Class
In Auditorium
Dec. 20, 1930
7:30 P. M.

Act I
Scene . . . . On Seashore
Act II
Scene . . . . On A Ship
Act III
Scene . . . . Along Coast

Cast
Captain . . . . Duane Longden
Count . . . . Roland Campbell
The Farmer . . Raymond Sears
Senorita . . Laura Hauck
Passengers . . (Elizabeth Pruitt
               (Helen King
               (Chet Crawley
               (Steward Richard

Anita . . . . A Parrot
The twelve maids and middies includes the other members of the chorus class.
LESSON 88

Instructions and procedure. From the standpoint of the advertiser, an ad is an investment. It is the duty of the compositor to do all he can, within the limitations of the copy, to make this investment profitable. The ad must be attractive in order to be read. It must display **one** thing or risk becoming monotonous if more displays are attempted. It must bear the accepted principles of harmony, emphasis, balance, fitness and tone. Simplicity should characterize all ad composition. Legibility is a prime requisite, and for this reason many lines of capitals should be avoided. Lower case letters are always much more easily read.

In order to be most attractive, ads should be artistically set, but without frills. By cooperating with copy writers, the amount of type matter for a given space can usually be regulated so that crowding is eliminated. The most effective ads have sufficient white space in the margins and between lines to set it off from the reading matter on the page.

Most ads will require a border, but this should always blend with the type so that it will not attract undue attention or in any way detract from the real purpose of the ad.

Some magazines and small newspapers, including school publications, use only one series of type and one border for the ads on a given page in order to prevent serious clashes of light and heavy faces. This may improve the appearance of the page if the fitness principle is not violated and if monotony does not result.

Most small newspapers still use the thirteen pica column. In
setting double column ads, allowance must be made for the thickness of the column rule, making the total width twenty-six and a half picas. If linotype border is used, it can be cut to the required measure, but if foundry border of more than six point is used, the pieces will not fit the measure and it is necessary to lay a slug along the ad next to the column rule to fill the space.

The depth of the ad is measured in inches, that is, one column two inches, two columns six inches, etc. Ads are separated from each other by cut-off rules with one slug between the border and the rule. The depth is measured by the distance between the rules rather than the outside dimension of the ad. If the space required is six inches, the measure actually will be thirty-five picas rather than thirty-six.

Lay out and set an ad one column by three inches using the following copy,

We Specialize in
School Band
Equipment
All Brass and Reed
Instruments carried
in stock
Exclusive agents for
the world famous
Conn
Cornets and Basses
The Wm. P. Flage Co.
457 Meridian Street
LESSON 89

Instructions and procedure. Set an ad from the following copy, two columns by six inches. Have the layout approved by the instructor before starting on the composition.

Southern State Teachers College
Mobile, Alabama

The College offers courses leading to life licenses for Primary, Rural, Intermediate, and High School Teachers, Superintendents, Principals, Supervisors, and Special Teachers. Libraries, Laboratories, Practice School, Gymnasium, and Athletic Fields are well equipped.

Calendar for 1931 - 1932

Fall Quarter------------------------October 5 -- December 23
Winter Quarter----------------------January 4 -- March 25
Spring Quarter----------------------March 28 -- June 17
Mid-Spring Quarter------------------May 9 -- June 17
First Summer Term-------------------June 20 -- July 22
Second Summer Term-----------------July 25 -- August 26

The various departments include Art, Commerce, Education, English, Home Economics, Industrial Arts, Latin and German, Library Science, Mathematics, Music, Romance Languages, Physical Education for Men and Women, Science, and Social Studies. Extension work and correspondence work are also offered.

Address all communications to

George H. Lundren
Registrar
Cutting Problems

1. How many pieces of 8½" x 11" can be cut from 17" x 22" stock?
2. The stock is 25½" x 30½". How many 4" x 6" cards can be cut from a sheet?
3. From 19" x 24" Equity Bond, it is required to cut 12" x 18" pieces. How many can be obtained from each sheet?
4. How many pieces 9" x 12" can be cut from 25" x 36" Strathmore Book?
5. Calculate the number of 6" x 9" pieces that can be cut from a sheet of 20" x 26" Beckett Cover.
6. An order calls for 500 cards 1½" x 3½". Scrap of 25½" x 3½" size is available. How many sheets will be required to fill the order?
7. If 1000 pieces 4" x 6" are required, how many sheets of 24" x 36" will it be necessary to cut?
8. The stock is 19" x 24". How can 3" x 5" pieces be cut from it most economically?
9. How many reams of 17" x 22" Daily Mail Bond will be required to cut 12,000 pieces of 8" x 12"?
10. A job calls for one thousand 4" x 6" booklets of fifty pages each and cover. The stock is to be cut from 25" x 38" book paper and 20" x 26" cover. How many sheets of each will be required?
Problems on Finding Cost and Weight of Paper

1. Find the weight of a ream of paper, 19" x 24" if a ream of 17" x 22" weighs 20 pounds.

2. If 17" x 22" gummed paper costs $4.55 a ream, what is the cost of 1000 stickers cut 3" x 5"?

3. What is the cost of 5000 cards cut 5" x 8", from 25½" x 30½" Bristol at $2.60 a hundred sheets?

4. If a ream of 24" x 36" weighs 50 pounds how much will a ream of 28" x 42" weigh?

5. If a ream of 28" x 42"-99 lb. is 3½ inches thick, how thick is a ream of 28" x 42"-124 lb.?

6. An order calls for 10,000 second sheets (8½" x 11") cut from 17" x 22"-16 lb. bond. What is the cost at 15 cents a pound?

7. From 25" x 38"-60 lb. book paper, five thousand 5" x 7" pieces are to be cut. Find the cost at 11 cents a pound.

8. A program of 12 pages is printed 4 pages at a time. The size of each page is 6" x 9" and is cut from 19" x 24"-24½ lb. stock. Find the cost of 2500 programs.

9. A receipt book is made of an original sheet, a piece of carbon and a duplicate. The book contains 99 pages--one piece of each kind of paper--and measures 3" x 6". The original is cut from 19" x 24"-19½ lb. bond at 15 cents a pound; the carbon from 26" x 39" carbon paper at $9.00 a hundred sheets and the duplicate from 17" x 22"-16 lb. Railroad Manila at 6 cents a pound. Find the cost of 1000 books.
10. A book contains 352 pages. It is printed on 25" x 38"-60 lb. stock, each page measuring 6" x 9". Sixteen different pages are printed on each side of the sheet, making 32 pages to the sheet. How much stock will be required for 1000 books and what will it cost at 11 cents a pound?
LESSON 92

Instructions and procedure. Prepare two panels using brass rule or, better still, six-point linotype border, 25 picas wide and 43 picas long. Place a figure one inside the first and a figure two inside the second for identification purposes. Cut the stock 12" x 9". Make up the form to run work-and-turn, following the directions already given. Put on the press and run a few copies.
LESSON 93

Instructions and procedure. For this lesson, four panels are required. Make them of proper proportions to run on a 4" x 6" page and use the work-and-turn method. Place a folio at the bottom of each page, allowing twelve points between the rule and the folio. When the folio occurs at the foot of the page, it is the custom to include it in the page size; when it is placed at the head, it is disregarded, unless the running head is more than one-third the width of the page, in which case one-half the space occupied by the running head is thrown into the head margin. Cut the stock, make-up the form and print a few copies. This form is called the square four.
LESSON 94

Instructions and procedure. Eight panels are required for this job. They should be made of proper proportions to run on a 3" x 5" page with the folio at the foot of the page. The job is to run work-and-turn. Make a dummy. Cut the stock carefully to the required size and make up the form according to previous directions. After several copies have been printed, cut at the proper place, fold, stitch, and trim.

This form is called the square eight.
LESSON 95

Instructions and procedure. Using the panels prepared for Lesson 94, prepare the following form for a sheetwise run. In this case, each page of the eight page dummy will be marked, four pages run in one form and these properly backed up by the remaining four pages in a second run. Be careful in the solution of your cutting problem with this job. Print a few copies, fold, stitch and trim.

Notice that this is not the most practical way to run this job on a large press. It is given here for practice purposes only.
LESSON 96

Instructions and procedure. Cut the stock for this job 17" x 25". There are sixteen pages to run work-and-turn. Make the required number of panels properly proportioned to a 4" x 6" page. Use a running head, "Fundamentals of Printing," in eight-point caps and folio at the head of the page. Even numbers designate left hand pages and odd numbers right hand pages. Determine the margins in the order and by the process already given in previous directions. Make all measurements very accurately and be sure stock is squared in order to insure perfect register.
LESSON 97

Instructions and procedure. Pamphlets may be wire stitched or sewed. The back margin will vary somewhat with the method used.

If the pamphlet contains several pages, it will not open as wide when stitched with wire and the back margins should therefore, be greater. The stitching may be done through the folded edges with all the signatures lying flat or the signatures may be placed inside each other in regular order and the stitches driven through the center of the pages. This is called the saddle-back method.

In this job, there are sixteen pages, two eights run work-and-turn, with saddle stitch. Since one signature fits inside the other, it will be necessary to run pages 1, 2, 3, 4, 13, 14, 15, and 16 in one run and pages 5, 6, 7, 8, 9, 10, 11, and 12 in the other.

Use 3" x 5" panels with folios at the foot of the page. Print a few copies, cut, fold, gather, stitch, and trim.
LESSON 98

Instructions and procedure. It is usually most economical to run as many pages at a time as printing and folding machinery will permit. A six page folder may be worked as a four and a two, run as two forms and the four made to inset the two. Ordinarily, the six pages should be run in one form. Using the panels already made for a 4" x 6" page and with folios at the foot, impose a six page folder, print, stitch, and trim.
LESSON 99

Instructions and procedure. Twelve pages may be imposed so that four pages fold over on the corresponding half of the remaining eight and folded in page sequence. If this type is to be folded by hand, insert a short piece of hairline rule between sections as a guide to folding. Be careful to set the rule so that the corresponding pages will be in exact register.

Use a panel proportioned to a 3" x 5" page in working this job. Lay out a form of the fold-over type described above. Finish by folding, stitching, and trimming.

Rule for folding—
LESSON 100

Instructions and procedure. Twelve pages may also be worked as an eight and a four, in which the four pages are cut off after being printed, each folded separately and the eight made to inset the four. Using the same panels as in Lesson 99 impose this type of form and finish in the usual manner.

Cut here——
Definitions of Terms Used by Printers

Ad -- Common abbreviation for advertisement.
Alignment -- In the same straight line, either vertically or horizontally.
Ampersand -- The short "and." (&)
Anode -- Positive terminal of an electric circuit.
Ascenders -- Part of a lower case letter that extends above the common level.
Automatic press -- Press which feeds, prints and delivers separate sheets; Kelly, Miehle and Miller are examples.
Bastard -- Not standard length.
Batters -- Material with damaged or battered faces.
Bleeding -- Allowing rule to run off the sheet.
Brass spaces -- Spaces of various point sizes, one point thick.
Brevier -- Eight point type.
Broadside -- A heading set vertically.
Caption -- A heading.
Casting-up -- Laying out a table.
Cathode -- Negative terminal of an electric circuit.
Center-face -- Bevel on each side with face in center.
Chamfered rule -- Side-face rule.
Clam-shell press -- Press in which both bed and platen move in order to make impression.
Cock and hens -- The pieces of type used to make braces.
Column rules -- Rules that run vertically on the sheet.
Composing rules -- Thin pieces of steel with ears on each end, of the same measure as the compositor is using; an aid to rapid composition.
Condensed type -- Narrower than standard.
Copper spaces -- Spaces of various sizes, one-half point thick.

Copyholder -- One who reads aloud from the copy to the proofreader.

Counter -- Used to number sheets as they are printed; to set, run all the nines into position and pull lever making all zeros show.

Cylinder press -- Press on which separate sheets are fed to a rotating cylinder; Miehle, Kelly, Babcock are modern presses.

Dead matter -- A form that has been printed and is not to be used again.

Decimal point -- Made with an en leader in tabular matter; otherwise, period.

Descenders -- Part of a lower case letter that extends below the common level of the type.

Devil -- A printer's apprentice.

Dirty case -- A case in which many of the letters are out of their proper places.

Dirty proof -- Proof in which there are many errors.

Distribution -- Putting dead matter back where it belongs.

Ditto marks -- Made by turning two commas with nicks in.

Draw sheet -- The top sheet of the tympan on a press.

Ellipse -- Omission of words and indicated by four periods, one em apart.

Expanded type -- Slightly wider than standard.

Extended type -- Considerably wider than standard.

Feather edge -- Cutter knife edge is rough after being ground; hone or run piece of soft wood over edge.

Flop -- Turning a sheet to feed the opposite side to the guides without turning it over.

Folios -- The numbers of the pages of a book.

Font -- A complete assortment of type of given size and face.

Full face -- Face is full width of material.

Gingerbread -- A meaningless ornament.

Hair spaces -- Spaces thinner than the 5-em.
Half title -- The simple title on a separate page preceding title page.

Half tone -- A cut made from a photograph which was taken through a screen.

Harmony -- Proper relation as to shape, sizes, weight, etc.

Hell box -- Receptacle for discarded material.

Imprint -- The name of the shop where a given job was done.

Indention -- Set in from the outside margins.

Job press -- Press with platen used for small work; common sizes 8 x 12, 10 x 15 and 12 x 18; kinds are Chandler & Price, Colt and Golding.

Journeyman -- A printer who has finished his apprenticeship.

Justification -- Proper spacing of lines, columns, or forms to correct tightness.

Labor saving material -- Material cut to pica lengths.

Lay -- The arrangement of the boxes of a case.

Leaders -- A series of dots or hyphens cast on en, em, 2-em, and 3-em pieces of type.

Leads -- Spacing material, usually two points thick.

Letter spacing -- Placing thin spaces between letters.

Ligatures -- Two or more letters cast on the same body.

Line measure -- Line gauge.

Lock-up -- The process used to make the form lift.

Long primer -- Ten point.

Make-ready -- Evening the impression.

Make-up -- Putting together various parts of a job.

Make-up rules -- Steel rules usually 12 or 13 picas in length with a distinct "hump" in the center, used for handling type.

Marking out -- Drawing lines around indistinct parts of a proof.

Metal furniture -- Spacing material of various sizes and thicknesses used to fill large spaces where accuracy is essential.

Miters -- Material cut at an angle, usually used for corners.
Mortise -- Cut with square corner, made in type or other material.
Nonpareil -- Six point type or other material.
Nut quad -- The enquad.
Off its feet -- Type standing at an angle so that only a part of the face prints.
Offset -- The smudge caused by one sheet being placed on another freshly printed sheet before the ink is dry.
Open form -- Form in which there is considerable space not filled with type.
Open table -- Table without rules.
Optical center -- The center as seen by the eye, slightly higher than the geometric center.
Perforating rule -- Strips of steel rule with face in segments and higher than type high.
Pi -- Mixed type.
Pica -- Twelve point type or material.
Plate -- A full page cut or illustration not recognized by a folio.
Points -- The punctuation marks.
Proofreader -- One who silently reads and marks errors on a proof.
Query -- A question; used in proofreading.
Quoins -- The wedges used in locking up.
Reglets -- Wood spacing material cut to pica measure and six or twelve points thick.
Revise -- A second proof, taken after corrections have been made.
Ribs -- The ridges on the front side of a linotype slug.
Rivers -- Lines of white space that may run through a page or paragraph.
Ruled table -- Table in which rules are run.
Running heads -- The headings used at the top of book pages.
Score -- A rule with heavy impression and without ink to make a fold on heavy paper or cardboard.
Side-face -- Bevel on one side only and face on opposite side.

Slip sheeting -- Placing pieces of paper between printed sheets to avoid offset.

Slugs -- Spacing material, usually six points thick.

Slur -- A smudge caused by type.

Solid matter -- Set without spacing material between the lines.

Spotting up -- Pasting layers of tissue over portions of a proof that have been marked out.

Squeeze -- The amount of impression.

Stet -- Used by proofreaders; let it stand.

Stub -- The subject matter of a table.

Summer rollers -- Made hard to withstand heat.

Type high -- The height of type, approximately .918 inches.

Type matrix -- That which makes the face of a piece of type.

Type mold -- The receptacle in which the body of a piece of type is cast.

Washington hand press -- An old type of press on which impression is taken by pulling a lever; still used by engravers and for fine printing.

Web press -- Press which prints from a roll of paper and performs complete operation including folding.

Winter rollers -- Made soft to be effective even if cold.

Wood furniture -- Spacing material usually from two to ten picas thick and from ten to sixty picas long used to enclose forms in the chase.

Work-ups -- Spaces, leads, slugs, and other material which may rise till they show in the print; type high material may work up and punch through the paper.
THE TESTS
Lesson 1  Multiple Choice Test

1. All letters of (the same, different, related) thickness.

2. The stem of the letter "h" is called (an ascender, the left stroke, beard).

3. Type has nicks on (one side of the letters only, both sides, one side and bottom).

4. The shoulder is the (heavy stroke, that which extends beyond the base, the counter) of the letter.

5. Kerned letters (are very fragile, can stand much abuse, require same care as other letters).

Name_________________________  Test Score_______

Lesson 2  Questions

1. What is the difference between the letter "1" and the figure "1"?

2. For what are serifs used?

3. Give the name of the stem of the letters "q" and "p".

4. What are the feet of a piece of type?

5. How do two 3-em spaces and an en quad compare in thickness?

Name_________________________  Test Score_______
Lesson 3

Multiple Choice Test

1. Type must be set with (the right hand, the left hand, either hand).
2. Leads are (six points thick, two points thick, graduated in thickness according to length).
3. The height of type or "type high" is (1.32, .832, .918) inches.
4. The printer must be an (artist, mechanic, both).
5. Type is composed largely of (copper, lead, zinc).

Name ___________________________ Test Score _________

Lesson 4

Questions

1. What is the size relation between the cap and lower case sides of the California Job case?
2. Is it easier to learn the locations of the cap or lower case letters? Why?
3. Account for the letters "J" and "U" being placed at the end of the alphabet.
4. Are the cross strokes of the "A", "B", and "H" exactly in the center of the letter? Why?
5. How many so-called "points" are there in the case?

Name ___________________________ Test Score _________
Lesson 5

Test

1. Type should always be read with the nicks (toward, away from) the compositor.

2. A fifteen pica measure requires (two ems, an em and a half, one em) for paragraph indention.

3. The largest practical space between words is the (three-em space, en quad, em quad).

4. In a line requiring quads and thinner spaces, the smallest spaces are placed (at the end of the line, next to the type).

5. A ten-point em is (three-fourths, seven-eights, five-sixths) of a pica.

Name_________________________ Test Score_______

Lesson 6

Multiple Choice Test

1. Job type is purchased (in fonts, by letters, by the pound).

2. The "lay" of the case means (the angle to which it is set while being used, the arrangement of the boxes for the various letters, the manner in which it is placed on the stand).

3. Make-up rules are (measuring sticks for type matter, used in handling type, leads and slugs, for determining the length of columns).

4. The en-quad is often called the (nut quad, mutt quad, half-em quad).

5. Type set without leads is called (solid matter, unleaded, non spaced).

Name_________________________ Test Score_______
Lesson 7

Questions

1. If six points are required between two lines, should one slug or three leads be used? Why?
2. Should battered letters be thrown away, repaired, or returned to the case?
3. Why should type be corrected in the stick before dumping?
4. What is "bastard" material?
5. For what reason is type cast in reverse of the way it appears when printed?

Name______________________
Test Score_____

Lesson 8

Completion Test

1. If the head is set in caps, the words should be spaced with ______.
2. The beginning of a quotation is made by turning ____ ____ nick______.
3. The close of the quotation is made by using ____ _____ with the nicks turned _____.
4. A rapid compositor learns to ______ the next letter he is going to use before he picks it up.
5. An ______ or ______ word should be enclosed in quotation marks.
6. An expert compositor can often tell by the ______ what letter he has in his hand without looking at it.

Name______________________
Test Score_____

[The page contains a table for Lesson 8 Completion Test with spaces for answers and test scores.]
1. The best cheap type wash for all purposes is (benzine, oil, soap).
2. To secure the best results, use the wash (generously, copiously, sparingly).
3. The rags best adapted to this purpose are made of (pure wool, hemp, cotton).
4. If lye water is used as a wash, it (should never touch the furniture, should be sprinkled over the furniture occasionally to keep it from getting too dry).
5. Letters that are filled up should be scrubbed out with type wash poured on a (wire brush, brush with soft bristles).

Name_________________________________________ Test Score__________

Lesson 10

Questions

1. To whom is credit given for the invention of printing from movable type?
2. Who should have the honor according to the Dutch?
3. Name two men who have made attempts to trace the origin of printing.
4. Why are the origins of printing so obscure?
5. State the reason for history's ignoring the mechanical features of typography.

Name_________________________________________ Test Score__________
Lesson 11  Completion Test

1. Printers have studied with profit to themselves, the ______ pages of the monks.

2. The invention of printing came as a result of the need of a ______ and more ______ process of producing _______.

3. The work of the monks was reasonably ______ and much of it was ______.

4. Modern ______ machines are capable of producing enormous amounts of ______.

5. The presses of today run at almost ______.

Name ___________________________  Test Score ________

__________________________________________

Lesson 12  Test

1. The short "and" is called the (ampersand, et cetera).

2. Commas should be (omitted, inserted, left to the compositor) in all numbers of five digits or more.

3. The first proof is called a (revise, galley proof).

4. "Stet" means (to let stand in its original form a statement in which a correction has been indicated, equalize space between words).

5. "Rivers" in type are lines of white space (that run across a page or paragraph, between lines of type).

Name ___________________________  Test Score ________
Lesson 13

Test

1. Eeglets are made of (iron, wood, lead).
2. Benzine should be kept in (a bottle, a pan, a safety can).
3. The nicks in type are made (for ornamental purposes, as an aid in setting, to make the type lighter in weight).
4. Type that is used for straight reading matter is called (body type, display type).
5. The enclosed stand that holds a number of cases is called (the case rack, the cabinet).

Name ___________________________  Test Score _______

Lesson 14

Completion Test

1. Because of increased demands for printing, more ______ was necessary in setting type.
2. Experiments were made with machines that would ________ ______.
3. The first commercially successful machine was the _________.
4. It was a combination type ______ and ______ machine.
5. The editor of the ________ _________ gave it the name it still bears.

Name ___________________________  Test Score _______
Lesson 15

1. On most linotype machines, the maximum length of the slug is (thirty picas, forty-two picas, twenty-six picas).

2. The linotype slug is smooth on one side; the other side has (seams, ridges, ribs).

3. The miters on opposite ends of a slug should be (parallel, opposite each other).

4. If the form is longer than a single slug, (use more than one slug, piece out with another kind of border).

5. If brass rule requires miters, (purchase them from a foundry, make them yourself).

Name__________________________ Test Score__________

Lesson 16

Questions

1. Why are there so many faces of brass rule?

2. What is chamfered rule?

3. How are corners fitted in using chamfered rule?

4. Explain how a pica and a half piece of rule may be cut on a rule cutter.

5. What is "labor-saving" material?

Name__________________________ Test Score__________
Lesson 17

Completion Test

1. The Chinese are given credit for printing from movable blocks as early as the ________ or ________ century.
2. Engraved blocks were used by these people as early as ________, but not extensively practiced till ________ years later.
3. Movable type is used extensively in China today by ________ for printing Chinese ________ and ________.
4. In European languages, the characters are ________ into an alphabet.
5. The difficulty in printing Chinese is that each ________ requires a separate character.

Name ____________________________
Test Score __________


Lesson 18

Completion Test

1. A lack of ________ has caused much dispute concerning the inventor of movable type.
2. Gutenberg was also a ________ of ________ ________ and ________.
3. He set up a shop in ________ in the year ________ or ________.
4. A man by the name of ________ furnished the capital, but later the partnership was ________.
5. Gutenberg set up another press with considerable ________ to him and his partner.

Name ____________________________
Test Score __________
Lesson 19

1. The dots leading from one part of a line to another part are called (guides, leaders).
2. The point system is much (more simple, more complex) than the old system.
3. Nonpareil means (eight-point, six-point).
4. Justification should be made between (the last letter of the word and the first dot, any two dots).
5. Type sizes now vary (by name, by point size, by face).

Name ___________________________ Test Score _______

Lesson 20

1. What is the origin of the point?
2. Why is it not used in making all measurements in printing?
3. Define the term, "pica."
4. How may a given number of picas be reduced to points?
5. State the approximate number of picas to the inch.
6. Why is it often necessary to reduce a given number of picas to inches?

Name ___________________________ Test Score _______
Lesson 21

1. Capitals are used most sparingly by the (British, French).
2. The wrecked ship set an (SOS, S.O.S.).
3. The king of the underworld is (Satan, satan).
5. The United States took part in the (World War, world war).
6. The (Louisiana purchase, Louisiana Purchase) was made in Jefferson's administration.
7. Will the (Senator, senator) repeat the remark he just made?

Name ___________________________ Test Score ________

Lesson 22

1. What is an ellipse? How is it made in type?
2. How many small cap letters are similar to the same letter in the lower case?
3. What parts of a letter are set in small caps?
4. When a word within the text is set in small caps, what does it indicate?
5. Are more small caps used in legal, newspaper or medical printing?

Name ___________________________ Test Score ________
Lesson 23

1. In the United States, words are divided according to the (pronunciation, etymology) of the word.

2. To avoid more than two consecutive hyphens at the ends of lines, the words should be (wide-spaced, letter spaced, referred to the author for re-writing).

3. When writing long figure lines, the division should be ($1,-000,000; $-1,000,000; $1,000-000).

4. Dissyllables pronounced as monosyllables should (be divided as indicated, should never be divided) as in (hel-ped, help-ed, helped).

5. If a final consonant is doubled before -ing, (both consonants belong to the parent word, the word is divided between the consonants) as in (whir-ring, whirr-ing).

Name _______________________________ Test Score ________

Lesson 24

Questions

1. What is meant by letter spacing?

2. Name two conditions in which it is justifiable to resort to letter spacing.

3. Which letters of the alphabet are sometimes mortised to secure a closer fit?

4. Distinguish between optical center and geometric center.

5. Name 10 letters of the alphabet that illustrate the principle of optical center.

Name _______________________________ Test Score ________
Lesson 25

Test

1. The (Lowery Bros., Lowery Brothers) are a firm of bakers.
2. (Sen., Senator) Arthur B. Robinson is from Indiana.
3. (Ten thousand, 10,000) years ago, the earth was old.
5. (Dr. John W. Jones, Doctor John W. Jones) is dean of the faculty.
6. The (L. and N., L & N) is a southern railroad.

Name ___________________________   Test Score _________

Lesson 26

Problems

1. How many points are there in a line set on 36 picas measure?
2. Find the number of inches in a line containing 180 points.
3. A line is set on 25 picas measure in 14-point type. How many 9-point ems does it contain?
4. On a given page, there are 34 lines of 12-point type, set on 22 picas measure and without leads. How many picas are there in the page?
5. A form 42 picas wide, set in 10-point with leads, has 12 lines. Calculate the number of "square" picas in the form.

Name ___________________________   Test Score _________
Lesson 27

Completion Test

1. Two systems of punctuation are in vogue the _____ or easy system and the _____ or stiff system.

2. The modern trend is to _____ all punctuation except when necessary to _____ the author's _____ _____.

3. The spacing after the punctuation mark is the _____ _____ or _________.

4. Differences in the length of the elements determine the kind of a dash to be used, for example, 5 (to) 8 requires a _______; 1800 (to) 1803 requires an _______; July 4, 1776 (to) July 4, 1931 requires an ________

5. Omit periods after _____ _____, _______ numberals, the term _____ _____ and _____ _____.

Name______________________________  Test Score______

Lesson 28

Multiple Choice Test

1. The (quarter-size, half-size, full size) rule case is most practical for school shops.

2. (Center face, side face, full face) rule cannot be butted with perfect joints.

3. In using center face rule (six, eight, ten) sets of mitered corners are necessary.

4. A (heavy, medium, light) face rule should be used with a light face type.

5. (Leaders, commas, leads) are sometimes substituted for brass rule.

6. The rule should be spaced (slightly higher, lower, to exactly align) with the bottom of the type.

Name______________________________  Test Score______
Lesson 29  

Multiple Choice Test

1. The line gauge is also called a (line measure, pica stick, em meter).

2. (Brevier, Pica, Long Primer) type can easily be measured with a line gauge.

3. If the line gauge is 72 picas long, its length in inches is (twelve and seven-sixteenths, twelve, twelve and one third).

4. The flat side of 18 point type measures (one pica and a half, one pica and three points, one pica and eight points) on a line gauge.

5. To measure forms more than 72 picas long, (two line gauges must be used, piece of string of known length, one line gauge applied more than once).

Name _____________________________  Test Score __________

Lesson 30  

Questions

1. What are the dimensions of a page of this book as shown by the line gauge?

2. How many slugs equal one pica? How many leads equal 8 points?

3. State the number of nonpareils required to make 24 points.

4. How long and how wide are the columns of a local newspaper?

5. Why should metal furniture be substituted for slugs whenever possible.

Name _____________________________  Test Score __________
Lesson 31

Questions

1. Is there greater likelihood of too little white space between the border and the type or too much?

2. How much "play" if any, should there be in the type within the border when worked back and forth with the fingers?

3. Is it necessary to run the slugs through the trimmers on the saw in order to get a perfect miter? Why?

4. Is the measure of the form equal to the outside or inside measure of the miter?

5. With plain rule, should the corners be butted or mitered?

Name ___________________________ Test Score __________

Lesson 32

Completion Test

1. During the Middle Ages, most of the writing was done by ______.

2. During this period, printing from wooden blocks on ________ and paper appeared in Europe.

3. On cloth and vellum, the practice dates back to the ________.

4. Printing from blocks on paper began as far back as the ________ of the ________ ________.

5. Whole blocks were used in making books, sometimes consisting of ________, and ________, wholly of ________ or ________ of ________.

Name ___________________________ Test Score ________
Lesson 33

Questions

1. Distinguish between a mortised letter and a mitered letter.

2. Which of the above two is preferable as an initial letter? Why?

3. When should the letters of the first line of the text align with the top of the initial and when with the ornament that may be a part of the initial?

4. Why is an "0" when used as an initial easier to fit when inverted than when set in natural position?

5. Under what conditions is it justifiable to bastardize leads?

Name_________________________  Test Score__________

Lesson 34

Questions

1. For what purpose is electrotyping used?

2. Does each shop usually have its own electrotyping equipment? Why?

3. What is the purpose of the use of graphite in the process?

4. Is the cut formed at the anode or cathode of the circuit?

5. What materials may be used as a base to make the "electro" type high?

Name_________________________  Test Score__________
Questions

1. Should decimal points be made to line in columns where dollar marks are used? Why?

2. May fractions be set in the column if the right margin is very thin? Why?

3. Is it practical to add points in place of setting the longest line of figures in type as a basis for calculations? Give reason.

4. What difficulty is met in making calculations by points if the figures of a font are not cast on a body one en wide?

5. What should be done when unusual fractions, as eleven-twenty-thirds, are needed?

Name ___________________________  Test Score ________

Lesson 36  
Multiple Choice Test

1. Roman numerals, unlike most arabic numerals, are (never, always, sometimes) cast on points.

2. The modern tendency is to use (capital letters, lower case, small caps) for folios in the introduction of books.

3. If a Roman numeral closes a statement, it should be followed by a (period, no punctuation, colon).

4. The "plates" of a book should be numbered in (roman, arabic, either).

5. Roman numerals should also be used to number the (figures, legends, captions).

Name ___________________________  Test Score ________
Lesson 37

1. A word or more underscored once, indicates that (italic, small caps) should be used.

2. Most italic faces (slant to the left, do not slant, slant to the right).

3. Most algebraic equations are set in (italic, roman).

4. Quotes may be used for (foreign words, anglicized words).

5. The principal use of italic is for (emphasis, beauty of page, expression of strong feeling).

Name_________________________  Test Score_______

Lesson 38

Questions

1. Why should the space between words set in capital letters be greater than when set in lower case?

2. What point thicknesses are brass and copper thin spaces?

3. In what point sizes are they made?

4. Explain the statement, "A line of capitals is a series of rectangles."

5. What is the largest inter-word space that a line of capitals will allow?

Name_________________________  Test Score_______
Lesson 39

Completion Test

1. It is claimed that linotype composition is ______ to hand work.
2. Linotypes are used _____ for ______ ______.
3. The ______ of ________ is reduced through use of composing machines.
4. A good operator can set type ______ or ______ times faster than a ______ ________.
5. Because of the speed of machines, newspapers give the public ______ ________ of reading matter.

Name__________________________  Test Score__________

Lesson 40

Questions

1. What is a Washington hand press? Are any of them used for printing today?
2. Name three modern cylinder presses.
3. What is a web press?
4. Give the names of three high speed automatic presses.
5. Explain the term "clam shell type" press.

Name__________________________  Test Score__________
Lesson 41  

Multiple Choice Test

1. The type face is made by the (mold, matrix)
2. A mold is (adjustable to several body sizes, made for one size only).
3. The matrix is made of (typemetal, steel, nickel, copper).
4. A piece of type is formed (from solid metal under hydraulic pressure, from molten metal).
5. With a modern casting machine (2000; 50,000; 10,000) types may be cast in a day.

Name_________________________  

Test Score____________________

Lesson 42  

Completion Test

1. The spaces in the case, beginning with the largest, are ___ and ___ , ___ , ___ , ___ , ___ , ___ , and ___ .
2. Beginning at the top of the case on the left side and going down are ___ , ___ , ___ , ___ , ___ , ___ , and ___ .
3. Directly above the "a" and "r" are ___ , ___ , and ___ .
4. The boxes from "i" to the right are ___ , ___ , ___ , ___ , ___ , ___ , and ___ .
5. To the right of "r" are ___ and ___ above and ___ and ___ below.

Name_________________________  

Test Score____________________
Lesson 43  Questions

1. How may a stick that can be set only for picas and half picas be used for a measure of thirteen picas and two points?
2. What sometimes causes spacing material to work up in a form, that is, show in the print when they are not type high?
3. If a lead and a rule are used together in a given measure and the lead is too short to entirely fill it, what may happen to the rule?
4. What is meant by harmony in the use of brass rule?
5. Why should the use of many leads be avoided, even on short measures?

Name ___________________________  Test Score ________

Lesson 44  Questions

1. For what purpose is a paragraph used in writing?
2. Mechanically, does the paragraph add to or detract from the appearance of the page.
3. Do the larger or smaller sizes of type require the most indention?
4. On a measure of twelve picas what should be the indention in relation to the size of the type?
5. What is the most common indention?

Name ___________________________  Test Score ________
Lesson 45

Multiple Choice Test

1. Squared indention is used principally (by newspapers, by magazines, in job shops).

2. In hanging indention, the last line (must be a full, normally spaced line, may be quadded out).

3. The most difficult form of indention to use with all kinds of copy is the (paragraph, diagonal, hanging) indention.

4. A long paragraph can be set more easily in (hanging, half-diamond) indention.

5. Any form of indention is more simple for the compositor if (short words, scientific names) are used.

Name ___________________________ Test Score __________

Lesson 46

Questions

1. What is the difference between a proofreader and a copyholder?

2. Mention three qualities of a good proofreader.

3. When an abbreviation is to be spelled out, how is it indicated in the proof?

4. How is a proof that has but few errors in it described? What is the opposite term?

5. Make the mark indicating the inverting of a letter and the dele-mark.

Name ___________________________ Test Score __________
Lesson 47  
**Multiple Choice Test**

1. The longest line of a poem should be (set, measured with a line gauge) to determine the measure.

2. It is necessary to place the longest line in the (exact, approximate) center of the measure.

3. Headings should be set last because (they are more easily centered on a certain line, they are often set in caps, they are sometimes set from a different kind of type than the body).

4. Thin spaces should be avoided at the beginning of a line because (they are difficult to insert, they are unnecessary, there is danger of disturbing the alignment).

5. Rhyming lines are usually equally indented (to help identify the meter, to improve appearance, because of custom).

Name_________________________  
Test Score________

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Lesson 48  
**Multiple Choice Test**

1. The body of a letter is usually set in (roman, italic, typewriter type).

2. Since the address is considered display matter, it should be followed by a (colon, no punctuation, period).

3. Indent a simple signature (two ems, one em, three em space) from the right margin.

4. The address of the letter should be set in (small caps, italic, caps).

5. Most letters are set in (two sizes, one size, several sizes) of type.

Name_________________________  
Test Score________
Lesson 49

Multiple Choice Test

1. Figures in most body types are cast (six points, half the point size of the type, five points) thick.

2. In a column of figures, the dollar mark occurs (twice, once, as many times as there are numbers).

3. A (thin space, no space, en quad) should be dropped between the dollar mark and the first digit of the number.

4. If a series of numbers representing dollars are set in a line, the dollar mark should be placed before the (first and last numbers, the first number and total, the first number only).

5. The thickness of the en quad, and therefore the thickness of figures, in most fonts of ten point type, is (five points, ten points, eight points).

Name__________________________  Test Score________

Lesson 50

Questions

1. Upon what does the width of a roman numeral depend?

2. What punctuation should be placed after each roman numeral?

3. If an arabic number in 12 point type consists of four digits, how many points wide is it?

4. How much space should be placed between the last dot of the leaders and the first digit of the number?

5. How may the width of a roman number be measured?

Name__________________________  Test Score________
Lesson 51

Questions

1. Do you prefer leaders made with periods or hyphens? Why?

2. Which is easier, to follow a line of leaders if the space between the characters is very wide, or very small?

3. What should be the relation of a column heading to the various numbers under it?

4. Why should thin spaces be avoided in indenting a column of figures on the right side?

5. How are ditto marks made?

Name_________________________ Test Score__________

Lesson 52

Multiple Choice Test

1. Leaders may be omitted in (very short lines, lines of twenty picas or more, at discretion of the compositor).

2. Column headings are usually set in a (larger size of type, same, smaller) than the body.

3. (Slugs, metal furniture, wood furniture) should be used for blanking out purposes when the space is less than two picas.

4. An "open" form in which metal furniture is used is (lighter, same weight, heavier) than one in which the same space is filled with slugs.

5. Wood furniture that has not been damaged (is accurate enough, may never be used, is seldom used) for ordinary spacing purposes.

Name_________________________ Test Score__________
Lesson 53

Problems

1. How many picas are there in a newspaper column 16\(\frac{2}{3}\) inches long?

2. If a form is 288 points wide and 432 points long how many square inches does it contain?

3. A certain form contains four pages, each 3 \(\times\) 5 inches. Find the total number of points.

4. An area contains 225 points. If the form is a square, what is each dimension?

5. Reduce 24.563 picas to points.

Name_________________________  Test Score__________

Lesson 54

Questions

1. What is a "query"?

2. Who usually reads the "revises."

3. When does the proofreaders responsibility end?

4. If a proofreader marks every error on the first proof, why is it advisable to have a second one?

5. Is it necessary for the proofreader to understand what he is reading in order to do the best work, or is his work purely mechanical?

Name_________________________  Test Score__________
Lesson 55

Questions

1. In triple justification how many justifications must be made?

2. How may Lesson 55 be set without using slugs?

3. Why should the bastardizing of material be avoided?

4. Account for the fact that the dots do not align in this lesson.

5. What can be done if a given measure will not contain all the words in one line?

Name__________________________  Test Score__________

Lesson 56

Questions

1. Why must all justifications be made with extreme care in this type of composition?

2. If material must be bastardized, what should always be done before it is returned to the case?

3. What may happen if the longest line is not taken as a model?

4. Why is it inadvisable to set the columns separately and butt them?

5. How are very short measures best set?

Name__________________________  Test Score__________
Lesson 57

Questions

1. In tabular composition should the column rules or the cross rules run the full length of the form?
2. How should the cross rules be set?
3. What advantage is there in having both dimensions of the form even picas?
4. What is meant by rules "bleeding" off the sheet?
5. When should casting up be done and by whom?

Name_________________________ Test Score________

Lesson 58

Questions

1. In tabular composition, what is the stub?
2. What, if any, is the mathematical relation between the stub and the rest of the table?
3. Should all columns of figures be the same width, or should the width depend on the number of figures they contain?
4. In a given table, if some of the columns are narrow should condensed figures be used; or should the same face prevail throughout the job?
5. Should common fractions be run in the margin or in the column in tabular composition?

Name_________________________ Test Score________
Lesson 59

Questions

1. What is a table called that is set without rules?

2. What is the opposite of an open table?

3. What is the heading for a column called?

4. In setting a column of numbers representing dollars should a decimal point followed by two zeros be used, for should the number be set without the point and zeros?

5. If a table is divided into two distinct parts, how should they be separated?

Name_________________________________________  Test Score________

Lesson 60

Test

1. A (period, en leader) should be used for a decimal point.

2. In short measures with long heads, the box headings should be set (longitudinally, broadside).

3. The word "Total" at the end of the stub should (be set flush as the other lines, be indented).

4. Columns in tabular composition must be perfectly justified in order to (save look-up trouble, insure alignment, both).

5. Braces may be made any length from material called (duck and drakes, cock and hens).

Name_________________________________________  Test Score________
Lesson 61

Completion Test

1. Sometimes it is necessary to ____________ in order to set a certain amount of type to fill a certain measure.

2. If thin spaces are not available ____________ will do.

3. These ____________ be thrown into the cases.

4. If it is necessary to use a condensed face, it should ____________ with the rest of the type.

5. Thin spaces made of ____________ and ____________ may be used to advantage.

Name_________________________    Test Score________

Lesson 62

Questions

1. Under what conditions should a form be made up on a galley.

2. Should ascenders and descenders on certain letters of type be disregarded in centering a line vertically? Why?

3. If italic is used with roman in a certain form why should they be in the same series?

4. What are "batters?"

5. How can there by harmony between type and ornament?

Name_________________________    Test Score________
Lesson 63

Questions

1. In this lesson what determines the measure of the first line?

2. Why is it necessary to change the measure to set the three lines following the head?

3. What could be done if these lines did not exactly fill the measure?

4. Instead of using metal furniture to space out these lines, what might be substituted?

5. Why is it unwise to use the eye in centering the last line under the one above?

Name__________________________  Test Score__________

Lesson 64

Test

1. Perforating rule is (higher than type high, type high).

2. As a substitute for perforating rule (brass rule, leaders) may be used.

3. Usually (new rollers, old rollers, no rollers) are used with this rule.

4. Allowance for height of rule is made in (lock-up, make-ready).

5. Bank checks (always, sometimes) have a stub.

Name__________________________  Test Score__________
Lesson 65

Questions

1. How many things are displayed in this job?
2. Is it practical to use part hand and part machine composition in one job? Why?
3. How does the subject matter affect the selection of type for this job?
4. If the faces for a given job are not available, what must the compositor do?
5. Name four qualities of a good typographer.

Name_________________________ Test Score__________

Lesson 66

Questions

1. What type faces are most often used for formal printing?
2. Should the same display principles govern this type of composition? Why?
3. What is Script type?
4. For what classes of printing is it used?
5. In your judgment which is the more beautiful, text or Script faces? Why?

Name_________________________ Test Score__________
Lesson 67

Questions

1. What is the relation between the amount of white space on a page and the space taken up by the type?

2. Give the ratio of the width of the form and the length of the page.

3. How do the length of the form and the width of the page compare?

4. Show that the above two ratios, give as a result the answer to the first question.

5. In terms of margins, what is the difference between the length and width of the type page?

Name ____________________________ Test Score ________

Lesson 68

Questions

1. How is the sum of the top and bottom established?

2. By dividing the top and bottom margins in the ratio of 2:1 and laying a ruler on diagonally opposite corners of the paper page, what do you discover?

3. Make a drawing representing a paper page 5" x 8" and properly proportion a type form in it.

4. Make a 4" x 6" rectangle to represent a type page and show in what position it should be placed and on what sized sheet.

5. By means of a drawing show the size and position of a type page on a 6" x 9" sheet?

Name ____________________________ Test Score ________
Lesson 69  
Completion Test

1. In a business card the _____ _____ should reflect the _____ of the business.
   
2. The size admits of _____ _____.

3. Practice limits the sizes to those that can be _____ _____.

4. To cut short pieces, place material of _____ thickness next to the _____.

5. _____ _____ _____ _____ should be avoided.

Name_________________________  Test Score_______

Lesson 70  
Multiple Choice Test

1. Appropriateness demands that the type used for a Fourth of July announcement be (scrip, bold, lightface).

2. Separating the parts of a form that are to be run in different colors is called (breaking up for color, type division, color separation).

3. Getting the parts of the form to print where they should is called (alignment, register).

4. A few leads should be inserted in each form (to secure better lock-up, to shift lines if necessary).

5. The best material for blanking out (wood furniture, metal furniture, leads).

Name_________________________  Test Score_______
Lesson 71

Test

1. If the second form does not "hit" where it should after being put on the press, (shift the lines, reset the guides).

2. The best method is (to lock up both forms at the same time, to replace the first form after it has been run with the second).

3. To insure perfect register (use the same guide edge, "flop" the sheet on the second run).

4. If necessary to mix inks, this should be done (before the press is inked, on the plate of the press).

5. The second color should be worked (after the first is thoroughly dry, in about an hour, immediately).

6. Between the two runs, the paper should be (cooled, warmed; kept at the same temperature).

Name__________________________  Test Score__________

Lesson 72

Completion Test

1. Work-and-twist printing is practical only on _______ ________.

2. On short runs _______ and _______ will be saved by _______ one form _______ the other.

3. Cut the stock _______ the size of the _______ _______ and cut after it is printed.

4. The distance between the centers of the two forms will be _______ the _______ of the sheet to be printed.

5. It is highly essential that the stock be _______ ________.

Name__________________________  Test Score__________
Lesson 73

Questions

1. Is layout paper usually measured in picas or inches?
2. In what way will shop equipment limit the layout?
3. What are two advantages of a layout?
4. What is the first decision that the layout man must make?
5. Is it practical to make more than one layout of a job? Why?

Name_________________________ Test Score________________

Lesson 74

Questions

1. Who is a layout man?
2. What are his duties?
3. Why should layouts be made very detailed?
4. Should a layout be made for all jobs or just the difficult ones?
5. Is the layout man an artist or a printer or both?

Name_________________________ Test Score________________
Lesson 75  

Completion Test

1. No type should be set until the layout is _______.
2. Perforating rule should ______ the margins on both sides.
3. The margins on each side of the ticket proper should be _______.
4. On cardboard, if the perforation is ______ the stub may _______.
5. Perforations are sometimes made with the form set at an _______ in the chase.

Name ___________________________  Test Score ________

Lesson 76  

Completion Test

1. The standard size for letterheads is _____ x ______.  
2. With three folds, this fits into a No. _____ envelope. 
3. The bifold size of letterhead is _____ x ______. 
4. In general, use ______ of type and ______ sizes. 
5. Business people are often ______ by the kind of _______ they use.

Name ___________________________  Test Score ________
Lesson 77

Completion Test

1. For business purposes the _____ envelope is used and many professional people use the _____.

2. The printing is most often done in the ______ ______ ______ corner and on the ______.

3. The type style of the envelope should correspond with that of the ________.

4. Printing envelopes presents a special ________ problem.

5. Impression is made equal by pasting an additional sheet on the ________ ________ or a _______ ________ sheet.

Name_________________________ Test Score__________

Lesson 78

Questions

1. Name three kinds of job presses. Which is the most common in school shops?

2. What three sizes are used most?

3. Identify: platen, bed, throw-off lever, grippers, impression screws, ink disc, gripper bar.

4. Why is a long fountain superior to a short one?

5. If the fountain is improperly adjusted, why does the top roller get hot first on fast runs or in hot weather?

Name_________________________ Test Score__________
Lesson 79

Questions

1. How is a counter set?
2. What are two causes of work-ups? How may each be overcome?
3. How may slurs be avoided?
4. What is a "squeeze" pressman?
5. Why is it necessary to have summer and winter rollers?

Name_____________________________ Test Score_______

Lesson 80

Completion Test

1. A _______ _______ of type faces may be used for the personal card.
2. The size of Mr. cards is _____ x _____.
3. The size of Miss cards is _____ x _____.
4. Space the type line at the _______ center rather than at the _______ center.
5. The Mrs. card is _____ x _____.

Name_____________________________ Test Score_______
Lesson 81 Completion Test

1. The sizes of professional cards are ______ x ______ and ______ x ______.
2. Business sizes vary from ______ x ______ to ______ x ______.
3. The professional card is often printed in ______ ______ or some other ______ face.
5. The ______ of ______ usually reflects the ______ of the ______.

Name_____________________________ Test Score_______

Lesson 82 Completion Test

1. In setting cover pages, there is ______ for the compositor to ______ his ______ ______.
2. The composition of ______ ______ is not regulated ______ and ______ rules.
3. Rules of ______ ______ should be followed.
4. There is a strong tendency to get the type ______ ______.
5. ______ ______ stock requires larger faces than ______ paper.

Name_____________________________ Test Score_______
Lesson 83

Questions

1. What is the purpose of the cover page?
2. How much type matter does it usually contain?
3. Contrast the cover page with the title page as to content.
4. What are the type limitations of a cover page?
5. Should cover pages be plain or ornamental?

Name___________________________

Test Score_______________________

Lesson 84

Questions

1. What is the origin of the modern title page?
2. What are half-titles?
3. Name the parts of the title page.
4. How may the kind of stock affect the composition of the cover page?
5. Is there any typographic relation between the cover and title pages?

Name___________________________

Test Score_______________________
Lesson 85  

Completion Test

1. In a music program the name of the composer is usually set in _________.
2. In any class of composition _________ should be avoided.
3. There are no _________ sizes of type for printing programs.
4. The composition will depend on the _________ of the copy.
5. The names of musical compositions are often enclosed in _________.

Name ___________________________  Test Score ________

Lesson 86  

Questions

1. If a program is a folder, which pages are printed?
2. What should be the typographic relationship of the two pages?
3. Name two common sizes of programs.
4. Upon what will the size largely depend?
5. To what extent are styles of programs standardized?

Name ___________________________  Test Score ________
Lesson 87 Questions

1. Should programs be plain or ornamental?
2. If an ornament is used, what is a good one for this lesson?
3. Suggest an appropriate ornament for a concert.
4. Why is a program set in a text type objectionable?
5. Name two faces that harmonize with a text type.

Name ___________________________ Test Score ________

Lesson 88 Completion Test

1. In order to be read, an ad must be ________.
2. From the advertiser's standpoint an ad is an ________.
3. It is the duty of the compositor, so far as possible, to make the ________ ________.
4. To be attractive, an ad should be ________ ________.
5. Most ads require a ________, but this should always ________ with the ________.

Name ___________________________ Test Score ________
Lesson 89  

Completion Test

1. An ad should display ____ thing or risk becoming ________.
2. There should be cooperation with _________ in order to eliminate ________.
3. Some school papers use only one _____ of _____ and one _____ on a given page.
4. To set a two column ad of a thirteen pica column will require a measure of ________ and ________ picas.
5. Ads are separated from each other by _______ rules, with about one _______ between the border and the rule.

Name_________________________  Test Score_______

Lesson 90  

Questions

1. How may the knife and back guide be made parallel to each other?
2. What is the result if the back guide and knife are not parallel?
3. Describe the two systems of cutting.
4. How may the "feather edge" of a newly ground knife be removed?
5. Mention three ways of causing nicks in the knife.

Name_________________________  Test Score_______
Lesson 91  

Questions

1. What is the first consideration in cutting stock?

2. Why do many paper houses give the direction of the grain of the paper on the outside of the package?

3. How can the grain be determined if it is not given?

4. What mathematical process is usually employed in figuring stock?

5. What disposition is made of the waste of any considerable size on a given job?

Name ____________________________ Test Score ____________

Lesson 92  

Questions

1. What is imposition?

2. In what kind of printing is it most used?

3. Distinguish between work-and-turn and sheetwise printing.

4. How does the size of the stock compare in the above two kinds of printing?

5. What determines which form to use?

Name ____________________________ Test Score ____________
Lesson 93

Questions

1. What is a dummy?

2. How should it be marked for the sheetwise form? For the work-and-turn form?

3. What is a signature?

4. How are the page numbers of a book designated?

5. Why must the numbers of the dummy be considered in reverse order?

Name______________________

Test Score_______

Lesson 94

Completion Test

1. For an eight page folder, work-and-turn, the sheet for the dummy should have _______ right angle folds.

2. The folios must be placed on _____ side of the sheet only.

3. The number of pages in the dummy should be _______ the number in the finished job.

4. The dummy should be placed in the natural position in which _______ are ________.

5. If the dummy is turned with the numbers ________, the position of the _________ and _________ will be in the same order.

Name______________________

Test Score_______
Lesson 96

Completion Test

1. In laying a form of two pages, the type will be so placed that the measure of the outside edge of one to the inside edge of the other equals the ________ of the paper page.

2. Likewise the measure from the top of one to the foot of the other equals the ________ of the paper page.

3. These measures are usually made in ________.

4. The measure may be made by ________ a sheet of the stock to be printed.

5. The type pages of a given unit are usually printed ____ to ____.

Name_________________________ Test Score________

Lesson 96

Completion Test

1. Forms consisting of more than four pages require ________ and ________ for this should be made.

2. The folder requires ________ on ________ sides, ________, ________, and ________ ________.

3. The page margins should be arranged so that the ________ is least, the ________ second, the ________ third and the ________ greatest.

4. If folios are placed at the foot, they should be ________ in making ________.

5. After three margins are determined, additional space within the ________ of the ________ may be added for ________.

Name_________________________ Test Score________
Lesson 97

Questions

1. How many 6" x 9" pages can be printed on one side of a 25" x 38" sheet?
2. Why should all margins be determined before the form is imposed?
3. What is meant by running folios into the margin?
4. Why is it very essential that stock for book work should be perfectly square?
5. What would be the result if there was some variation in the size of the sheets for a given job?

Name ___________________________ Test Score ________

Lesson 98

Questions

1. Which is better, wood furniture or furniture made of metal, in imposing forms?
2. What is type "squeeze?"
3. If it is necessary to unlock a form after registering, what precautions should be taken?
4. How may two pages of unequal size be centered on pages of the same size?
5. How may a form be squared before going to the press?

Name ___________________________ Test Score ________
Lesson 99

Questions

1. Name one situation in which it is better to place the quoins at the bottom of the form.
2. What is a frisket?
3. Why is a hard tympan better in most cases than a soft one?
4. For what reason is it better to underpack rather than overpack the platen for a first impression?
5. How is the position of the guides determined?

Name_________________________ Test Score__________

Lesson 100

Questions

1. What is meant by fanning the sheets? Flying the sheets?
2. Distinguish between underlaying and overlaying a form.
3. What is the purpose of each of the above?
4. Explain the terms marking out and spotting-up.
5. How is the make-ready sheet placed in position?

Name_________________________ Test Score__________