

The Manual of Monumental Lettering

Published by Monumental News, early 1900s
536 Clark Street, Chicago, Illinois, 174 pp. (including advertisements)



The Manual of Monumental Lettering begins:

Introductory

“These instructions on lettering are planned to form a practical manual covering granite and marble lettering, tracing and decoration both by pneumatic and hand tools. They will be invaluable not only to workmen who want to learn the rudiments of the art, but to employers and experienced men who want to perfect themselves in the finer points....”

This book, which begins on the next page,
is presented on the Stone Quarries and Beyond web site.

<http://quarriesandbeyond.org/>

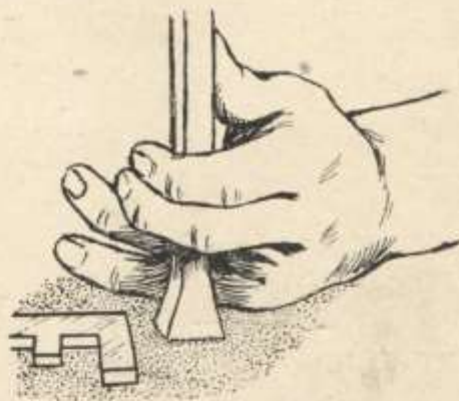
Peggy B. Perazzo
Email: pbperazzo@comcast.net
April 2015

THE MANUAL OF
MONUMENTAL
LETTERING

THE OLD WAY —



The Manual of
MONUMENTAL
LETTERING



Published by
Monumental News
536 S. Clark St.
Chicago

CONTENTS

	Pages
PART ONE — Letter Cutting with the Pneumatic Tool, by J. W. Wyckoff.....	5 - 36
PART TWO — Emblems and Decora- tions, by J. W. Wyckoff... ..	37 - 78
PART THREE — Decorative Treat- ment of Monumental Lettering, by Robert L. Cook.....	79 - 128
PART FOUR — Army and Navy Em- blems for Monumental Decoration.....	129 - 136
PART FIVE — Special Alphabets for Special Uses.....	137 - 148
PART SIX — Miscellaneous Hints and Helps on Lettering.....	149 - 156

PART ONE

Letter Cutting with the Pneumatic Tool

By J. W. Wyckoff

I

INTRODUCTORY

These instructions on lettering are planned to form a practical manual covering granite and marble lettering, tracing and decoration both by pneumatic and hand tools. They will be invaluable not only to workmen who want to learn the rudiments of the art, but to employers and experienced men who want to perfect themselves in the finer points.

No other finishing touch, so to speak, to well proportioned and artistic monuments attracts more attention than well designed lettering, carefully and accurately laid out and cut, and with the added grace that competent workmanship displays. The development of the pneumatic tool and its adaptability to the more intricate work of cutting inscriptions and ornament have led to a more liberal use of lettering on monumental work but the quality of the cutting has been all that could be desired in a general way, a fact to be accounted for by the lack of experience and practice, as well as of competent instruction in the use and management of this remarkable tool.

A better practical understanding of how to handle the implement under

all circumstances is generally needed, and information to this end to be of value, must necessarily come from the man who has already become skilled in the use of the tool and who has acquired the fundamental principles of successful manipulation. It is the belief that the following instructions in the art of cutting letters and inscriptions in granite by the pneumatic tool, to which will be added cutting letters by hand, to be followed by lettering in marble, both by the pneumatic tool and by hand, will be of positive service to all workers in stone, desirous of becoming competent workmen in this artistic department of their calling.

In order to make the work of lettering easier and less tiresome, be sure to banker your stone so that you can get to it from all sides, and at a good height and also to be able to work without reaching and stretching.

You should have a good solution to put on your stone, one that will stick, dry smooth, and that will show the pencil lines distinctly. The best coating you can use is made as follows: Get ten cents worth of gum arabic, and five cents of whiting; put all the gum arabic into a pint bottle and fill nearly full of water, setting it close

to the stove or in the sunshine, when it will soon dissolve. Put the whitening into a baking powder can, or something similar, with holes punched in the lid by a small point. To use the materials: First pour the liquid onto the stone where it is needed for the inscription, then shake some of the whitening from the can on to this liquid and with your finger or sponge spread it all over the desired place smoothly and evenly. Dry it by blowing air from your air-hose upon it and you will have a perfectly white surface to mark upon.

Now all is ready for laying off your letters, and remember that the very first thing to learn when letter-

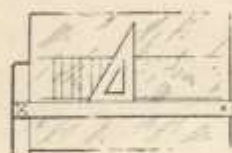


Fig. 1.
LAYING OFF LETTER
WITH T SQUARE AND
T RULE

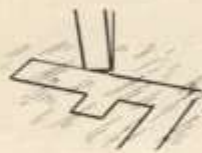


Fig. 2.
POSITION OF TOOL TO
CHECK OVER PEN-
CIL LINES

ing granite is to lay out your letters carefully and gracefully. Do not believe that eye and hand can make straight lines as well as a T square and triangle, therefore never lay out an inscription without these two implements, for a good letterer's success depends from the start upon having a good inscription laid out on his stone before beginning to cut. (Fig. 1.)

II

GRANITE LETTERING

Do not crowd your letters; it is best to make them narrower than to leave too little space between them. The trouble a great many workmen

have in laying out lettering is, that they do not give their letters good proportion, a most important thing to remember and learn. Just a few pointers on proportion will be helpful. For instance take the following inscription on a die 3.0 x 2.6:

William H. Maklin — March
26, 1842—Jan. 9, 1907.

Make your top line letters $1\frac{3}{4}$ inches long by a width of $1\frac{1}{8}$ inches, remembering to draw A, K, Y, V, $1\frac{1}{8}$ inch; N, X, $1\frac{1}{8}$ inch; M, $1\frac{3}{8}$, and the W a little wider. For the two date lines below make the letters $1\frac{1}{2}$ inches long, and the width in proportion similar to the top line. Recollect that when increasing the height the breadth must be increased also; and the reverse in diminishing.

Now to start the cutting; but before we do this, a few words are in order about the condition of your tools, which is now a most important matter. In working in many shops and in different parts of the country, I have found but very few places where the tools were in the proper condition to cut a letter. Such conditions can be remedied if the following directions are carried out. To sharpen pneumatic tools, put them into the fire and heat them not too hot, but, say a little hotter than a cherry red and then pound them out. They must not be hammered out as thin as a marble tool, for you are lettering granite now, but they must be left thick enough to avoid any spring to them. Always make your last few blows very easy on the flat side, which keeps the steel together. Keep the blade the same width as the steel.

Now as to tempering, which is poorly done in most places; have two tubs or buckets, one clear soft water and one of water with a good quantity of salt in it; have your tools in the fire and heat them to a cherry red, not any hotter, and when at this heat plunge them into the salty brine, for a second, then into the clear water, which keeps them from sweating and from being nasty to handle. Follow these directions and you will not have those cracked corners and broken tools that are often encountered. Be sure not to get your tools any hotter than has been described, for you will burn the steel and have no temper; with a little practice you can sharpen a dozen in ten minutes.

Next; Don't grind your tools on an emery or carborundum wheel, for you can not keep them in good shape if you do; always use a grindstone with plenty of water.

Now, to cut these sunk letters which you have laid out: Check in your letters with light air pressure. The position in which to hold your tool is to have the front edge of the tool a little raised as in Fig. 2, and leaving the back corner to do the cutting; but for checking round letters you will have to work both ways, towards and from yourself, and on working toward you the front edge or corner near you will be raised. Start and check all your straight lines from bottom to top from the side of the stone upon which you stand, and check all the bars of letters on one side; then pass to the other side and check all on

that side. Now stand at the bottom and check all cross bars, and finish by checking all round letters, one by one, but be careful to check them in straight and gracefully. Try to split your lead pencil lines, for if your letters are drawn properly you will have correct lines to work from. Always keep your tools sharp for the reason that you cannot check with dull tools. After you have



Fig. 35.
POSITION OF TOOL TO
ROUGH OUT A ROUND
BAR V-SHAPED.

Fig. 2.
SHOWING POSITION OF TOOL AND DIREC-
TION IN WHICH TO CUT SUNKEN BAR.

checked all your letters correctly, wash off your stone, and dry by blowing upon it.

Now in cutting your letters remember to put them in deep and have your bottom line in the center of your bars; that is, a letter should be beveled on both sides the same; make all your bars the same width

whether straight or round. Start the cutting with good strong air pressure and don't be afraid of it; work vigorously. In roughing out, always cut from you—not toward you. Stick the corner of the tool which is towards you right into your checked line, and keep the other corner raised, then with strong air pressure cut right up to your checked line at the top of your letter good and deep (Fig. 3), then the other side of your

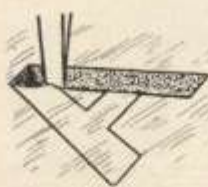


Fig. 4.
POSITION OF TOOL TO
START A V.



Fig. 5.
POSITION OF LETTER-
ING BLOCK AND TOOL
TO CHIP A STRAIGHT
LINE.

bar similarly. Start always at the bottom corner and keep on your checked line when cutting up; don't start at the center of your bar and work out to the edge. About two cuts on each side will rough out good and deep, but more may be used if needed. Turn and cut your cross bars in the same way, but be careful in starting them that you do not break off the corners of your main bar; always keep the tool slanting in towards the center of your bar and there should be no danger.

In roughing out such letters as A, N, W, M, etc., be careful or you will break off the V point at the bottom where the bars join. In cutting the letter A, cut your right hand bar first, beginning at the bottom, but where you must be careful is in starting the other bar. Do not start this, as I have said, by putting your tool

down and cutting towards the top, but start at the top, keeping your cutting edge square on your checked line (Fig. 4), slanting the tool towards the center of your letter and working it back and forth in your checked line lightly; gradually work the corner toward the top of your letter down and to do this you will have to cut toward you; cut the other side the same way until you have your V shape completed. For the rest of your bar there is no danger; cut right into it and finish your bar. In cutting the cross bar of this A, cut on one side with the corner of your tool until you have cut half way, turn and cut from the other side the same, but be careful in doing this for you might break the inside out. So go slow. Always cut this cross bar as deep as your other bars.

In cutting the W, start as in the A on the right side bar and rough out good and deep, but instead of commencing the next bar at the top, as in the A, start at the bottom and cut the V shape, then finish the bar; follow the bars from bottom to top and from top to bottom. You will have no trouble if you will but remember to be careful always to cut with light air pressure, and not try to take off too much at a time. The N and M are cut in the same manner; follow them from bar to bar. When cutting these always use sharp tools; don't try to chew it off or the results will be a broken letter. You should not have less than four dozen tools, and when one is dull throw it down and take another. If you use as many as ten or more tools on a let-

ter like an M or W that's all right; do not think of the tools but the letter. When the tools are all dulled you can go and grind them all together.

The letter B is a little different to cut, for the reason that the point of both rounds come in at the center of the letter. In cutting this, cut your main bar first and then your three cross bars; now cut your round at the bottom first; then start at the center and cut your top bar right around until you meet your top across bar already cut. (Fig. 35.) Be careful on starting your top round; go lightly or the middle point might fly off.

Rough out your inscription good and deep; remember the corners of your main and cross bars, your V shapes and all other corners; cut them a little slower and not so much off at a cut as in other places.

After you have all your letters roughed out not less than $\frac{1}{4}$ inch, the next thing to do is to chip all of your straight lines so that they will be true and show nice sharp edges, which is the beauty of all letters. To do this you must have a clamp straight edge and lettering block. First clamp your straight edge to the bottom of your line and with a sharp hand tool and hammer, chip all cross bars and bottoms of straight bars so that they will be straight and even; change over to the top and do the same thing on all lines. For checking the bottoms and top of these straight bars, which are narrow, have some of your short tools drawn out thin and narrow; have

all sizes from $\frac{1}{4}$ to 1-16 in. These will often be used in cutting raised letters which I will explain later on. After your top and bottom lines are chipped, clamp your straight edge about three inches below your bot-

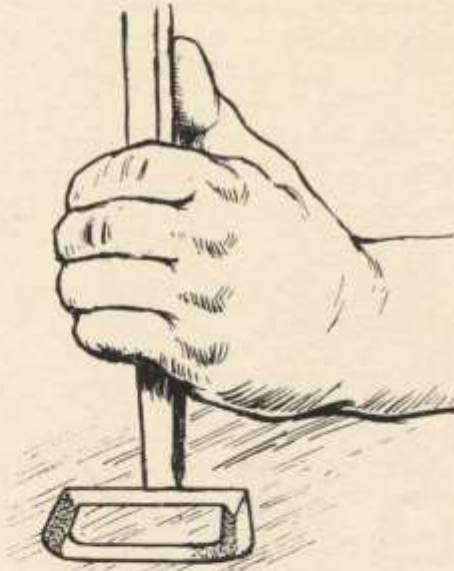


FIG. 6.
POSITION OF CHISEL WHEN STARTING TO
CLEAN A STRAIGHT BAR.

tom line and straight across; take your lettering block and setting it against this straight edge, proceed to chip all straight lines, sliding your lettering block along as you work from one letter to another. (Fig. 5.) Chip a little off to straighten them up, so as to keep all your letters even; for the A and letters that are not at right angles with your cross lines, move your block away from your straight edge and placing it on the slant chip them also just enough to have them straight and show no little chips outside of your chipped lines. Do not forget to keep all bars the same width. Some-

times in chipping you will have to take a little more off one place than another to make the width even.

Now that all your straight lines are chipped, you are ready to clean up for your round letters do not need to be chipped, the edges being finished by sharp tools while cleaning up.

III CLEANING UP

The first thing to be done when starting to clean up is to have all



Fig. 7.
HOW TO HOLD CHISEL TO CLEAN A
ROUND SUNKEN LETTER

your tools sharp and in good condition, and instead of putting your tool down with one corner higher than the other as in roughing out, place it squarely down with the full cutting edge on the chipped line and cut to the bottom of your bar; move your

tool again and again and start as before until you have your side cleared, then cut the other side in similar manner. (See Fig. 6.) Go over the same place two or three times to get it nice and clean, and be careful not to cut into your chipped line but just up to it. Cut your cross bars the same way, but you will have to use some of your narrow tools to clean the center cross bars of your E, etc. In cleaning be sure to have both sides on the same bevel; you will have to watch out for this as you work, for your letters will not look good unless you exercise the greatest care. Remember when cleaning make all your bars the same depth, straight or round. In cleaning letters that are round or partly so, do not try to clean the top and bottom with the same cut, but clean the top line first and keep your eye there; get a good clean line and work with your top line until you have graceful lines with no little chips outside of them. Now clean the bottom which is easy; raise the tool in the same position in cleaning your round letters as in roughing out, with less air. (Fig. 7.) Take an eight for instance; clean bottom round first, and inside round at the same time before you touch the top round. Be careful in cleaning the inside round; take just a little off and watch the edge when you are against the polish and that edge only. Do not look at the bottom of the letter when cleaning the top; clean the bottom last and be careful not to get the corner of your tool stuck for the result will be the coming off of the inside round. There

will be no danger if you rough out your letter good and deep, so as to have very little to clean, as you have only to shape them up when cleaning.

Always remember, when cutting sunk letters, to have a nice clean edge, no little chips out; all the bars the same width, the same depth, and no waves on your cutting. Keep all your letters at the same slant and you will have a neat well cut inscription. Take a scrub brush, sapolio and water, scrub well, dry off, and your work is finished.

IV

RAISED INSCRIPTION LETTERS

In cutting raised inscription letters more care must be exercised than in cutting sunk ones. The first thing to be taken into account in laying them off is that more space must be allowed between them than for sunk lettering. After the letters are correctly laid proceed to check them in as was described for sunk letters, except that the tool must be slanted the other way from your letter, towards the part to be cut away. Be sure your letters are checked in straight and even; wash off, dry and proceed to cut with the back corner of your tool, always keeping your front corner a little higher. First cut the top and bottom of the letters, leaving a panel and the inside of your letter to be taken away. Put your tool right down on the checked line and keep it there; don't start by first cutting a little away from your line, as in the old way of working by hand, but set your tool on your

line, slanting it away from your letter and with good air pressure cut right into it; (Fig. 8) press on tool and learn to make the first cut go in nearly an eighth of an inch deep, a



FIG. 8.
BEGINNING THE CUT ON A RAISED LETTER.

little practice will do this. Make a V shape cut; that is to get deeper cut your line along the top and bottom as you do sunk letters, not being too careful about the other side from your line, and keep cutting this way from your line and the other side V shape until you have the depth you want, which should be, a 2 inch letter, 3-16 inch and not less than 1-8 inch.

After you have your depth keep the tool in the same position, but do not slant it away from the letter so much; hold it straighter and do not let it touch the line but just work up to it. Cut the top and bottom line nearly straight down. Rough out one name at a time, and cut your bottom line of the letters on the next panel above. Rough out all the in-

side of these letters taking care not to break off the corners at the top and bottom and the other corners inside. Great care is necessary or you

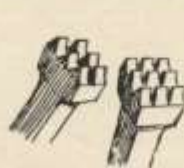


Fig. 9.
(a) NARROW
(b) LARGE
ROUGHER.

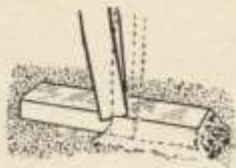


Fig. 10.
HEAVY LINES SHOW
START; DOTTED
LINES FINISH
OF CUT.

will break these off; so go slow at the corners and after you have a corner started, cut right along. Slant all these lines as you do the others and then cut more squarely down. When you have your name roughed out you can proceed to point, (or you can rough out the whole inscription if you prefer), but you will find you can work with more patience and energy by just finishing up one name at a time before taking another one. After the name is roughed out take a small point and hand hammer, and point away all of the rough around the letters up to the other row, being careful that the point does not slip and break off the top of a letter. This is careful and exacting work.

Do not point as deeply as you have roughed out, for you should now take a tool called a rougher or ripper. (See Fig. 9.)

It has teeth something like a marble tooth chisel, only with two or more rows of them. For wide spaces use a tool with two or more rows and larger teeth, and for spaces between your letters smaller ones; put this into your pneumatic tool, take a

good grip on it and pressing down hard with strong air pressure, work very quickly backward and forward all over where you have pointed until the surface is just about down to the depth of the cut round your letters, taking care not to let this get too close to the letters, or the side of the tool will break away some of the edge. Now after you have roughed all out satisfactorily, there will be places on the inside of your letters which cannot be reached with the big tool, so a plain chisel can be taken, and working it backward and forward in the same manner as the rougher these rough spots may be cut away; and for the inside of the B, S, etc., use one of the small narrow tools which are better adapted to this class of work.

You are now ready to chip your letters and may proceed to do so as in sunk letters. Check all top and bottom lines, then the bars of all letters and chip every one of them. No matter if some of them do look straight, you will find by putting your lettering block to the edge that you can improve the line. Chip a very little, for the more you chip the more you will of course have to clean away.

Having the letters chipped nice and straight, all bars and even and of the same width, you can start to clean your letters or cut them square down. Now is the time for caution, for you are putting on the finishing touches and beauty. To cut your letters square down, the first requisite is to have sharp tools; never try to do this with dull ones, for you never can.

You want to cut these edges sharp and smooth, not leaving one side of a bar until you have a nice edge and your side cut perfectly straight down. Do not leave them slanting. They must be straight down to be a well cut letter.

To cut your edges sharp and clean and the side straight down, stand directly over and behind the place to cut, and put your tool down to the chipped edge, with the edge of the tool farthest from you a little higher than the back, and proceed to cut by pushing the tool down towards the bottom of the bar instead of running along the edge from bottom to top as in roughing out. First, with a sharp chisel clean your edge by moving the tool down towards the background of your bar. Take another cut, the width of your chisel, down again, and so on until you have the edge of your bar cleaned. Now start back again, holding the tool firmly, and with good air pressure chop the side down the width of your tool and then move further along; do the same until the whole side is cut down. Keep working in this manner and you will find that three or four cuts at one place, after you have your edge cleaned, will cut your bar perfectly straight down. Rock the tool when cutting and start the cutting with your front edge high, and finish with the full edge square against the bottom. (Fig. 10.)

In other words, move your pneumatic tool from you, which will throw your chisel over and bring it down square upon the stone.

In cutting these letters down

square always remember not to cut towards a corner that has already been cut straight down. Always cut away from corners that have been cut; for instance: take the letter I, start in the center of the right hand

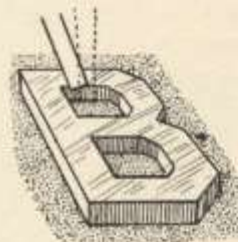


Fig. 12.
CUTTING INSIDE OF A
LETTER SQUARE DOWN
WITH A NARROW
CHISEL.



Fig. 11.
ARROWS SHOW DIREC-
TION TO CUT, PRO-
CEED AWAY FROM
CUT CORNER.

side and cut to the top; cut the top and down the left side, then the bottom, and finish by cutting the lower right side and you will complete the letter in the center of the bar. (See Fig. 11.)

Or, you may also commence and start at the left side and cut around. By adopting this plan you are always cutting away from a corner already cut. Another example: start the letter M on the slant to your left on top and cut up, then the top and so on, all around, and you will finish with the top slant at the right only coming down from the top to meet the slant where you started; and you are always cutting away from a cut corner. Every letter can be figured out this way. They all have a different point from which to start, so that you can be cutting away from a cut corner all the time, and thus be free from danger of breaking off any of their corners.

In cutting straight down your cen-

ters of the letters and figures, B, S, 9, 8, etc., use the small narrow tools mentioned before; have them sharp and then cut down in the same way you do the other parts of your letter, (Fig. 12.) Of course you cannot cut down square in the first cut, but three or four or even more cuts will surely put you square down. The inner sides must be as straight as any other parts of the letter, and there will be some trouble in cutting the inside of the A and 4; but be careful and be sure not to break off one edge when cutting the other. Do not use tools as wide as the space to be cut, but smaller ones, so that you will not get the tool pinched, with the result of a broken bar.

In finishing the V corners of your M and N, etc., use very thin tools and be careful when cutting one side that the back of the chisel does not break the edge off the other side; watch both sides at once. When you have finished your name, proceed to cut the rest of the inscription in the same manner; take one name at a time, or five or six letters, rough out and clean up as you go along until all your inscription is cut and the stone left clean behind you.

Now cut your panel in the same way after your letters are finished; of course, if your letters are close to the panel, rough it out at the time you are at work on your letters; but clean all your panel together. This being done, take your rougher and work it all over the background, getting it level and free from holes, which mar the appearance of the work.

Next take a tool called a cleaner, which is a chisel pounded out to one inch or more wide. (See Fig. 13).

You should always have on hand six or more of these, and work backwards and forwards, in all directions, all over the background. When one cleaner is dull take another until you



Fig. 14.
CUTTING V-SHAPED
RIDGE FOR RAISED
LETTERS.



Fig. 15.
HOW THE FIN-
ISHED LETTER
LOOKS.

have worked a smooth level ground; take smaller tools in and around your letter and finish up; but do not leave any waves; be careful about this, for they will show up in the sunshine when the stone is set in the cemetery. Wash off and dry; and if you have followed these instructions you will have a well cut inscription.

V

FAMILY NAME, POLISHED RAISED

To cut these letters satisfactorily, too much cannot be said about the laying out before cutting. This is most important; have plenty of room between the letters and bars, and have all your bars the same width. No matter how well they are cut they will not look attractive if the proper proportion is not given. Never have a short name with only three or

four letters, great wide things altogether out of proportion; on the contrary, increase the space between the letters; get it out of your head that a wide base must be entirely crowded with cutting. Neatness in the family name and large letters depends on their proportions, and the skill with which they are executed.

After you have laid them out, check them in firm and straight, as in inscription letters, wash off and dry, and cut the same as smaller letters. Make your cutting edge near you do the work, the other being raised. Keep on the line the first cut and sink your tool as far into the stone as you can, using full air pressure when doing so; slant your tool away from your line and do not forget that you must use a good-sized pneumatic tool now; cut a V-shaped ridge on all bars, outside and in. (Fig. 14.) Keep cutting the V shape until you have the right depth, remembering to cut them very nearly straight when roughing out. Remember also, proportion; the depth should now be just half as deep as the width of your bars. Large letters do not look good unless they are cut at least $\frac{3}{8}$ inch deep, or better even if $\frac{1}{2}$ inch. Start your first letter at the place where you will be cutting away from a cue corner and be cutting into the rough all the time, and follow your letter around. But recollect always to go as deep as you intend to leave your letter on all sides of your bars, bottom and top before you turn and cut the next side. Do not first cut the top and bottom of the whole line before you start to

cut out the inside, for if you do, you will have to cut against a cut corner two or more times on each letter, which must be avoided. But follow each letter, outside and in, always cutting away from the corner you have just cut, not to it. When you have your letters roughed out the required depth, rough out the entire panel around your letters; or you can take one or more letters at a time instead of the full name.

Now is the time to be careful, for remember the background must have no holes in it. Take a hand hammer and point, about $\frac{3}{4}$ inch steel, and proceed to point away all your rough spots and don't try to take too much off at a time, or a hole you will surely get as the result. Find out which way the granite points the best, and keep pointing that way until you have all your rough off to nearly the depth of your letters, and then, with a good large sharp "rougner," work all over your background until you are down and be careful to get the ground level. Chip all letters by laying your straight edge on the top and bottom and middle bars; with lettering block chip all straight lines and square corners; proceed to clean your sides first and don't forget about your tools being good and sharp.

To clean your edges and sides, set your tool straight down on your line as has been told you in cutting smaller letters, stand directly with your eyes straight over the bars being cut, and cut the full width of your tool from the top edge to the bottom. It will take a number of cuts to do

this, but practice will shorten the number of cuts until you can take down one place with three or four cuts and have your side perfectly perpendicular. Remember that in cleaning you must always cut away from your straight down corners, and follow your letter from one side to another, always remembering that all bars have one edge and one bottom corner. At the top and where the letter connects with the background, work the tool lightly with full cutting edge along this bottom corner, up and back, and you will have a clean and perfectly square corner (Fig. 15). Do not have a round corner at the bottom but a perfectly distinct one, showing the difference between the letter and the background.

Too much cannot be said of the bottom corner. Remember that if you do not have this straight and sharp perpendicular from your top edge, your letter is not cut correctly and will not look right.

Your letters all cleaned, clean your background by using a double blade chisel first, and finish with a fine brush chisel; and if you have not one of these use your wide chisels called "cleaners," mentioned in connection with cleaning your inscription letters. Be sure to have all your letters perfectly straight down all around, top and bottom, and all sides alike; have a nice sharp edge at the top and a clean corner at the bottom; be careful not to have any little chips out, for your top edge will look ragged,

and you can learn to cut this top edge without a break of any kind.

Now I want to say a few words to my fellow workmen about breaking off corners. Of course all of us have had experience in that trouble, and some are still breaking them off in the same old way. You must remedy this; you do not want these broken corners and my advice to avoid them is this: Do not hold discussions one with another and devote your thoughts on how to mix up stuff with which to stick these corners on. It is far better to study and practice how to cut these letters without breaking and having to watch the "boss" to get a chance to stick the broken corner on. Once, while working in a shop in the Middle West, a workman came from another town and visited us one afternoon. Of course the subject of conversation was granite lettering. To my surprise this workman, the foreman and others, did nothing but talk about recipes and remedies for patching and sticking on corners of bars of broken raised letters. Don't do this; you will be better off if you never



Fig. 16.

HOW TO LAY OFF ROUND RAISED LETTERS.

know anything about shellac, German cement and other materials, too numerous to mention, but work so as to learn more about how to cut these letters without breaks.

VI
SMALL ROUND RAISED—
HAMMERED

These letters must be well laid out and are very different from sunk ones. They have serifs or spreads at top and bottom. All round letters must be laid off and cut longer than the other ones, which do not turn at bottom and top (Fig. 16), because, after they are cut, if they are not made longer they look shorter than the other letters in the same line. So draw the C, G, J, O, Q, S, U and the date figures, which are round a little longer than the rest. Check off your inscription, wash off and dry and rough out; draw a center line in the bar you are cutting (Fig. 17), and, starting close to this center line gradually work round and to the required depth, which is half as deep as the width of your bars. Remember in cutting these letters with spreading heads, to make them so when roughing out; use the tool in the same position as in cutting polished letters; rough out a name at a time, keeping your line in the center of your bar so as not to lose your shape, form and width. Point away the rough and with "rougner" clean all the rough away to proper depth. Now you can only chip the bottom and top of these bars and only some of them; but do so, because you want them all in line, except the round ones which must be a little longer. Proceed to clean your letters and your eye will have to be the judge as to finish; or you can use a small pair of calipers, or make a tin pattern from your first bar cleaned

and fit all others to it. Take one at a time, watching that they are all of even width and depth. Chop down your sides from an imaginary line or from a pencil line, to the bottom, then round your bar by putting your chisel lengthwise of your bar



Fig. 17.
CENTER LINES DRAWN
TO KEEP SIZE
AND FORM.



Fig. 20.
CONNECTING BARS
WITH SHARP
LINES.



Fig. 18.
POSITION OF CHISEL
TO CLEAN ROUND
RAISED LETTER.



Fig. 19.
FINISHING HEAD OF
ROUND RAISED
LETTER.

(Fig. 18). Work back and forward from bottom to top center; work the other side the same way. In cutting the serif or spread you must make your small drawn out tools round edges and chop in around the bar and the spread (Fig. 19). Get a short graceful turn, finishing with a distinct line at the bottom, so that the letter will not look a part of the stone, but as if it were laid there; always make a distinct line where all bars join (Fig. 20). Now cut all of your letters under the bottom, which will give them a rounder look.

Be careful not to have any bumps on your letters, but let them be clean smooth and even. Don't make the spreads at the ends of bars big and

outstanding, but extend them just a little so as to be in proportion with the rest of the letter. In cutting these letters remember to have them round, not flat on top, or too high; make them to look as though some one had been working on them that had taken care and patience.

When cutting round raised letters always leave the C, G, J, O, Q, S and U longer than the other letters, for the reason they always appear shorter than the other ones which come full height to the line. They are not in the same plane. Fig. 20 B at the top line will show this. The I comes out to the line at its full height and the full height of the O is in the center of the bar. Therefore, the I seems higher on the line, for the O goes around to the top line from the center of bar. Also the O recedes from you and it is foreshortened and at all times appears shorter. The bottom is the same, only more so. They should be cut longer than the top ones for there are shadows to contend with. The light is always from a point higher than the letters which makes the letters throw a shadow down-

shadows marked on this diagram are the same from the top planes. The plane of the I comes out square against the line at its full height, and the O does not, for the height its shadow will come from is in the center of the bar. To more fully illustrate this, use two small match boxes, one 1-8 inch behind the line of the other. You will see the shadow will be 1-8" short of the front box. Nearly all designs, photographs or monuments in the cemetery show this fault when they have names in round letters, and the larger the letter is the shorter they appear, for there is more foreshortening at the top line and the shadow decreases on the bottom line. Fig. 20A shows how they are commonly laid out and Fig. 20B illustrates how they should be.

VII

FAMILY NAME ROUND- RAISED—HAMMERED

A great deal of attention must be given to proportion and form when cutting these letters, for there are no edges or corners as in polished-raised lettering. Do not make the letters with great wide bars and give them a big spread on their inside, and so get them all out of proportion. Remember to have your round letters longer. If you are cutting a letter which is four or five inches long and your bars in form, don't make the spread at the ends come out too wide, which seems to be a common fault. Do not spread on a letter of this size more than 3-16 in., and make a neat, graceful, short turn.

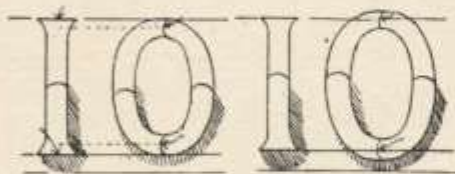


Fig. 20A.

Fig. 20B.

ward and letters on different planes will not throw the same shadow. The bottom of Fig. 3 illustrates how a shadow falls from the bottom line of round letters. The distances of

In cutting these letters, hold your tool in the position before described for cutting smaller ones of this kind. Draw your center line through the bars of the letter you are cutting and start to cut them round and to your depth. Rough them out nearly to the size you want, so that you will have very little to clean. Take the rough away with point and the "rougher"; start to clean as in small letters before mentioned. Draw a lead pencil line on the side you are cutting, the required distance from your center line, and cut with your tool straight up and push from your top line to your depth; cut this perpendicular and have your side when cut straight the length of your bar up to your spreads, with no bumps and waves in it. Then by taking a little off between your center line and top out-side line, you will have your letter in fairly good condition. To clean, hold your full cutting edge lengthwise of your bar, as in smaller letters; work back and forth with wider chisels till you have all cleaned and your spreads are cut with small round-edge tools, as I have described for cutting inscription letters. Be careful when cleaning, and do not take too much off or you will have holes all over your letter.

Never finish your bar until you have it round, not flat, on top, but perfectly round from background over to it again, and don't forget to have the tops, bottoms and ends of your straight bars such as A, H, I, W, etc., perfectly straight from the top to your background. Always make the heads where your letter

spreads a little higher than the rest of bar; (Fig. 21) by doing this your spread head will be round and the rest of your bar also. If you don't,

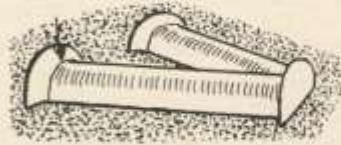


FIG. 21.

THE HEAD HIGHER THAN THE MAIN BAR.

either the head or your bar will not be round. My way of expressing how these letters should look when finished, is to make them look like worms coiled up in the shape of graceful letters.

Finish these letters with a distinct line at the bottom where they join the background, and have that line just as graceful as the top of your work. There are two things to remember when cutting these letters which you cannot dwell upon too much: Have the widths and the bars of your letters in proportion with your length, and do not forget to have them round; not flat.

VIII

ROUND POLISHED—RAISED OLD ENGLISH, ETC.

In cutting polished-raised inscription, Old English and fancy initial letters which are all round, having no square corners, care must be taken in laying out, always to be sure to mark them out exactly correct, and as in the case of sunk round letters, when checking, try to split your pencil lines and you will have made a great step in the art of pneumatic tool lettering. When these letters are

all checked out, washed off and dried, rough out as in square cornered raised letters; do not let yourself touch the polish behind the checked line; if you do it will chip back and give trouble to get it out. Also keep your letter from being too narrow. Rough out as neatly as possible, so that you will have very little to clean; rough out the background as in other letters. With hand hammer and chisel, you are now ready to chip your edges so that they will be clean and sharp; to do this requires both skill and patience, as well as the proper kinds of tools. Chip all your top and bottom lines and straight bars by using your clamp straight edge and lettering block.

Now to chip your round letters use a tool about $\frac{1}{4}$ inch wide for the outside of the round bars and take a little off at a time (Fig. 22); be careful that the tool does not slip and cut too much off, for the outside lines must have nice graceful curves, with no bumps or flat places.

Now to chip the inside of such letters as your 8, 9, S, B, etc., use the little narrow drawn out tool you fixed for your sunk letters, and make their edges half round. Chip the inside and also take a very little off at a time as you go round and watch that the tool does not slip. When you chip the 8, and such letters, have the inside round; be sure of that. After chipping your letters proceed to clean up as in other letters, by starting your chisel edge at the top line and working perpendicularly to the background a little at a time, until you have finished it. You can-

not cut very much of a length at a time, but just gradually work them round.

Now the most important part and one which I have found a failing with many is the lack of knowledge of how to get the inside of these round letters down straight. It is as simple and easy a matter to do as it is to chop down the insides of square ones. Take the tool you



Fig. 22.
HOW TO
CHIP THE OUTSIDE
ROUND.

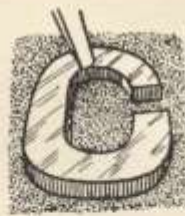


Fig. 23.
POSITION OF CHISEL
TO CUT INSIDE
SQUARE DOWN.

chipped with, or another like it which has half-round edges, or better have a number of assorted sizes, some very narrow, and chop from top line to background, all around many times, until you have it square down, watching all the time to keep clear of your chipped edge, or it will break if you touch it (Fig. 23).

This done, finish as with other raised letters and do not forget to make a distinct clear edge at the bottom as well as the top. Use one of your narrow round-edge tools to make your line at the bottom of the inside.

Often you may have Old English or fancy initial letters to cut on caps, or even inscription and family names; instead of an initial being traced on a cap, as is often done, try one cut 1-8 or 3-16 deep and see how

much nicer it will look. To do this, cut as in foregoing instructions; use round-edge tools to chip all inside curves, and when cutting the tails, which in Old English are numerous, remember the directions given for cutting away from a cut corner, and not up to it. The ends of all these tails must be cut carefully; do not try to cut as much at a time as in other places that are wider and stronger, but go slow and be very careful or off will come the ends. They can be cut just as sharp as your check line by taking time and working with care.

IX TRACING

As in the case of all letters checking in the tracing over the pencil marks is very important, but more so in tracing than in lettering. The design must be correctly drawn instead of depending upon your eye and tool to shape up the design.

In checking do not forget to split your pencil line; be sure you have checked in every line, and if some of the lines and curves do not suit you, go over them again until satisfactory before washing off the stone. When you have all lines thus checked in, wash off and dry. Take your half inch chisels and work them backwards and forwards all over the polish, which is to be taken away up to your lines. Now chip all of your straight lines and go all over the edges of the tracing, using the pneumatic tool on every line, so that they will be true and sharp, and take out all little chips your tool may have made when cleaning your polish away,

as well as to get your lines a little deeper. Now go all over your background again so as to be sure that all the polish is off and that no holes or waves are left.

Sometimes in tracing the design it requires that the polish be cut away at the corner or edge of the stone. Before doing so use a small piece of a carborundum brick, or if you do not possess this, use a coarse file, and rub these corners a little round: this will keep them from chipping down when cutting.

Always remember that your design must be laid off correctly; that you must use sharp tools, and do not try to work too fast or neatness will disappear. In running the lines with your pneumatic tool, you must let your whole body follow your tool in all directions. Frequently you will have to cut towards you and when doing this always cut with the back corner of the tool, keeping the front corner a little higher. The reverse is the order when cutting away from you.

In conclusion I wish to say to my fellow workmen, always see how nicely you can execute your letters; not how fast. Remember a monument and the work upon it should be artistic, and this should be thought of when cutting it. Study photographs of lettered monuments and other workmen's letters. Look out for letters in the trade papers and magazines and find out why and wherein they look so much better than yours. Purchase books on lettering and study form and proportion over and over again, for a well-cut

letter to be pleasing must have these controlling elements.

Never be without a clamp straight edge and steel lettering block, for you cannot execute a letter correctly and have clean-cut edges without them. Do not try to cut letters with dull tools, for tools are just as much a part of a good letterer's success as his eye and hand.

X MARBLE LETTERING AND TRACING

The practicability of lettering marble with the pneumatic tool has not been taken advantage of as it should be. By good practice and experience wherein they look so much better in its use, a workman can do a great many things with the tool that he has been accustomed to do by hand.

Gothic sunk letters are often used on marble at present, in place of Roman and other sunk letters, which require more time to execute, hence we shall begin the instructions on lettering marble by explaining the cutting of sunken Gothic letters. The first thing needed before marking out these letters is a formula for the coating to be put on the stone so that the pencil lines will show. Gum Arabic and whiting will do, but it rubs off too easily, for sunk letters on marble are not checked as they are on granite, but are finished up clean before washing the solution and lines away. There are several formulas in use; the best powdered rosin shaken from a can and with a good piece of felt or rag rubbed hard many times over the place to be lettered. This will

stick and leave a fairly white surface, and the pencil line will stick too; you can work on any kind of marble by using this and the lines will stay.

After your inscription is laid off, use a small pneumatic tool, which must be in good running condition; do not use one that jumps and jerks, but one that runs smooth and even. The chisels should be half inch steel with the blade not very much wider than the steel. Do not use a chisel of which the corners flare out, for it is dangerous; the reason being that these corners will work under too far, resulting in a broken letter. With light air pressure, one corner down on the pencil line or near it at the bottom of the bar, the other ahead and high, cut to the top line, slanting the chisel toward inside of letter (Fig. 3). Cut other side of the bar the same. Two light cuts on each side of the bar will rough out sufficiently. Cut the cross bars the same, and be careful not to press too hard on the corner where the inside of the cross bar starts, for it might mash off.

For the round letters hold the tool in the same position, cutting out all the inside of the bars, and go slow; hold the machine firm with one hand and the chisel with the other, keeping the arm in good position so as not to let it slip, and holding the tool back; work these letters round and to right depth (Fig. 35). Cut one letter at a time, commencing at the left side of the bottom line and cut all the letters one by one, working to the top, line by line. Be careful of the V-shapes of these letters; set the full blade on the pencil line after having

first cut a little down with the corner; work with light air pressure at all times. When cutting the cross bars of A, H, and such letters, cut the main bars first, and then with the tool straight up and with full cutting edge on the pencil line or near it inside, push down on one side first and then on the other a few times and always cut these cross bars as deep as the other bars. These must be so



Fig. 26.
TOP LINE SHOWS HOW
NEAR TO CUT TO FIN-
ISH LINE BEFORE
USING Mallet TO CLEAN.



Fig. 27.
SHOWING HOW TO
SCRATCH LINES ON
MARBLE.

cut in Gothic letters. It is different in Roman letters; they are not so deep, for the cross bars are not as wide as the others. This is a mistake of many, so remember to do this.

Marble letters have a starting point, and in order to work to an advantage, remember the instructions above on granite sunk letters. For a better understanding study the following example.

Take the figure 3, cut the bottom round first on the left side until it stops, then the rest of the round to the center, then turn and commence at the center, slanting the tool toward the inside so as to hold the corner point, then cut around to where it stops at the top left side.

All your letters being roughed out with the pneumatic tool (Fig. 26), lay it aside, and you are now ready to clean the letters. You must have a 2 lb., lettering mallet and hand tools; a sufficient list will be; some $\frac{3}{8}$ inch chisels with the blade $\frac{1}{2}$ inch wide,

some wider; $\frac{1}{4}$ inch tools varying in size at the blade; also a few $\frac{1}{4}$ inch splitters having different sized blades. With the mallet and $\frac{3}{8}$ inch chisel begin to clean all straight bars; hold full edge on pencil line (Fig. 6), hit it with the mallet light and quick, push with your hand, sliding the tool to the bottom of the bar; take another cut the width of the chisel further on; do the same until the side is smooth; cut the other side the same, and always try to leave half of the pencil line on the outside of the bars; this will help you to see when the top edge is straight. Never go outside of the pencil line when cutting straight bars on round marble letters. Clean all the straight bars of a line first, then all the cross bars at one time; use a small splitter for small places, such as the center bar of E, etc.

Use a $\frac{1}{4}$ inch chisel and clean all the corners by standing in one position; clean all bottom corners first, then turn and clean all the top corners, and afterwards all the corners of the cross bars. This is system, and it keeps you doing one thing at a time with no change of tools, and is an easier way of working than trying to do everything at once. All of your straight bars and corners being cleaned, use a $\frac{1}{4}$ inch tool to clean the round ones by keeping the edge against and across the bevel, cutting the bevel sides and top edge together; work them around and graceful by pressing hard against the stone, shoving with the hand. The finished cut must be light—only scrape a very

little—and do not leave these letters until they have perfectly smooth, clean edges, with no bumps and flat places. Always cut these letters deep; they must be deep enough to throw a good shadow at the bottom and on one side. The letters should not be called finished until they are very clean, as clean as one could rub them with red grit. Have no little white stuns at bottom or sides. Be sure the bottom line where the V shape connects is in the center of the bars. Both bevels must be of the same angle. Before you leave a corner show the V line where it attaches to the main bar, and make these lines straight, not curved.

To cut these letters very clean, which must positively be done, get a large piece of blue-grit, or a stone as fine grained which has grit; shape two flat surfaces, one very smooth, by rubbing with sand; the other side straight so as to lie solid on the bench box. With a sponge full of water, keep the rub stone wet, and rub the tool well, watching the edge so that it be kept perfectly straight, and rub every few minutes. This will hold the edge very sharp and it will cut clean. You must also have by your bench a coarse piece of grit; a piece of a grind stone is best and handiest to get. Rub all your chisels, hand and pneumatic, on the coarse grit to keep them thin and in shape. Do not try to work when the edge of your tool is round. It must be at all times perfectly straight across. When the tools get thick grind them on the

grindstone, always having water dripping on it.

When all the inscription is cleaned to your satisfaction the pencil lines and rosin must come off. There are two ways to do this; Pound with your hand hammer some marble dust from some old headstone, sprinkle it



FIG. 28.
HOW TO TAKE THE ROUGH AWAY
WITH A PLAIN CHISEL.

all over the surface, and with a small rag twisted together at one end into a small ball, making it wet; rub all over and the pencil lines and rosin will readily come off. Another way, which is the best, but is hard on the hands, is to sprinkle the marble dust on as before and instead of a wet rag use the palm of your hand and rub all over. This will take it off as well and will leave the letters with more life. Water always makes marble letters dead looking.

After becoming acquainted with a good pneumatic tool, you can learn almost to finish a sunk letter without the use of a mallet and hand tools, and on some marbles, such as Tennessee, which is hard and full of sap, you can do it satisfactorily. To cut Roman letters and others with different width of bars use the pneumatic tool to rough out the large bars; the hair lines and small bars are cut by hand.

XI

RAISED MARBLE LETTERS

Other different kinds of tools are required for these letters; with the tools mentioned in connection with sunk letters you must have some of your half inch pneumatic chisels made into splitters of different sizes; also have some small tooth chisels—only a few of different sizes. To execute these letters properly with sharp, straight edges, all lines must be scratched. To do this use a square or straightedge laid down on the top and bottom line, and with the corner of a sharp tool against it, scratch these lines (Fig. 27); for the bars of letters use a bevel blade or some smooth, thin piece of iron or steel. Be sure all lines are scratched accurately, and carefully. Look over all the inscriptions to see if all are correct. Clean all pencil lines and rosin away with marble dust.

With the pneumatic tool and sharp half inch chisel cut all panel of lines, top and bottom, by holding the tool slanting away from the line with the front corner raised. Do not put your tool down away from the scratched line, but exactly on it (Fig. 8), and stay there; it is time wasted to cut a little away from the line and then take another cut back to it. Cut these lines in a slanting position, always using a tool that has been ground some with a good sharp edge, for if it has not you will soon learn that the marble will stun back of the line and then there is trouble. Start at one end of the top of the bottom line and run the tool to the other end, sinking it down

nearly to the required depth the first cut. Do not take one cut very light and then another one, and waste time that way, but push on the pneumatic tool as well as on the chisel in your hand, and go down the first cut. There is no danger if you start the tool on the line and keep it sharp. After the bottom lines of your letters are cut, cut the panel line the same way.

Now, instead of taking the plain chisel out of the pneumatic tool and hunting in your pile of tools for a small tooth chisel which is the practice of many workmen, keep this plain chisel and with it take the rough away between the cut lines by using it like a tooth chisel.

Put the flat side down, push right along, making it take away the rough nearly down to the bottom of cut lines (Fig. 28); with this same plain chisel cut the panel again, only keeping the tool more upright, and cutting the bottoms of all the letters straight. Remember to be constantly rubbing your chisel on on a good rub stone to keep it in good condition. But cutting away more background close to the bottom of these panel lines, and only straightening the lines with another cut so that they will be perpendicular, you are ready for another, these letters having a panel in the same manner.

The above directions apply to Italian, blue, and all marbles which have not much flint. For Georgia, Gouverneur and such flinty marbles, use tooth chisels to take away the rough for the edges of plain tools cannot be kept in good condition. All panels

being cut clean and perpendicular, proceed to cut outside and inside of the letters. For this use the plain chisels in the same manner as for cutting the panel. Keep the top edge high, the bottom corner doing the cutting; another way is to have your body behind the line at right angles to it. Take out the rough with small splitters at the outside of all letters in one name, having them stand out like blocks with all sides square down, and be careful of the corners; go slow, gradually working aside from a slanting position to one perfectly straight. Watch out for the top edge at all times, for it comes off very easily if the tool is held in an improper position. Before finishing the edge hold the tool nearly square down on the scratched line at the edge, one corner just a very little below so as to keep the tool from



Fig. 29.
HOW TO START AND
FINISH A SIDE CUT
SQUARE DOWN.



Fig. 31.
HOW TO HOLD
CHISEL TO CLEAN
MARBLE TRACING.

slipping, and push down and over, bringing the cutting edge square against the bottom corner (Fig. 29), being careful to finish the edge straight and side clean; only shave a little off to straighten up and clean with no white stuns left to be seen. The insides are cut the same as the other parts of the letter. For places that are small, like the inside of A, B, 8, 4, etc., use small splitters to cut down from top to bottom, taking a small bite at a time, and cleaning the rough away from the bottom with

the same tool that you cut with, finishing the edge last and the sides square down. Be sure to do this; do not leave the inside of the A and 4, V shape, but just as straight as the other side of the bars. With all of the inscription cut in this manner, proceed to finish the background; use a plain or tooth chisel, cutting down all high places and then start frosting this background.

You should have more than one pneumatic frosting tool; have at least four of them of different sizes, one very large, the others of different sizes down to one with two rows and only three or four teeth on each row; also have a very narrow tooth chisel with only three small teeth close together and a small sharp point. With good air pressure and one of the large frosting tools work down all over the large places (Fig. 30) very rapidly, smooth and even, then use smaller tools for narrow places—the small tooth chisel and point to finish the inside of very small places. Do not finish until all the background is on the same level, with no bumps and holes. Do not have the ground around and in the letters higher than in other places. Blow off the dust; look all over the inscription to see if it is all cut clean, and if not, clear a little here and there to get it so.

A few words about different styles of letters in one line. In the writer's experience at the bench, he has seen workmen put two, three and even more different kinds of letters in one line. Do not do this. If you cannot do otherwise, keep a lettering book in front of you so as to avoid this, and

also learn the difference between a bar which has straight corners and one which flares out. In other words do not put Gothic and Roman letters side by side. This is being done day after day in many establishments. Another thing worthy of the attention of some workmen, and which will be of great benefit to themselves, their employer, and the entire trade. Do not think one particular day is the only day in the week on which to try to do all the work; it results in broken letters and many of them. In fact, the whole inscription is often a sorrowful looking thing to behold, looking as though some apprentice of one year's experience had been there. This is not an infrequent occurrence. One particular time the writer recalls while working in a shop which was supplied with good machinery and all necessary appliances to do good clean work, a workman was given a very large marble die, which was part of a public monument, on which were to be cut raised letters on all four sides. The first thing this man did was to lay off two or three different kinds of letters on the same line; next and worst, it is to be supposed that he did not think that looked bad enough, but, working with head down, every muscle exerted, and with full air pressure, he broke from every side two or four letters. He struck them on however, and did not have to watch the boss while doing so, as in a former experience of the writer, but did so with the knowledge of the management and with the help of the foreman. To this day that monument stands with the cracks of those

broken letters showing plainly, a disgrace to himself, the management and the monumental business in that nearby country. It is as much a workman's duty to help make a monument a work of art as it is his employer's.

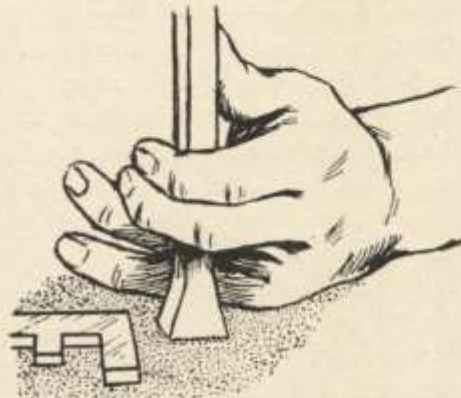


Fig. 30.
SHOWING THE PROPER POSITION TO HOLD
AND USE A PROSTING TOOL.

We have letters handed down to us from the 16th century to this day, which are perfect and graceful; why not keep them so by gaining a fuller understanding of how to draw and cut them as they should be, instead of how many you can cut.

XII LARGE RAISED POLISHED LETTERS

These letters are cut like the smaller ones, only they should be cut deeper; to do this use a small point and mallet to take the rough away before using the plain or tooth chisel.

Round Raised: Round raised letters are roughed out the same as in granite (See instructions on Granite Round Raised Letters). To clean different corners and sharp ends use the mallet and sharp hand tool. The

panels must all be cut straight down as in raised polished letters first, before cutting the inside out and do not clean with the chisel lengthwise of the bar.

XIII

TRACING MARBLE

Making marble ornamental should be looked upon in a different manner from what it generally is throughout the country, especially in the smaller shops. All a workman has to do is to copy some designer's work, which should not be a very difficult task. With many workmen it is, however, for the reason that so little study is given to it. To be successful and learn to copy the lines of a design, the ambitious workman should take some very simple ones home, and instead of standing on street corners or running around nights, he should get his head, hand and pencil working and in short time he would see how easy it is to copy. The more he practices the quicker he can accomplish the laying off of designs. Copy anything you see, such as designs in trade journals or any designs you can get hold of. Doing this for a short while, it will be easy to copy designs on marble for such are mostly simple, and you will soon learn where you can improve on a great many of the designs to your own better satisfaction.

To execute these designs on marble does not require much skill; the laying out is most of it. The very best substance to put on marble of a light color on which to mark is powdered rosin, but for dark and clouded

marbles use marble putty powder. Put a little on, and with a wet sponge or your fingers spread it all over evenly. Dry by blowing air on it. Lay out all tracings on this, being careful to execute them with care and neatness. When using designs that are the same on the two halves of the stone, it is only necessary to mark one-half with pencil, then scratch all the straight lines with the corner of a tool and proceed to cut with light pressure and small pneumatic tool held nearly straight up, one corner raised a little higher and the bottom one doing the cutting; follow the lines only, cutting a little below the polish and split all the pencil lines. If the tracing has been penciled off correctly your cut lines will also be correct. One-half of the stone being checked, get some thin wrapping paper, such as is used at the dry goods store or bakery, and lay it down over the cut lines so as to cover the edge of the stone, placing a few tools on the paper to hold in one position; with a good stick of lumber chalk, or some chalk that is greasy, rub with the flat side all over the paper covering the checked lines. This will show the lines on the paper; also rub the edges and cover near where the tracing is so as to have the transfer fit the other side. Mark the center line of the stone on the paper, and taking a sharp knife, cut the paper to the outline of the stone; should there be curves or places other than straight, follow these also. The paper will then fit the other side, provided the stone has been cut correctly. Next take a large piece of

paper, all over which you have rubbed with your fingers some dry powdered red paint, or else take a large piece of transfer paper. Lay this, red face upward, and on it in the exact position, with face up, lay your tracing; then with pencil mark over all the lines slowly, making sure that they are correct. You will find upon lifting the paper off the stone red lines corresponding exactly to the first side of the stone. Now rub the red powder all over the first side and put that side down so as to fit all corners and center of the other side of the stone. Mark over the red lines this time with pencil, and be careful for you must have both sides the same. This will leave red lines on the stone. If they are not all satisfactory, re-mark some with pencil. Check all these lines neat and even. Take away with marble dust all rosin and dirt, or if using putty on dark marble use a wet sponge. Commence to frost the background by using strong air pressure; work all over, taking away the polish, and always frost deeper than the checked lines. You must have different sized frosting tools, large and small. Keep the tool moving quickly, and be sure all the polish is removed, and that your frosting tool has not run into parts that should stand. With very light air pressure, and holding the pneumatic tool down nearly on the face of the stone, which will make the bottom edge of the chisel do the cutting with the top edge high (Fig. 31), clean all lines and every one of them deeper than the first check. Be sure all lines are even, with no bumps or

flat places, and with frosting tool and with light air, go over all the background again, making it level and even.

Cleaning these lines is difficult, and requires practice, but try with energy and determination and you will succeed. In some places use mallet and hand tool until you can get proficient with the machine. Do not merely check these lines in skin deep, then frost and call it good enough. Do it very thoroughly. Cut the lines deep enough so that the first few rains will not wash the lines away after being in the cemetery a short time.

XIV

HAND-CUT GRANITE LETTERS

In order to properly cut letters by hand in granite, one must have the right kind and number of tools, and as to the number and kind as follows: Two dozen $\frac{1}{2}$ inch and one and one-half dozen $\frac{3}{8}$ inch plain chisels; one dozen $\frac{1}{2}$ inch and two dozen $\frac{3}{8}$ inch points; a few plain chisels and points of larger size, and also a few narrow plain ones with the blades from $\frac{3}{8}$ inch to $\frac{1}{16}$ inch. This outfit will be sufficient for all kinds of lettering. To cut the letters neat and clean it will require both time and patience and the tools must be of good temper. These tools are not tempered in the same manner as pneumatic tools; the temper has to be drawn instead of being plunged. This is done by having them a good heat, a little hotter than for pneumatic tools, though they must not be sizzling hot or the steel will be burnt. When at the proper degree of heat, put about one inch or a

little more into the soft water long enough to cool it a little; take it out and rub the flat side a few strokes on some fine sand or piece of coarse grit, enough to make it bright, straw color; at this point plunge it quickly into the tub of clear water and let cool.

When cutting letters in granite don't get in a hurry or you will have some very ragged edges and no shape to them.

First: To cut sunk Gothic letters. After the inscription is laid off correctly take a sharp tool and proceed to check over all your lines until you have the letters in correct shape; use a $\frac{3}{8}$ inch chisel to check all of the straight bars and a $\frac{1}{8}$ inch for round ones. Commence by checking at the bottom of the inscription, and it is best to check all the letters before roughing, for if this is not done there is danger of your arms rubbing out the upper part of the letters while working below. Use a hand hammer about 2 lbs., and hold the edge of the chisel square down on the pencil line and check by hitting the chisel quickly and lightly at the same time keeping your hand slipping along the line until you reach the end. Do not check the width of the chisel and then move your hand and repeat, for it is entirely too slow and not practical; just keep the edge a very little raised and follow the line along. I have found from long experience that the best way is to check all straight bars on the lower line first, standing in one position, and check to the center of the stone; then change position to check the other side of the bars; the cross bars next, and finish

by checking all round curved letters one by one. Repeat this process for the next lines above. You will no doubt have to go over some of the lines more than once to get them even and straight, but be sure to do this. Do not start to rough out your letters until you have every one of them checked as nicely as they were laid out, and always wash off the stone after checking so as to have no gum on it, and that it may be perfectly clean.

Start to rough out by taking one of the half inch tools, keeping the front corner raised and the back corner in the bar during the work, and keep changing its corners until it needs grinding. With hard fast blows from the hammer start the tool nearly on checked line of the bar and work upward to the top, and the other side in the same way until you have the required depth; then hold the full cutting edge on the bevel near the top and with firm grip on the tool, pressing against the stone, chop both sides downward to get the same bevel and to get it in better shape. Do not start in this way at the beginning of roughing out a bar, for you cannot make much headway or get very deep without using the corner of the tool first. The cross bars are cut next after the main bar, and be careful when starting them. Use your full cutting edge this time instead of the corner, and chop at both sides, starting at the inside where it connects with the main bar; work both sides down a little, then use the corner to get it down deeper and cut to the end; chop down both sides with the full

cutting edge as in the main bar.

Be careful when cutting the V shapes and go slow, using the full cutting edge, working it down by light quick blows from the hammer. Follow the instructions given in Pneumatic tool lettering for these V shapes. The round letters all have to be cut with the corner of the chisel; be careful to cut a little at a time and be sure to cut them the required depth when roughing out. There is a starting point to all these letters which you must figure out, and always cut away from a place that has been cut, for if not you will be sure to break off corners. For example: take the figure 9; cut the bottom round first; turn and cut the side round to the top; next the top round half-way; then stop; now commence the top round where it connects with the main bar and cut around to where you stopped.

You can rough out all of the inscription before cleaning up, but it is better to take one line at a time and clean it up before starting another. Chip all letters according to instructions on pneumatic tool lettering, always using straight edge and lettering block. Start to clean the straight bars by putting the full cutting edge down with a good grip, on the checked line, pushing hard against the stone, and chop to the bottom one side at a time. Do not leave a bar until it is clean, and you will have to go over it many times to do so.

Do not try to clean letters that have straight bars all together but one bar at a time; then clean the corners. The round letters are cleaned by putting one corner of the tool at the bottom

of the letter, with the full edge against the bevel side and pushing hard, work round a little at a time, until the edge and sides are clean. This takes time and skill to do it correctly, but never leave a letter until you are entirely satisfied with it. Always rough out deep and have the letter in good shape, for in cleaning you go no deeper than to get the side and edges clean and straight. Always wash the stone before taking it away.

XV

RAISED POLISHED INSCRIPTION LETTERS

Check all letters by just breaking the polish and be sure you have them checked straight and even; do not wash the gum off until you have them so. Rough out by first taking a large, plain chisel, about $\frac{5}{8}$ inch steel, and with the front corner raised start away from the line about 1-8 inch or more, always slanting away from the letters and to the place to be taken away (See Fig. 24). Hit hard with a large hammer, sinking the chisel as far down as you can the first cut, and watch out and be careful that the granite does not chip back behind the tool into the line behind it. This nearly always happens when you are trying to mash off the stone with dull tools instead of cutting it with sharp ones. These tools should not be thin and fresh from the blacksmith, but having been used somewhat are stronger, and will cut the rough away better.

After cutting the lines down all around the panel and the bottom of the next line, take one of the $\frac{1}{2}$ inch

points or larger ones if you like and work the rough away use the plain chisel again and cut to the depth you want to work, which should be at least 1-8 inch, and with point again take away all the rough. The top and bottom of your letters being cut in a slanting position you must cut the outside and inside of these letters the same as you did the top and bottom, only use smaller tools. Rough all out good and with a good size half dull plain chisel hammer all over the background, holding it straight and hitting hard and fast until it is nearly as far as the bottom of the letters. There is no need to clean this ground as carefully as in finishing; only get the rough all away.

You are now ready to cut the letters down square. Have all your small points drawn out thin and keep them sharp by constant rubbing on a coarse piece of grit, and when too dull grind them all at one time on the grindstone. They must be very sharp and are called needle points. Cut one letter at a time and remember the instructions on pneumatic tool lettering, about cutting away from a cut corner. Always find the proper place to begin so that you will be doing as though you have to start a letter on the inside. With these small sharp points hammer lightly and quickly, always pointing downward or nearly so, and keep on one side until you have pointed under the cut at the top, which must be at least 1-8 inch away from your line. The side is pointed under so as to be about perpendicular with the checked line of your letter (See Fig. 25.) Cut

all sides of the letter the same way; be sure to do this for if you do not it will be very much harder to finish the letter. With the lettering square put down on the checked line, chip all the letter with a sharp thin, plain chisel; pitch or chip the outside off, and in doing so hold the tool up very straight, hit rather hard so as to take it off the width of your tool, then lightly to leave a clean sharp edge.



Fig. 25.
POINTING UNDER THE
CUT LINE, PERPEN-
DICULAR WITH THE
CHECKED LINE.

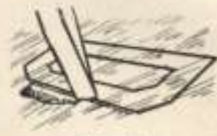


Fig. 24.
POSITION OF CHISEL
CUTTING AWAY FROM
CHECKED LINE.

By thus chipping the length of your bar you will have it nearly square down and ready to clean.

To Clean: First use a small, sharp plain chisel and cut the corners of the side you are cleaning first by holding it against the side near the top hitting lightly and quickly many times until the corners are down square against the background. Now with the small sharp points cut out the side so that it is nearly clean and square down, for a plain chisel will not do much cutting at the side. But use the small chisel to clean after using the points; hold the top of the tool slanting away, and the cutting all out and the letter even and perpendicular. Do not try to go too fast when cutting corners, for it does not take much to break one off. Do not take too much at a cut, only a little, and keep your hammer working fast and your eyes at the spot you are

cutting. Finish all of the inscription in this same manner, then cut the panel around it and you are ready to clean the back ground. To do this use good sized plain chisels, hammer fast and easy to get rid of most of the bumps. Then taking a hand-bush chisel go over all the ground many times in different directions until it is down smooth, without any little holes; clean up around the letters with small chisels and always have them sharp when cleaning.

XVI

LARGE RAISED POLISHED LETTERS

These letters are cut in the same manner as small ones, only that they must be raised higher. To get them so, use large chisels and points. Do not be afraid of the work, for there is no danger if you will always remember to keep the tool slanting away from the letter; and by using plain chisels to get around the letter deeper, and points to take away the rough, you will have no trouble. Always point away from your letter at all times. After the heavy points use a small pean hammer which will help you to get down to the required depth and then take a large bush chisel to finish with.

Keep all the small points sharp, and never try to cut with a tool that has no temper.

XVII

LETTERING MARBLE BY HAND

Sunk Gothic Letters: The inscription being laid off correctly, as has

been before explained in the chapter on pneumatic tool lettering, use a $\frac{3}{8}$ inch steel plain chisel and cut all cross bars first, such as those of the B, D, E, F, etc. To do this hold the chisel nearly on the line and chop down towards the bottom of the bar (Fig. 32.) Cut both sides to the required depth. (Do not put the chisel down with the bottom corner cutting, and cut up toward the top of the bar, as per instructions in pneumatic tool lettering.) (Fig. 3.) Cut all the straight bars next after the cross ones, and the best way to work in doing so is to rough out 3 or 4 bars at one time by cutting on one side of these bars first, then turning and cutting them on the other side. Keep changing positions and cutting until all are roughed out deep and in good shape before starting to cut more. Cut all straight bars of the inscription in this manner, and rough out the round letters one at a time by using the corner of the tool and showing with the chisel hand, following the letter around until it is in good shape. To clean these letters see instructions on Pneumatic tool marble lettering.

Raised marble letters; all raised letters must be scratched with the corner of the tool so as to have straight and even lines to work from; then all rosin lines, and dirt should be removed by using marble dust as explained in instructions on Pneumatic Tool Lettering. With half inch chisel having a blade wider than the stem, start on the bottom panel of letters, holding the chisel nearly

straight up but slanting a little away from the line; with full cutting edge square down chop the line across by striking hard with the lettering mallet and moving the chisel farther along for a new cut.

Next cut the panel at the bottom of the inscription, and with a sharp tooth chisel take away all the rough between these cuts, and again with plain chisel cut the lines deeper, always using the tooth chisel for the rough. When about down to the depth required, hold the plain chisel with one corner high and the bottom cutting corner being pushed hard against the stone, cut these lines more straight down (Fig. 33.) Do this several times and with the rough worked away take another panel and proceed in the same way until all panels are cut and all background has been removed.

The outside parts of letters are started and cut the same way as the panels; chop down first with full cutting edge on both sides, to separate the letters, then take the rough away with a small tooth chisel first; but when cutting down farther towards the bottom use small splitters to take the rough away, cutting lengthwise of the bars, and be careful not to try to take too much away at a cut, for there is danger of pinching off a bar. Rough out all the letters in the inscription good, and with background cut away level, you are ready to clean them. To do this, have the plain chisels very sharp, and keep them so by constant rubbing on a fine grained rub stone; stand behind the bar you are cutting with body

bent towards it and head over so as to have a good view of the side being cut, your chisel on the top line held straight up; hit fast and lightly with small hammer or mallet, shoving with the chisel hard toward the bottom of the bar (Fig. 34.) Repeat this several times, keeping the chisel moving a little further along the edge. Always start a cut on the top edge and cut down along until the side is finished.

Do not call it finished until it is cut perfectly straight and perpendicular. To clean the rough away near the bottom of these bars use the chisel you are cutting with and cut towards the bar, being very careful not to cut against it but just up to it, for there is danger of breaking off a bar.

It is always best to cut one name at a time, and to cut all the outside of the letters first, leaving them to stand as square blocks, then with smaller tools rough the inside and clean them. Go slow, but lightly with your mallet or hammer, remove all rough away from the inside of these letters, clean them with small tools held in the same position as when cutting the outside. The blades of the chisel must be very small, and very little must be taken at a cut. Use the same small chisels to cut away the rough at the bottom of the inside. Never leave them until they are square down with very clean straight edges at the top and a straight corner at the bottom.

After all letters are cleaned use a large frosting tool for the large places, holding it straight up (See

Fig. 30), and with small hammer hit hard and fast; work all over until the background is level and free from holes; smaller tools are required for the spaces between the letters and for



FIG. 32.
ROUGHING OUT A STRAIGHT BAR FOR
MARBLE SUNKEN LETTER.

the inner sides of them use a small tooth chisel and small sharp point.

Tracing Marble By Hand: After the tracing is laid off correctly, take a chisel with a wide blade and check all straight lines by holding the full cutting edge on the line; cut the width of the blade and move and cut again until the line is finished. Al-

ways be careful to cut the edges straight and sharp. With a very sharp small chisel, the bottom corner cutting, run along the lines which have curves. Frost out the background, holding the tool perfectly straight. Now go over all the lines again with sharp chisels and cut them clean and deeper; frost all the background again, touching up all places that are not level. Using a frosting tool with the teeth very close together for soft marbles, and large coarse teeth for marbles that are hard and full of flint.

To check in curved lines of tracing on Georgia Gouverneur or similar marbles, which are full of flint, hold the tool in the position as for checking granite (See Fig. 2), and slide your chisel hand and arm along as you hit with hammer very fast; only break the polish first cut, then frost the background, and go over all lines again, holding the chisel as shown in again, holding the chisel as shown in Fig. 31, cutting the lines to a cut to this depth they cannot be seen very long; go over all again with frosting tool to make the background level and even.

Hand Cut Italic or Verse Letters: Be careful when laying out these letters to make them all of the same slant. With a brace and drill, or by rolling the drill in the palms of the hand, drill all holes for periods, commas, etc., and with a light mallet and small sharp chisel cut all cross bars first and then all the main bars, such as in the t, h, d, etc. Start on the right side of the stone and cut all

hair lines running in the direction toward you; turn and then cut all these little lines from the other side running in that direction. Then take one letter at a time and finish the main bars which the hair lines run into.

It is not practical or a good system to cut one letter at a time, hair lines main body and all, for it keeps the workman changing his position too often. Proceed to cut all hair lines first, then the large curved bars one at a time, cleaning all corners, etc., as you cut from one letter to another until the verse is finished.

Remove all pencil marks and rosin by the use of marble dust. Care must

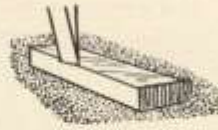


Fig. 34.
HOW TO FINISH A
SIDE SQUARE DOWN.

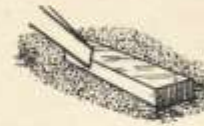


Fig. 33.
POSITION OF CHISEL
TO CUT THE SIDE
STRAIGHTER.

be taken when cutting these small letters; have a firm grip on the chisel at all times and hit very lightly and fast with your mallet.

PART TWO

Decoration, Carving, and Inscriptions

I

SPACING LETTERS

The figures for the modified Roman alphabet here drawn (in Fig. 19) all have the same spacing and guide line as the letters. The guide lines have been drawn and on inking in, have been left out showing how they look when finished. The beauty of these figures is, their graceful curve which starts at the top center in many cases like the 6, 9, 8, 0, and continues in one graceful line to the bottom center. The center of the letter will be seen to be at the extreme outside. The illustration shows the starting point and the finish of the curved letters. Again I insist, do not draw curved lines like Fig. 18, with only part of the corner curved.

Here is illustrated an alphabet of Egyptian letters in Fig. 20, probably the most in use, and no doubt the simplest to draw. These are used on monuments a great deal on account of the cheapness of their cutting. The guides are the same as in the modi-

fied Roman alphabet. The spaces for the top, center and bottom bars are the same width; in fact, these letters tend to keep the same width throughout. The guide lines are only for elementary practice and when becoming more proficient in drawing these letters they will be omitted, except one top and bottom line for their height, and the lines for the width of the perpendicular bars. The distance and width of the horizontal bars are drawn by your eye. It takes practice of the right kind to draw graceful letters, and if after several attempts you find you cannot do so, it is because your eye and hand have not the sufficient amount of training. You should then start to practice drawing curved lines until your hand and eye readily work together, and a curve can be started and finished at your will.

Spacing letters is not at all difficult provided all letters form, or nearly form, a rectangle by their outside outline. But such letters as A, J, L, T, V, W, and Y must be watched with

1 2 3 4 5 6 7 8 9 0

FIG. 19: FIGURES FOR A MODIFIED ROMAN ALPHABET

a great deal of alertness, for the spacing of these is much different. To fully demonstrate it is necessary you should know something about printer's type. All type is cast with

would not space well with printer's type. This can be remedied by making the top bar of the F shorter; lengthen the corner bar; move the letter nearer to the second A, which



Fig. 20. AN EGYPTIAN ALPHABET AND FIGURES.

lead into right angle squares and rectangles with a letter raised on them. When they are placed into the stick these square pieces fit together and in no case can there be correct spacing except when placed at a good width apart and it is in spacing a letter a draftsman can show his proficiency. For instance, use the name Quincy, Fig. 21; all letters square up equally well because their rectangular forms are nearly the same. But, use the name Lafayette, Fig. 22. Observe how the spacing would be if all letters were the same distance apart. A draftsman can shorten the bar of the L. The F, A and Y must be considered, for they

must be closer to the Y; also shorten the top bars of each T, Fig. 23. The name "Walter" has four letters that join more closely than type would make them.

There are three systems of properly spacing letters. The first is by drawing the top and bottom lines for the height of all letters, then by placing dots to signify the width of each letter. The second is to lightly sketch the name in script about the size you think it should be. The third is to use an extra slip of paper, draw all letters in rotation, then find the center of them, also the center of the finished paper or stone, put the two centers together and mark from

the preliminary paper to the finished one. The first system is the better and is more quickly accomplished. In using this system in beginning to space a name the first procedure is to write plainly in script or print lightly over the square to be lettered.

complete them. Fig. 23 illustrates how simple it is to draw letters when all are of a nearly even rectangle. It is much different drawing the name "Walter," which has four letters that will not space well, for their contours would cross one another when using

QUINCY

Fig. 21.

Then draw dots to space each letter, your eye in all cases to be the judge for their proper measurement. Remember in dotting for spaces that all letters are not the same width; and Y requires more space between the dots. Draw dots for the width of each bar; also for the space between letters proceeds by drawing all the perpendicular lines for each bar and finish by drawing in rotation each letter, using the guide lines to help

LAFAYETTE

Fig. 22.

type and spacing them close. These letters must be dotted for their width in an intuitive manner. The first letter, W, is wider than most letters, also the A, and has to be placed so as to represent a correct spacing placed next to the W; also the L must be shorter at the bottom bar, for it precedes a T; also the top bars of the T must be inside the rectangular form of the L. All must be so arranged that they will not resemble two words, one or two letters by themselves or in a cramped compact condition, viewed from a distance of 10 to 20 feet. The name "Father," often used in monumental drafting, should be drawn in the following manner: Using two foot for the distance in width of the stone for these letters to be placed, find the center of the stone and the first line of the first bar of the H is the center of the name; dot for the E and R, then measure the distance from the last line of the R to the outside of the paper or stone; commence on the other side, the same distance with F and connect the A and T, this being the right space between T and the



Fig. 23.

H. To space and draw more than one word in a single line is somewhat difficult for a beginner, for the words have to be spaced properly, as do the letters. Two words is much easier



Fig. 14.



Fig. 15.

Fig. 18.

spaced than three or more, and the more words used the more difficult is the spacing. Spacing two words in a line begins by dotting spaces for the first word at a place where you think it should be placed, then measure the distance from the outside of the given distance of the paper or backward on the second name until the words have been represented by dots. In most trials the first time will not be sufficient, for the reason the words come together at a space too wide or too narrow between them, but a second spacing generally is sufficient; if not, try again until the two words have a proper space which must be judged by observation of print and experience. Whenever the letters A, F, L, T, V, W and Y, are the last of a name the spacing must be brought closer than would be should a letter with an even line at the outside be at the end. The same rule applies at the beginning of a second word with the letters A, J, T, V, W, and Y for the reason that the

space looks too large on account of the bar not being at right angles to the top and bottom line.

II

LETTERING WORDS AND NAMES

Letters on monuments are generally only names and in some cases short biographies of the deceased, also the date of birth and death.

But to only use them thus with no desire to better the ornamentation of the stone is neglecting opportunity. In all cases letters should be arranged just as tracing or carving for the improvement of the artistic beauty of the stone.

Generally letters are marked on the stone with all possible speed, cut in the same manner, with no proportion of telling who is buried there. The letters should have something of the artistic value that should help make a cemetery beautiful. To speak of artistic lettering does not mean an



Fig. 16.

immense lot of flourishes and small lines drawn into delicate detail, but a properly proportioned letter full of grace and expression.

A letter should be thought of as in a rectangle. Fig. 14, will represent letters so arranged. These rectangles are of different width for the requirements of the letters employed. A let-

ter with square corners, as illustrated (Fig. 15), will not be considered and should never be cut on a piece of stone built for artistic purposes; also the much in use raised round letters, the invention of the mechanical air

to a rule that a letter shall be the same width at all places even if the height is the same. In some cases they will be widened or made more narrow to make the spacing better, Fig. 17, here illustrated, is an alpha-



Fig. 17.

brush, which makes these letters look good on paper but on the stone they are not to be compared with properly cut flat surface letter, which casts a good shadow. A letter of expression was used by the Latin scribes who used pen with ink to mark on parchment, and by drawing the pen downward gave a bolder and wider stroke than by drawing it sideways or up. Therefore the expression of all letters. Fig. 16 illustrates the use of a pen, demonstrating how and where the expression lines are used. The square corners and even width bars (Fig. 15,) are not artistic, for they are purely mechanical.

The first thing to be considered when combining letters into words is to make them readable and the balance of the spacing between the letters is a very important consideration; also one should not adhere

bet of modified Roman letters, a good size for beginners to practice. They should not be drawn at the corners like Fig. 18, as in many cases, but with a gradual curve throughout.

You will observe the principal guide lines on such as are used in drawing leaves; first draw the top and bottom lines then two lines at the center for the center bars of letters then a line at top and bottom to make the distance in width for the top and bottoms bars. The preliminary center lines will not do for a finished letter as you will observe the center bar of the B, E, F and H, must be a little higher than the first lines drawn so as to add more grace also to keep away from the mechanical idea of their being placed at the center. The letters A, P, and R, must be below the center line for the same reason the other let-

ters are above it. Also observe the B is wider at the bottom section than at the top, and that the bottom bar of the E should not terminate like the top one. That the S is wider at the lower portion than the top. These are rules that should always be remembered. Notice that all letters are not the same width. The first letter A, has five perpendicular lines for its construction; also the M, V and Y and six lines for a W. All other letters are nearly the same width, the B, D, G, J, R, U, about the same. The C, O, Q, should be a little wider. But this principle is adhered to only when in single letters; in combining them into words the A can be shortened in width as also the E, F, L and T very easily and be made to look better than if they were all uniform. The letters E and F can have their center bars lengthened when the letters A, J and T follow them. Also the bottom bar of L must be shortened

when placed before the letters A and J and lengthened preceding the V, W and Y. All letters in this style of alphabet should be drawn separately many times until thoroughly mastered. Remember the future of your lettering depends on the correctness of the single letters, for when combining them into words you do not want your thoughts to dwell on the construction of single letters but on the spacing and arrangement of them as a whole. It is useless to try to draw inscriptions until every letter has been thoroughly mastered.

III

ROMAN LETTERS FOR MONUMENTS

Probably the most suitable and the most beautiful letters for general monumental use are the Roman letters which are derived from Serio in the sixteenth century. One will never make a mistake by using them on a

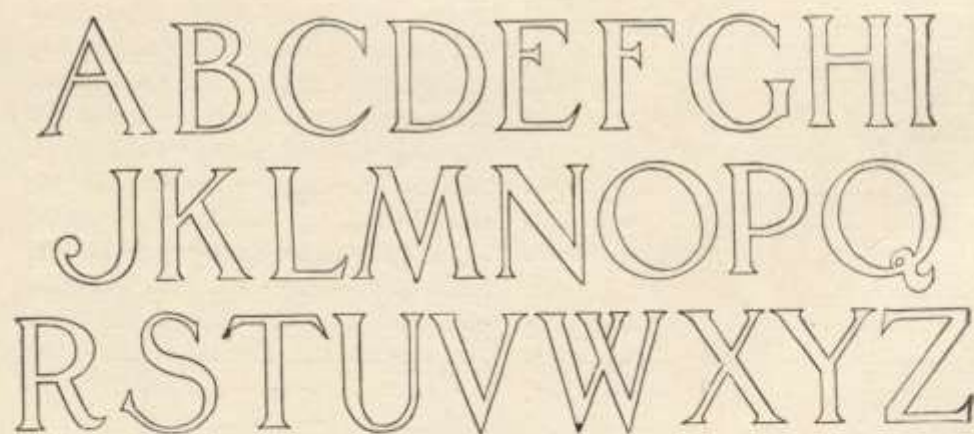


FIG. 1

ROMAN ALPHABET; DRAWN BY J. W. WYCKOFF.

monument or marker because they are a most artistic type of letter. One must be a good draftsman to draw and arrange them correctly. A poor draftsman will have difficulty making them in the proper proportions

any letter that has the same construction as is the case with other kinds of letters. When placed into composition these letters are beautiful because they do not all have the same width bars, and every one of their



NOTE SHORTENED APPEARANCE OF
W, N, AND S.

NOTE SHORTENED APPEARANCE OF
H AND R.



Fig. 4. REDRAWN FORMS OF NAMES SHOWN ABOVE.

which give them the greater part of their grace. It is very hard for some draftsmen to understand that a letter is not a mechanical work, but is an artistic creation. When drawing letters one of the first things to remember is to use the T-square and the triangle as little as possible and to discard the rule a great deal. The trained eye is the proper thing to use. The width of a letter is never determined by a rule, for there is not any exact width that governs letters. In most monumental establishments a draftsman or workman will measure every one of them like Fig. 2 and Fig. 3, and the results are seen in every cemetery in the country—mechanical and without form.

The reason the Roman letters are so graceful is because of their different widths and forms. There is not

forms is so different that contrast is given to a line of name or an inscription. The spacing between them is never equal as in the case of letters like Fig. 3, and the space that is inside of them is also different, which makes for artistic expression.

For monumental purposes some of these letters must be drawn longer than others. The reason for this is that letters that do not have a horizontal top and bottom will not throw a shadow that will reach as far as ones that have. This is demonstrated by the difference of the letters of the Harris and the Rawlins inscriptions from the designs and the drawing of Fig. 4. The letters R and S of the first appear to be too short, and of the latter the W, N and S appear so. They are mechanically correct, but not artistically so. These

letters have a different appearance when they are drawn longer.

The letter B, is wider at the bottom than the top; the C is longer at both bottom and top. The bottom bar of the E is longer than the top. The G is like the C, longer. The bars of the M are not perpendicular and the center one is longer than the rest. The O is a circle, but for want of space in a line it can sometimes be drawn elliptical. Other letters can be shortened for this same reason. The S is wider and longer at the bottom than the top. The points of the V and W are longer than the rest of the letter.

A draftsman must first learn the correct form of each letter; then he can take liberties when arranging them into composition. Each letter can be changed enough to help the beauty of the line in which it is placed. The width of the bar has a great deal to do with the width of the letter. When a letter is to be very narrow the bars must be narrow, and when they are wide the bars must correspond.

Another thing to remember about these letters is that they arrange beautifully into lines of different size letters. At present most all inscriptions are drafted of letters the same height. A more pleasing effect is for the beginning of a name and the first letter of a sentence to be higher than the others. This used to be in vogue years ago in one of the old-fashioned headstones. This way of drafting letters for a family name is shown at Fig. 6. This is one of the ways to do away with the monotonous, me-

chanical letter arrangement. Another way is shown in Fig. 7, where the first and the last letters are longer than the others. This will not always work, for the reason that properly



FIG. 2



FIG. 3

MECHANICALLY DRAWN, "BOX CAR" STYLES OF FAMILY NAMES.

FIG. 6.



FIG. 7.

VARIETY IN RENDERING FAMILY NAMES.



VARIATIONS IN ROMAN LETTERS FOR INITIALS.

Figs. 8, 9, AND 10.

shaped letters will not be at the end of a name.

For family names the Roman letter is much better in all respects than the letters like Fig. 2 and Fig. 3. By comparing these letters with Fig. 6 and Fig. 7, it is seen at a glance that the Roman letter is to be preferred. The round raised and the box-car letters have no place on such an artistic thing as a monument.

For initials and emblems the Roman letters are in a class by themselves. They can always be read which is more than can be said of the Old English and other text letters, and they are much easier to cut on a stone. Some of the uses of them are illustrated at Fig. 8, Fig. 9 and Fig. 10. These letters, being used for initials, are rearranged somewhat from the correct forms by rounding some of the corners and adding turns to places so that they will compose into circles and ellipse. This is only one way of the many that one can rearrange those letters to look well when placed in special forms. Using the correct form as a basis you can take many different kinds of liberties with them and originate all the letters that will be in relation with any form.

Copying letters that some other man has designed for some given space often gets them in a space for which they are unsuited. There is only one way to learn how to draw and compose these letters, and that is by constant practice. A good way to criticise one's own work is to turn the paper upside down and then look at the letters. One can generally tell

at a glance what is wrong with a letter and can correct it when the paper is in that position.

IV

FORM AND PLACEMENT OF LETTERS ON MONUMENTS

Good letters properly placed on a monument are valuable part of the decoration. In a great many cases they are so badly formed or awkwardly placed on a die or base as to spoil the effect of a well-designed monument. There are not many forms of letters that are suitable for monumental purposes.

A very poor form, like No. 1, Fig. 1, is used more for family names and inscriptions than any other letter. This is the crudest and most inappropriate of any letter in the designer's alphabet. You will seldom find this kind of a letter in use anywhere except for scare heads in yellow newspapers and on monuments. If one will notice large billboards advertising coal, soap, patent medicines, posters for variety shows, etc., chewing gum, pork and beans advertisement in the magazines and newspaper at breakfast foods, cigarette, advertisements, it will be noticed that this "fashionable" monumental letter is absent. It is entirely too crude to be used by these discerning firms for the attraction of customers. The reason is, they are used because they are easy to cut on hard stone and the draftsmen and letter-cutters have not been educated to draw and cut better ones. They surely should be able to execute let-

ters like No. 2, Fig. 1, which have more graceful forms.

The most suitable letters are like those shown in Fig. 2, which are derived from designs of the Romans

general use, when the old fashioned hammer was used to execute them. But since the modern shop is equipped with appliances to execute most any form, there is no excuse to con-

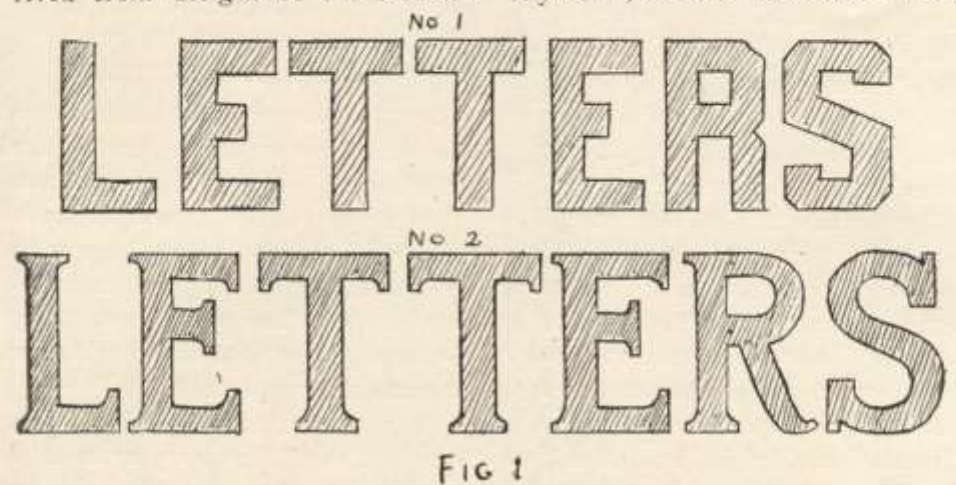


FIG 1



FIG. 2

of the sixteenth century. They are artistic and if properly placed will add greatly to the decoration of a monument. It takes a great deal of practice to execute them on paper and on stone, but it is well-worth one's time to learn how. These are the kinds of letters that one sees on the large sculptured tombs of Italy, France and England, and on the smaller stones in those countries, and even in many old churchyards and cemeteries in this country.

The "dark ages" of monumental lettering in the United States began when very hard stones became of

tinued the letters that abound in the average cemetery.

Very ornate letters are not suitable for monumental purposes because they are hard to read. Old English, Old German, or any text letters should not be used except for monograms and initials; they are hard to arrange and space into decorative forms.

Fig. 3 shows what is generally seen on a base of that description, the crudest and the largest as well as the most inartistic letters that could be used. Fig. 4 shows the results of modern improvement.

Fig 5 represents one of the large thick bases with the crude letters, Fig. 6 shows how much better different letters would look. Fig. 5 would look better, if some of the decoration

properly placed on the monument. With all of the space above them vacant, the design has the appearance of wanting decoration. It would have been better to place the letters

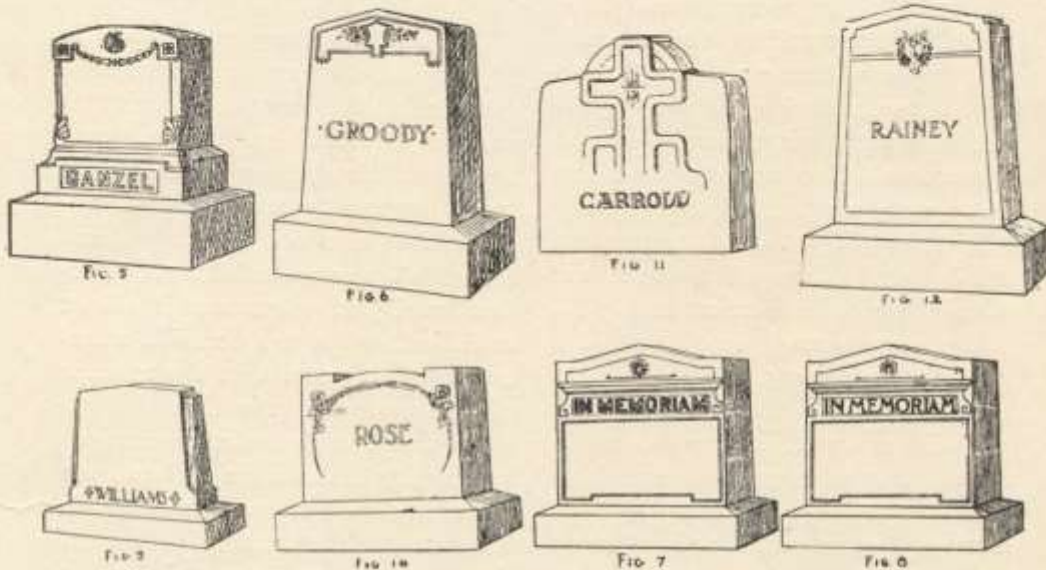


FIG 3



FIG. 4

had been omitted from the die and letters placed on it like they are on Fig. 6, which corresponds with the rest of the design.

Just to show how much better well formed letters look than do ones of bad form a comparison is here made of Fig. 7 and 8. A die with such architectural decoration should have letters more in harmony as shown in Fig. 8.

Fig 9 shows the use of the Roman letters, but does not show them to be

a trifle above the center, leaving the Maltese crosses where they are and adding two more at the top, which would insure a better balance. Compare Fig. 10 with Fig. 9 and you will see at once the better balance obtained. The placing of letters has as much importance in the decoration of stone as the placing of a flower or other ornament. In the design at Fig. 10 it will be seen that there is only one long sweeping line for the conventional rose pattern which the

letters have been added to complete the design. Could anything be simpler or more refined? If these letters "ROSE" had been placed at the bottom of the die or on the base as many a draftsman would have done, the beauty of the design would at once have been marred. The ornate letters as in Fig. 11 are very inadequate for artistic purposes on a monument. One cannot tell without close study whether the last letter is a W or two L's. Such letters should not be used. Compare with this the simply designed monument in Fig. 12.

The improvement in present day monuments is very noticeable, but a great majority of the letters on them are still executed in the old crude styles. Some designers do not seem to appreciate that the lettering is as much of the decoration as is a flower

One great trouble in the making of letters is that the letters are not designed on paper before being given to the workman to transfer to stone. This is the only way to obtain proper letters and proper placement on a monument. If designers and draftsmen will study the letters on the best monuments they will learn what beau-

tiful letters and beautiful placement are.

V

LODGE EMBLEMS

The Knights Templar emblems in Fig. 35 as a class are among the most difficult to draw for the reason that there is so much detail in their construction. The proper drafting is of great importance and one will discover if he does not familiarize himself with the entire emblem and practice drawing it many times it will be so difficult when the occasion arises to put it on stone, that the attempt will be crude and primitive.

The first one illustrated is managed by drawing a rectangle. Then each corner is separated and drawn in the direction of the rectangle's center. Next the cross and crown is lightly sketched in, getting the proper proportions of each. The top piece is drawn last. When all the necessary lines have been sketched proceed to draw, with a clean cut, sharp line throughout, correctly. The letters are drawn last. When drawing the cross remember what was said about

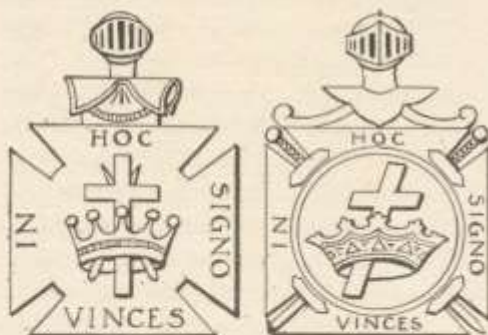


FIG. 35. KNIGHTS' TEMPLAR EMBLEMS.



FIG. 36. CONSISTORY 32D DEGREE EMBLEMS.

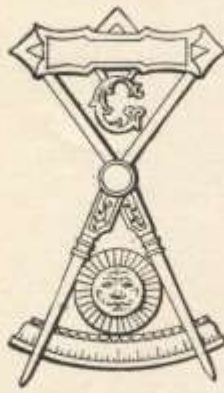


FIG. 32. PAST MASTER'S EMBLEM.



FIG. 36. PAST GRAND HIGH PRIEST'S EMBLEM.

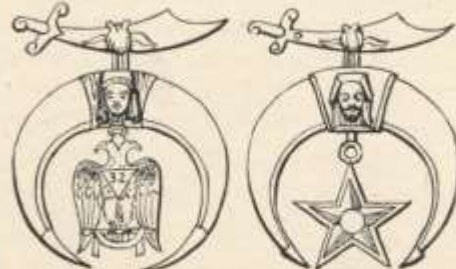


FIG. 39. ANCIENT ARABIC ORDER OF NOBLES, MYSTIC SHRINE.

proportions in Article Two, in the May issue. The crown is drawn by using two parallel curved lines forming the top and bottom; then the two ends forming a rectangle. The length is horizontal. When this is accomplished the detail is easily drawn by placing dot for each ball and a line for the bottom of each curve. One should have no trouble with the top as the contour is a circle with an ellipse drawn upon it. No. 2 is more complicated but is drawn the same in the beginning as No. 1. The cross is on a slant and there are also daggers inserted at the two top corners going under the cross and crown and coming out at the two lower corners. The detail of the top is also a little different from No. 1, but this is all drawn last; after the rectangle has been drawn.

The Consistory 32d Degree emblem, Fig. 36, No. 1, is a figure built on a rectangular form. The eagle with two heads and one body is quite difficult drawing.

The correct way to draw this emblem is not to become confused in

trying to draw both sides alike by free hand. First make a good outline of one side from a center line and then use thin tracing paper, covering the side drawn and making the lines as you see them through the paper. Lift this up and turn the tracing paper over and draw the lines as you see them through the paper. This reverses the drawing. This first side drawn is placed on the paper and by using a hard lead pencil for a stylus mark all lines correctly, pressing hard to insure a good impression. The tracing paper is then removed—the impression is made more definite by marking over the lines with a sharp pointed pencil completing the eagle. The small triangle form with the figure 32, and the sword and ribbon are drawn last.

All should be sketched before making a finished drawing of any one part. Another form of the order is No. 2. The rectangle is here discarded and the eagles are larger. No. 1 is best for tracing and No. 2 is the simplest to carve. The Past Master's emblem, Fig. 37, consists of long rectangle. One side can be

drawn first and tracing paper used as explained for the other side. It consists of a plate with the letter G attached; below is the compass and

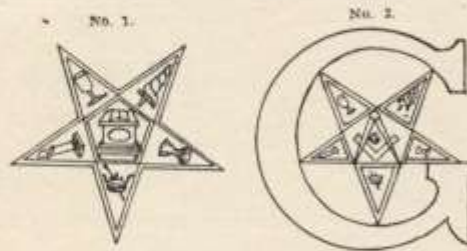


FIG. 40. EASTERN STAR EMBLEMS.

rule; also the head and circle with its details.

The Past Grand High Priest's emblem Fig. 38, is also drawn in a rectangle. This is a very difficult drawing for the reason that the human figure is prepared, which is hardest of all to draw. The figure, and eagle with out-stretched wings and the shield with the decoration at the bottom is a small rectangle built on the circle below. Do not try to draw the leaves in the wreath until two lines have been drawn forming the two sides. The leaves are then kept in place. These leaves are in clusters and after you have one cluster drawn, tracing paper can be used to draw the others. There is no need or reversing the paper for all are the same.

The urn on the right side is also difficult to draw but by drawing a center line, then sketching in lightly the outline of one side and tracing the other side it is easily drawn. The two drawings, Fig. 39, of the Ancient Arabic Order of Nobles, Mystic Shrine, are of the same construction. Their difference lies in detail only.

The emblem most used in the Eastern Star Lodge, Fig 40, No. 1 is con-

structed on a circle, which is drawn first. Then draw the five-pointed star inside of this circle. Find the exact place for each point by using a compass, dividing the circle into five parts. Then draw from point to point measured on the circle. The inside forms a geometrical figure into which is a rostrum upon which an open book is drawn. All five parts of the star have a different unit^a which must be carefully drawn. Another form, No. 2, is a large G with the five-pointed star attached by each point with the same detail except that a compass and square displace the rostrum and book. The letter G is drawn first and the inside forms the circle for the star. The detail in the star is then carefully drawn to complete the emblem.

The Past Grand Patron emblem, fig. 41, is built up from a rectangle. After the head piece has been slightly sketched the five-pointed star is drawn. Then the small border around it. The inside of the star is

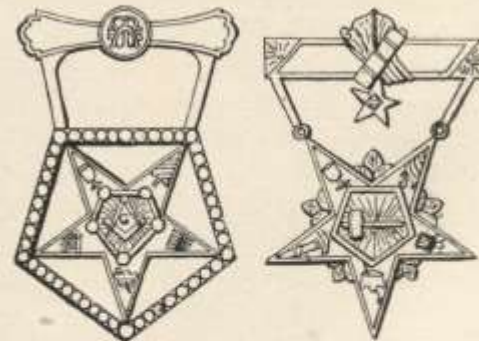


FIG. 41. PAST GRAND PATRON.

FIG. 42. PAST MATRON'S EMBLEM.

quite complicated and the geometrical figure of the star is quite complicated. The geometrical figure touches the inside of the beginning of each point and the compass and square are drawn within. In side of

each sectional point are drawn the same figures as in Fig. 40, No. 1. The Past Matron emblem, Fig. 42, is drawn the same as Fig. 41 except in some of the detail. The figure inside

and draw a line perpendicularly from the top to the bottom. Then lightly sketch at the outside of the form all the curves and straight lines needed to get a correct outline. With a



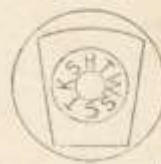
FIG. 31.



FIG. 32.



FIG. 33.



MASONIC LODGE EMBLEMS.

ROYAL ARCH MASONIC EMBLEMS.

has a mallet and at the intersection of each point are drawn leaves. These should not be difficult after drawing them several times. Each time one is drawn there will be seen some mistake in your former practice until you can draw an emblem correctly.

Emblems as a rule are very difficult to draw, when one tries to execute them directly on stone, because the lines are hard to correct. Always draw them correctly on paper, for they must be sketched lightly to get them into shape and proportion before any definite lines are used. No draftsman can draw any complicated subject correctly without first lightly sketching in the big masses. The Independent Order of Odd Fellows' emblem, Fig 43, should not be difficult to draw. It is a simple object, but if it is not started correctly difficulties will be met with. When beginning to draw this it must be looked at as a square rectangle and when sketching this rectangle, which you must do, be sure to get right proportion with the our straight lines needed to get the top, bottom and sides. These are the most important of any. If the rectangle has been drawn proceed by finding the center

sharp pencil point draw out these lines for the finished drafting. The other side must be drawn to correspond with the first side. This is accomplished by using tracing paper. The three links are not difficult to draw but they must be started right or you will have trouble. Begin by finding the center of the rectangle and then draw the middle link, then connect the top and the bottom one

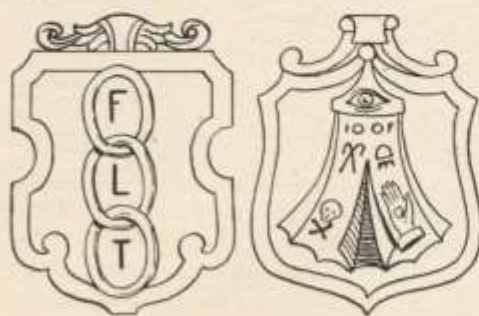


OFFICIAL EMBLEM OF WOODMAN OF THE WORLD.

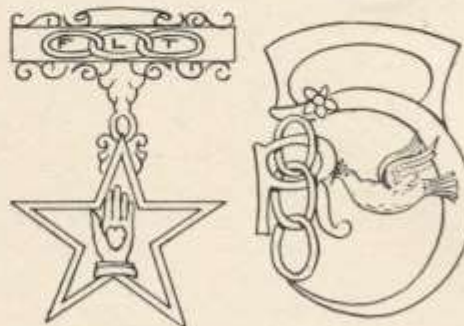
to it. Fig 43, No. 2, is another form of emblem used for the same lodge and as No. 1, after drawing the rectangle form, the tent and the detail will follow. The tent is in perspec-

tive and must be so drawn as to look as if it had the third dimension. By making the folds smaller as they recede it gives the appearance of being round, not flat. The Past Grand

hard to draw as a head and can not be drawn any where near correctly until one has some knowledge of the bones and muscles; also of the planes, By holding your own hand for a



No. 1. No. 2.
FIG. 43; INDEPENDENT ORDER OF ODD FELLOWS.



No. 1. No. 2.
FIG. 44; REBEKAH DEGREE, INDEPENDENT ORDER OF ODD FELLOWS.



No. 1. Masonic and I. O. O. F.



No. 2. Uniform Rank, K. of P.



No. 1. Knights of Pythias.



No. 2. Past Chancellor, K. of P.

emblem of the Independent Order of Odd Fellows, Fig. 44, No. 1, would be a simple drawing if it were not for the hand. The small rectangle at the top must be sketched, then the circle for the star. Do not use compass to draw the circle but sketch a circle free hand so you can tell what proportion you want. The star must be lightly sketched, also the hand, before any finishing lines are drawn. After the rectangle and the star have been finished correctly you will have great difficulty with the hand. A good hand is nearly as

model one can be drawn successfully. Fig. 44 No. 2, Rebekah Degree Independent Order Odd Fellows is quite complicated and must first be very carefully sketched in. Each part must first be the right proportion and if it is not it will not hold its place in the drawing. Three links are used to represent the perpendicular bar for the larger "D" and the "R" is drawn over and under these links. To draw the bird do not start at the head, completing it, then the body, lastly adding the wings, but draw a line from the head through to the end of the tail, two

lines for the breast and bottom of the tail, also two lines for the wings, one vertical and one nearly horizontal. These lines will represent the direction and size of the different surfaces.

thickness while the other side would still be a straight line. No. 2, Fig. 46, Past Chancellor Knights of Pythias emblem, is very hard to draw and will require a great deal of study to



FIG. 47.
No. 1. Pythian Sisters. No. 2. Knights of Maccabees.

FIG. 48.
No. 1; Ladies of Modern Maccabees. No. 2; Ladies of Maccabees.

The head is then drawn, then the detail of each wing outside and inside. All lines representing features are drawn last. Fig. 45. No. 1, the Mason and Odd Fellow emblem combined, is simple. No. 2, Fig. 45 is a uniform rang Knight of Pythias emblem. It is very easily drawn but full of detail. Like the other emblems the detail is not important until the last. In the drafting, one side of this should be drawn first and the other transferred. No. 1, Fig. 46, is another emblem of the same order and the only difference is the detail. The open book must be drawn open, showing top and two sides; it cannot be drawn showing top and bottom alike, except as a straight line for each. The reason for this is one can see both sides of an open book, for the leaves form a slanting line enabling the eye to include both sides. If they were square like the bottom and top they would also be drawn as a straight line, showing no thickness unless a view was taken of it from one side. Then that side would show

do so. The outside form has the essential lines for the beginning. The head and shoulders of the man in armour are then sketched, then the eagle; lastly the smaller detail. To draw the eagle, think of the long lines in a mass, not the smaller ones only, until all large lines have been drawn representing the size and proportion of the outside. The eagle is in a crouching position having the appearance of going to fly at once. The fierceness of an eagle head is made by drawing the bill large and with a decided crook. Also make the eyes large, with the brows long and low down. Fig. 47, No. 1, Pythian Sisters' Auxiliary to Knights of Pythias emblem, is a square in a circle for the first sketch. The corners of the square are then drawn, lastly and the crown and other smaller detail. The bottom of the crown which makes its appearance look round is a circle in perspective drawn as an ellipse. No. 2 Fig. 47, is a Knight of the Maccabees emblem. The only difficult part is the hand and to use your hand as a

model as instructed before will be difficult. You can not get your left hand in the position wanted. Therefore you must use your right hand held in front of a mirror, and the



Fig. 51. G. A. R.



Fig. 52. W. R. C.



Fig. 53.



Fig. 54.

hand you see in the mirror will be reversed, giving the proper position. One will have to look at the hand and then do the pencil drawing from memory.

Fig. 48, No. 1, Ladies of Modern Maccabees' emblem, is a simple drawing and should be drawn without any instructions.

No. 2, Fig. 48, is the Past Commander, Knights of Maccabees' emblem and is composed of some very difficult drawing. The bird has not the same action as the one in Fig. 44,

but the instructions as to long lines and large masses must not be overlooked. The clasped hands are the most difficult of any detail of an emblem illustrated. One cannot clasp his own hands in a position wanted, therefore you must resort to copying them line for line from another drawing, or have two people pose with clasped hands and draw from them. This is the better way, and, in fact, to draw any naturalistic object it is always best to draw from the object itself than copy other people's lines.

It is not a good idea to wait until you need these emblems to begin to draw one, for it takes acquaintance with such difficult drawings to execute them with success: therefore I think it proper to at once draw each one many times, for faithful practice is what is needed to train the eye and hand to see and draw these difficult objects which is a step to the drawing of things more difficult.

Grand Army of the Republic emblem, Fig. 51, is the most difficult to draw, for the reason that the human figure is represented in different actions. The proper way is to draw the outside lines from head to foot, getting the required action, then lightly sketching the different sections by bold lines connecting all large masses before any detail is drawn.

The Women's Relief Corps emblem, Fig. 52, another difficult emblem, for the same reason that Fig. 51 is. This will require some careful drawing and should always be drawn correctly on paper, then transferred to the stone. Fraternal Order of Eagles, Fig. 53 should be

drawn without much trouble after drawing other eagles in different emblems as in former instructions.

The Benevolent Protective Order of Elks, emblem 54, is also difficult,



Fig. 55.
RED MEN.



Fig. 56.
KNIGHTS OF COLUMBUS.

for an animal head is nearly as difficult to draw as the human head, and it will take a good eye to see the proper lines and a good hand to produce with pencil what the eye sees. Do not try to draw detail first; get the shape of the head in the proper position and let all detail be drawn last.

Red Men emblem, Fig. 55, is only an Indian head in a circle. The characteristics of an Indian head are that they have a large Roman nose, a large mouth, a very square jaw, a very high cheek bone, and a small eye-socket.

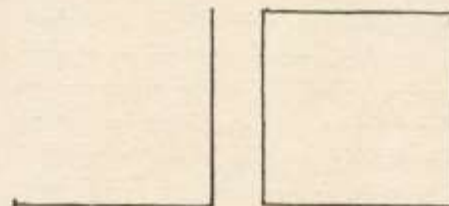
Fig. 56, Knights of Columbus emblem, should be drawn without any trouble after having such a difficult emblem previously.

VI

ELEMENTARY DRAFTING

A combination of the first elementary lines will form Fig. 4, No. 1, which is two lines joining at right angles. Draw this by using one straight line like Fig. 1, No. 1, then a horizontal line like No. 2. Try to draw these lines the same length and

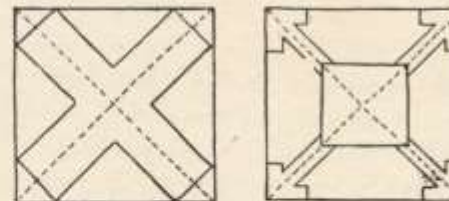
after practicing several times find out your mistakes by mechanical measurement, but do not measure any line or use a rule except for verifying. It will do you no good to work with a rule for now is the time to train your eye and hand to work together. We will soon take up letters and flowers, and to draw them, these preliminary characters must be drawn perfectly and easily. Fig. 4, No. 2, is a rectangle, with all sides the same. This is drawn by four lines at right angles to each other. Measure all distances by your eye by placing a dot where you think the line should begin and terminate. Look at the dot after placing it and decide whether it is too far away or too



No. 1.

FIG. 4.

No. 2.



No. 1.

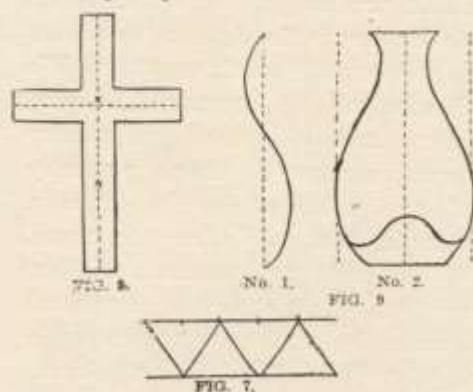
FIG. 6.

No. 2.

close. Then draw the lines with one bold stroke.

Do not discontinue practicing the rectangle until you can correctly draw it. This is a good character to train the eye. Fig. 5, is the first drawing you will use in monumental drafting. To correctly draw

this the proportions must be known and always remembered. A line drawn perpendicular for the full length of a cross will be divided into three equal parts. At the first third



from the top is drawn a line at right angles, the distance of one-third the length of the perpendicular line. Thus you have the three wings, top and two sides equal. A line on each side of these center lines is now drawn to form the width of the bars. When drawing the horizontal lines, use the center line a little below the actual one-third measurement as illustrated to improve on the form of the finished drawing. Be careful when drawing the lines on each side of the center line. They must be in proportion to the height and width of the cross which has just as much to do with the looks of it as the first measurements. You must draw and measure this all free hand. No doubt you will have trouble with the measurements; for any horizontal line drawn always looks shorter than a line of equal measurement drawn perpendicular. This should always be remembered and will save you a great deal of trouble in your drawings later on. The drawings of Fig. 6, as in the

cross, are a combination involving points of great importance. In this all the elementary lines already given are combined in simple forms. Keep the drawing in one position of the hand to suit the different directions of the lines. This is of great importance in drawing. It is true that one draftsman has a readier faculty to draw a line in one direction than another. The latter may be able to draw more accurately a line in quite another direction. In either case a draftsman will be tempted to change the direction of the first position whereby he can most easily draw the line. This method is vitally wrong. The copy must be placed in the same position as illustrated. To draw Fig. 6, No. 1, work your lines for the rectangle; then two straight lines crossing at the center from corner to corner. Then, like the instructions given to draw a cross, draw a line on each side of these center lines. Then connect them by one at right angles at the four corners. Fig. 6, No. 2, is a rectangle in a rectangle detailed somewhat at the outer corners of the large one. After drawing the large one proceed as in former drawing to draw lines from corner to corner; then draw the small one, with the corners at the diagonal lines; finish the detail at the outer corners last.

Fig. 7 is a zig-zag line, the Egyptian character representing water. This was used to decorate columns and capitals on their temples and tombs. This is easily drawn by using two horizontal parallel lines, then by dots measuring the distance from one angle to another or short lines connecting the two horizontal lines

to help judge the measurements correctly, then draw from line to line from bottom to top and vice versa. The characters of Fig. 8 are called a fret or labyrinth. It is found on antique styles of architecture of the Egyptians, and also the Greeks as in Fig. 7. Draw horizontal lines, but four in number. They are drawn all equal distances apart. Suggest lines through the horizontals the same distance apart, then locate the terminating right angle forms as shown.

Fig. 8, No. 2, requires five horizontal lines evenly spaced. Now you have gone through the most important and very necessary subjects. The first ones are the essential as they form the foundation of the practice of ornamental drawing. Also the essential for they constitute the basis of ornamental art. These should be drawn with a fair degree of earnest endeavor to do them satisfactorily. No draftsman will say these lines are or ever were easy to master. Many of them in the monumental business are woefully deficient in this direction. Most students begin by starting at complicated forms, not having the facility to draw any of these elementary studies I have given you. Therefore some students in most cases do not go any farther in a course of drawing than the first one or two subjects they attempt. But by beginning as I have instructed, with these same forms as some start with when reached, they can readily be mastered. Nothing will satisfy some but a very short course in drawing and often in the monumental business they buy an air brush and commence. They seem to think that a

machine like an air brush has the power to let the air blow the color out of the machine and create beautiful monuments. That kind of idea I want to discourage in any one following these instructions. To learn

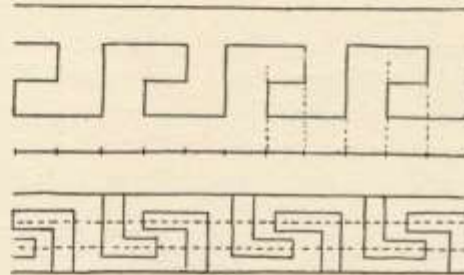


FIG. 8.
No. 1.
No. 2.

to draw is what you want; then to design monuments, not be a mere copyist. To do this it is important a student attend to the simplest subjects. Never leave the first series of lessons for the next until you have mastered them thoroughly. Bear in mind the lesson conveyed in the adage: "Fear in argument the man of one book." Equally may he fear in execution the man of one accomplishment.

The department of curved lines will be taken up as in the earlier stage of straight lines. Each line must be thoroughly mastered before you proceed to a succeeding one. A curved line is one in which the direction is constantly varied. It is found chiefly but not altogether in things that are considered beautiful, as in leaves, flowers, etc. Both straight and curved lines are most beautiful when in combination as in some kind of architecture, vases and flowers. In copying curved lines it is absurd to begin with slanting lines. All the standard straight lines should be first

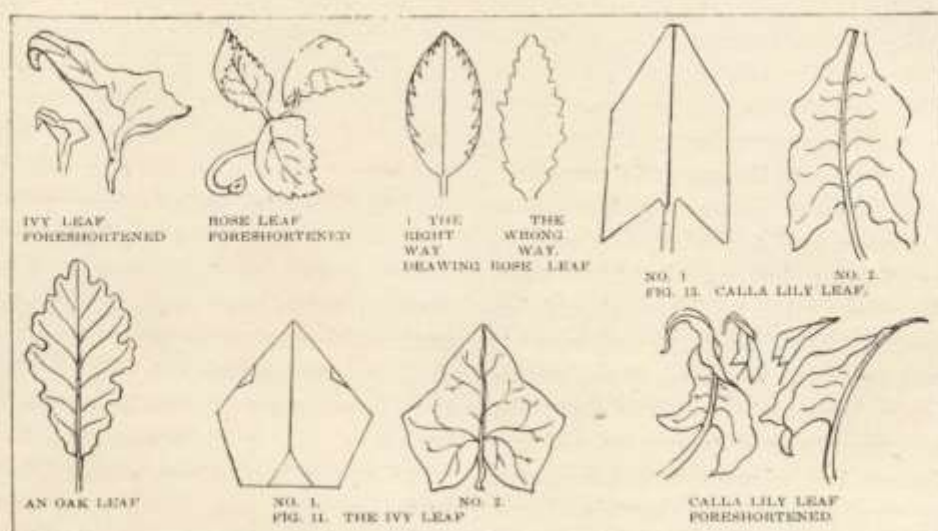
drawn and the slanting ones judged by them. It is important to test all curved lines by perpendicular and horizontal lines. This can not be too strongly insisted upon as there is no other way in free hand drawing to attain accuracy. By using these two elementary lines all superficial and solid forms can be suggested. If you continue a line at an equal distance from a point it will result in a circle, which is the archtype of all

the same curve as the one just finished, and will be drawn after the same fashion, remembering to begin at the top, forming a sort of a vase used in monumental tracing.

VII

LAYING OUT AND TRACING LEAVES

The lines drawn in the previous chapter constitute the elementary lines of ornament. We shall now



animal and vegetable forms. Also the simplest, most economical form in creation, and perfect in its completeness.

Fig. 9, No. 1, is a simple curve drawn by placing a dot at top and bottom of the intended line, then running a perpendicular line connecting these dots for a guide line, then slowly but surely curve the line from top to bottom. Draw this curve at least two and one-half inches long then increase the distance as you become proficient. No. 2 of Fig. 9 is

proceed to draw forms that will apply to shapes of objects. The naturalistic forms of leaves will be considered first. All leaves have a center line and it is the first one used when beginning to draw. After drawing this center line the length required, proceed to draw lines for its outside contour. To assist in getting the proper width place dots at a distance on each side of the center line to determine the width at the greatest part. For the rose leaf, the simplest leaf of all, draw one line

from the top of the center line to its termination as in Fig. 10, No. 1. The proper contour being finished by those two long sweeping lines the details may be looked after in the

and also its division into the five masses as you will have a similar shaped leaf very often in monumental drawing. This leaf (Fig. 12) is blocked in as the ivy leaf by center



zigzag edges and the veins. This detail always represents the character of a leaf. All leaf forms must be drawn for their relative character and all detail should be drawn last. Remember the large lines are always drawn first. Do not begin and finish a drawing of a rose as is often done like Figure 10, No. 2. This is trying to draw length, breadth, form and detail at the same stroke of the pencil, which is an impossibility. Fig. 11, No. 1, is the blocked out form of an ivy leaf. This is drawn by using a straight center line and also straight lines for size and form for its contour. Finish blocking by drawing a horizontal line at the bottom. Always mark dots to assist in portraying the width at different points. When blocked out correctly proceed to draw within the form the curved lines that form the exact character. The two lines are then added for the stem and the details of the veins complete a beautiful leaf very easily and simply.

We now come to a leaf that very much resembles the acanthus. This formation must be closely observed

line; then by three outside lines on either side to correctly outline the entire form; then by curved lines to complete the large masses. Then you are ready for the detail which is very complicated and must be carefully and slowly drawn. The illustration shows how very simple it is to draw a beautiful leaf, if one can see small detail or large masses. A calla lily leaf (Fig. 13) is drawn in the same manner as the former leaves by always blocking out the large and general mass simply. No leaf can be drawn correctly except by this simple method. The calla leaf has a variety of different kinds of detail but the general form always remains the same. By closely observing from nature this leaf will be found with different curves and forms at its outside edges; also the veins differ, as do the edges.

To come more proficient in drawing this leaf go to nature and get several models, placing them at a distance of three feet from the eye, drawing them out very carefully and noting the different characteristics of each leaf. Remember to always

block out the general form first like Fig. 13. You will notice in the blocking you cannot use the same form as this copy. They may be wider or narrower, shorter or longer. But do not forget to draw the leaf

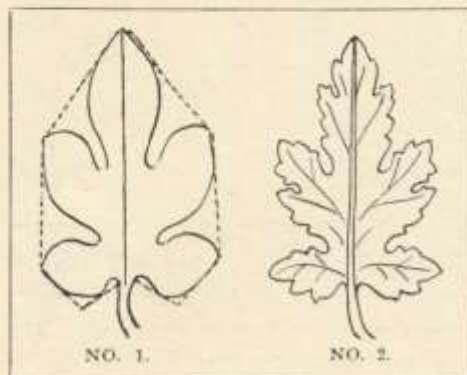


Fig. 12.

that is in front of you; not some other one. You will get a general knowledge from nature that will always be valuable in drawing. You will learn how the stem is attached, how the different systems of veining run, how they start and finish by continuing and ending in one line or in different directions. This detail may seem unimportant to many, but it forms just as essential a part of our knowledge of leaves as drawing the bones and muscles of the human figure does to the figure painter.

I want to impress on you the necessity of first drawing a line with your eye as exactly as you can; then measure it. By that means you can learn to draw accurately. By that means you will also find that the delicate organ of vision will measure more accurately than any compass or any article of mechanical held. A drawing when finished must look right. The lines may be measured and

found they measure right in length and other measurements so far as tools, and yet they do not look right. The eye has to be cultivated from the first and you will find after some practice measuring will not be thought of and will be considered a waste of time.

Leaves drawn in the flat as Fig. 10, 11, 12, and 13, if drawn correctly can very easily be attached to the stem in different directions, forming very beautiful naturalistic designs. But there is a certain danger in drawing them so at all times, as it has a tendency to become mechanical, for the drawing of flat leaves and scroll work has very little art in it. But if a leaf is placed so as to show the curve in front or another curve, in other words, in perspective or foreshortened, you are no longer drawing from the flat, but from the object in space here illustrated. This shows how to block out and finish ivy, rose, calla lily and morning glory leaves foreshortened.

VIII CONVENTIONALIZING NATURAL FORMS

The creation of new designs for monumental decoration has much to do with better monuments. There are at present very few new forms of decoration on stock monuments designs. Nearly all decorative designs are formed from natural plants and flowers or from geometric forms. They are the basis of natural and conventional decorations. Many monumental designers use only the natural form of flowers and leaves. The conventional designs are not used as much as they should be. Many mon-

monumental draftsmen seem to think that one can put any kind of a leaf at any place and it will be a design. The training which is necessary to design good decoration is, first, to be a good draftsman; to be able to draw

of which is illustrated at Fig. 1. Its leaves are characterized by many folds and curves and its wide application is due to the beautiful serration of its leaves. The conception and treatment of the margin and shape of



Fig. 10 The Grapevine.



Fig. 1. Leaf of the Acanthus Mollis.



Fig. 4: Branch of Natural Laurel; Fig. 5: Laurel slightly conventionalized.

from a natural flower all its parts, all the shadows and values, correctly. The designer should also know about the growth of different kinds of flowers—what peculiarities each one has at the different stages of growth. The stems, and petals, and stamens must be studied each in detail. All of these different parts are suitable for decoration. If one uses a purely natural flower for design he must be able to draw it perfectly. On monuments a poor attempt shows very plainly. The natural form should be drawn from a living model.

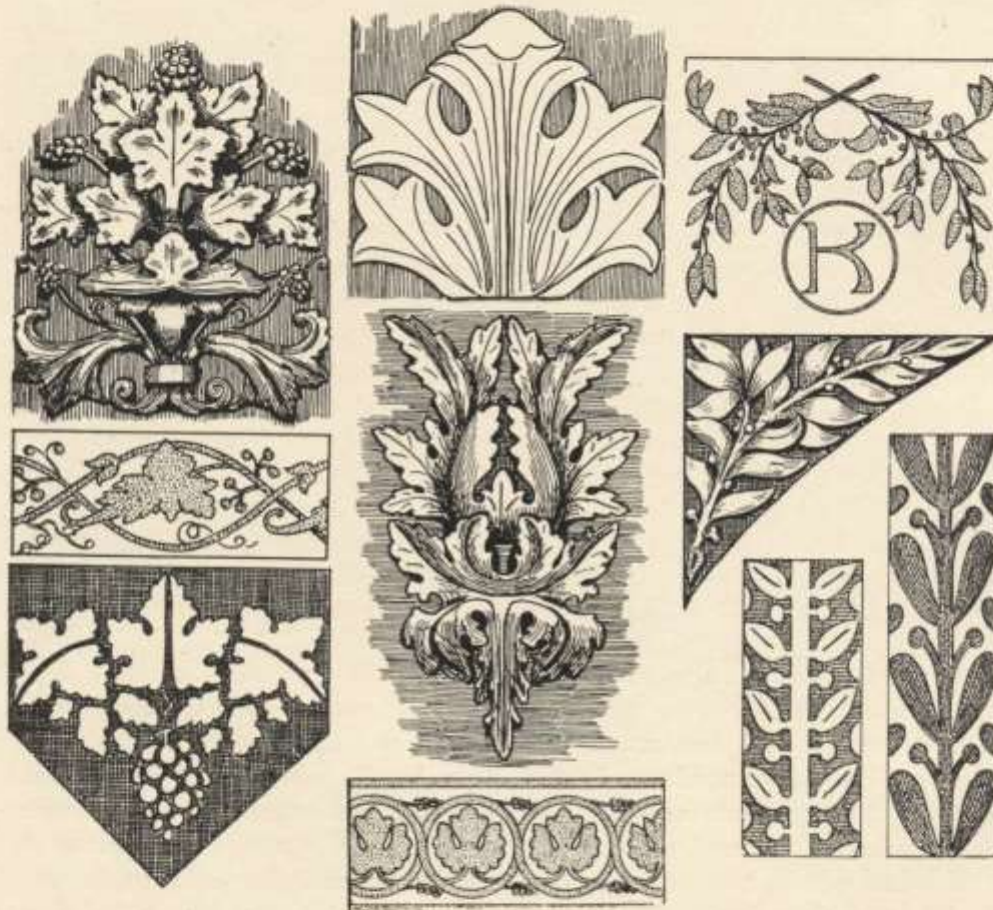
The most used ornamental decoration is the acanthus leaf. It was introduced by the Greeks. There are several kinds of the natural plant, one

the leaf is characteristic of the different styles used by the Greeks. They have been changed at different periods by Byzantine, Roman, Gothic, and the Renaissance. After the time of the Greeks the leaf deteriorated very much until the period of the Renaissance, which developed it almost to perfection. Since then it has not shown its decorative possibilities so much. This leaf does not have to be drawn so conventionally to make ornaments as the majority of others do. Therefore more naturalistic patterns are used.

Two small illustrations at Fig. 2 and Fig. 3 show simple possibilities of carving from this leaf. It can be turned in any direction to suit the

space. The laurel, Fig 4, owes its introduction into ornamentation to its symbolical significance. It played a conspicuous part in the tree worship of the ancient Greeks. It was sacred

for conventional decoration. Fig. 5, shows the branch very slightly conventionalized. The difference is that the leaves and the berries are arranged somewhat systematically. At



Top: Fig. 11: Conventionalized grape design for carving. Middle: Fig. 12: Artistic Grape design for tracing. Fig. 13: Stencil pattern built from the grapevine.

Top: Fig. 2: Conventional Acanthus leaf. Middle: Fig. 3: Acanthus leaf suitable for stone carving. Below: Fig. 14: Conventional grape in circular form for traced work.

Top: Fig. 6 Laurel designed for top of die. Middle: Fig. 7: How the Laurel fits into corner space. Below: Figs. 8 and 9: Very conventional patterns used for traced work on granite or marble.

to Apollo. It was the symbol of atonement, Singers and conquering heroes were crowned with it, and in a similar sense is still used as a symbol of glory. It is a form that is used very much in natural form and also

Fig. 6 the forms are most natural and appropriate to simple design. The stems, leaves and berries are placed to form the inside of a given space. Such forms are good to use on small monuments, at the top of a die or a

marker. When there in an initial placed at the center under the form there is established a rectangle which always looks good in design.

Another form of conventional laurel is Fig. 7. This form can be filled very easily with different leaves and it is shown here how simple it is to take a special plant or flower, or a part thereof, and decorate a given space. How to fill different forms and to make designs conventional from the natural, requires special study. The better acquainted one is with the natural the better he can make good conventional designs.

In Fig. 7 it will be noticed that the berries do not require stems as in the natural form, that the leaves are not attached to the main stem the same way. The shape of the leaves are different. The principal part of the branch, however, remains as in the natural.

Figs. 8 and 9 illustrate the laurel in very conventional forms. The stems, the leaves and berries are all used, but entirely different from the natural. They are repeating leaves and berries, all attached to the stems similarly but not exactly the same as in the natural leaf. Either design can readily be used for monumental tracing purposes for bands on dies and bases. Should there be a laurel decoration similar to Fig. 6, used on the front of the die, it is appropriate to place more of the same meaning at the bottom in bands of this nature. The average designer does not seem to consider the placing of decorations with specified meaning. It would be time well spent for designers, dealers and workmen to find out what is the meaning of the

different flowers and plants, because they can be made to represent the character of the deceased as much as a verse written for that purpose.

Fig. 10 represents a natural grapevine, one which can be used for very artistic decoration. The antique and medieval styles show a certain preference for this vine. The ecclesiastical art of the middle ages adopted the vine as a symbol of religion. Modern art has adopted the vine in both the antique and medieval senses. Monumental design of the modern period should use this vine more. It is beautiful and its possibility of convention seems unlimited. The different kinds of geometrical forms that can be successfully filled are numerous.

Fig. 11 illustrates carving formed conventionally. It shows how elaborate and full of grace the vine can be made. The units of the natural vine can be used very literally and so placed that good decorative effect is secured. The leaves are made narrower and longer; some of the smaller detail at the edges is left out and still the character is retained. The grape clusters can be made any size required, so that they help fill a desired space successfully. This method of using the vine is very appropriate for the decoration of capitals, caps, panels, etc., because it can be drawn to fill any space artistically.

Fig. 12 is a good conventional form for traced work. It is a good one for either bas-relief or shallow incised work. It is suitable for bands on caps and dies and makes a very beautiful pattern when it is continued with more divisions than are here represented. The conventional forms

used in Fig. 13 are something like stencil work. Not much work and time are required to execute it, and it is suitable for small dies and markers where it can be placed at the corners for simple decoration. It will be noticed that whole units of the vine have been used and that parts of units are placed to help fill spaces where a whole part would not be suitable. The design can also be cut raised, instead of this simple way of cutting away the stone and polishing at the edges and at the inside.

The decoration shown here, Fig. 14, is also from the grapevine. This is an exceptionally well arranged form for tracing. The form of the leaves are more conventional than the preceding illustrations and are drawn simpler than the natural form. The stamen will be seen to form circles which give added grace to the design. The clusters are drawn small and are connected to each circle, helping to keep all the form more compact.

The lotus and papyrus are shown here at Figs. 1 and 2. They are of ancient oriental civilization and played an important part in decoration of the Egyptians, Hindoos, Assyrians and other nations. The special luxuriance of the Egyptian style of ornament comes mostly from the lotus. The carrying of capitals and columns of their architecture imitate the shafts resemble the bound ground of stalks. The base looks like the root leaves of these water plants. The lotus was sacred to Osiris and Isis and was the symbol of the recurring fertilization of the land by the Nile and in a higher sense of immortality. These flowers, which are called In-

dian water lilies, form decorations very beautifully. They should be used more for the decoration of mon-

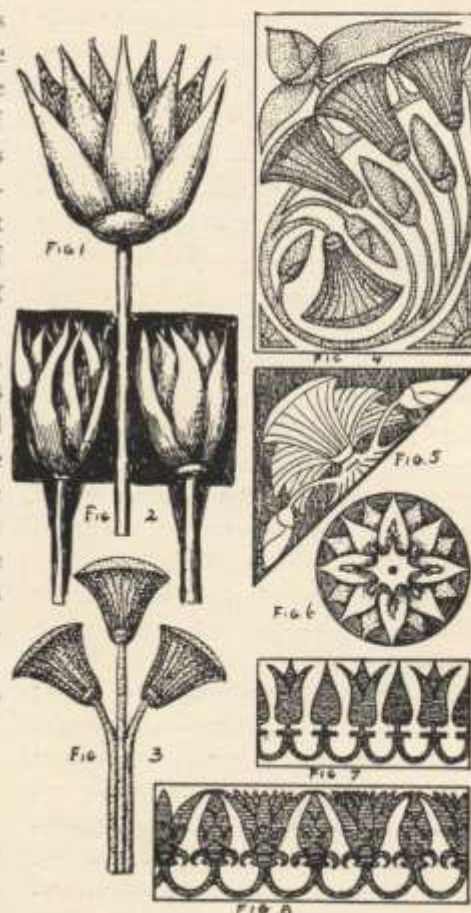


Fig. 1. Lotus Flower or Indian Water Lily; Fig. 2. Half opened buds of Papyrus Plant; Fig. 3. Simple, conventionalized form of Papyrus design; Fig. 4. Conventionalized rectangular design; Fig. 5. Conventional design for a corner of a die; Fig. 6. Rosette built from the Lotus Flower; Figs. 7 and 8. Panel designs from the Lotus.

uments by reason of their peculiar fitness for monumental decoration. They can be used on small monuments and tables with grace and solidity. They combine into conventional patterns easily. At Fig. 3 they have been drawn into very simple

conventional forms. This form of the papyrus is characteristic of Egyptian mural painting. How beautifully this plant can be used conventionally is shown at Fig. 4. The design has been drawn to fill a rectangular form. One can see how to take liberties with nature in this design. The bell shapes of the flowers have been lengthened more than in Fig. 3, because they would appear too short for the long, sweeping, curved lines of the other parts. The buds have been formed very simply and given lines that resemble the lines of nature. In nature there are not so many flowers protruding from a simple stalk, but for decorative purposes one can take such liberties.

When drawing to fit any given space one must know just what parts of the plant he can use, so as to keep the design in harmony throughout, and he must be very careful not to use parts of another flower to fill in at small places, unless he is combining two flowers and giving each equal prominence.

One can use geometrical figures in combination with natural ones. This has been done at the lower corners, when it was found that no part of the flower could be placed there properly. The triangular forms at the corners have been finished with lines that harmonize them with the other parts of the design. This design can be used elsewhere than in a triangle. By placing a mirror on edge at the right side line one is then able to see another half and can also see the whole design with the top in a circular form. This is a very good suggestion for the front of a die and

it could be carved or traced, raised or sunk.

One way of filling a triangle is shown at Fig. 5. This can be carved or traced; a single conventional flower and two buds. It is a very simple way to decorate a corner of a die, and by using another half the same as this a well decorated square is formed. This could also be placed at a corner or at the lower center of a die. The little rosette at Fig. 6 is derived from the leaves of the lotus. The small buds that extend from the center help to make its relation to that particular flower. Small drawings similar to this are very much neglected for monument decoration. They are simple and easy to draw, easy to carve and look good. Rosettes must always give the appearance of the flower mashed out flat, just as if one were looking directly into it at the top. A good way to draw decorations of this nature is to first find the center of a circle and divide it into halves both ways; then find another equal division; draw the top leaves from the first measurements. These will be left for the top surface. The next division leaves are for the plane lower down, and the last ones for the bottom of the carving. The form of the center is determined next and is made more graceful by adding lines and forming small buds at their ends.

Fig. 7 is the lotus made into design for a band at top, bottom or sides of a base or die. This is a simple way to make a design, using part of the flower and stems. Repeating designs like this are easily made. First sketch out one single form on a separate piece of paper until you have some-

thing that resembles a whole or part of the flower you want to use. Then hold a glass on edge and see if it will look good repeated. If not, change the form until you have one that will be graceful. Then draw it at the center of the place being decorated. Trace it on a piece of tracing paper and turn the tracing paper over and retrace on the finish paper. This is repeated until you have both sides traced. Then remark very carefully with a short pencil. It is then ready to finish with the medium you are going to use.

A more elaborate design is seen in Fig. 8. The use of much more detail makes it a better decoration. The whole of a lotus leaf is used in this design and the form kept close to nature. The buds are kept simple with a little suggestion of conventional ornament. The stems have been used like those of Fig. 7 and by their circular character add grace to any design. Such a design requires considerable study. Designs for panels of this character can be drawn by constant practice, which will enable one to learn just how to commence and what one can do able improvement in monument decoration with leaves and buds. A very noticeable result would be the result if more designers would strive to do something original and select some other of nature's many plants and flowers, rather than use only the acanthus leaf, which is now used on two-thirds of all monuments designed.

The ivy is one of the most useful vines for decorative purposes. Because of the numerous parts and graceful lines it fits into design with readiness. The leaves are very easily

made conventional and still retain most of the natural form. The stem is characterized by very irregular lines and can be used to turn in any direction from most any place in the design. The berries are also useful for decorative purposes. This vine has been used to a great extent to decorate small monuments and markers, but since the use of large granite monuments its place in monument design has been neglected. There is no reason why it should not be used for the large monuments. It is a common decorative ornament of ancient vases. It was the symbol of friendship, especially of the weaker with the stronger. There are many various shapes. The English ivy seems to be the most numerous in this country and these designs have been built from that form. Usually broad and fine-lobed, they appear at the ends of young shoots in long pointed, lace-like forms. Flowering twigs have leaves without indentations, heart-shaped, with elliptic or oval tapering. The latter forms in particular were adopted by antique art.

The drawing at Fig. 9 is the natural vine. Its branches are numerous and the leaves turn in different directions. The natural designs freely used on small monuments are often much abused. The forms of the leaves are not drawn properly and the branches used very incorrectly. The proper amount of study is not given to the conventionalizing of the leaf and the other parts. Fig. 10 shows the leaves used very naturally, but the stems, berries and the general form of the design are purely conventional. This form of decoration can be used for carved or traced work and can be cut

on stone raised or sunk. It is a good simplest ways to form design. This design for the front of a die, and for is accomplished first by drawing the that purpose there should be added center leaf; then other leaves around



FIG. 9

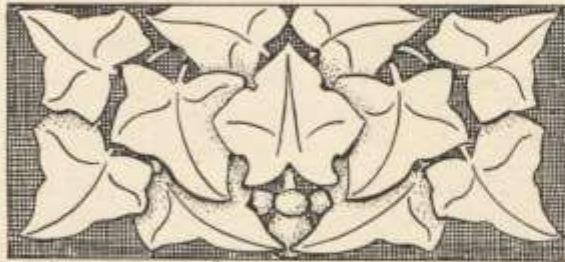


FIG. 10

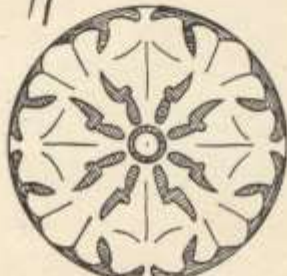


FIG. 13

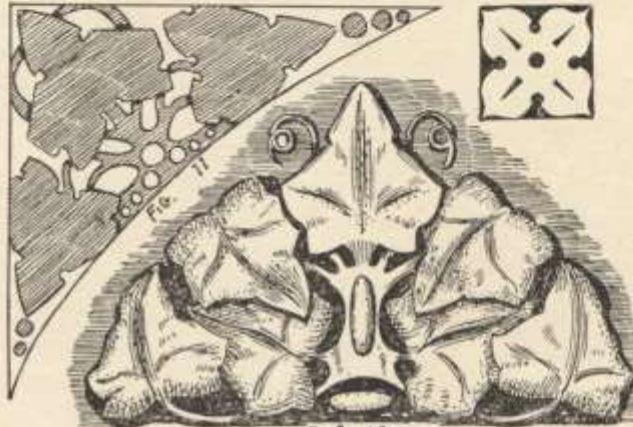


FIG. 12

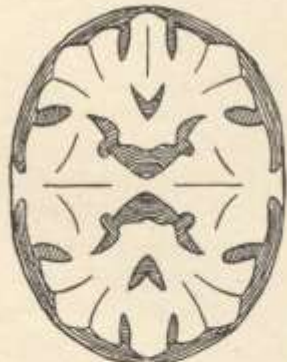


FIG. 16



FIG. 14

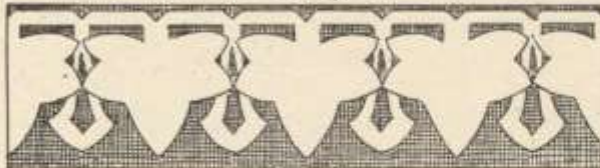


FIG. 15

Fig. 9, Branch of the Natural English Ivy; Fig. 10, Rectangular design for the front of a die; Fig. 11, Conventionalized Ivy design for a corner; Fig. 12, Conventionalized design for front of a die; Fig. 13, Very Conventional Ivy form in a circle; Figs. 14 and 15, Pleasing Ivy designs for traced work; Fig. 16, Conventional elliptical design modified from Fig. 13.

more vine and leaf at the lower corners to keep it out of the rectangular form as it is now. This is one of the

it in different directions. The next is to add the stems to each leaf and draw them so they have the appear-

ance of all coming from the center. The last is to use the ivy berries conventionally while they grow, as shown in Fig. 9. They are so placed as to be more graceful and decorative. While in nature there are only three berries at the end of a branch, it has been necessary to use four to fill the space properly.

The drawing at Fig. 11 shows how to fill a corner of a die or base. This is simple and looks much better than if there were more leaves crowded into the small space, as is often done. The beauty of such designs is that they are simple, bold, and do not require much time to execute on stone. Flowers and leaves that have a large amount of small detail fall short beside the simplicity of designs of this nature. One can see what liberties can be taken with the natural branches. In this design the conventionalizing makes the greatest beauty of the pattern. The round white places represent berries, as do the dark circles at each end so arranged as to fill space and be in conjunction with other parts.

Fig. 12 shows another way to form the leaves for the top center of a die. It is similar in pattern to that of Fig. 10. The large leaves, so compact, and the few branches make it a design easy to see. Patterns of this kind are much better than so many flourishes and thin lines often seen cut on stone. In this design all branches come from a large flat surface representing one stem, an advantage over nature which would be several small ones that could not be seen very well when carved. The elliptical pattern on the surface and the one similar at the bottom represent berries made

conventional, which is another way they are changed to fill space and improve the decoration.

The circular design at Fig. 13 is very much different than is often seen on monuments. There is no reason why designs of this sort are not used extensively. They are especially adapted for traced work on marble or granite and can be cut raised or sunk. The time required to cut one like this is short, because it is simple. The design is the combination of the natural leaves and geometrical figures, which lines flow into one another bold and graceful. Designs like this are drawn by first making several sketches of one leaf and some other pattern at its side; then copy your sketch into a circle and trace one after another until the circle is filled. Oftentimes one can see places where the lines are shortened for better results, namely, at the sides of the leaves shown here; instead of drawing them out a point they can be rounded and made to flow into the leaf or character by their side. This keeps the pattern from being cut up into too much detail and improves the looks of the decoration. Such designs are good for corners of dies, sometimes at the center of a cap and other places where a circle will look in place.

The repeating design shown at Fig. 14 shows how simple and bold one can use the ivy. The contour of the leaves are purely natural, all other parts being conventional. This kind of decorated panel will be a help to monument designs. They are purely original, not copied from architecture of the middle ages. They are different; they can be seen readily and are easy to execute on stone. To

make monuments more beautiful requires just such simple patterns from a leaf that is found in most any cemetery. With constant practice a designer should be able to draw different conventional patterns on every

how near to one design in form it is like Fig. 14 and yet being another pattern entirely. It is a very good way for the beginner to make designs conventional. By using the same structure and different forms the re-



FIG. 1. NATURAL MORNING GLORY VINE; FIG. 2. CONVENTIONAL PATTERN WITH FLOWERS IN PERSPECTIVE; FIG. 3. SQUARE DESIGN; FIG. 4. DESIGN FOR FRONT OF A DIE



FIG. 5. NATURAL OAK LEAVES AND ACORN; FIG. 6. CONVENTIONALIZED CORNER CARVING; FIG. 7. CONVENTIONALIZED TRACED WORK; FIG. 8. CONVENTIONAL PANEL DESIGN FIG. 9. OAK LEAVES FOR BASE DECORATION

monument he designs, and such simple decoration is much better than repeated poor attempts to design from some flower he does not understand. He can be more successful with more simple flowers because of the small amount of detail which keeps the design from being confusing. Designs of this kind are always thought out on sketch paper, so that when one draws on the finish paper he will not have to be repeatedly erasing, which will get the paper dirty and spoil the surface.

Fig. 15 is similar in structure to Fig. 14. The leaves have been reversed and point downward. The lines of the design are more straight than curved. The leaf is more systematic, which helps to make it all the more conventional. It also shows

sult will be original and what is needed is originality. These two panels together show that either one would look well either raised or sunk and that they could be used for traced work only. Before one can be successful in making these patterns he must thoroughly understand the proper construction of every part of the ivy and know something about geometrical figures. All it takes then is the study of how to draw things from nature, but not like it.

Fig. 16 is in the form of an ellipse. This design has been taken from part of Fig. 13. If one will hold the edge of a mirror with the front side at the dotted line shown at Fig. 13, the same design can be seen as it is at Fig. 16. This method of making designs is very practical and the

beautiful results one can obtain are very numerous. By moving the mirror different ways over a design a great many pleasing designs are shown. When one sees one he likes he has only to draw a line on the paper, using the mirror as a rule. This will separate the design wanted and will not be confusing when copying the part wanted. One may use any kind of another design and accomplish the same result. It is a good way to be original when one wants to be in keeping with the same flower.

Another vine that the monumental designers are neglecting is the *Convolvulus* (morning glory). Because of the circular shape of the flower, long leaves and the grace of the stamens it is a good vine to use. Fig. 1 illustrates this vine in its natural form. You will see that the flower and the leaves have a characteristic of folding at the contours, which they do because of their thinness. They are a delicate type of flower and should be designed so that the carver or tracer can execute them in that way. Careful studies of these flowers must be made in the morning, when they are open. One has to draw them while they are attached to the stems in a living condition, as they cannot be broken off and taken indoors because they will wilt immediately. The leaves may be broken off, though, and used as a model in the designing room.

The upright hand at Fig. 2 shows a design conventional in form, using the morning glory vine to build from. A flower of this distinction having a circular form is a good one to use because it makes designs different

from the usual kind that is seen on present day monuments. This flower has a general tendency to be carved flat. The top of the flowers of this design have been drawn in good perspective, so that their appearance will be as standing perpendicular. The perspective of flowers is very badly neglected on monument designs. It seems that the attention of perspective is given altogether to the contour of the stone. No one can expect to draw original designs without the knowledge of perspective and the foreshortening of circular forms. How to draw flowers showing them in different positions is found by the study of the natural forms, although the three small circular forms at the top of each flower do not come from nature. They are added because they add to the looks of it in its conventional state. The vine here is drawn geometrically. The leaves are also placed that way and their forms are nearly as in nature. There is not any reason why decoration of this kind should not be used more. It can be carved or traced and would be a simple pattern to execute on stone.

The square at Fig. 3 is another way to draw conventional traced work. It is all geometrically formed as a vine has been used that in nature is just the opposite. The flower is a circle. The leaves are drawn by using straight lines, and the small bands in two different directions complete a good design for traced work. If one would draw a transverse line from corner to corner, another design is at once formed for a rectangle suitable to be placed at some corner of a stone. By placing the mirror at the right hand edge of

the circle another design may be seen that would look well repeated several times or in panel form. Everything that will help one to execute original designs must be used to get results.

An attempt at something entirely different has been tried when drawing Fig. 4. The results are good. It is simple, bold and graceful and could be executed on stone successfully. The advantage of using proper perspective again helps to originate and make conventional. Such designs would look good at the center of a die and would give a form altogether different from the average small design which finishes at the two sides with thinness. The form of this, being square, would make a different ending and more suitable for contours of a stone. This pattern could be cut traced or carved, but not deeply.

The oak is the king of our indigenous trees and the symbol of power and strength. Oak foliage was used extensively in early Gothic architecture on friezes, cornices and columns. The frequent recurrence of oak of the Italian Renaissance is due to the fact that the oak was the crest of the family of Della Robbia, two members of which ascended the Papal chair. The leaves are used for carving similar to the acanthus and designs of the same character are drawn from them. There are different kinds of oak trees and all have different formed leaves, but all are similar in construction. Fig. 5 illustrates the kind used most generally for monumental purposes. This is a very irregular leaf at the contours, very tough and thicker than most other kinds of leaves. Different species of oaks also have

different shaped acorns. The possibilities of this leaf are as favorable for good design as is the acanthus. For conventional purposes they are more so, having more parts and acorns.

At Fig. 6 the oak leaf has been placed in a corner nearly a rectangular form. The leaves have been used naturally in their individual form; but they do not come from one stem in a cluster as they do in nature. They are so placed that they will fill the given space to advantage and the acorns are added to help fill space and at the same time lie in graceful lines and masses. By using this leaf one gets away from the sameness other leaves give that have not berries or acorns. It should be time gained for a student or designer to try to accomplish drawing designs similar in structure. This is a suitable design for high relief carved work.

Another corner of similar nature is Fig. 7. Three leaves and five half acorns have been used. This is purely conventional and shows just how simple a decoration can be made. Each leaf has been started at a corner and drawn until they all meet at a center. A half acorn has been placed for a center to bind the leaves together, and stems running in different directions from the half acorns at their ends complete the design. Whole acorns could not be used in such spaces because their forms are in appearance wider than longer.

The oak leaf panel illustrated at Fig 8 is entirely different from what is used on monuments for traced work. This decoration would look well on any color of marble or

granite. The first thing that makes it suitable is that it is very simple. The large leaves so placed make it very conventional and also graceful. The stems are altogether different from nature because they curve in circular form and are stiffer than most any other stems. Even so, this oak leaf design is better than the way nature produces for decorative results. Leaves placed in such forms are drawn by placing the first one with the end near the border line, then drawing the center line of the leaf so as to determine the curve of it, and last the outside line. The second one is harder to place because one wants one leaf to appear over the other, and it must be determined by trying both ways to see which looks better. A tracing of the two leaves is then made out and retraced the same at the side as the first two. Oftentimes there have to be changes made because they do not flow into one another as they should. After the proper lines are determined, next is to place in other forms to fill up space and different forms of the oak must be tried. An acorn does not look well here because the lines would be too much like the leaf lines. Then, too, a line that goes into an entirely different direction must be found, so that the stem is placed simply from one leaf to the other. To do this, the other spaces are filled by a geometrical form of small circles, because no part of the oak would look well placed in them.

A carved oak decoration showing the front of a base, as in Fig. 9, is very similar in form to the general acanthus leaf carving. This design shows how simple conventional carv-

ings can be drawn. Four leaves and three acorns from one point compose the top corner. This is much bolder in form than if there were more leaves in the design. Too much delicate carving on stone crowded closely together always makes confusion. There could have been added another leaf where the two acorns are at the bottom, but another leaf would mean that all of that plane the carving rests on would be used, which is bad form. It is always better wherever possible to keep the carving from being too compact. The two acorns also make variety which is always needed in designs. This is one kind of carving that could be used very successfully and obtain good results in the finished carving. Decorations of this nature are drawn by placing the end leaf first and then drawing each in rotation. The first sketch one makes is hardly ever the right one. Generally the ends have to be changed to make them start from a better place or to stop differently. For instance, one does not know whether it would be best to draw the second leaf over the separation of the first and third ones or not, but by placing it there you can immediately see whether it will be better under or over.

The calla lilies at Fig. 10 have been sketched from nature. The drawing shows the many turns and folds that the flower and the leaves make. It also shows their bigness compared to other plants. This is an exceedingly good flower and leaf to use for monumental decoration. It is used very often on graves, which symbolizes that one is liked, and they should be cut on monuments much more than

they are. To some extent they have been used naturally by placing a few on a rock-faced die. They should be placed just the opposite. The rough-



FIG. 10. CALLA LILIES; FIG. 11. DESIGN FOR PANEL; FIG. 12. DESIGN FOR TRACED WORK

ness of a rock-faced monument does not suggest such a tender flower and leaf and some handsomely shaped monuments would be far better for lilies to be placed on. A finely hammered piece of granite or polished piece would be far more suitable, as would a piece of dark marble polished or a pure white piece.

Shown at Fig. 11 is a conventional decoration carved on a dark stone, making a beautiful contrast of color. By doing this, even the light delicate color is represented. This is one form of conventional design that is exceedingly good because it can be plainly seen. The flower and leaf are very similar to nature, but the growth is much different. This design is suitable for an upright panel at the edge of a die or it can be continued to any length and run across the top in a horizontal panel. In doing this the corners could be rearranged and made decorative in different ways to add beauty to the design as well as to keep it from being monotonous. Such designs are started by drawing a single leaf in a graceful form that will cover most of the panel, then drawing the stems. The next leaf can be traced, and to find just the distance from the first one can be determined by moving the tracing paper to different places before a decision is made as to the best place.

A much different form of decoration than Fig. 11 is shown at Fig. 12. This kind of design is not used much on monuments, but there is no reason why it should not be. For traced work and low-relief carving in a panel it is very appropriate. If similar decorations were used more designs not of the ordinary type could be used.

IX GEOMETRICAL AND CONVENTIONAL FORMS

The illustrations in this chapter show how decoration is formed from the geometrical square, the circle and the triangle. This method of decorating a plain surface and covering

it with ornament is called flat decoration, which is divided into classes. First, the ornament may be designed for a definitely bounded space, such as a circle, according to artistic rules, so that it fits exactly into this space alone, in which case it is a discontinuous or panel ornament; second, the ornament may extend itself in every direction, repeating its details without regard to any definite boundary, in which case it would be a continuous or repeated ornament like those of long panels or dies and bases. Characters placed into these forms are either geometrical or artificial elements, singly or combined. The characters may be geometrical or artificial and adapted to some prearranged leading lines of the shape. When the panel is symmetrical on both sides of one axis the ornament is suitable to a vertical surface, and when it is developed with regularity in all directions from the center of the figure and is symmetrical to two or more axes, then the panel ornament is suitable to a horizontal surface. Variations from absolute symmetry and regularity are often met with, but they are confined to details, the impression of symmetry and regularity being personal in the general effect.

When decorating a square the lines are naturally based on two diagonals and the two diameters which join the centers of the opposite sides. Lines like this cut each other at a common point at the center of the shape and form an eight-rayed star with rays of alternately unequal lengths. The figure is thus divided into eight equal spaces which are usually decorated with a repeated ornament which is

suitable to a horizontal attitude. The geometrical square decoration is found in all styles of flat and raised ornaments of the different periods of the Renaissance and earlier.

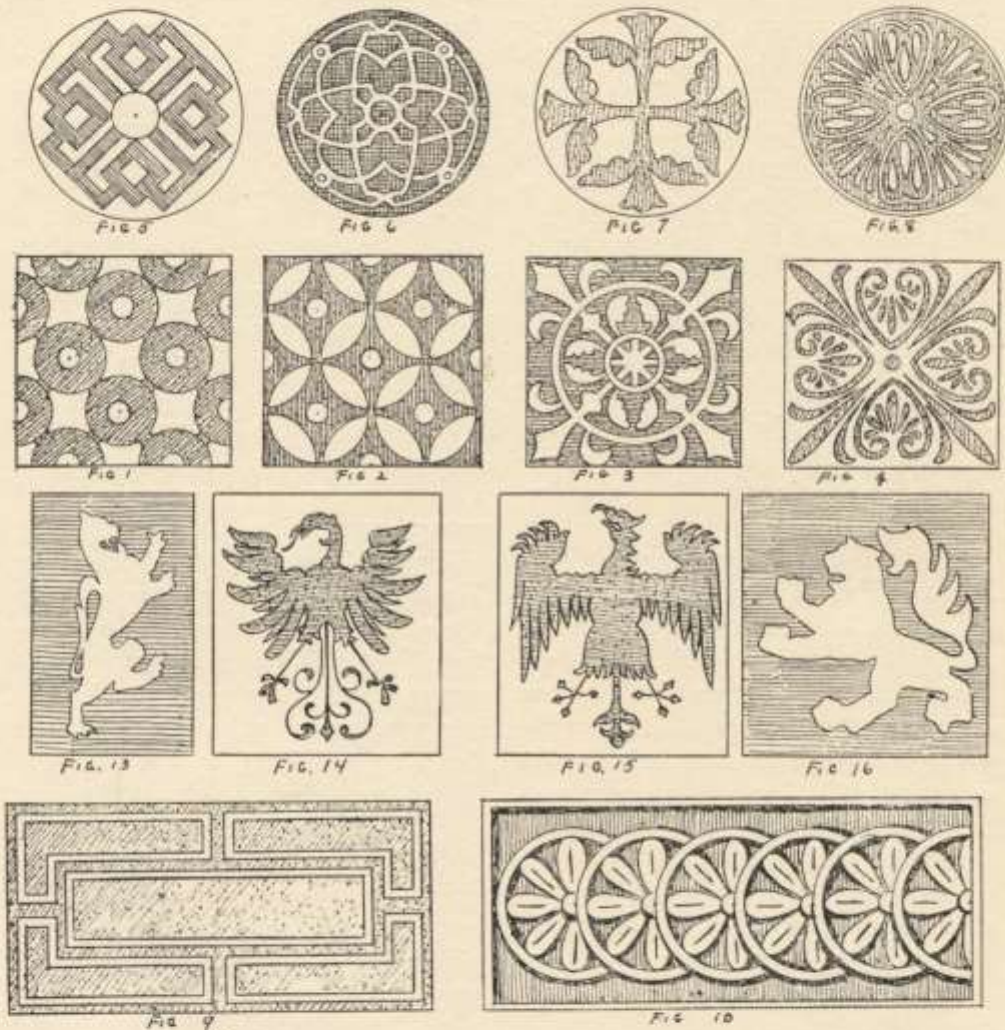
The square at Fig. 1 is a very geometrical design, it being built entirely on small circles. The subdivisions are such as to make it useful for an extended panel. Equal measurements by finding the center first and then drawing a line each way, dividing it into four sections, form a basis. Then when another line is drawn half way from the center to the edges of the outside lines and at the junction of these cross lines, the compass point is found, from which is drawn small circles. At all edges of the point is found, from which are drawn the same as the whole ones. This is one of the simplest ways to subdivide a square and form decoration. Other geometrical decoration is built upon this system.

The square at Fig. 2 is decorated by using about the same system, except that after all center and division lines have been drawn the compass is placed exactly at the center and the first circle is drawn much larger than those of Fig. 1. Other circles are formed by the radius point at the connecting cross lines, which makes the circles flow into each other, forming a pattern similar to an ellipse. This square and also the first one can be drawn, for cutting purposes, exactly the opposite from what they are, that is, the first one may be drawn to show sunken circles instead of raised ones, and the second one vice versa.

The square at Fig. 3 is a combination of natural and artificial design.

The circle, the darts and straight lines are purely artificial, while small divisions extending outward from the large and small circles are natural,

only to draw the two transverse lines from corner to corner to find the correct division. Then the large and small circles are drawn with the cen-



FIGS. 1, 2, 3 AND 4, GEOMETRICAL FIGURES FOR DECORATION. FIGS. 5, 6, 7 AND 8, GEOMETRICAL FORMS ENCLOSED IN CIRCLES; FIG. 9, A MECHANICAL OBLONG DESIGN; FIG. 10, A GEOMETRICAL DECORATIVE BAND. FIGS. 11 AND 12, THE CONVENTIONAL LION FOR TRACED WORK. FIGS. 13 AND 14, CONVENTIONAL EAGLE FOR MONUMENTAL DECORATION.

being represented as conventional leaves. Decorating a square like this is good practice, because it helps one to realize how the equal subdivisions are formed to show design. One has

ter of the square as an axis. The decorated forms are then drawn from the division in a mechanical way.

The square at Fig. 4 is very similar to Fig. 3 in construction. After the

transversal lines are placed correctly, right angle lines crossing at the center are drawn, from which the decorations are drawn into the four squares, completing the decoration. These squares are very useful for traced work and are the bases of designs of better quality. They should be studied with a point in view of getting the foundation first, so that advanced decoration can be made with more knowledge and correctness.

The circle may be regarded as a polygon of an infinite number of sides. As it is impossible to take this infinite number into account, it is usual, when working on radial axes, to divide the circle into 3, 4, 5, 6, 8, 10, 12 or 16 similar parts as indicated in the figures. It is also frequently divided into zones, that is, each ring-like band is ornamented independently. The center of the circle which is sometimes decorated by a rosette may be filled with some feature that is symmetrical to one axis or is unsymmetrical. Geometrical subdivisions of the circle by the insertion of polygons or arcs was used very extensively in Gothic architecture.

Sixteen parts are used in the circle to draw Fig 5. At the equal division into halves there has been drawn a square, and the right angle lines continue to point that equally divides the large halves, which points complete the square, the small circle terminating at the inside points of each. This is very geometric in pattern and good practice for division of the circle.

Fig. 6 is nearly as mechanical in structure as Fig. 5 and is divided on the circle by eight equal points which

are connected across the surface by lines which form the structure. These lines are the points where each character meets the other in a mechanical way, forming shapes exactly alike on four divisions of the circle. Decorations of similar characters require very careful attention, because of the geometrical lines which must be so placed that one will not make one overlap the other in the second division.

Fig. 7 shows four divisions of the circle, two right angle lines so placed that the spaces are equal. The design is then drawn first into one quarter division and then traced into the other equal spaces by reversing tracing paper at each division. This is a composition of geometrical and natural conventional pattern.

The circle at Fig. 8 is divided like Fig 6 and the decoration is built on the square spaces given by the structure lines. While a design of this nature seems to be very complicated, it is not as much so as Fig. 6, because the decorated lines do not interlace. Four heart-shaped characters are drawn first; then the small characters are drawn, one at the center of a division, and like the others are added between that and the heart-shape, which also has three small spaces of equal prominence. These four circular figures are extra good practice for familiarizing oneself with the placing of decoration into circular spaces.

The oblong, Fig. 9 and Fig. 10, is a plane with unequal pairs of sides at right angles to one another. It is the most useful of all fundamental forms. The difference in the lengths of the sides makes it adaptable to all

possible decorative conditions. The oblong approaches the square on two of its sides and a band or border on the other, which makes it vary. The diagonal is seldom used as an auxiliary line, but is replaced by the mitral line of the angle, as the latter alone gives equal breadths of the bor-

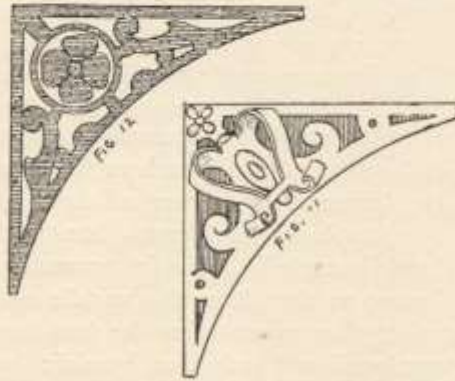


FIG. 12. A CORNER FILLED GEOMETRICALLY; FIG. 11. SIMPLE CORNER DECORATION IN LOW RELIEF.

der. When the oblong approaches the square a distorted square subdivision is resorted to. The oblong at Fig. 9 is one of the very simplest forms of geometrical subdivisions, and a good idea of oblong decoration can be gotten by the study of this and similar divisions for decoration. Such designs are more suitable for marble to be used for interior purposes than for monumental use, but the foundation is simple and correct and they should be used on caps, dies and bases in a similar manner.

The character at Fig. 10 could be called a band instead of an oblong, because the length is more than twice the distance of the width. In this case rosettes have been geometrically placed; thus it is called a rosette band. They are either current, that is, they have a definite direction side-

ways, or they are entirely without direction. They are symmetrical, not only from top to bottom, but also from right to left. In this design they both are drawn in such a manner that the simplicity of the placement adds to the beauty of the rosettes. There are three quarter circles, with the axis of each one at the outside circle of the one nearest to it. The conventional leaves radiate from the center, filling each circle equally. Such a design is suitable more for low relief carving than for tracing.

The semicircle, which is the form used to decorate a corner, scarcely admits of any other division except the subdivision which separates it into two halves. There are two methods of decorating this figure; either an upright panel ornament is designed symmetrical to one axis, or the semicircle is divided like a fan into a number of sections, which receive an identical decoration.

Fig. 11 is a very symmetrical form which is simple in construction and divides it into two halves. This is a decoration that can be carved on stone, either low or high relief. Fig. 12 is a simple geometrical pattern, using a rosette for a starting point, being connected by patterns that form shapes of artistic arrangement.

The use of animals in natural or idealized forms is considerable, but compared with that of plant forms it is less extensive. The reason for this is obvious: that greater difficulties stand in the way of the adoption of animal forms than in the use of plant motives. In modern monumental decoration some few animals are used—the lion for entrances to mauso-

leums; the eagle, which is very often used for emblems and other various uses. They are mostly used naturally. The four illustrations here are of the idealized lion and eagle. The lion holds first place in ornamental favor. His strength, courage and his nobility have assured him from the earliest times the title of king of beasts. Ornamentally he is used lying, walking, sitting and fighting. Because of his superiority over other beasts he is considered a guardian of gates, temples, flights of stairs and on monuments. The sleeping lion is the symbol of a fallen hero. Modern art follows the example of the antique and the Renaissance, and thus it comes that in the present day the lion enjoys the lion's share in decoration. The two idealized figures at Figs. 13 and 16 show a simple way to use them for small monuments. By making use of them in this manner the cost of cutting and designing is reduced.

Like the lion among quadrupeds, the eagle is the most important representative of the feathered tribes. His size and strength, his majestic flight and his keen vision distinguish him above all other birds. He has been used in decorative art since the earliest times. With the Greeks he was the companion of Zeus, whose thunderbolts he keeps and guards. The Romans used him in the apotheosis of their emperors. Napoleon I., imitating Roman Caesarism, granted his armies the French eagle, hence the frequent appearance of the eagle on trophies, emblems, etc. The heraldic eagle is a highly ornamental figure, so that from the middle ages up to the present time he has been employed not only for heraldic but also for purely decorative purposes. Figures 14 and 15 are good representations of idealized eagles very suitable for the decoration of large and small monuments.

PART THREE

DECORATIVE TREATMENT OF MONUMENTAL LETTERING

- BY - ROBERT - L - COOK -

Almost from the time that man first built shelters to protect him from the elements he has built monuments to protect him against oblivion. Through all the ages man has continued this interesting custom much of history owes its very existence to the legends of ancient monuments. The monuments were usually built of more lasting material than the domiciles, which latter only served man living and his posterity could build anew to meet their needs, but his monument must live after him and hold his story for generations to come.

The earliest monuments bore pictorial records of deeds and events. Fig. 1—pictures telling the story which he lacked written words to detail, and so it was that the desire to permanently record or memorialize inspired the making of pictures and was the birth of art and sculpture as well as literature.

When in the course of time alphabets were devised and developed the pictures and sculpture continued to be utilized for the portrayal of thought, but the lettered records on monuments continued to tell the accurate story and accuracy in historic records has developed hand in hand with the art of lettering.

Literature commenced with the first monument. It may not have had any mark upon it but it was a thought expressed. And so we come to the writings of Egyptians on their papyrus, of Greece and Rome on their scrolls and the wonderful pen work of the middle ages, the use of type and printed books and even the typewriter of today. They all were born of one idea, to perpetuate memory, and the devising of the alphabet is the most important step in the whole scheme from the prehistoric pile of stones to the linotype machine of today.

In this connection it is quite interesting to note that many of the British public schools are substituting instruction in lettering for writing. The writer knows from personal experience that with practice one can letter nearly as speedily as one can write and the legibility and saving of time to the reader more than compensate for the extra time taken in lettering.

Let us not forget that the first lettering was quite as likely to have been done in stone as upon any paper-like material and that where pen drawn letters differ from stone cut letters in early examples we are fully justified in preferring the latter. To illustrate

the truth of this statement take the 'serif', which is the broadening of the vertical bars of letters at their top and bottom extremities (Fig. 2). It was a natural result of the guide lines scratched upon the stone to determine the heights of the letters, and then applied to the horizontal bars of their disengaged ends to make them appear uniform, subsequently being adopted in pen drawn letters solely for the sake of appearance.

Some old colonial headstones of the 17th century in this country show these guide lines very distinctly, though of course the use of the serif antedates them many centuries.

The purpose of setting forth this brief history of the art of lettering is merely to establish its application to stone as an unquestioned precedent, giving stone cut lettering preference when we seek examples and authorities, rather than the pen drawn letters and type forms which were adapted from them.

"Decorative Treatment of Monumental Lettering" is a subject which might constitute an unabridged history of the world, but in the present instance we shall confine ourselves to its application to modern monuments, bearing in mind that we are dealing with decorative—not decorated, lettering.

An authority on interior decoration once told me that the acid test of an artistic room was that it should be so evenly balanced that when one entered no one detail of the scheme should attract one's attention from the rest.

No better rule could be applied to monumental design in general nor to

monumental lettering in particular. Lettering of the sort that "he who runs may read" is well enough for the vendor of safety razors or cigarettes, but running has never been



Fig. 1

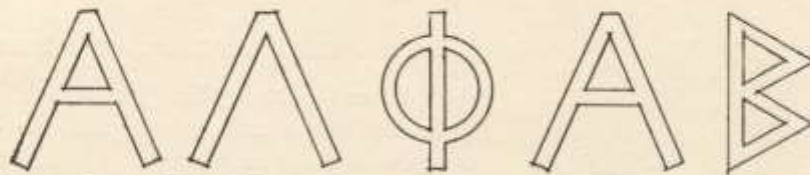
much in vogue in American cemeteries.

It is rarely that the designer makes the mistake of laying out his lettering too inconspicuously, and when I say inconspicuously, I do not mean indistinctly. No fear should be en-

tertaind that lettering will not be read because it is not ostentatious.

A few weeks ago I spent a half hour within the closure of trees which surrounds the Adams Memorial in

Rock Creek Cemetery at Washington, D. C. It was Sunday and perhaps twenty persons came and went while I sat there. All except two went hunting the memorial over for



Early GREEK Letters with no Serifs and Little Evidence of Guide Lines ~



Early ROMAN: Showing Guide Lines which developed into the Serif as Shown Below ~



Later ROMAN: Serifs Clearly Defined and merged into Guide Lines ~



Modern Classic ROMAN: Serif Treatment Less Extended but Emphasized and made a Distinct Part of Each Letter Form :: ::

the lettering which is so conspicuous for its absence. The two who did not look for an inscription were familiar with the memorial and its history.

Lettering should be well subordinated and will be read by those who

signer of letters learn how each letter is constructed before he can compose them into even the simplest decorative arrangement, for in the arrangement lies the only real opportunity for decorative treatment.

II

THE CLASSIC LETTER FORMS

After hieroglyphics gave way to letter forms and words came to be used in place of pictures in recording legends, a consistent perfection may be traced both in the forms of the characters themselves and also in their arrangement and spacing. This refinement progressed steadily through Egypt, Greece (Fig. 7) and Rome and reached its zenith with the greatest attainments in Roman architecture. Indeed, it seems that in their lettering, the Romans attained a greater degree of perfection as compared with their architecture than did the Greeks, whom they emulated.

It should be borne in mind that the text deals only with Monumental Lettering, for the most part cut in stone, hence the beautiful examples of pen drawn letters are not embraced in the discussion.

With the decline of the Roman orders there was an accompanying retrogression in lettering through a period which developed the Unical, the Blackletter, the true Gothic and many other ecclesiastical forms inspired by the religious aversion of the times to anything that savored of pagan Rome.

Most of these types were of the variety that might be termed decorated lettering, but few were really decorative. All, however, were modifications of the antique Roman alphabet,



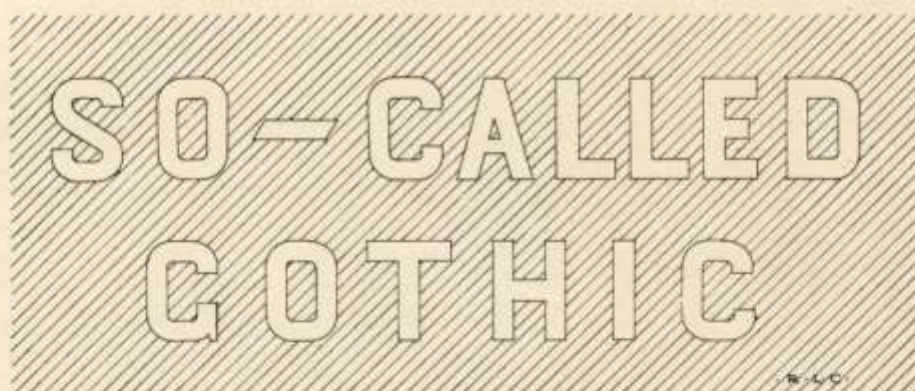
have sufficient interest, as for the others it matters little whether they read or not.

As the man of letters must first learn his alphabet, so must the de-

though usually the modification was carried to a point that left little or no suggestion of its simpler and more legible prototype.

It remained for the artists of the Renaissance period to re-employ the ancient forms and even to so refine

The old cemeteries in this country present many examples of good lettering, occurring on the old-fashioned headstones erected during the latter part of the 17th century and the early part of the century following. The letter forms are suggestive of



The Most Commonly Used Letter for Monumental Work - Usually Cut on Polished Granite - Has Little or No Merit Except Low Cost

Fig 3.

them that they stand today as the most exquisite examples of lettering in the world, not only in the perfection of types but in composition, arrangement and spacing.

It should be borne in mind that one of the most important considerations in lettering is the material upon which it is to be cut, and that — beautiful as are many of the examples of the Italian and French Renaissance — they were usually done in fine grained marbles and very few could be satisfactorily reproduced in the comparatively coarse grained granites in which the present day memorials are wrought. For this reason we find the earlier and somewhat less refined antique Roman letter better adapted as a type — but for spacing and arrangement the Renaissance examples may be studied with much profit.

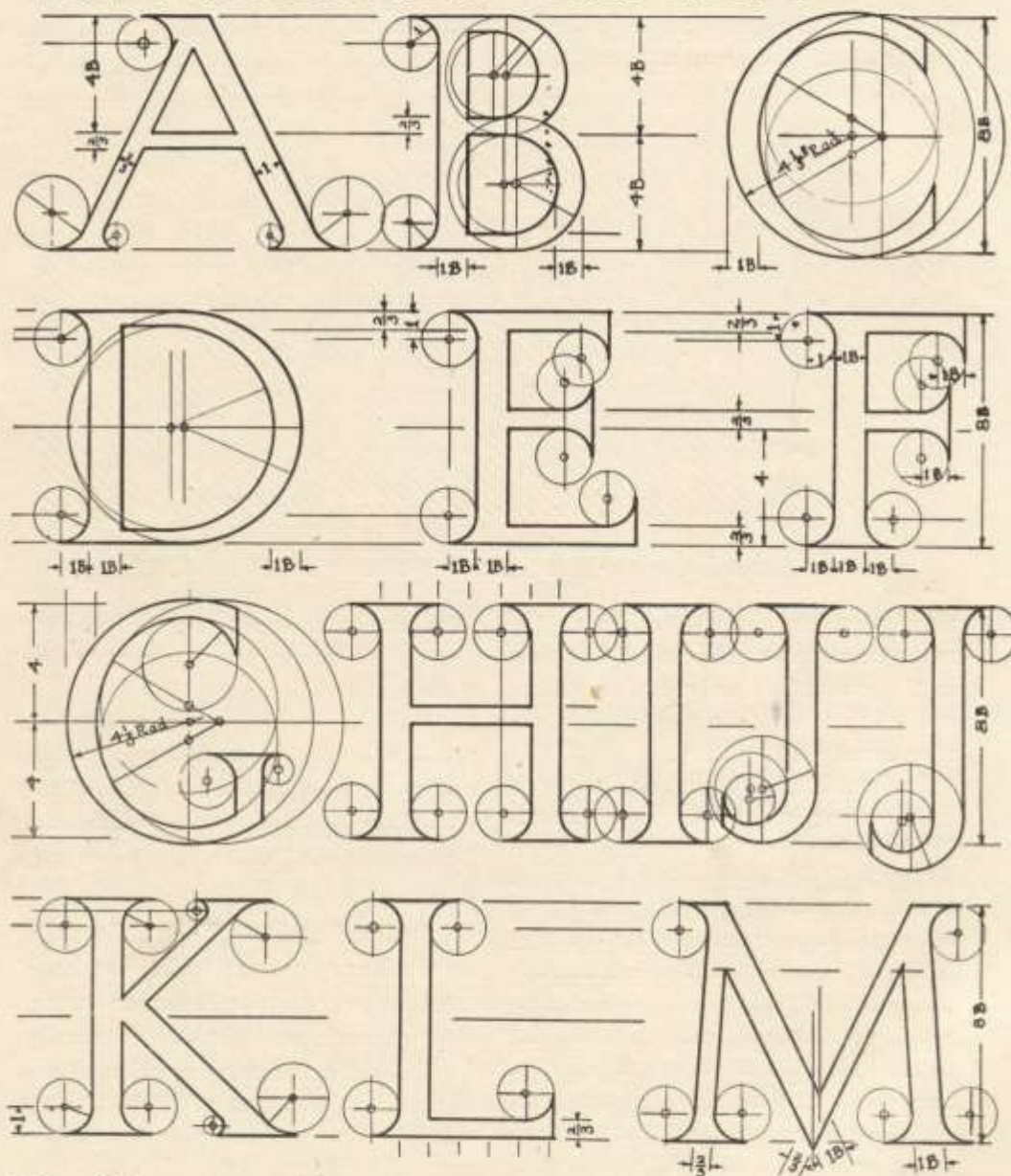
the Renaissance and are usually better than their arrangement or composition.

Somewhere about 1830 the "Yankee-esque" influence began to manifest itself with script, heavily shaded "modern" Roman and grotesque raised and "shadow letters," all evidence of a misdirected effort to be original and artistic. Then followed a revolutionary change which one hesitates to say was for better or worse. Its one merit was that it was usually legible. It lacked any intention of artistic effort and was no doubt the result of cost reduction plus pure laziness of craftsmanship. Granite was coming into use and did not lend itself readily to the intricate letter forms which had been so much in vogue on the earlier monuments of

19020
R.L. COOK

MODIFIED CLASSIC

Fig. 4.

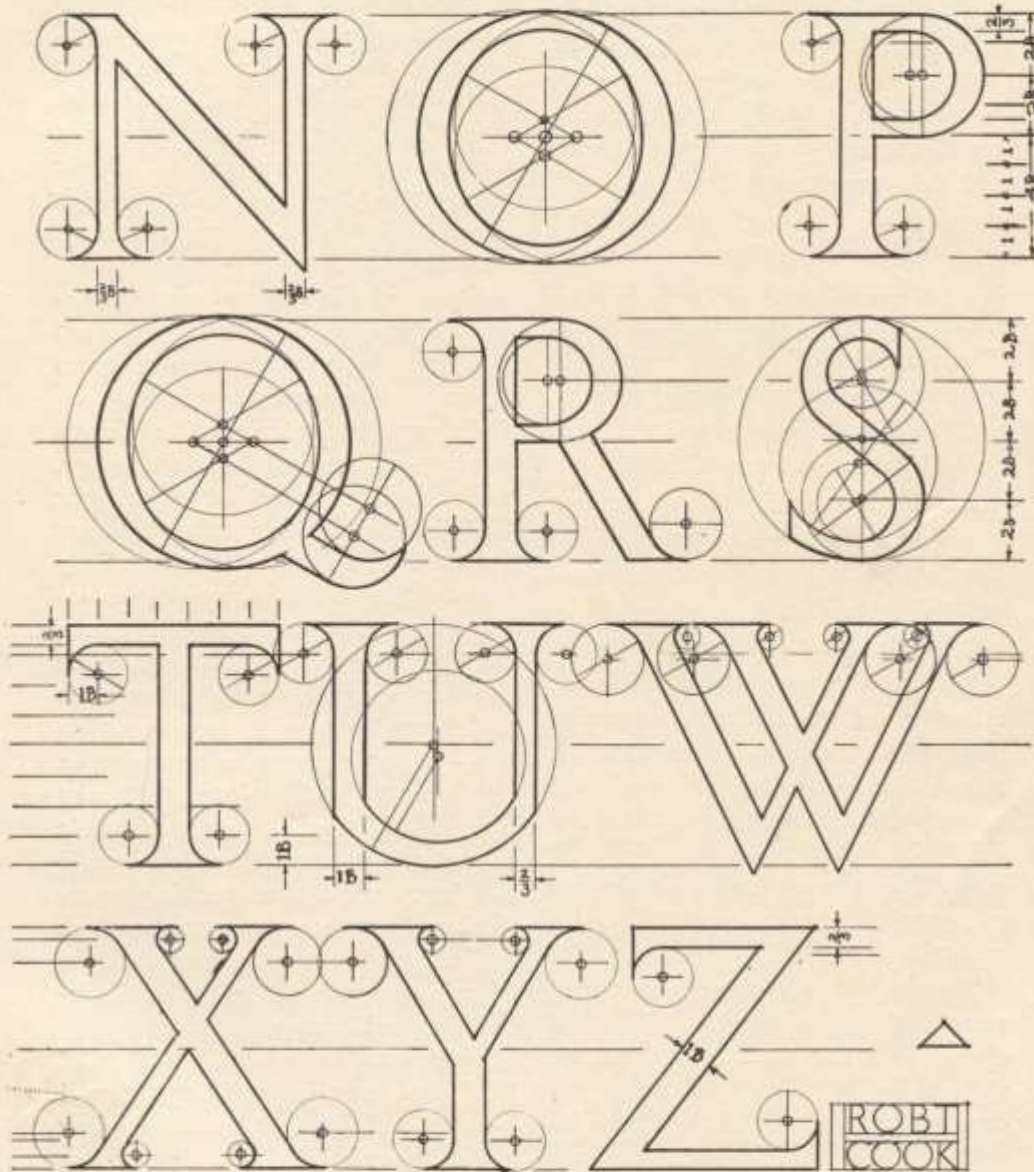


THE WIDTH OF HEAVY OR SHADED BARS IS TAKEN AS A UNIT (1B). LETTERS ARE 8 BARS HIGH. LIGHT BARS $\frac{2}{3}$ B ETC

FIG. 4.

V-SUNK LETTERS

19020
R.L. COOK



THE WIDTH OF BARS MAY BE PROPORTIONATELY INCREASED FOR SMALLER LETTERS OR FOR COARSE GRANITES

marble, brownstone or slate and so the misnamed "Gothic" type (Fig. 3) was born and is with us yet.

Its simplicity amounted to crudeness and the two foot rule was the limit of judgment employed in marking it on the stone. It never was susceptible to artistic treatment and never will be, though at one period it developed a certain element of skill among the craft who vied with one another in altitude contests to see who could "raise" letters the highest. Three-fourths of an inch was quite common and some "family names" may be found in one inch and even an inch and a quarter relief.

As the hammered finish of monuments became popular we find the trend in lettering turning to the raised rounded form,—occasionally pleasing, but for the most part horrid.

Within the last twenty-five or thirty years the influence of architects and the better designers has been reflected and not a few dealers in the country have come to use the good old antique Roman letter again with a gratifying improvement in the appearance of the monuments so inscribed.

There are few designers of monuments who are familiar with the classic form of letter and the complete alphabet (Fig. 4) showing the construction of each letter may be found helpful. It is not necessary nor desirable to employ all of the constructive details in practice, but if the student will take the time and pains to faithfully copy these forms a few times the knowledge gained

in the method of construction will be found most valuable to him.

No claim of authority is made for the types shown, because the best Roman examples are found to vary, and indeed one may find variations of the same letter as it is used in different places in the same inscription. But the forms are typical of good classic examples and are adapted, where it seems desirable to the modern usage and materials.

Some of the general characteristics are worth noting as a guide and their observation will minimize errors which are frequently made.

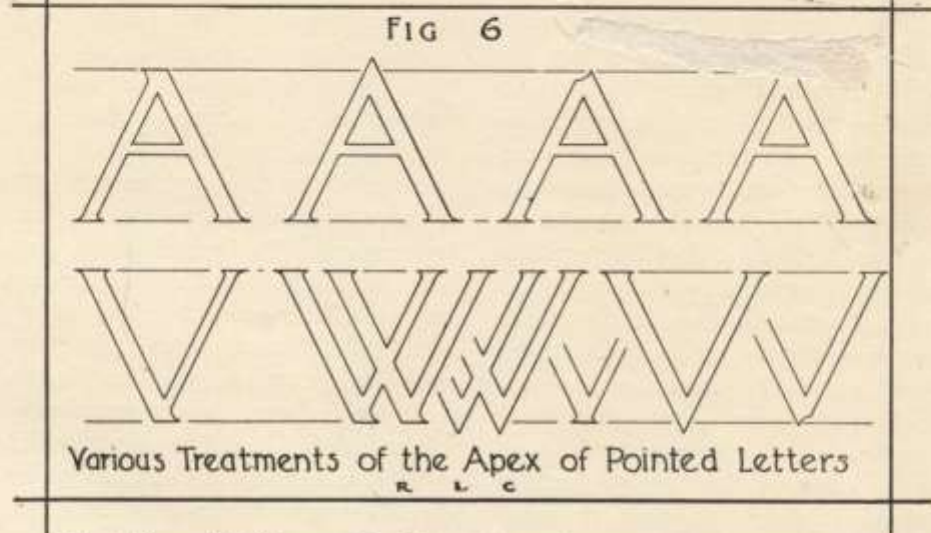
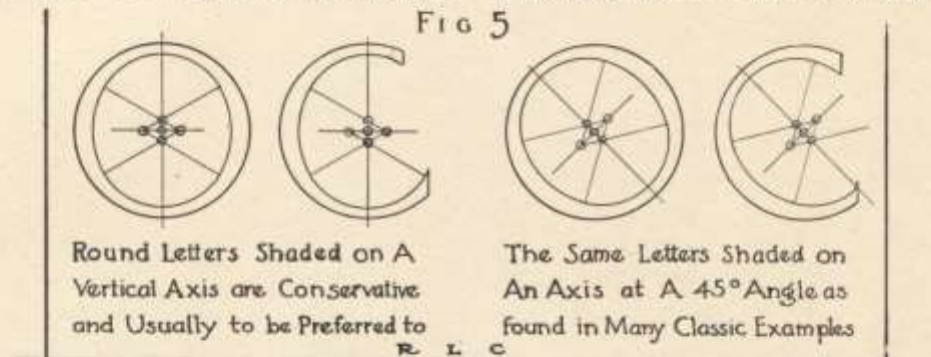
As regards the "shaded" or heavy strokes—all vertical bars are heavy, with the single exception of the letter "N" in which both vertical bars are light. Horizontal bars are invariably light. Diagonal lines running downward from left to right are heavy as in the letters "A," "K," "M," etc., while those running downward from right to left are light as in these same letters,—a single exception occurring in the letter "Z". The letter "M" may also be said to constitute an example to the rule governing vertical bars if the first, or left-hand bar, is perpendicular; but when the outer bars are inclined at the top as was usual in Classic examples the rules for diagonal lines will apply.

The round letters "C," "D," "G," "O," etc., are light at the top and bottom and by graduated shading attain the width of a heavy bar at the sides. This treatment is more conservative and generally to be preferred to the shading on an axis at an angle of 45 degrees, running down from left to right (Fig. 5).

III STUDYING LETTER FORMS

Excepting the letter "D" all round letters should extend slightly above and below the guide lines which determine the heights of the other let-

tered letters "A," "M," "V," etc., require special treatment for the same reason. The letter "A" is susceptible to various terminations at its apex as is also the "V" and "W", Fig. 6. From experience the first form shown



ters, the "S" and "U" as well. This extension is necessary in order to offset an optical illusion which makes them appear smaller than the other letters when they are made to the same actual height. This extension should not exceed one-tenth of the height of the other characters—one-twentieth above and the same below the lines.

in each case is perhaps the most satisfactory owing to the fact that artisans cannot be depended upon to execute from a given detail with uniformity, and the termination in a serif forms a well defined line at the exact height required.

The same treatment of the letter "N" at the lower left-hand point is also recommended. Of course these

variations are without exact precedent in Classic examples, but the treatment is not consistent with them and the more dependable results would seem to justify the slight modification.

tion cut upon such a surface. The bars of the letters are incised, which produce shadows upon which we must depend solely for the legibility of the inscription (Fig. 8). There is no contrast of color or tone as in the

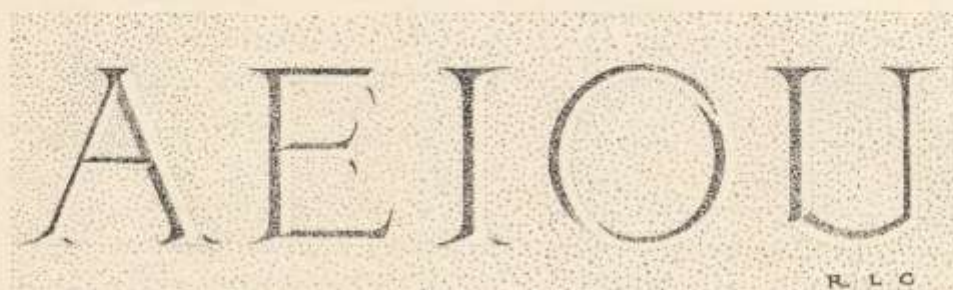


FIG 8•• Legibility Is Dependent Upon Shadow of Incised Planes

To any one who has made frequent use of the Classic letter forms for memorial work, advice against attempting to have the average letter-cutter lay them out is not at all necessary. A carefully studied, full-size detail will have been found to be indispensable if anything like gratifying results were to be obtained. The very few artisans who are capable of preparing their own details for these letters invariably make a preliminary drawing on paper rather than mark them out on the stone as is the common practice for the "Yankee Gothic."

Experience is the most thorough teacher in the world and the detailing of letters is no exception to the rule, but there are some errors which may be avoided by an analytical study of the causes and effects involved.

As the present day trend of the better things in design is toward the hammered finish we may confine our consideration to letters of "V" sec-

case of letters cut upon a polished surface or as in the case of a painted sign. The lettering surface and the surfaces of the incised planes are practically identical as regards texture and differ only by reason of being cut at varying angles to the lettering surface. The incised planes produce shade or reflect light as the case may be. Those surfaces which reflect light make but a slight impression upon the eye and as the stone "weathers," or darkens, this impression is minimized, so that the planes which will be in shade are the ones which should command our chief attention and study. Nor should the fact be overlooked that these planes vary under varying conditions of light.

It not infrequently happens that the artisan carefully cuts his letters upon the banked stone so that the work makes a most satisfactory appearance only to reveal many shortcomings when raised to a vertical position and

subjected to the different lighting conditions in the cemetery.

It is here that the capable draftsman's knowledge and judgment are invaluable, since he knows the conditions and surroundings—or should know them—under which the work is to appear; whether it will face north, south, east or west; its height above or below the eye; the distance from which it will be seen under ordinary

regard to the actual and apparent width of the letter bars. The alphabet, shown in Fig. 4, is so proportioned that the characters are eight times the width of the letter bars in height—the heavy bar being taken as the unit. This is somewhat heavier than may be found in many good examples of stone-cut letters of this type and considerably heavier than will be found in pen-drawn forms.



Fig. Nine

circumstances and any other conditions peculiar to the site.

Architects often specify that lettering and ornament shall be carved upon the stone after it has been set in place in the building to insure its appearance under the actual conditions of its location.

The lettering of stone is beset with many optical illusions, some of which must be overcome and others enlisted to help attain the desired effect. Perhaps the most general illusion is in

This increase in the width of the bars is advisable because there is hardly ever a condition of natural lighting which will throw over one-half the width of a bar in shade and its apparent width will therefore be one-half its actual width (Fig. 9). Again referring to Fig. 4, the light bars are shown two-thirds the width of the heavy bars which again are heavier in proportion than will be found in antique examples of stone cut forms or the more modern pen

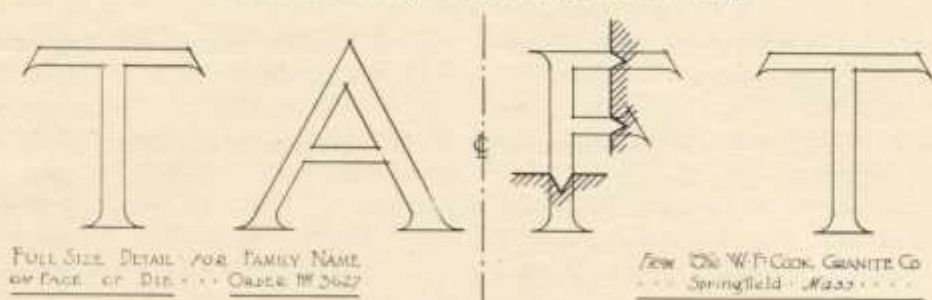


FIG. 10. LETTERS FROM DETAIL BY ERNEST STEVENS-LELAND.

drawn forms where the light bars are sometimes not over one-third or one-fourth the width of the heavy bars. But in the antique stone cut letters there was a deeper cutting of the light bars so that as with the pen drawn letters the bar appeared at nearly if not quite its actual width. Our present day granites are not susceptible to such workmanship and even in sections of the country where "free" stones or marbles are used for monumental work it seems to be impossible to get the craftsman to produce the quality of work necessary to give the desired effect from a detail which would have been safe in the hands of a Roman letterer. However, one may exercise far more refinement in lettering upon marble than upon granite, and the skillful use of the sand blast is opening up new possibilities for effects in granite as well.

The full size detail for the family

name (Fig. 10) and the photograph (Fig. 11) reduced to the same scale, serve to illustrate how the draftsman must translate his instructions to the artisan. At first glance it would seem that the detail had been ignored in the cutting of the letters upon the stone, but the comparative clumsiness in the appearance of the letters shown in the detail is merely the anticipation of the illusion produced upon the granite as the photograph demonstrates.

"Pointed" letters,—“A,” “M,” “V,” “W,” etc.,—were touched upon in the preceding article, and their termination in a serif was advised as the first practical and consistently satisfactory method. A few random photographs (Fig. 12) show how these letters appear too short when otherwise handled, and tend to spoil the uniformity of an otherwise splendid effect.



Fig. 11. LETTERS CUT FROM DETAILS SHOWN IN Fig. 10.

Occasionally one sees incorrect "shading" of letters usually in diagonal strokes (Fig. 13). Such errors are inexcusable and may be easily avoided by adhering to the rules set forth in the preceding article, or by following the forms in Fig. 4.

The letter "W" did not occur in the Roman alphabet and so we have no absolute antique precedent for it. Designers make it in various forms (Fig. 14), but the first shown seems rather to be preferred.

The letter "I" was used in the "soft" and "hard" forms in Latin, corresponding to our "I" and "J." The character "V" served both as "V" and "U," the latter being of comparatively modern origin. Some designers use the antique form "V" in modern inscriptions, but its expediency is to be doubted since we are an English—not Latin—speaking people, and also because it may result in serious difficulty with the customer unless a thorough understanding is come to beforehand. Even the Romans must have realized the need of a distinction when, for instance, they wrote the name "VITRVVIVS," which we modernize "VITRUVIUS."

The Roman system of numerals has long since been in comparative disuse and the "Arabic," which we use almost universally, is shown in Fig. 15, adapted to conform somewhat to the classic letter forms of Fig. 4. The same general principles of shading and form are observed in their design and the numerals of the late Georgian period of architecture are taken as a basis. The possibilities of the Roman numerals for monumental inscriptions

will be discussed in a subsequent number.

IV

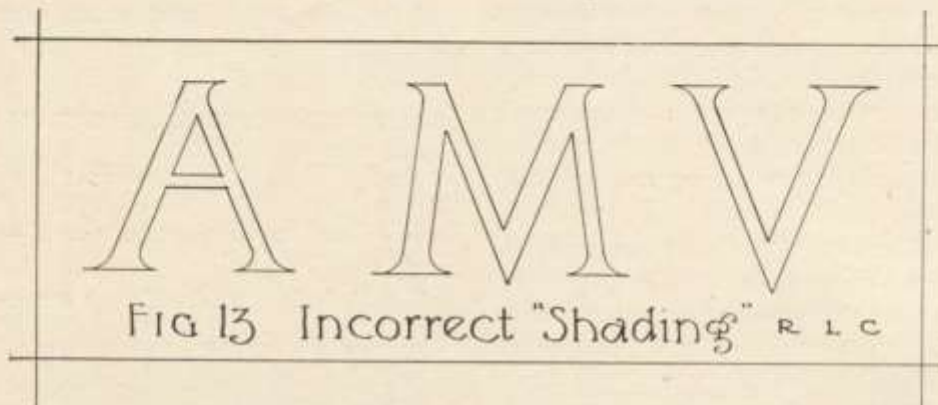
COMPOSING THE INSCRIPTION

"That work is the highest in the rank of Art upon which thought is lavished and material economized."—Ruskin.

Too little is "lavished" and conse-



Fig. 12. Arrows indicate Points which Appear "Short" ~



quently too little skill developed in the art of lettering our monuments with the result that an important factor of design and decorative effect is overlooked, and an opportunity ignored.

Time and money is spent freely in producing new designs. Retail dealers, manufacturers, jobbers, trade journals and even quarries are constantly putting out designs possessing a greater or less degree of merit and a small percentage of them is wrought in stone, lettered and set. Lettered and set the same as many have been lettered and set before, according to the custom or habit which the dealer has drifted into.

If it has become his habit to use raised rounded letters he usually continues to advocate them simply because it is his habit. If for economy

or other reason he has adopted an abbreviated formula for expressing the dates (1872-1917) omitting the month and day, he will tell his customer that such an arrangement is customary and continue the practice. Perhaps he is traveling in the rut of inch and a half or two-inch "V"-sunk inscription letters, and in the rut he stays.

So it matters little what may be the source, the merit or the cost of the design—the lettering is somehow made to fit into the space obviously provided for it—the job is "lettered and set."

Thoughtful arrangement and composition of lettering will dignify a monument which may lack desirable elements of design, but the most carefully designed memorial is made commonplace by stereotyped lettering.

The first consideration in attaining



Fig. 14—Varied Treatment of The Letter "W"

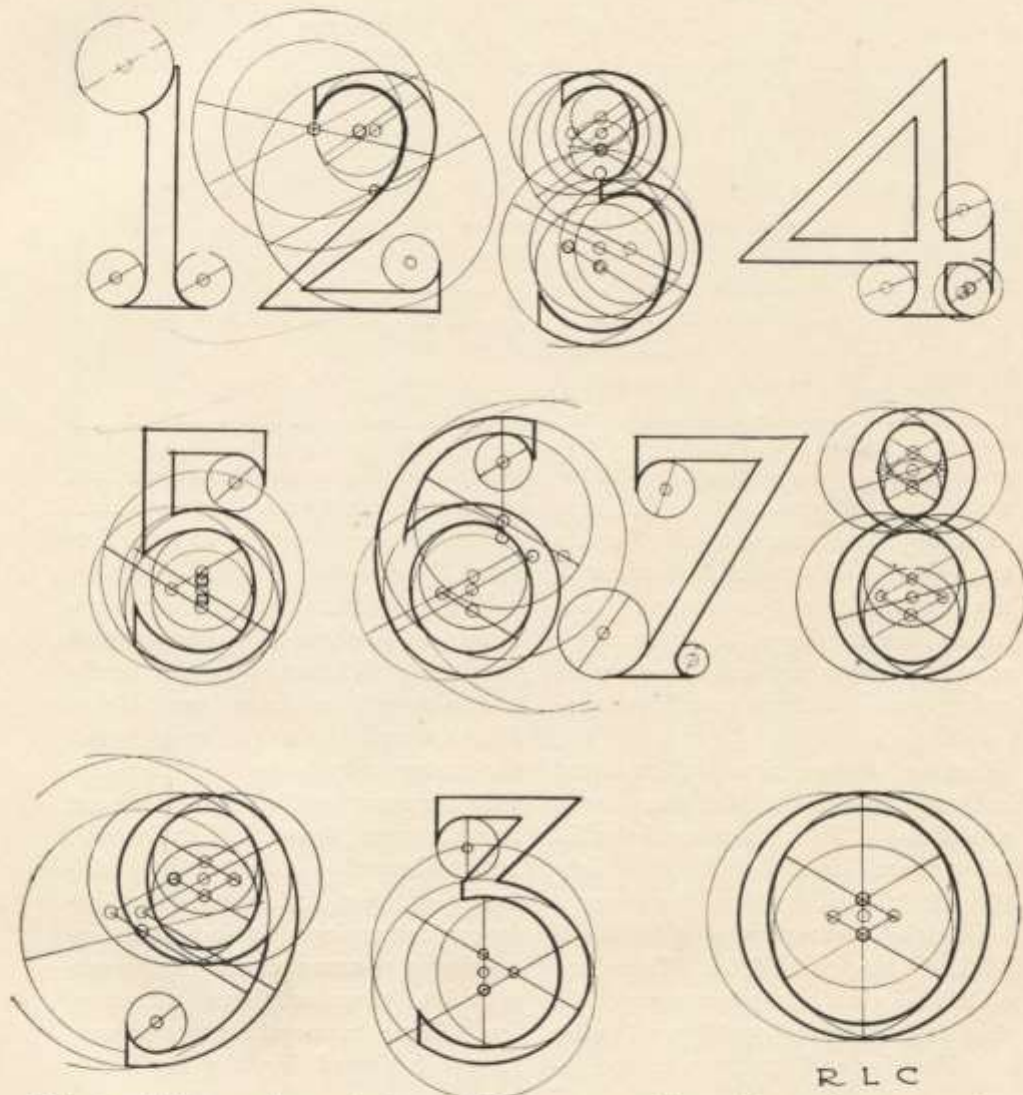
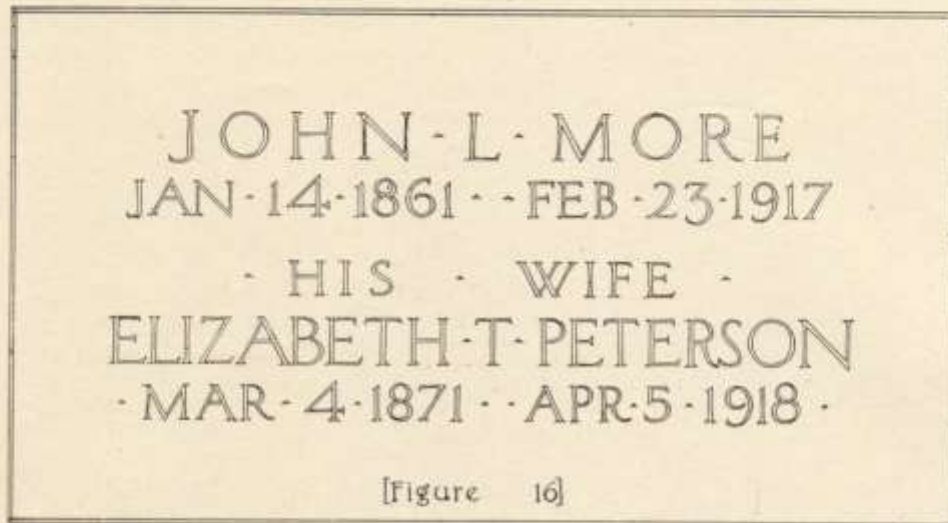


Fig. 15--Arabic Numerals Designed to Use with Antique Roman Letters.



[Figure 16]

good results is the relation of the inscription as a mass to the space it is to occupy, and as a general rule this mass should fill at least two-thirds of the space. It not infrequently becomes necessary to alter the arrangement and wording of the copy in order to adjust them to our requirements.

Let us suppose that the customer has supplied the data for the records as follows: "Father's name John L. More, born Jan. 14, 1861, died Feb. 23, 1917; Mother (maiden name), Elizabeth T. Peterson, born March 4, 1871, died April 5, 1918. There are children living but it is not probable that their records would need to be provided for and could go on the re-

verse side of the monument, so that these two records may be considered as completing the lettering requirements."

Figure 16 shows these records arranged to conform to a space of proportions which are very frequently met with and we have been able to follow very closely the copy which the customer has supplied. But suppose our space had been proportioned like the panel shown in Fig. 19. We are confronted with an entirely different problem and a radically different composition is indicated, involving a re-arrangement of the records into seventeen lines instead of five. Roman numeral characters have been substituted for the Arabic in



Fig. 17.

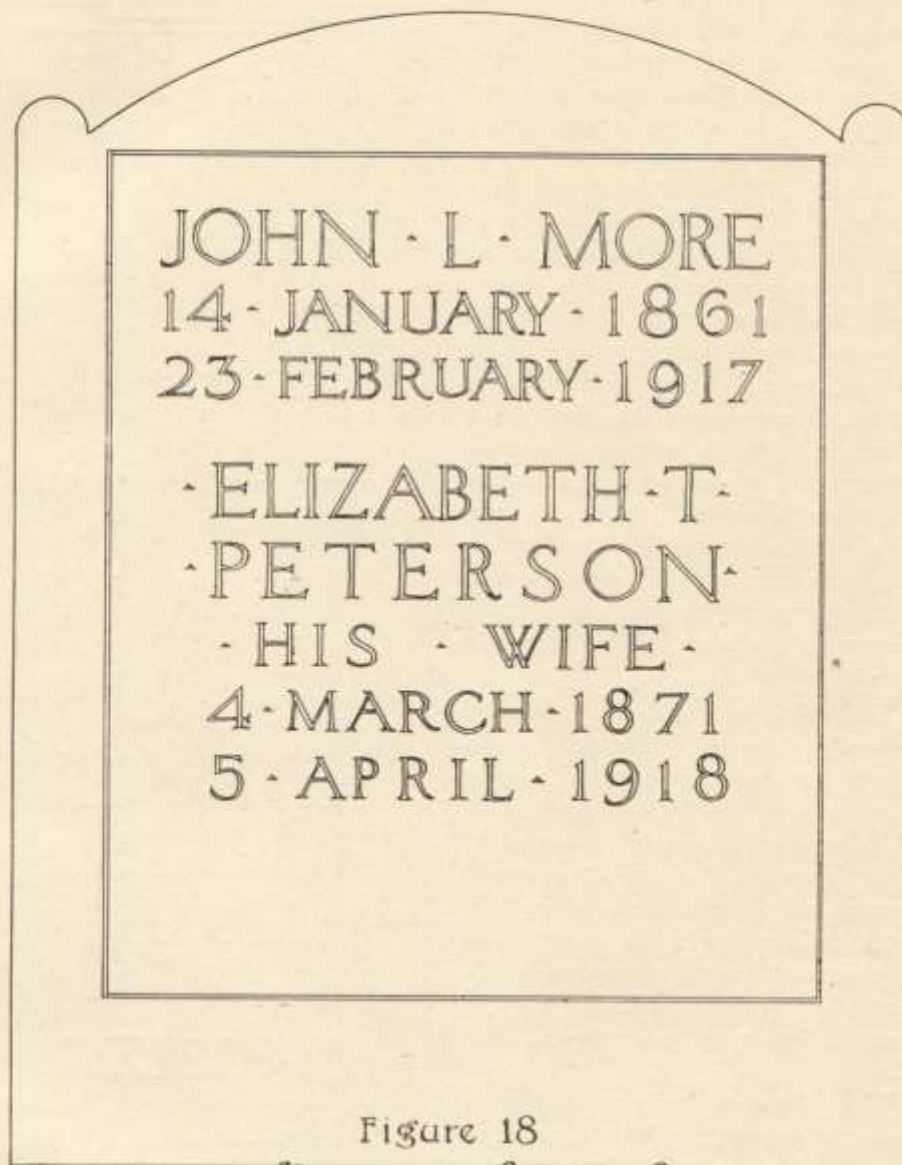


Figure 18

order to better occupy the lines in which they occur and the initial "T" is omitted from the wife's record for a similar reason.

Fig. 17 illustrates the same record adapted to a space or panel of which

the horizontal dimension considerably exceeds the vertical. The dates have been abbreviated by eliminating the months and days and the entire record reduced to three lines.

Figure 18 illustrates a fourth ar-

rangement of this same record which is adapted to a panel of the proportions of a colonial headstone, occupying eight lines, the months being unabbreviated so as to occupy a full line with the days and years. The arrangement (14 JANUARY 1861) instead of the more common form (JANUARY 14, 1861) is suggested as a pleasing variation, and has commendable arguments in its favor. It is more logical, the sequence of each succeeding unit being greater (day, month, year)—and its decorative effect is perhaps to be preferred through the separating of the numerical characters by the letter characters occurring in the month. In most of the Latin countries this arrangement is the common practice, even in the matter of dating their correspondence.

Each of these four arrangements is perfectly clear to the reader of the legend, and yet each is made to conform to widely differing proportions of lettering space. In cases where the space is extremely large for a small amount of lettering, the effect is better to keep the letters to a reasonable size and "frame" the records with a panel of some sort; a simple "V"-grooved line may be employed, Fig. 20.

While these examples are predicted upon the assumption of a completed record, the same principles apply in cases where space is to be provided for future records, and in such a case it is well to lay out the future records as well as those to be at present inscribed, and the whole effect studied for balance and composition of its

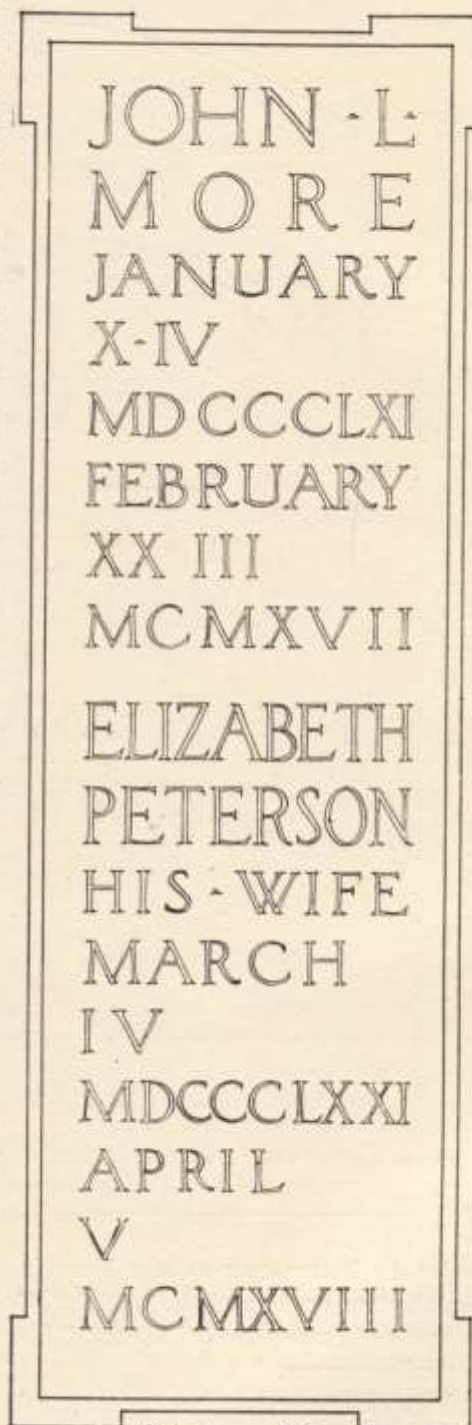


Fig. · 19

mass in relation to the lettering surface.

The process of laying out lettering details may be much simplified by first sketching them out free hand at a reduced scale—one and one-half

culiar problems and the individual judgment and taste of the draftsman is after all the determining factor of merit. There are, however, certain methods of procedure which assist in getting at the essentials readily and



Figure 20

inches to the foot will be found convenient. At this small size several may be hastily sketched in a fraction of the time it would take to make the layout at full size and they are more easily compared, being more readily encompassed by the eye.

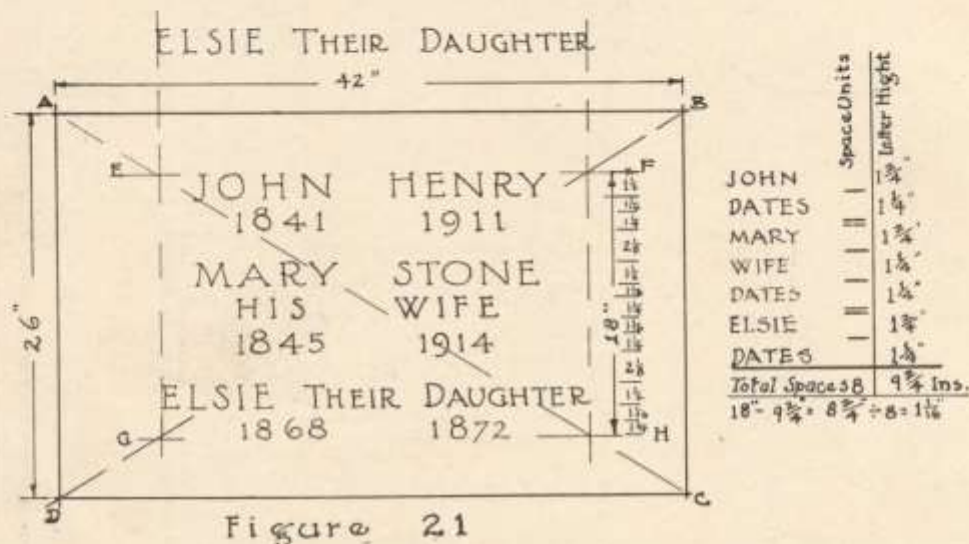
There are no set rules applicable to the detailing of letters, as each piece of work presents its own pe-

enable one to avoid needless redrawing.

As previously stated, the first consideration is the relation of mass to the space to be lettered, and closely allied to this problem is the matter of line spacing—i. e., the height of the letters and the space between the lines. A simple process is illustrated in Fig. 21 and 22. The panel or sur-

face to be lettered is assumed to be 42" wide by 26" high and the record as indicated. First rough out the line containing the largest number of letters on a separate sheet of paper as indicated below in Fig. 21, and center it in the panel from right to left

inches. The number eight, as representing the "Space Units," is arrived at by allowing one space between the lines of the same record and two spaces between each complete record. As a check, we may add the spaces and letter heights which should equal



drawing in vertical lines at each end of the line, and where these lines intersect the diagonals of the rectangle A-C and B-D we may assume to be the uppermost and lowest line of the record.

Then, as shown at the right the several lines are indicated in abbreviated form, by the words John, Dates, Mary, Wife, etc., etc., setting down the height of each line of letters in inches. We then add the total of the several lines of lettering and find that it is 9 3/4 inches, which we will subtract from the actual height of the lettering mass as determined by the horizontal lines E-F and G-H—in this case 18 inches—and leaves 8 1/4 inches to be divided into eight equal parts of one and one-sixteenth

the total height of the lettering space, 18 inches.

Now for comparison, we may wish to study the mass with an equal margin, top, bottom and sides, in which case we must draw the lines A-E, B-F, C-G and D-H at 45 degrees and where they intersect the lines E-H and F-G (which terminate the longest line of lettering) we have established the top and bottom lines of our mass. Proceeding as before we find the Space Unit to be three-eighths inch, the total height of the lettering being 12 3/4 inches.

It may be that neither arrangement satisfies entirely and if not it is a small task to make additional sketches until we get what we want, after which the full size lay-out can be

made the right way the first time.

Of course there are obdurate customers who are wont to dictate, and in such cases the dealer must bow to their will. But such instances become more and more rare if the dealer puts real thought and study into the work, and when they do occur they make

as a guide, and as it is one of the few distinctive characteristics of American sepulchral architecture, it behooves us to make it good art and so justify its existence.

First of all may we not ask ourselves why we use the family name at all. If it is not logical, then it is



Figure 22

excellent argument to use on future clients who think that they know more than the man who is in the business.

V

THE FAMILY NAME

In the preceding chapter we discussed the composition and line spacing of individual records and their relation to the space which they occupied. Just as important and often inseparable is the consideration of composition and location of the family name, which according to American custom is almost invariably inscribed in larger letters somewhere upon the monument.

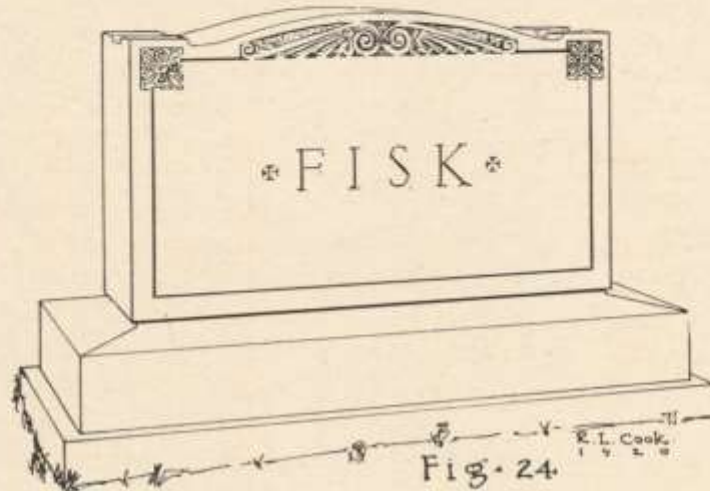
Being purely an American custom we are unable to turn to ancient or even mediaeval examples and usages

not artistic, and has no real reason for being. The old countries were not given to the building of impressive memorials except to their big men;—statesmen, soldiers, rulers or men of genius. But we Americans find expression of our national characteristic—our democracy—in memorializing by families and in a fashion to suit our personal tastes or bank accounts. A simple tablet marks the grave of a Roosevelt or a Phillips Brooks, while some obscure farmer raises unto himself an ornate pile of stone, surmounted by a statue of "Hope."

Honestly, we may feel a certain admiration for the more ancient custom, but at the same time we may as well admit that the present vogue is typically American.

The same national characteristics of democratic equality which governs the building of our monuments has

ally feel the need of making adequate provision against time and the forgetfulness of the human race, and



TWO WAYS OF ARRANGING FAMILY INSCRIPTION.



made us the greatest advertising people in the world.

The memory of the famous man is secure, but he is one of thousands of us "Common People" and we natur-

ally feel the need of making adequate provision against time and the forgetfulness of the human race, and when that need is expressed by sheer size and a statue of "Hope," it merely tells how great a need we feel of perpetuating our memories, to which "Hope" is a fitting climax.

And so the family monument with its family name came logically enough—a sort of “collective bargaining”—the price of several individual head-

terest is what we may do with it to make it perform its function and at the same time add to the design an element of decorative merit.

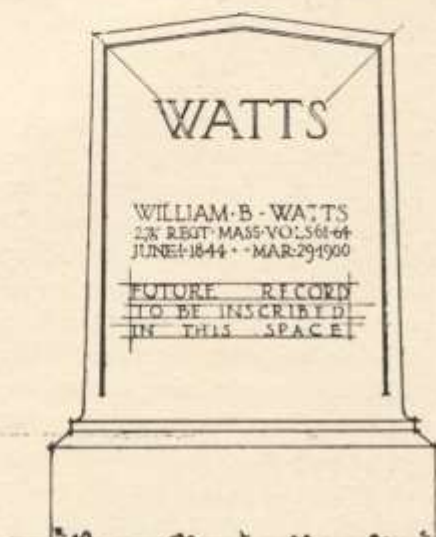


Fig. 26. As designed by an Architect. Lettering nicely balanced and with decorative effect



Fig. 27. As copied and lettered by a dealer who lacked knowledge of Decorative lettering

stones pooled so as to purchase one monument of sufficient size to be impressive. The family name which is shared in common is given additional prominence to let the visitor know from afar that the Jones family is or will be buried here and if more detailed information is desired the visitor may come close enough to read the individual records.

An idealist would have made out a better case for the family name—would have made an analysis much more graceful and flattering to our sensibilities, but we have demonstrated that the custom is logical and has a reason for being—and whether or no we would have it, it is here, an established custom and our chief in-

As a matter of course it must occupy a conspicuous position on the monument and is therefore bound to play an important part in the general scheme of design and the general lettering layout. Like the individual records, only to a greater degree, its influence may be good or bad over the entire design.

The first function of the family name is to be seen at a distance, hence its location upon the monument should be considered with this end in view, not only as regards existing conditions and surroundings, but in so far as possible, with a regard to future conditions as well. It is true that this condition may sometimes become a factor in determining the

type and design of the monument itself, and while such matters rarely call forth a suggestion of the sort to the average retailer engaged in the



Fig. 28. Suggested arrangement of lettering and panels from same copy producing Decorative Effect.

sale of a monument, the craft would reflect upon itself more credit if it were to devote more thought to just such details.

During the reign of the terrible sarcophagus (Americanized genus), when monuments sometimes had as

many bases as a base ball diamond, "second base" was evidently considered the proper location for the family name, and as with most of the refinements in the craft, little care or decorative merit was evidenced in the treatment of family names until the pace was set by an occasional architect, which was co-incident with the general emancipation from monumental prostitution. In recent years there has been a gradual tendency to place the family name upon the die either above the records, Fig. 23, or occupying a central position upon the face of the die without other lettering, Fig. 24, the records being cut on individual markers or upon the rear face of the die. In the case of a classic design the name can often be worked into a harmonious relation to the frieze design, Fig. 25.

In general, the higher up position is better, if for no other reason than that it makes the family name more conspicuous, which is its chief function, but unintelligent plagiarism treats us to some unfortunate results, Fig. 26 and Fig. 27. The former was carefully studied in detail and the result is excellent, but when the un-resourceful dealer sold "a copy of the



Figure 29

R. L. COOPER, D.D.



Fig. 25

R. L. C.

Watts job" to Mrs. Bartlett, he evidently used his two-foot rule to the exclusion of his brain—measured everything in feet and inches and adopted the same size and proportion of letter, with a result which needs no comment. Figure 28 illustrates how he might have treated it even though the name is really too long to be nicely adapted to the dimensions of the stone.

For no reason in particular, it has become customary with the craft to employ a raised letter for the family name, even though the records are incised. As previously noted with reference to the treatment of record letters, there is no good precedent for the raised letter, and the incised letter with "V" section is much to be preferred for both the records and the family name. Custom and habit are not to be changed overnight however and time and patience are essential to effect a change. In the meantime it is necessary to consider how we may treat the raised letter for the family name and thus relate it to the other parts of the monument.

As in all matters pertaining to design, no hard-and-fast rules can be laid down, but in general there is need of restraint on the part of the designer of raised letters—do not make the bars too heavy and do not raise the letters in too high relief. The width of the bars will of necessity be a little greater than one-eighth their height, which is the proportion suggested for the incised letter, but they should be kept as near that proportion as the practical limitations of granite cutting will permit. The relief of raised letters is apt to be

much overdone, though the present day tendency is toward restraint and refinement. It will be found by experience that a letter raised a quarter inch or even one-eighth, if well executed is much more satisfactory than

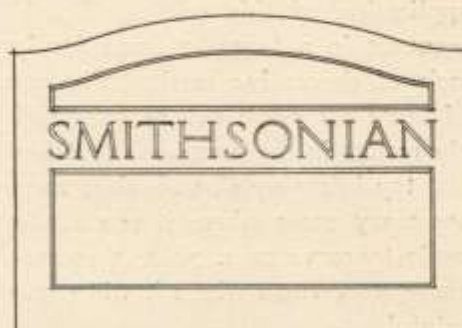


Figure 30

R. L. COOK, Des.

a letter with more relief, done well or poorly.

Where it is necessary to employ a raised letter, it should be of similar style to the record letters, whether these be raised or incised, and a panel consisting of a single band of a cross section similar to the bar of the letter will often serve to tie the lettering to the monument. The panel may assume any conventional form so long as it does not border on freakishness; possible suggestions are illustrated in Fig. 29 and Fig. 30, the former showing how a panel may be employed to help out the balance of an extremely short name and the latter illustrating the use of simple paneling to correct the "stringy" appearance of a name of many letters.

Referring to Fig. 2, the light lines running down at an angle of forty-five degrees from the upper corners of the die are found to intersect the top line of the letters at the extrem-

ities of the name, (allowance being made for the "W" which overhangs at the top). This is a very good rule for determining the location of letter masses, whether it be family names or records, and their use is obvious in Fig. 28. The absence of the application of this rule in Fig. 27 accounts in a large measure for its lack of decorative merit. The use of these forty-five degree lines simply results in the margin at the sides and top being equal, and while there are many cases where it can not be made to serve as a guide there are many more cases where it will prove helpful.

VI

STUDY OF EXAMPLES

It is frequently said that "God hates a coward." While not so often said, it is many times realized that He must also hate a critic. The critic's is a thankless task. Like the man who believes in sending flowers to people while they are living, he usually waits too long. He should be at the elbow of every artist and save him from making the mistakes, rather than call them subsequently to his attention, after the book is printed, the opera staged or the statue cast in bronze. And yet the honest criticism of one's work is helpful, acknowledging, from the outset that critics are by no means infallible, and often less qualified than the objects of their criticism.

The writer recalls what seemed like a cruel libel from one whose judg-

ment he had reason to respect, when an opinion was sought upon the merits of an early effort at designing. The immediate effect was anything but beneficial, but as the idea sunk in it aroused a determination that there would be no future opportunity for criticism on that particular score, and the stimulus was more than helpful.

In commenting upon the monuments illustrated herewith, it should be borne in mind that far too many customers know more about lettering and other details of a monument than the dealer with his years of experience could hope to learn, and it is usually in cases where the purchaser asserts his right to "have it done his own way" that we get an excrescence as a result. Of course, they sometimes demand only a minor change, like one lady who came into my life long enough to correct my idea that an egg-and-dart molding was appropriate for a cornice and not for a base. She got it where she wanted it—but not from me.

The half-tone pictures illustrate some of the general principles above referred to and a brief analysis of each follows.

RICE: The general effect here of the lettering is decorative. Possibly the family name is designed with a little too heavy a bar—had the bar width been kept as light as the "V" groove margin line around the panel, or the latter made correspondingly heavier, it would have preserved a somewhat better relation. The lines



A GENERALLY DECORATIVE EFFECT
See Descriptive Effect.

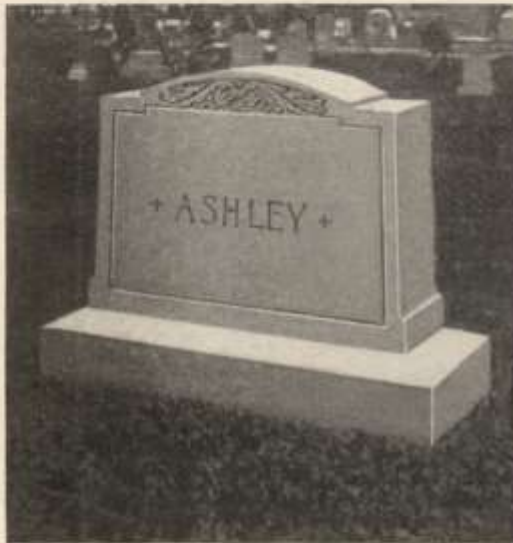


ILLUSTRATING USE OF NAME PANEL AND
MASSING OF LETTERING

of the individual records are so nearly of the same length that they might easily have been spaced so as to have been uniform. The Rice is of West-erly granite, and of the following dimensions: Base 5-0x3-0x0-9; die, 3-6x1-6x5-4. This work as well as

ford granite and was cut by P. C. Felli & Co., Milford, N. H.

BEMIS: A short name with the panel added to increase mass. The panel is quite consistent with the letters, and is located approximately according to the rule illustrated in Fig.



GOOD PANEL AND DECORATION—NAME SHOULD BE HIGHER.



HOW GOOD LETTERING ALONE MAKES A SIMPLE STONE DISTINCTIVE.

the other specimens illustrated, were erected by the W. F. Cook Granite Co., of Springfield, Mass. The "Rice" was cut for them by Kavanagh Brothers, of Quincy, Mass.

ASHLEY: The decorative effect would be improved by placing name somewhat higher up in the panel. It is probably in the center from top to bottom which through optical illusion makes it appear below. The letter forms seem to be rather condensed, especially the "A" and "H". The effect of the "V"-section is good and the ornament is well balanced with the lettering. This work is of Mil-

26. The whole lettering mass is well placed, with the space below the mass about twice that of the space above. Possibly a transposition of the lines "HIS WIFE" and "HENRIETTA SUSANNA KELLY" would have made the rhythm of the mass a little more pleasing. The "Bemis" is of Connecticut White granite and was executed by Booth Bros. & Hurricane Isle Granite C., of New York. The sizes are: Base 4-10x2-10x1-0; die, 3-8x1-8x5-9; height, 6-9.

BILL: The family name and record well placed for decorative effect but the name panel might have been



HARMONY OF DECORATION AND NAME PANEL.



FAMILY NAME AND RECORD WELL PLACED.



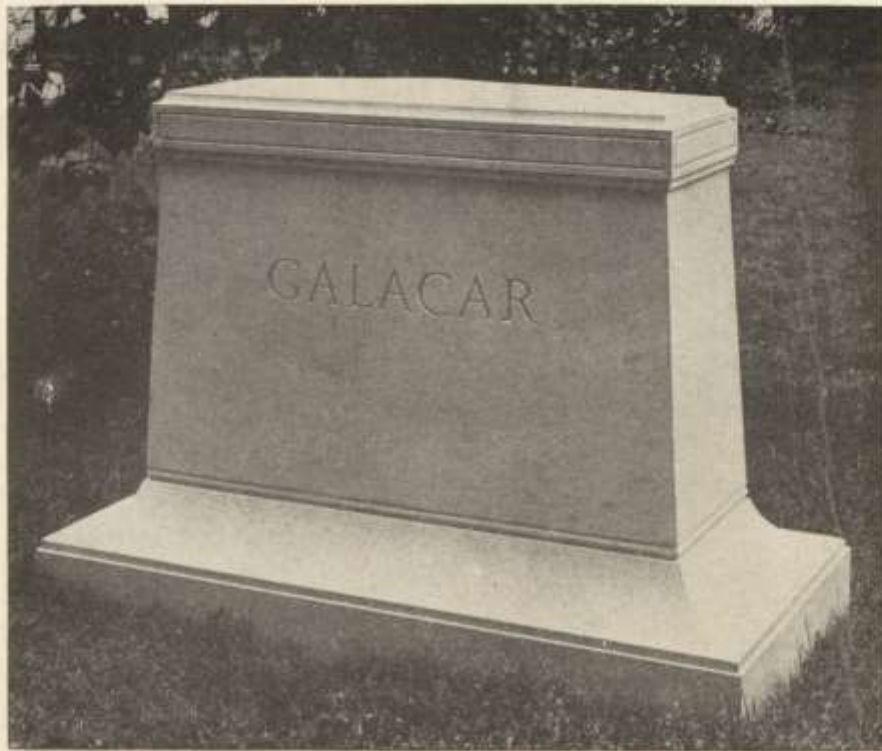
GOOD LETTERING AND DECORATION: MIGHT HAVE BEEN IMPROVED BY DIFFERENT ARRANGEMENT.



SPLENDID EXAMPLE OF CLASSIC LETTERING.

treated similarly to the ornamental panel above rather than in standing relief. The letter bars of the family name are a trifle overweight but are perhaps justified, since they are nicely related to the weight of the ornament above. The "Bill" is of Westerly granite and was cut by Clark & Pearce, of Quincy, Mass. The dimensions are: Base, 5-0x3-0x0-10; die die, 3-6x1-6x5-7.

BORDEAUX TABLET: The similar treatment of the family name is pleasing in its effect. The position of the name might be better but from the proximity of the single record it is evident that provision had to be made for many future inscriptions,



SUCCESSFUL USE OF ANTIQUE ROMAN.

thus affording the designer little or no latitude. The "Bordeaux" is of Milford granite and was executed by Conti Brothers, Milford, N. H. It is of the following dimensions: Base, 3-9x1-9x1-2; second base, 3-2x1-2, both bases in one stone; die, 3-0x1-0-x2-7.

BUGBEE: This is an excellent example of the decorative value of the Antique Roman letter form. The monument is unpretentious and rather innocuous in design, but assumes dignity and even distinctiveness solely because of the lettering. Possibly the vertical spacing might have been slightly condensed and the whole mass of the lettering placed a little



CRUDE LETTERING AND POOR ARRANGEMENT.

lower with better effect, but the general effect is pleasing. This work is of Barre granite and was cut by Malnati Brothers, Barre, Vt. The dimen-

restful, the crosses seem to pull away from the names. If a single cross motif had been placed in the center or if the names had been placed on a



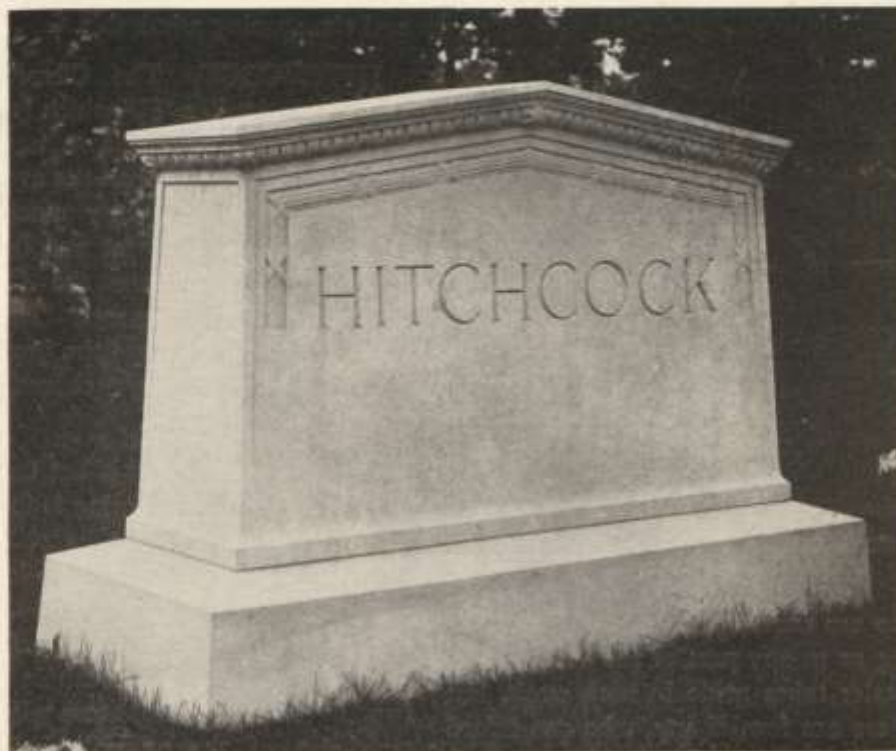
PLEASING AND HARMONIOUS GENERAL EFFECT.

sions are: Base, 3-6x1-6x1-0; die 3-0-x1-0x2-8.

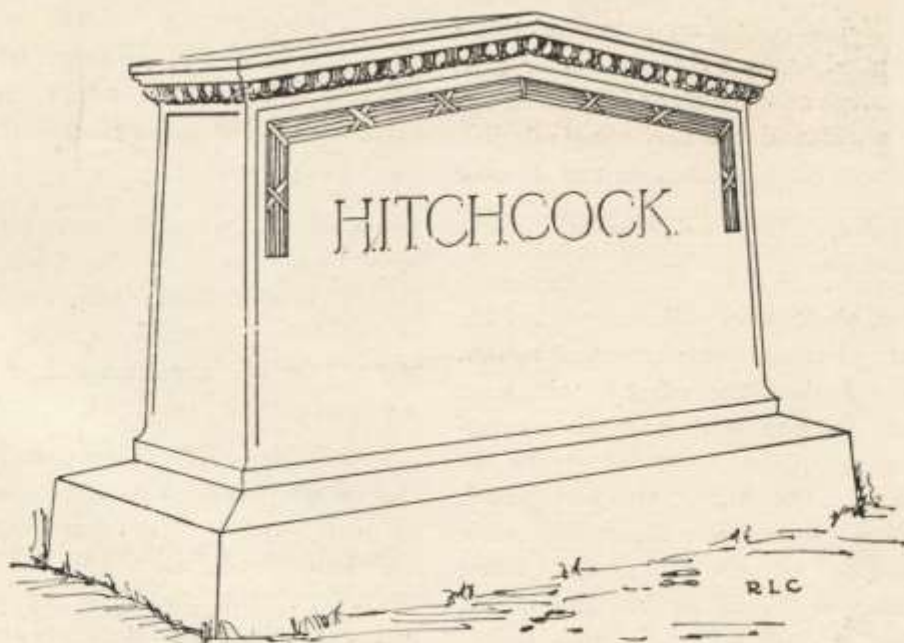
ADAMS-FERREÉ: Here the letter forms are very good, the light bars producing an effect of refinement and relating well with the incised crosses in the upper corners of the panel. The names are well placed, being just enough above the center top to bottom to appear nicely balanced. Yet one has the feeling that the whole composition is not

line with the crosses the effect might have been happier. The "Adams-Ferree" is of Milford granite and was executed by Columbia Granite Co., Milford, N. H. The sizes are: Base, 5-0x2-0x1-0; die, 4-0x0x2-6.

BREWER-LONG: Undoubtedly a case of the purchaser having it "done his own way," with the usual result. The letter forms are crude and the relation of the panels is not well balanced. The traced garlands at the



SHOWING IMPROVEMENT BY USE OF SMALLER LETTERS.





ENGLISH TABLET WITH INAPPROPRIATE
STYLE OF LETTERING.

top are unrelated to either the lettering or to any part of the design. No dealer takes pride in such work, but there are few, if any, who can afford to turn it down when profits are foreseen in the sale.

GALACAR: Very successful treatment of Antique Roman, showing the dignity and character which these letters will lend to a very simple design. The "V"-sunk panels on the sides of the cap are well related to the lettering and serve to relieve an otherwise severity of design. Had the name been placed enough lower so that the margin at the top were equal to that at the sides the effect would have been quite as good though it is excellent as it is.

DUNBAR. A splendid example of Classic lettering, showing exercise of restraint where the lack of it could have easily ruined a very fine bit of

designing. The letter forms are pure and the spacing admirable.

HITCHCOCK. The Classic letters, excepting the "K" which is a little crude, are well drawn and the spacing is far better than the average, but the letters are very much too large for the monument and have a tendency to dominate the Classic moldings and enrichments. The pen and ink sketch suggests the improvement from even a slight reduction in the size of the letters.

TEW. The general effect is quite pleasing, and the designing is logical, the raised band of the panel being well related to the bars of the letters. An extremely short name is helped out in mass by the panel and the small crosses therein, the whole being kept in low relief consistent with the treatment of the naturalistic ornament. Since the ornament, panel and letters are in relief, it would seem



EVEN THE COMMON "TWO-PIECE JOB"
MAY BE DIGNIFIED BY GOOD
LETTERING.



SUGGESTED REARRANGEMENT BELOW FOR NAMES OF EXTREME DIMENSIONS.



that the narrow marginal band could have been treated in low relief also with as good an effect.

ABERCROMBIE - SNOW. The letter forms are a modified Antique Roman of English influence not as good as the pure Classic and only justified for use upon reproductions of examples upon which they are found. An obviously better arrangement of these names of such extreme dimensions suggests itself, as shown in the pen and ink sketch, incidentally affording ample space below for the individual records, which are crowded on the end of the die.

SHERMAN HOAR. A nice reproduction of an English tablet all but spoiled by inconsistent lettering. Had this headstone been lettered in modified Roman of the Georgian period the result would have been far more pleasing.

TAYLOR - BOSS. An innocuous design which is much dignified by the use of the Antique Roman characters, which are well designed and spaced. The torch and ribbon would have been much better had they been kept in very low relief, thereby being less disposed to dominate the lettering.

VII

SPACING LETTERS

The decorative effect of lettering is in reality dependent, not on the letters, but on the space about the letters. This rule applies to the space about the lettering as a mass, to the interlinear spacing and to the spacing of the individual characters, themselves. If lettering be so laid out that it is ill fitted to the surface or the panel which it occupies, it is the ugly shape or ill-proportioned size of the space which is not lettered that

LAWYER

Figure 31

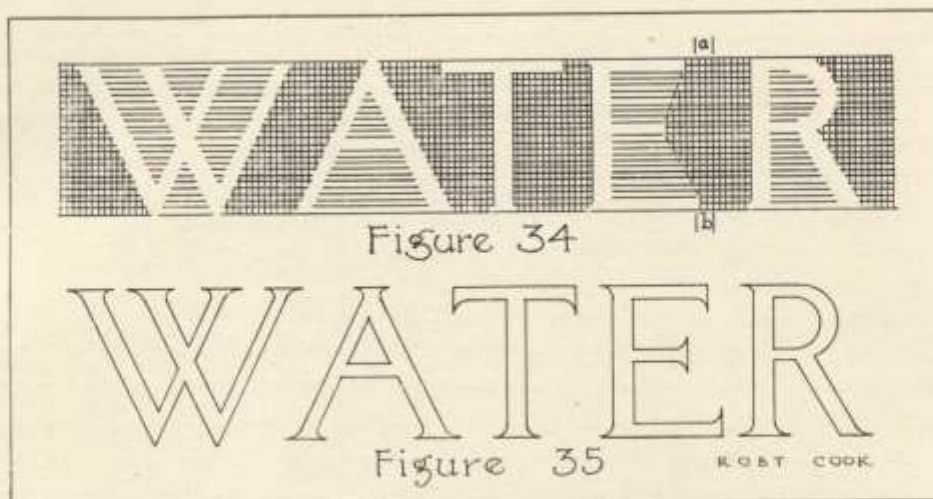
LAWYER

Figure 33

LAWYER

Figure 32

ROBT COOK.



offends the eye rather than the letters themselves, which individually considered may be correct in every detail. The same is true of the line spacing which was discussed in the last number and so it is in the matter of spacing the letters themselves which is to be our present theme.

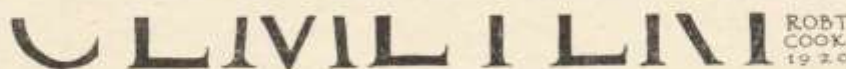
We know that a word or a line in which the letters are well spaced (Fig. 31) is more pleasing than the same letters poorly spaced as they would appear in a type-set example (Fig. 32) with equal space between the extremities of the characters, even though the characters, themselves, are identical in form and correctly drawn. In Fig. 33 a certain license has been taken in combining the awkward condition brought about by the "L-A" and we are conscious of a still further improvement in space effect. Lay out any word or line as many times as we will and that one looks best in which the spaces between the letters is well balanced, or when intervening spaces appear to be as near-

ly equal as possible, though as a matter of fact, they will not often be actually equal in area as is illustrated by Fig. 34 and Fig. 35. In the former each space between the "W" and "A", the "A" and "T", the "T" and "E", and the "E" and "R" is of an equal area as indicated by the heavy shading, but the apparent effect is not satisfactory because the spaces do not appear to balance, and we find that Fig. 35 is more pleasing, though not mechanically or mathematically equal as to its spacing.

It is for this reason the so-called "rules or spacing" of letters, which are predicated upon a mathematical or geometric basis, are entirely lacking in artistic or decorative effect. They may do well enough for laying out the commercial "Gothic" or block letter which is nearly devoid of decorative possibilities, but when applied to a refined form such as the Antique Roman, the result of the effort is sure to be disappointing. Such rules for laying out decorative lettering put the de-



Figure 36. The word "Monument" above is more easily read from the upper half of the letters than is "Cemetery" below from the lower half. Fig 37



ROBT
COOK
1920

signer in a similar predicament as the old lady found herself after marking her pies, "T M" for "Tis mince" and then marking the apple pies "T M" for "Taint mince."

So, while hard-and-fast rules are apt to be rather confusing than helpful, still there are certain principles which analysis makes clear and by which the designer may be guided in the successful laying out of letters.

The first accomplishment is the mastery of the letter forms themselves which may be attained only by faithful practise in drawing and redrawing them after some good example, as Fig. 4, unless a better model be at hand. After the draftsman has become sufficiently familiar with the forms themselves his mind is left free to the consideration of their proper use and arrangement for the most decorative effect, and it is

assumed that such a familiarity has been acquired.

First of all then, just what is the "space" between letters? Referring again to Fig. 35, we find that the adjacent sides of the "W" and the "A" are clearly defined straight lines and the heavily shaded area between is the space. But the next combination of "A" and "T" presents a different problem. The right-hand side of the "A" is well defined and the "T" would be except for the cross bar at the top, and without that it wouldn't be a "T". Does our space run to the vertical bar of the "T", or if not, where does it stop? In Fig. 35 the actual areas heavily shaded are as nearly equal as was possible to make them and yet the "T" seems to be nearer to the "A" than the latter does to the "W". Why this should so appear it is difficult to definitely state,



Figure 38

ROBT COOK

unless it is because, in reading, the eye for some reason follows the upper portion of the letters, and we have little difficulty in reading a word where only the upper half of the letters are visible, (Fig. 36), but a word indicated by the lower half of the letters (Fig. 37), is far less easily decipherable. Hence, we must give a little more weight to the upper half of the letter in determining a proper space.

principle of giving a little extra weight to the upper portion of the letters prompts us to bring the "R" yet a little nearer and explains why that is the proper position for it.

Again we are forced to modify our "exact area" theory of space in the matter of light bars, as in the "N", the righthand side of the "U", "V" and "W" and the lefthand side of the "A," "M" and (to some extent) the "X". For example, Fig. 38, assuming



Returning to Fig. 34, we find the same problem in the adjustment of space between the "T" and the "E" but the "E" and "R" is quite different again. If we were to apply the "rule" of actual space area, making allowance for the three horizontal bars of the "E" and considering the lightly shaded area between them as space—just as we did with the "T"—then we should be led to place the left-hand bar of the "R" as indicated by the lines a-b. But by assuming the mass of the letter "E" to be bounded by the dotted lines connecting the ends of the horizontal bars we come nearer to a satisfactory appearance, and our

that our space between the "H" and "I" to be established, we might say that the space between the "I" and "N" should be the same—both being letters with straight "closed" sides. But if we draw them so the latter space will appear larger owing to the fact that in the first case we have two heavy bars and in the latter we have one heavy and one light bar. So we must reduce the space slightly under these conditions. In the next combination of two letters "N" we have two light bars adjacent and the space must be still further reduced. Just how much this reduction should be it is not possible to say, for it varies according to conditions and any rule

ANTIQUE ROMAN

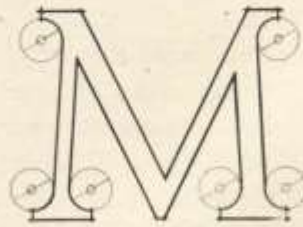
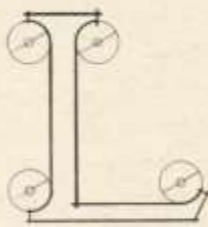
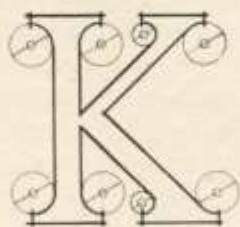
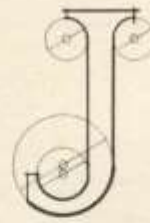
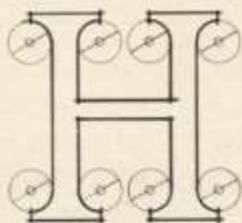
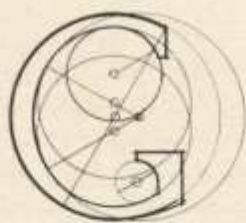
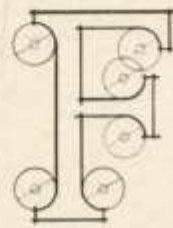
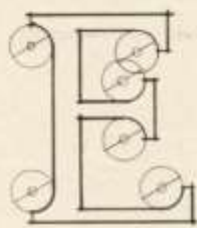
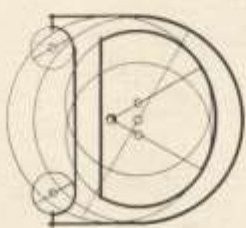
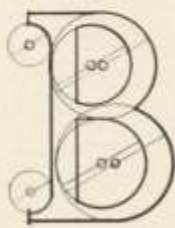
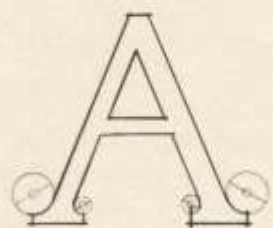


Fig · 40

RAISED LETTERS

19©20
R.L. COOK



Fig. 40

which might govern one case would be useless in another. It is a matter of personal judgement and taste which anyone may acquire with patient practice.

It is quite unusual to find examples in commercial work of such arrangement as the "L-A", Fig. 33, but there is ample precedent for it in Classic examples, Fig. 39 and architects of the present day and generation frequently take justifiable license with their lettering lay-outs. It should only be attempted after the designer has had considerable experience and even then with caution and due respect for the academic arrangement.

The novice and even the experienced designer, is not apt to be a competent critic of his own work, and for this reason he should welcome and invite the opinion of his associates. The stone cutter often has a good "eye" for lettering,—not infrequently admitting the fact—but the writer has learned from experience that some workmen are very helpful critics. Not that every suggestion is to be acted upon, by any means, but each one should be given consideration and discussed, if for no other reason than to convince the designer that he is right.

In detailing at full size the work is of course done with lead pencil and it should be borne in mind that the hazy indistinctness of this medium may subtly hide many short-comings in our spacing which the glaring search light of the sun will surely disclose after it is too late to correct them. It is well therefore, to apply certain tests to the work before pass-

ing it on as finished. Turn the detail top-for-bottom and see if the spacing looks as well, and if you see certain spaces of which you are in doubt, check them one by one and then replace the detail in a normal position and give these particular study. If your detail is done on tracing paper or upon paper which is translucent, it may be held against the window with the face of the paper toward the light thus reversing all the letters and enabling one to study the spacing without being conscious of the letters themselves, that is they lose their significance as letters and appear more as small masses or forms.

Another helpful test which takes a little more time is to blacken the letters and then place the detail in a vertical position and scrutinize it from across the room, or through a reducing lens which is a concave lens and when held about a foot from the eye has the opposite effect of a magnifying glass. They may be obtained of any dealer in optical goods for a small sum and are generally useful in studying designs and large drawings as well as for the purpose above mentioned.

In presenting the subject it may seem that the order should have been reversed, taking up the spacing of letters first and following that with the discussion of interlinear spacing and composition or arrangement in the panel, but the present order was adhered to because it is the order in which the actual work must be taken up. As when we build a house, we first consider the size of our lot, determine the size of the house and then

work out the location of rooms, windows and doors, so in the laying out of letters we must think first of the mass and get it into a reasonable proportion and then gradually work down to the smaller details.

No mention has been made of punctuation in connection with Classic letters. None need be as none should be used, unless such small triangular characters as are indicated in Fig. 16, 17, and 18. The period, comma, etc., are entirely out of place in a Classic inscription and should be avoided.

VIII

FULL SIZED DETAILS

A time honored story relates how an artist, when asked what he mixed his colors with, replied "With Brains." The moral of this fable may be aptly applied to the subject at hand. The writer is the proud possessor of a set of Alteneder's drafting instruments purchased some twenty years ago, which in that time have never required a single adjustment. When purchased, these instruments seemed to be very essential to successful designing and lettering but, while it is undeniably a pleasure to use any thing which is mechanically perfect, there is no reason why good workmanship cannot be produced with much inferior tools. Indeed the real study expended upon a lettering detail is often best done free hand without instruments of any sort, unless it be a straight edge for ruling the guide lines at top and bottom.

And so the beginner should bear in mind that his working tools are de-

cidedly of secondary consequence, being merely labor savers in effecting geometric descriptions enabling him to do accurately and without experimentation that which his preliminary study has determined to be the proper thing to be done. Don't draw your letters with T-square, triangle and compasses—draw them with brains, as the artist did, in mixing his colors.

A reasonable equipment for the detailer of letters which should meet the needs of the novice as well as the experienced draftsman, might consist of a drawing board not less than 42 inches by 30 inches of kiln dried white pine, if obtainable, a T-square 42 inches long, two triangles, one 30 and 60 degrees and the other 45 degrees, both about 12 inch size and the ordinary stock set of drafting instruments. The T-square will be found more convenient if provided with a celluloid edge enabling the draftsman to see the lines beneath, and the same applies to the triangles which may be obtained at a little extra cost made from celluloid instead of wood or rubber. The instruments should be purchased to meet the purse of the purchaser, though it will be found that the best are by far the cheapest in the long run. A really good set of instruments with occasional care will last a lifetime. The board should have its edges perfectly true and it may be found desirable to attempt to have them turned up at right angles, though this is hardly worth while as a board will tend to get out of true, under varying conditions of humidity and if one forms the habit of always using one's triangle for vertical lines

it may save inaccurate work which would result from relying upon a board which has "gone bad."

Do not expect the T-square to be in fact square, nor waste time trying to select one that is. Such an one will rarely be found and if it is square when purchased it is more than apt to get out of square with use, just as in the case of the board. So assume that your T-square is not square and never reverse it where accuracy in the work is essential. Treat the board and T-square as you would a strange fire-arm,—assume that it is "loaded."

An important consideration is the paper upon which the detail is to be made, and a medium weight manilla detail paper which will stand a considerable amount of erasure will be found to meet the average requirements for the original lay-out, which will, as a rule be subsequently traced upon a sheet of tracing paper. A much more economical method is to make the original detail upon the tracing paper, such as Keuffel & Esser's "Colonna," finally lining it in with a pencil of about 2H grade from which a blueprint may be made for use in the shop or to forward to the manufacturer, retaining the tracing for the dealer's file. This method has the advantage of insuring absolutely that copy and original are identical, it enables the dealer to conserve filing space, and the cost of the blueprint will be found to be much less than the cost of the draftsman's time required to trace the detail by hand. The only obstacle is that the beginner who would be apt to find more frequent

occasion to erase, the tracing paper has limitations in resisting the constant application of the rubber. On the other hand it may tend to deter him from making unnecessary mistakes and so develop accuracy in his work.

Plan your work and then work your plan. Even if you make three, four, six or a dozen small free hand sketches at about one-sixth full size before you draw a line on the sheet which is to receive the full size. Study these little sketches from every angle available, as the time saved by discovering in advance some condition which would have necessitated the re-drawing of even a single line of the full size—if it had not been discovered—will be far less than the entire time taken to prepare the six to a dozen one-sixth size sketches.

Assuming that the spacing of mass as well as the interlinear spaces have been worked out as described in chapter 4, the guide lines should be drawn determining the heights of the several lines of letters which comprise the record or records. The lines should be drawn very lightly indeed, not only because they are not a part of the finished detail, but because if heavily drawn they tend to confuse one in judging the effect of the letter forms and the relation of inter-letter spacing. They may well be drawn so indistinctly that it will not be necessary to erase them at all which will save time and avoid mussing the drawing when completed. The same applies to the center line which should be drawn vertically from top to bottom at the center from right to



Fig. 41. A TYPICAL FULL SIZE DETAIL FOR LETTERING.

FIG. 41. A TYPICAL FULL SIZE DETAIL FOR LETTERING.



left of the sheet. Its quite obvious use is to enable the draftsman to so terminate each line of letters that they will be centered on the sheet and later when they are cut in the stone.

A typical size detail is reproduced in Fig. 41 which shows the guide lines delicately drawn and the center lines, both vertical and horizontal, are well defined by dot-and-dash lines and identified by the character monogram "C-L." These lines, so indicated, on a full size detail are almost universally understood to mean that when these lines are made to coincide with similar center lines drawn on the stone surface to be lettered, the position of the lettering will be correctly determined, and when so shown the "Bottom Bed of Die" indicated below the lettering, would be superfluous.

Starting this detail shown in Fig. 41, the draftsman would usually count the letters in the line containing the greatest number of letters, in this case finding it to be eleven in the line "ELLEN LIPTON" and counting the space as a letter he would call the number twelve letters, and an approximate calculation would locate the center of the line immediately preceding the initial "L" of LIP-TON" and so locating it he would proceed to draw out the name. He would then measure off the distance from the center to the far side of the letter "N" and commence the initial "E" the same distance to the left of the center line. Vertical lines projected upward will enable him to space the first line "JOHN SMITH" of the same length if he so desires. Occasionally one finds a draftsman

who letters "backward" on the right hand side of the center line, for instance, he would commence with the "H" in the name "Smith," next drawing the "T," "I," "M" and "S" successively. There is absolutely no argument against this procedure and with a little practice one should be able to work with as much celerity as when drawing them in their ordinary sequence.

From the preliminary sketches it had been determined the two lower lines should compose as a tapering mass and the two lines at sixty degrees to the horizontal serve to determine their extremities, and for sake of uniformity the dates under the first name are made of the same length as the lower dates.

Now some critic may argue that "Ellen Lipton" is spaced too closely to correspond with her husband's record above, and that "His Wife" is spaced too widely to correspond with anything else on the sheet, especially in relation to the two dates, "1841-1907," immediately below. That certain lines are spaced more widely and others more closely is true—but that they are spaced too closely or too widely is purely a matter of taste and it would seem that the argument is all in favor of the varied spacing by which means we were able to accomplish a pleasing composition and at the same time relieve the lettering of any suggestion of having been laid out by "rule" or having come hot from the stereotype.

Fig. 42 illustrates a convenient method of fixing the proper angles for drawing such letters as the "A,"

"V," "W" and "X" without the bother of an extra triangle, which many draftsmen use. The very simple experiment of placing a lead pencil, a narrow rule, an eraser or anything that is handy and of the proper thick-

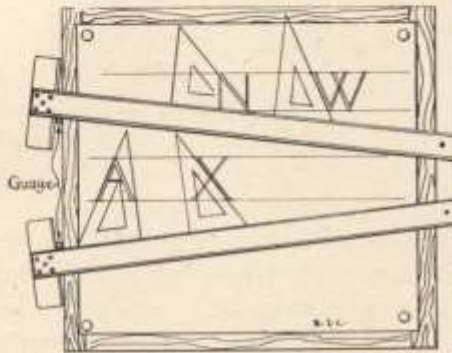


Figure 42

ness, between the edge of the drawing board and the head of the T-square will sufficiently alter the angle of the "thirty and sixty" triangle to enable the rapid outlining of such letters and various sized gauges are suggested for the drawing of a more or less condensed or extended letter.

The T-square as shown in the upper position when used in combination with the "forty-five triangle, gives the proper "slant" for the diagonal bar of the letter "N" when drawn at normal proportions. As in all other processes of draftsmanship care must be exercised to have the gauge always in the same relative position thereby insuring the same angle, for both sides of the same letter and for similar sides of similar letters, when it is intended to keep them similar. It will be noted that

in Fig. 41, the angle of the diagonal bar of the letter "N" in "John" is not the same as is the same bar of the "N" in Ellen." Such a variation is entirely permissible and one finds classic examples where the same letter occurring more than once in the same line—and even in the same word, is quite differently proportioned, and with excellent effect.

Fig. 43 shows the relation of the horizontal bar so placed that the top and bottom guide lines, midway between them—to certain letters. The letter "A," it will be noted has its horizontal bar so placed that the top line of it coincides with the center line. The letters "B" and "R" as well as the "P" form their loop so that its arc is a tangent to the top guide line and the center line. In the letters "E" and "F" the center line

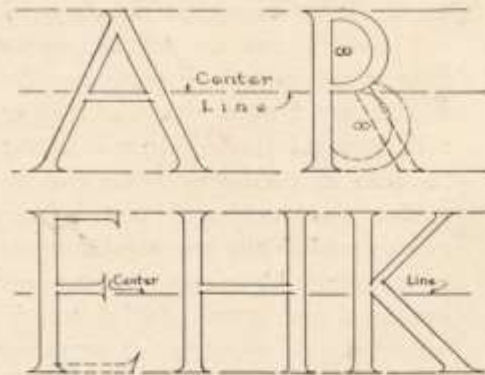


Figure 43

forms the lower edge of the horizontal bar, as it does also in the letter "H." The position of the center line with relation to the diagonals of the letter "K" are also indicated and this relation as well as the others mentioned above will be well kept in mind to facilitate the work of detailing.

The designer of letters does not need to know how to cut letters in the stone: indeed the most accomplished detailers are frequently men who never held a chisel, but they should, nevertheless, "know how" their letters are to be cut, and the closer the understanding between designer and cutter the better will be the results. Study the limitations under which the artisan must work. If, for any reason, the lettering will of necessity be cut by hand, the condition should be recognized in the designing, with a considerate avoidance of too small members which would only engender contempt on the part of the workman.

The pneumatic tool, while affording much finer execution than the hand hammer, also has its limitations, but makes possible the execution of such a detail as shown in Fig. 44, of which a cross section is shown in Fig. 45a. This letter is as expensive as a raised letter and while not often used, is excellent as regards legibility, and appreciated by clients of refined taste.

The recent and rapid development of the sand blast has opened up interesting possibilities and new opportunities for the student of decorative lettering. As regards the cross section, it is normally something like Fig. 45b. Obviously, the section "a" in the same illustration is impossible of accomplishment in a sand cut letter, but the latter is equally distinct and far less expensive. The surface of the sand section is not mechanically true or in plane as one would expect to see in a well cut letter by older methods, but the action of the

particles of sand leaves the surface in a semi-burnished condition, slightly darker than the hammered surface upon which it is cut, offering just enough contrast to insure good definition which means legibility, and legibility is the chief function of lettering.

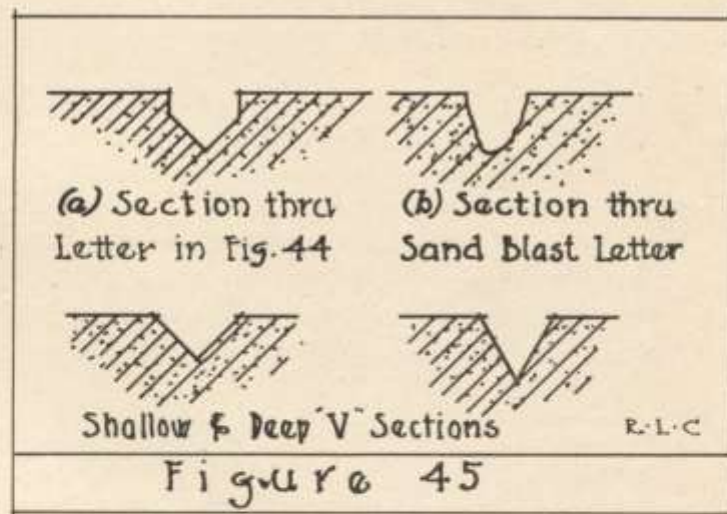
As mentioned in a previous chapter, the sand blast also makes it possible to execute a letter of much more delicate proportions than can be produced by hand or pneumatic hammer, and for details which the designer knows will be executed with the blast, he may take the delicate Renaissance forms as his models with entire confidence that they will be faithfully reproduced.

The successful designer of letters must study his own work before he lays it out, study it after he has laid it out, study the work after it has been cut upon the stone—noting any discrepancies—and if possible learning the reason for them—study the effect of various degrees and directions of light upon the letters, and meanwhile he should study carefully the work of others analyzing it for its virtue as well as for its faults.

The value of study is well demonstrated in the work of the architect, who designs lettering only occasionally as compared to the mortuary designers whose work is largely if not entirely that of lettering details, and yet for our best examples of contemporaneous lettering we must frequently turn to the fruitage of the architect, and for no other reason than because he studies. In the case of our better monumental designers, who



Fig. 44. AN INEXPENSIVE SUNK LETTER NOT OFTEN USED



also study their work we may find many examples which lose nothing by comparison with the work of the best architects. Nor should it be inferred that the lettering of architects is always good—not at all—some of it is mediocre—some even horrid, but as a matter of general averages the lettering on our monuments would take “second money.”

CLASSIC RAISED LETTER FORMS

In certain localities there is an insistent demand for raised letters many examples which lose nothing result of the interest in the Classic letter forms which Mr. Cook's article has aroused we have received requests for a typical alphabet, illustrating the Antique Roman or Classic letter adapted to a raised section. This alphabet is accordingly reproduced in Fig. 40.

PART FOUR

Army and Navy Emblems for Monumental Decoration

In the military memorials, both public and private, that will be erected to our soldiers of the present war, the emblems and insignia of rank will take indispensable place as decoration.

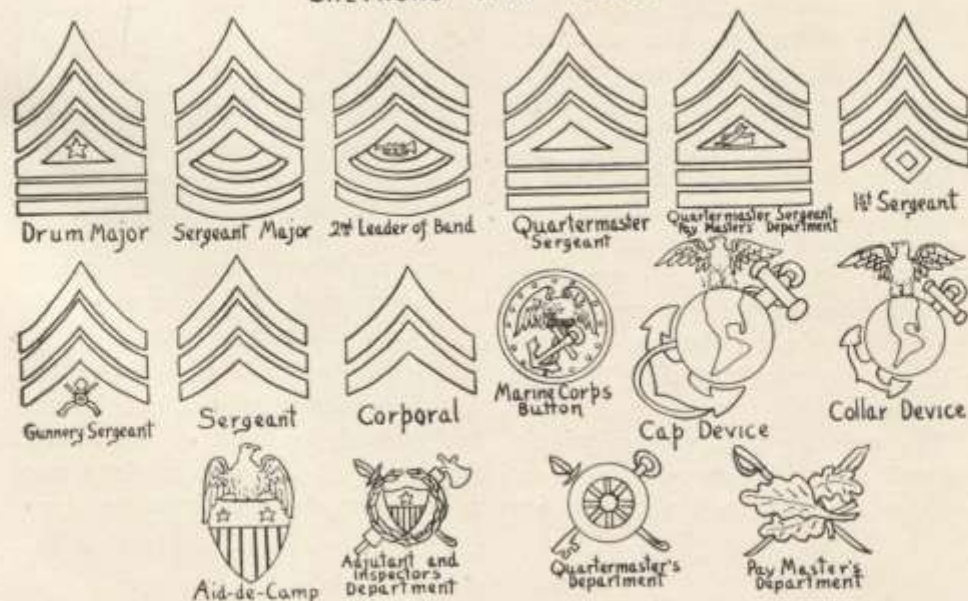
Many of these are so admirably suited to monumental decoration that their use, especially on private cemetery memorials to soldiers, is really essential to the achieving of something of symbolic significance.

Realizing the importance of these emblems to monumental decoration we here present to the trade for the first time correct drawings of practically all of the army emblems and insignia of rank. These were especi-

ally drawn for stone carving and will be found readily adapted to monumental use.

While the drawings are self explanatory, some additional details regarding some of them may be of value. The insignia of rank worn on the shoulder loops by commissioned officers, bear gold or silver emblems, the ornament on the narrow end in every case being the regulation bronze army button bearing the coat of arms of the United States. For all grades of generals the stars are of silver. The emblems for colonel and lieutenant colonel are of silver, and the oak leaf of the major is gold. The bars on captain's and first lieu-

U. S. MARINE CORPS CHEVRONS AND DEVICES



tendant's shoulder loops are silver and the single bar of the second lieutenant is gold.

The collar insignia illustrated are all of bronze, except that gold letters are superimposed over the bronze insignia, indicating the various corps of the medical department.

The hat cord is the most readily distinguishable indication of the branch of service, but as they differ only in color, no drawings of these can be given; the colors are as follows; General officers, all gold, field officers, gold and black; line officers, gold and black; reserve officers training camp, red, white and blue; infantry, light blue; artillery, scarlet; service school detachment green; cavalry yellow; engineer, scarlet and quartermaster corps, buff; ordnance, black and scarlet; signal corps, orange and white; medical department, maroon and white; staff departments, black; field clerk, silver and black; officers of voluntary training corps and reserve militia, gold and black; men of the volunteer training corps and reserve militia, blue and white; Y. M. C. A., steel blue.

The badge on the officer's garrison or service cap is a bronze representation of the coat of arms of the United States. Enlisted men are permitted to wear on the cap a disk one and one-half inches in diameter with a raised rim encircling the coat of arms.

The majority of the navy insignia of rank are of either gold or silver on blue. The shoulder marks for

line officers consist of gold stripes and stars on a blue badge of pointed shape. Officers above and including that of commodore have the entire epaulette of gold with stars and anchors of silver. The sleeve insignia of officers are practically all of gold.

Staff officers wear the same stripes as the line officers but not the stars.

The marks for the petty officers,



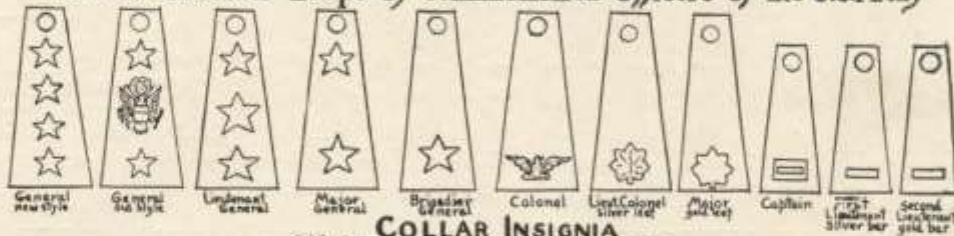
GENERAL EMBLEM FOR THE NAVY.

warrant officers and the specialty marks reproduced here are practically all self-explanatory.

There is no distinguishing emblem for the common seaman, but the general emblem for the navy, illustrated here, would be appropriate for a man of any branch or rank in the navy.

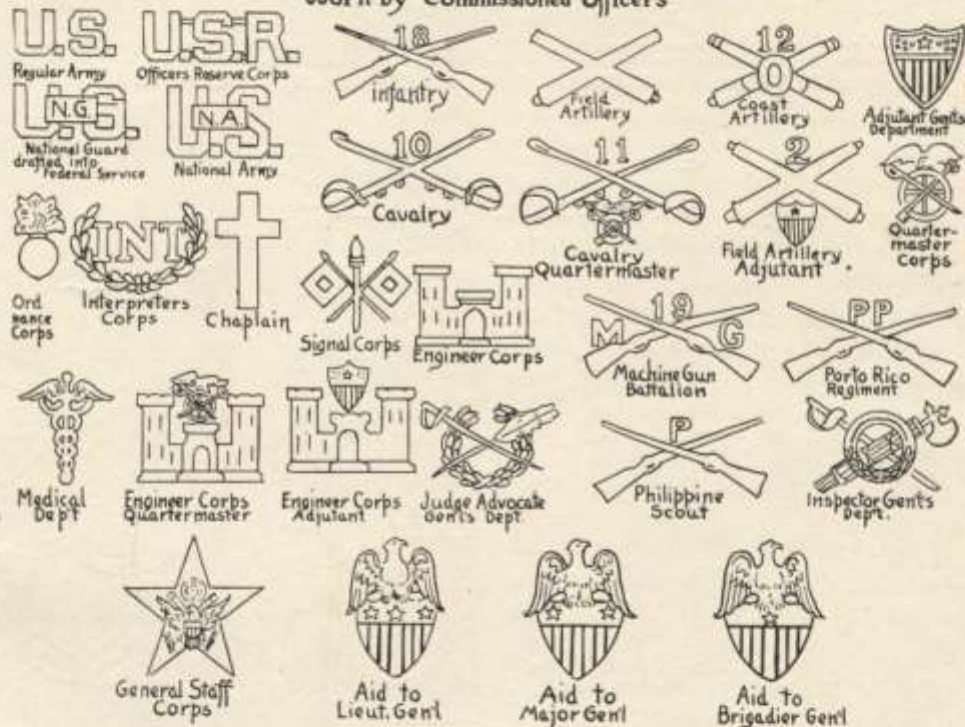
INSIGNIA OF RANK

Worn on Shoulder Loops by Commissioned Officers of the U.S. Army



COLLAR INSIGNIA

Worn by Commissioned Officers



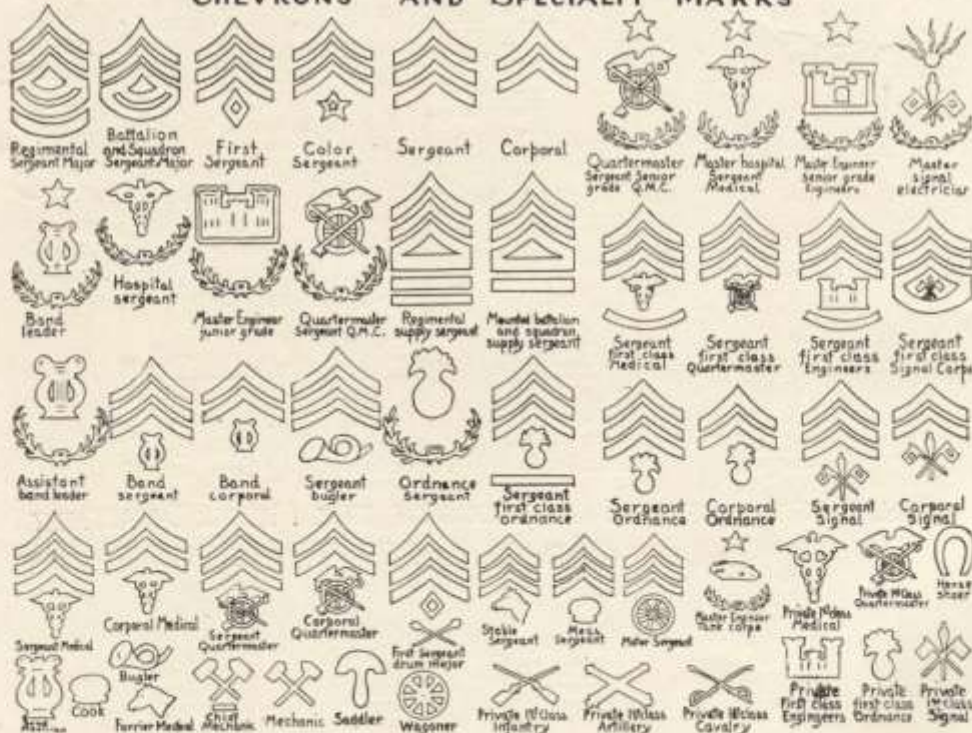
COLLAR INSIGNIA OF THE SUBDIVISIONS OF THE MEDICAL DEPARTMENT



INSIGNIA OF THE VARIOUS RANKS AND BRANCHES OF THE ARMY.

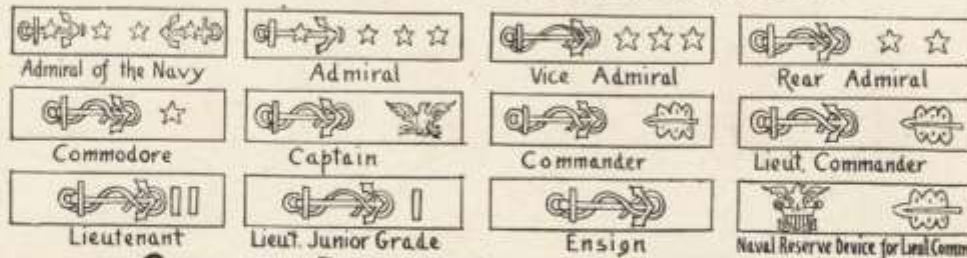


CHEVRONS AND SPECIALTY MARKS

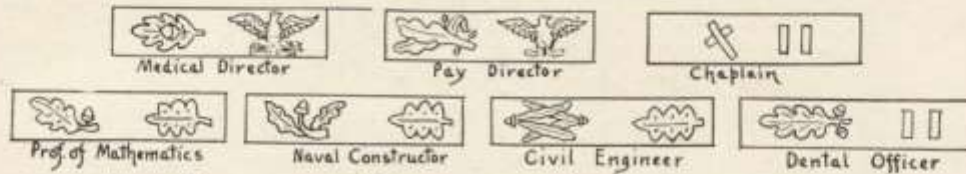


INSIGNIA OF THE RANK AND OF THE VARIOUS BRANCHES OF THE ARMY.

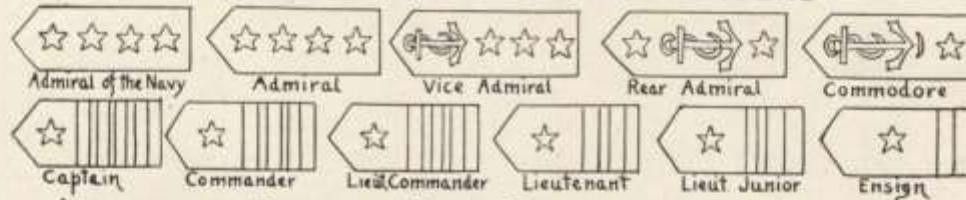
COLLAR DEVICES FOR LINE OFFICERS



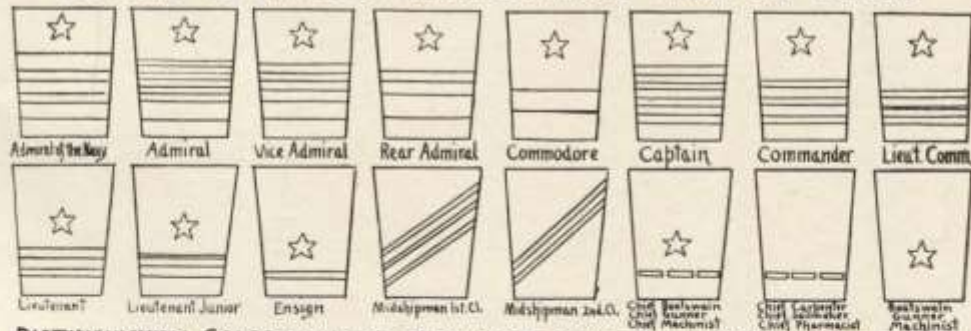
COLLAR DEVICES FOR STAFF OFFICERS



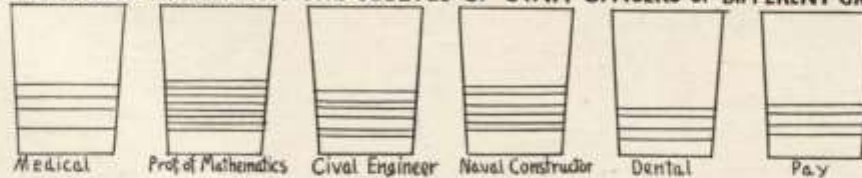
SHOULDER MARKS FOR LINE OFFICERS



INSIGNIA OF RANK OF NAVAL OFFICERS WORN ON SLEEVE



DISTINGUISHING COLORS ON THE SLEEVES OF STAFF OFFICERS OF DIFFERENT GRADES



INSIGNIA OF RANK AND BRANCHES OF SERVICE IN UNITED STATES NAVY

BLUE RATING BADGES

Chief
Master-at-ArmsBoatswain's Mate
First ClassGunners Mate
Second ClassQuartermaster
Third Class

COLLAR DEVICES FOR WARRANT OFFICERS



Chief Boatswain



Chief Gunner



Chief Machinist



Chief Carpenter



Chief Sailmaker



Chief Pharmacist



Chief Pay Clerk

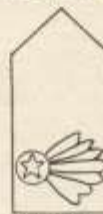


Mate

SHOULDER MARKS FOR WARRANT OFFICERS AND MATES



Chief Gunner



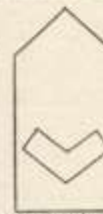
Gunner



Chief Boatswain



Boatswain



Carpenter

Warrant
Machinist

Mate



Pay Clerk

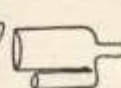
SPECIALTY MARKS

Master at
ArmsBoatswain's Mates
Coxswains

Quartermasters

Blacksmiths
Ship FittersSailmaker's
Mates

Printers

Carpenters Mates
Plumbers and
Fitters PaintersTurret
CaptainsGunners
Mates

Storekeeper

Yeoman and
Chief Yeoman

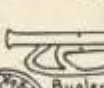
Electricians

Machinists Mates
Boilermakers
Water Tenders
Copper Smiths
OilersHospital
Corps

Musicians

Commissary
Stewards

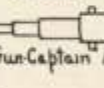
SPECIALTY AND DISTINGUISHING MARKS

Ships
Cooks
Bakers

Buglers



Torpedo Gunner



Gun-Captain Mark

Gun Painter
MarkGun Painter
Mark

Radio Operator

Navy
E for
high seas

INSIGNIA OF RANK AND OF BRANCHES OF SERVICE IN UNITED STATES NAVY.

CHEVRONS AND SPECIALTY MARKS COAST ARTILLERY



COLLAR INSIGNIA WORN BY ENLISTED MEN



CANADIAN ARMY EMBLEMS



PRINCESS PATRICIA'S
CANADIAN LIGHT INFANTRY



CANADIAN ENGINEERS

48TH RGT. HIGHLANDERS

THE ROYAL CANADIAN ARTILLERY



BADGE OF THE CANADIAN FIELD ARTILLERY



CANADIAN ARMY MEDICAL CORPS



CANADIAN ARMY SERVICE CORPS

ROYAL FLYING CORPS
SUPERSEDED BY THE ROYAL AIR FORCE

ROYAL AIR FORCE

NOTE: The S.E.D. is an ALBERTA CROSS



ROYAL CANADIAN DRAGOONS

PART FIVE

Special Alphabets

For Special Uses

A B C D E F G H I
J K L M N O P Q
R S T U V W X Y Z
1 2 3 4 5 6 7
8 9 0

ROMAN OR "COLONIAL" ALPHABET BY J. W. WYCKOFF.
THESE LETTERS FROM THE SIXTEENTH CENTURY ROMAN WERE MOST USED
ON COLONIAL STONES.

A B C D E F G H I J
K L M N O P Q R S
T U V W X Y Z

ALPHABET FOR ORNAMENTAL USE.

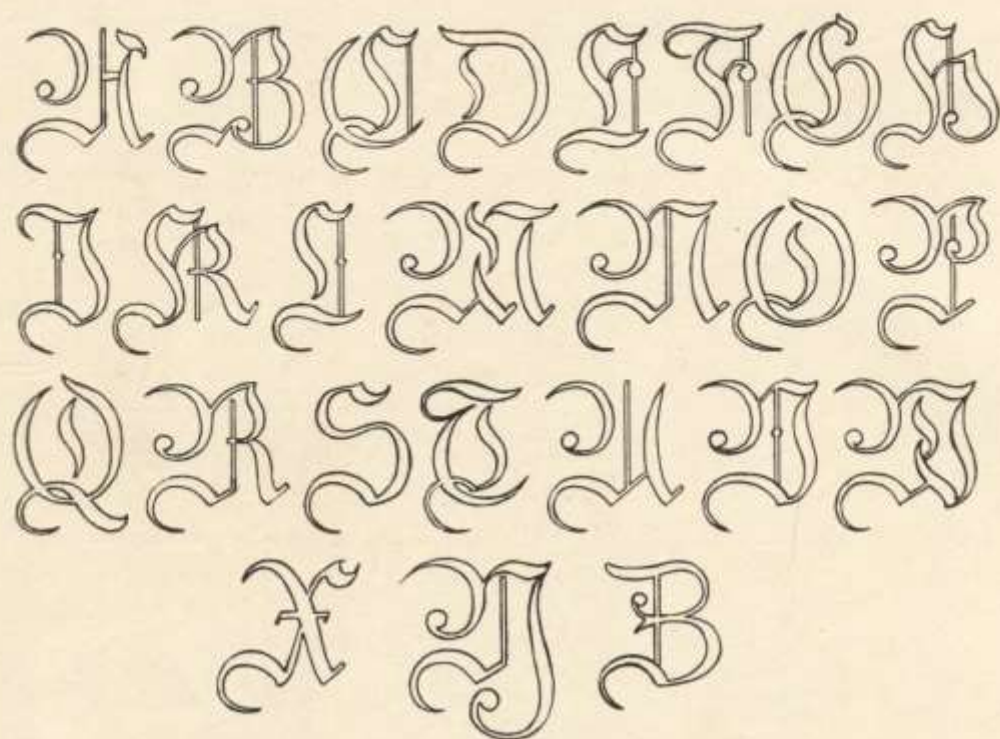
A B C D E F G H I
J K L M N O P Q
R S T U V X Y Z

FRENCH ANTIQUE LETTERS.

A B C D E F G H I
J K L M N O P Q R
S T U V W X Y Z.
1 2 3 4 5 6 7 8 9 0.

ORNAMENTAL ALPHABET FOR SPECIAL USE.

W. DUFF,
Barre Vt.



ALPHABET OF GERMAN LETTERS.



GERMAN OUTLINE LETTERS.

A B C D E F G H I K
L M N O P Q R S
T U V W X Y Z &
a b c d e f g h i j k l m n o
p q r s t u v w x y z.

GERMAN TEXT.

A B C D E F G H I K L
M N O P Q R S T U V
W X Y Z & \$ 1 2 3 4
5 6 7 8 9 0 . , ; : ! ?
a b c d e f g h i j k l m n
o p q r s t u v w x y z
ß ð ä ö ü

GERMAN ALPHABET FORMS.

A B C D E F G H
 I K L M N O P Q
 R S T U V W X Y Z

a b c d e f g h i k l m n o
 p q r s t u v w x y z.
 1 2 3 4 5 6 7 8 9 0

A B C D E F G
H I K L M N O
P Q R S T U V
W X Y Z. &
a b c d e f g h i j k l
m n o p q r s t u v w z

OLD ENGLISH ALPHABET

A B C D E f G H I K
 L M N O P Q R S T
 U V W X Y Z Z

[a b c d e f g h i k l m n o p q r s]
 [t u v w x y z]
 [1 2 3 4 5 6 7 8 9 0.]

ANOTHER OLD ENGLISH LETTER.

A B C D E F G H I K
L M N O P Q R S T
U V W X Y Z. &c.
a b c d e f g h i j k l m n o
p q r s t u v w x y z.

LIGHTER OLD ENGLISH ALPHABET.

A B C D E F G H I J K L M N O P
Q R S T U V W X Y Z & . , ; ! ?
a b c d e f g h i j k l m n o p q r
s t u v w x y z 1 2 3 4 5 6 7 8 9 0

OLD STYLE ORNAMENT.

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z.

a b c d e f g h i j k l m n o p
q r s t u v w x y z. 1 2 3 4 5 6 7 8 9

LIGHT FACE ITALIC LETTERS.

A B C D E F G H
I J K L M N O P
Q R S T U V W X
Y Z

ALPHABET OF SCRIPT LETTERS.

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

a b c d e f g h i j k l m n o p q
r s t u v w x y z
1 2 3 4 5 6 7 8 9 0

ITALIC ALPHABET.

A B C D E F G H I J
K L M N O P Q R S
T U V W X Y Z & . , ; ! ?
a b c d e f g h i j k l m
n o p q r s t u v w x y z
1 2 3 4 5 6 7 8 9 0

SQUARE BLOCK LETTERS.

A B C D E F G H I J
 K L M N O P Q R S
 T U V W X Y Z.

RUSTIC LETTERS.

א ב ג ד ה ו ז ח ט י כ ל מ נ
 ס פ צ ק ר ש ת ז ט י כ ל מ נ
 FINIAL LETTERS

EXTENDED LETTERS

א ב ג ד ה ו ז ח ט י כ ל מ נ
 א·Β·Γ·Δ·Ε·Ζ·Η·Θ·Ι·Κ·Λ·Μ·Ν·Ξ·Ο
 Π·Ρ·Σ·Τ·Υ·Φ·Χ·Ψ·Ω·Ω·
 α·β·γ·δ·ε·ζ·η·θ·ι·κ·λ·μ·ν·ξ·ο

UPPER ALPHABET, HEBREW; LOWER, GREEK.

PART SIX

Miscellaneous Hints and Helps

TWO MECHANICAL SHORT-CUTS

Here are two "wrinkles" in lettering which I saw a letter cutter use recently and which seemed so ingenious and yet simple that I thought it should be passed on for the benefit of others.

The first, Fig. 1, is a small tool to ensure absolute accuracy in the width of the upright or horizontal bars of letters. It consists of a piece of copper wire, such as may be obtained from the core of an electric cable, some three-sixteenths of an inch in diameter, split and pointed at each end.

The double points may be adjusted to suit the particular size of letter or

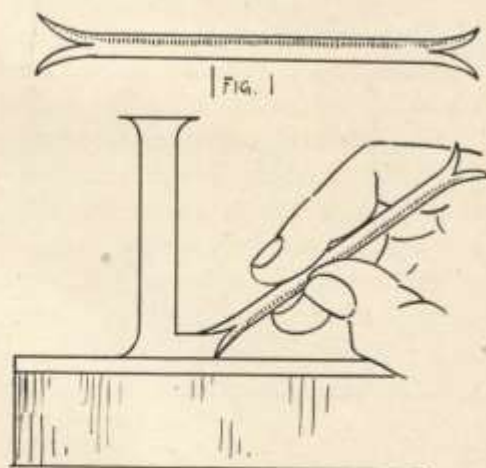


FIG. 2.

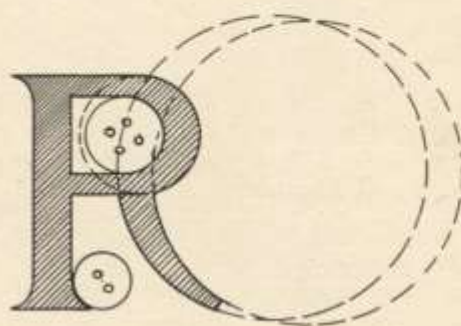


FIG. 3.

what is better, a stock of several sizes may be kept on hand.

This tool is used only on polished work, the face of which has been coated with whiting as usual. It is obvious that if the lines are drawn on the white coating as shown in fig. 2, they will be perfectly parallel and of uniform width. For classic letters one end of the tool is adjusted for the wide bars and the other for the narrow ones.

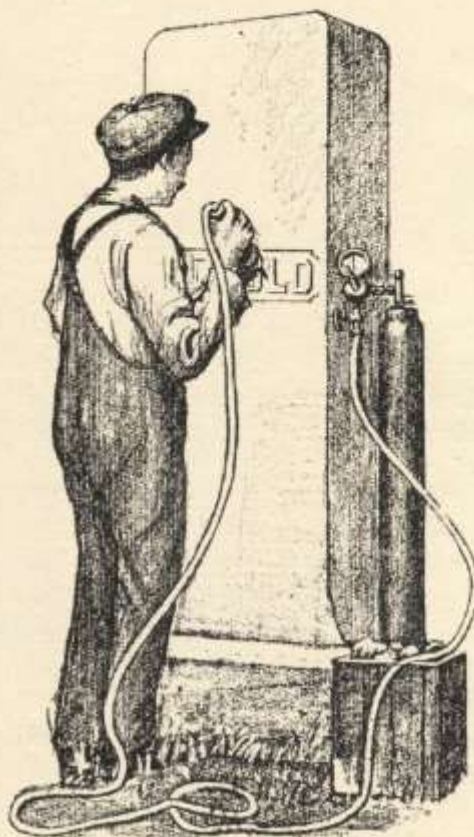
The other wrinkle, which may be used in conjunction with the first one, consists of a number of circular discs or even buttons whereby circles or arcs may be drawn accurately. These are used in finishing the curves and half circles in the letters "R," "U" etc. They are used as shown in fig. 3.

A. S. HILL

PREPARING STONE FOR INSCRIPTION

When preparing the polished surface of a monument for penciling an inscription it is the usual custom of the letter cutter to cover the face of stone with a thin coat of plaster of paris. This, when set, is at times a little difficult to remove and the following method will be found more convenient.

Procure from the drug store some powdered Dextrine and dissolve a quantity of it in water until the solution is about the same consistency as ordinary mucilage. Pour a little of this on the face of the stone and rub it over the part to be lettered with the palm of the hand. Now shake on some powdered whiting and again rub it over with the hand. The result will be, when dry, a fine, white surface, which takes pencil well and is easily removed with a wet rag when the letters are struck in.



PORTABLE TANK FOR CEME- TERY LETTERING

Richard A. Swanson of Denver has used the carbonic acid gas tank very successfully for small jobs of cemetery lettering, and we show here a picture of his outfit in operation.

These tanks are the same as used to charge soda water or orce beer. They are charged with 1,500 pounds pressure when full and can be secured in 20-pound or 50-pound size, viz., the contents, liquid carbonic acid gas, weighs that much. They can be secured from any company manufacturing carbonic acid gas. Information

as to the nearest supply house can be had from druggists running soda fountains.

A pressure regulator is necessary and is attached next to the tank, as shown. The hose is attached to the lower end of this. Loosen the valve of the regulator as far as possible, then close the valve leading to the hose. Turn on gas at top of tank with key which accompanies the tank, opening it as far as key can be turned, then tighten regulator by turning the key to the right until the gauge shows the amount of pressure desired, usually about 60 pounds, although this can

be regulated as required. Attach pneumatic tools and turn on gas by valve at bottom of regulator.

These tanks are convenient for cemetery jobs, trimming and lettering and can be taken in an auto or buggy and handled by one man. They would be too expensive in a shop for continuous use. The tank should be in moderate temperature, but never left in the heat of the sun. By continuous use they will show frost and even freeze, but a few minutes' "let-up" will thaw them for a continuance. Drums vary in price in different localities; 20 pounds usually cost about \$2.50 to \$2.60. Drums are returned to manufacturers when empty; 20 pounds usually last from 3 to 6 hours.

DIAMOND PENCIL FOR LETTERING

Arthur Berliner, Forest Park, Ill., gives the following information about the use of the diamond pencil: "Apply the whitening and lay out the inscription in the usual manner; then place the straight edge across the top of the letters and lay weights on it to hold the straight edge in place. Then proceed with the diamond pencil to scratch in the vertical and horizontal lines, using the square to insure getting all the lines straight. Hold the pencil with the wire side up. The curves in the letters can be cut in chisel. Rub off the whitening and the lines of the letters and tracing will be found distinctly cut in the polished face of the stone ready for finishing."

CUTTING A DRAFT

The fault of many workmen when cutting a draft is the lack of preliminary work before the actual cutting, and the holding of the chisel in the wrong position. Granite, which is very brittle, must first be chipped very evenly and sharply. This is accomplished by one man holding a straight edge against the granite, with the top edge at the proper place. Another man with hand hammer and sharp chisel chips along the straight edge. The first time over one does



RIGHT AND WRONG WAY TO HOLD A
CHISEL WHEN CUTTING A DRAFT.

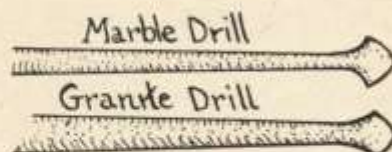
not have to be so certain and the chips not so sharp, but a sharp, thin chisel is required to chip the line close and even. When the line is chipped, do not hold your chisel against the granite and cut as illustrated in No. 1, because the edge of the chisel will at once make the granite cut and break off the wrong way and the edge will be come rough and with chips out at different places. The safe way is shown in No. 2. Hold the chisel so it will cut in at all times. This causes the granite to break ahead of the tool inward and a smooth edge will be the result.

Foreman.

DRILLS FOR CARVING

Some granite and marble carvers utilize more time than is necessary when carving because they do not use proper tools. The right kind of tools help to carve properly as well as rapidly. After the rough has been taken away and the form of the decoration is being worked out, one must change his chisels from wide blunt ones to narrow sharp ones, also introducing different sizes of drills. Drilling out the waste between the forms is the safest and fastest process. There is not much danger of lifting off a part of the necessary form because numerous drilled holes leave a honeycomb effect which is very substantial.

After repeated drillings, you then use small, sharp, plain chisels to cut away the remaining part. It is advisable to cut and clean each part as the carving proceeds and by cutting in relief places be sure to leave some drill effect, which will act as a sort of bridge which keeps the parts solid. Oftimes when there is danger of a breakage, one can introduce a small piece of wood—a match, for instance



—that has been cut the required length, and with a small bit of plaster of paris on each end, it is then inserted into the cavity, which makes a solid foundation to work on. To remove the wedge, do not hammer off,

because a jar might loosen some part of the decoration, but cut through the wood with a knife. Each end is removed by scraping with a chisel held in the hand, but not by a hammer.

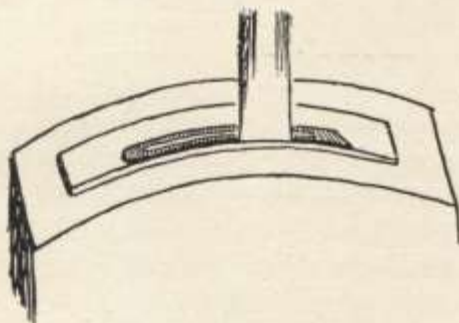
Drills for use in a pneumatic hammer are similar for both marble and granite; only the marble drill has more flare than the one for granite, as shown in the illustration. A workman must have a variety of sizes of drills from one inch down to one-eighth inch, and several of each size. Never try to drill with one that is dull, for the result will be very slow progress and often breaking off of parts.

FILLING HOLES IN GRANITE LETTERS

A good quick, substantial way to get the effect of color in filling holes in granite letters is accomplished in this manner: Use white lead and lead pencil dust. Sharpen a pencil with a long point and scrape the point into dust on some smooth surface. Add the black dust to some white lead and use a knife blade for a palette. The proper color can readily be determined by taking a small quantity on a knife blade and holding close to the granite to see if too light or too dark. If too dark add more white lead, and if too light, add more black lead. This operation is quickly accomplished, and the proper color is easy to get. The white lead will, when dry, stick to the granite and become hard, and the mended place will not be seen. The end of a raised letter may be filled in this manner with success.

LETTERING ROUND TOP MARKERS

It is difficult to chip granite letters on a round top marker when using a stiff, straight edge, because this cannot be held closely against the surface of the stone, and when you do not hold the straight edge very solid the result is always an uneven line. If the blade of a level square or a thin straightedge piece of sheet iron is used for that purpose, the result of chipping is more satisfactory. The thin iron can be bent into the same circular form as the top of the stone



CHIPPING A LETTER BAND, USING A BEVEL SQUARE BLADE FOR A GUIDE.

and held closely down against it. One man must hold the level square firmly while another chips the edges with a chisel. Both men must watch the edge at all times, so that a straight, even line can be chipped.

HOW TO CUT MITRES

A great mistake in letter cutting is the unevenness of the mitres of such letters as the M and W. The correct way to cut them is to have both on the same horizontal line. These mitres do not show as plainly on light granite and marble as they

do on dark stone where the contrast of the polished surface and the cut letter is very great. Even traced letters like those we see on red granites, show this mistake more than any other cut letter for the reason that there is more contrast between the polished letter if raised or the white of a cut sunk letter on this kind of granite. All letters cut on marble or granite thus should be watched and be cut correctly.

SHADING TRACED WORK

The shading of tracing on Quincy, Missouri, Montello and other granites of similar nature and also marble of dark color to give the effect of bas-relief is accomplished by first cutting a true outline and to give the proper effect they must appear raised. Use a small piece of coarse carborundum which has a sharp edge and scratch evenly on all places that require a shadow or half tone; always use a dry piece to insure good scratching, for when wet it dampens the stone and makes the lines too dim to work to any advantage.

TEMPERING LETTERING CHISELS

The best way to temper lettering chisels for granite is never to heat the tool over a cherry red, and in drawing it, do all the hammering you do on the edge. When you start to draw the steel; then draw the flat side of the tool to the thickness you wish it, then heat it till it is just turning red and stick it into a raw potato three quarters of an inch. Hold it in tight 6 to 7 seconds and draw it

out of the potato and chuck it into your cooling water. When cool, it is ready to grind. Wm. Benson.

TURPENTINE AND SUBSTITUTES

The statement has been made that the fumes of turpentine are injurious. These fumes are not injurious, and on the other hand are really beneficial. One of the favorite remedies for cold and sore throat in the South, the home of the pine tree, is to breathe the fumes which arise from steaming water into which turpentine has been poured. Turpentine taken internally has certain curative properties recognized by physicians everywhere.

For one who wishes a substitute for turpentine, in certain districts they use coal oil or lamp oil the same as turpentine with a small brush wetting 4 or 5 letters ahead of one's work. The odor is not quite so offensive. It does not dry out so quickly while cutting, has the same effect as turpentine and is perfectly harmless when used moderately as you would use turpentine.

Another substitute for turpentine recommended is the following: one-half pint common lamp oil, half pint of turpentine. This does not have the disagreeable odor, and is much better in warm weather, as it does not dry so quickly and has more chance to penetrate.

LEADED LETTERING FOR MONUMENTAL WORK

It is interesting to observe how, in America, certain styles or modes of lettering have been adopted, in spite

of the fact that foreign influences have been brought to bear which one would think would be strong enough to turn the tide of fashion in their favor.

That such a turn does not occur is probably a token that the country prefers to assert its own individuality and calmly goes in its own groove, for better or worse, as the case may be.

Although it may not have occurred to everyone, the custom of placing the family name prominently on the face of the monument, in the place usually set aside for the inscription, is peculiarly American, and until recent years it was unusual in Europe to display the family name prominently on the monument at all. Even now, while the name is often made larger, it is usual to confine it to the base or elsewhere so that it will in no way interfere with the space for inscription, which is always cut on the monument itself.

In considering the evolution of the present day monument, one is forced to the conclusion that after all, the panelled portion of the monument, usually on the face of the die, is intended to contain a record of the interments in the adjacent graves.

Owing to the high cost of land, it is customary in European cemeteries to make several interments in one grave, and if a separate marker were to be placed on the grave for every interment, the result would be ludicrous in the extreme. Consequently the use of the panel for the inscription is imperative.

Over there the letters of the inscription are very seldom left with a

tool finish only, but are usually painted, gilded or filled with lead.

Little can be said in favor of the painting or gilding. The smaller size of the letters used is the only justification for this class of work, but the leaded letter, carefully handled and artistically considered, may be used to great advantage, giving, as it does, extreme legibility with a complete absence of any garish effect.

The practice of leading letters seems to be little known in the States, and perhaps it would not be amiss to explain just how this is accomplished.

In the first place, let it be said that to lead letters on any polished surface as dark as, or darker than, that of Barre granite, would simply be a waste of effort, as the resulting inscription would be almost illegible. But on the fine axed surface of any light granite or on a light polished surface like that of Balfour Pink, the effect would be very good indeed.

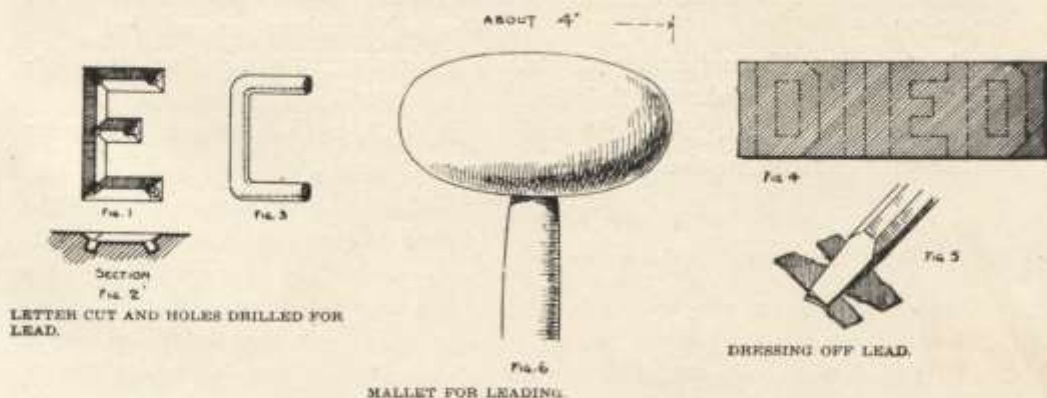
It is necessary to draw out the lettering very carefully as by this process the inscription becomes much more prominent and any carelessly formed letters or bad spacing will be more readily noticed than in an inscription that is cut only.

The letters should be kept fairly small in size and light as to width of stem. A well drawn classic letter would perhaps lend itself best for this purpose, but care would have to be taken that the slender parts of the letters were not too fine, as in that case the lead would be apt to become loose, with disastrous results.

In making a leaded letter it is customary to cut the letters in the usual V sunk manner as in Fig 1. At each corner and in the center of each bar or curve a little hole is then to be drilled, sloping these holes away from each other in an outward direction so as to form a key to hold the lead in place.

The lead is not to be run into the letter in a molten form, but should be hammered in dry. In some localities it is customary to use lead wire for the purpose. This may vary in thickness from one-eighth to a quarter inch diameter, according to the size of the lettering, but for a letter with stem one-quarter inch wide probably three-sixteenths inch lead would answer.

The lead wire may be bent roughly to the shape of the letter, as in Fig. 3, and hammered in until the letter



is filled up fair and level. Where much lead lettering is done it is customary to use a vulcanite mallet for this purpose, of the form shown in Fig. 6. This, however, is not absolutely essential, and a metallic mallet with a slightly rounded face can be used, provided care is taken not to stun the surface of the granite around the letters.

After the lead has been beaten in, the edges of the letter will require to be trimmed with the chisel in order that a crisp, clean-cut effect may be obtained.

Sheet lead about one-eighth inch thick may be used in place of lead wire. A strip of lead, corresponding in width to the height of the letters, may be laid along the line as shown in Fig. 4, or each letter may be treated individually. When the lead is hammered in the outline of the letters will appear faintly on the surface. The lead can then be dressed off with the chisel and finished as before. Fig. 5.

By using somewhat heavier sheet lead the letters may be slightly raised above the surface. This adds greatly to their appearance and the result is much better than in the case of the flush letter.

In the case of letters on a polished surface, part of the labor of finishing can be dispensed with. After the lead has been hammered in, the superfluous

metal may be pared off with a broad carpenter's chisel or a plane iron, giving a level surface with a minimum amount of trouble.

The greatest objection to this process is that it leaves the letters with a gloss surface. This will darken in time through exposure to the atmosphere. Often the surface of the letters is painted black, but in time the paint will flake off and this plan is not to be recommended.

Ornament in leaded outline work can be carried out with fine and unusual effect. Some notable examples of this class of work are in existence.

Like every other form of ornamentation, leading may be abused, and it should not be used indiscriminately. When, however, legibility is the first desideratum, then by all means use lead. A lead letter rightly made is practically imperishable.

Over in Scotland we thought we had something new in this lead lettering. Imagine our surprise then when our works superintendent, who was something of a Biblical scholar, turned up for us Job 19, 23rd verse, and read as follows:

"Oh that my words were now written!
Oh that they were inscribed in a book!
That with an iron pen and lead
They were graven in the rock forever."

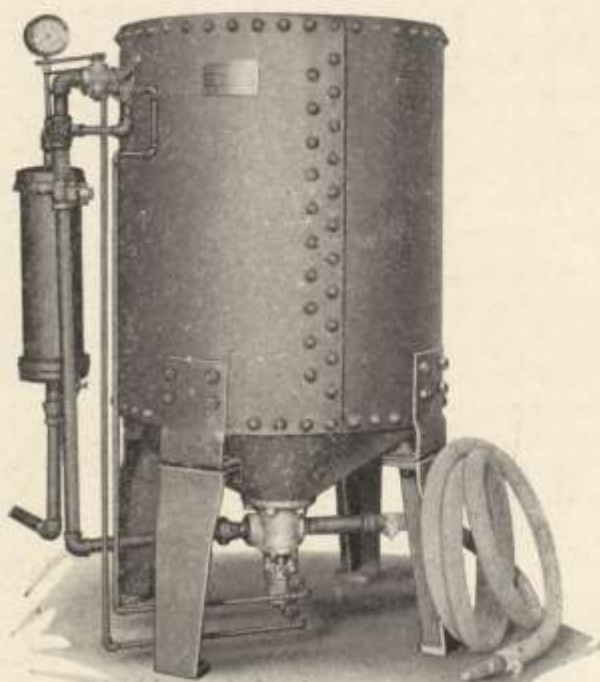
Truly, there is nothing new under the sun.

Advertisers' Reference Section

Containing Advertisements of the
Following Firms:

	Page
American Air Compressor Works....	174
Anderson-Friberg Co.	167
Barclay Brothers	160
Bowers, R. C. Granite Co.	169
Capitol Granite Co.	174
Cemetery Hand Book	165
Dallett, Thos. H. Co.	169
Daprato Statuary Co.	171
Detroit Mausoleum Equipment Works.	170
Heckelmann, Henry, Inc.	166
Highton, Wm. & Sons Co.	167
Jenkins, J. H. & Son	170
Knox, R. B.	171
Lebel Triangle Co.	172
Monument Dealers' Manual	164
Mott Sand Blast Mfg. Co.	158
National Granite & Pol. Co.	173
Perry Bros.	161
Pike River Granite Co.	166
Presbrey-Leland Co.	172
Reid, J. F. & Co.	168
Rembrandt Photo Studio	172
Rusk, Duncan	173
Rutland Marble Mfg. Co.	174
Saporiti, J. P. & Co.	174
Simmers, A. M. & Sons	162
South Barre Granite Co.	163
Thompson, E. M.	173
Trow & Holden Co.	168
Union Granite Co.	173
United States Silica Co.	159

The Power Behind the Sand



The Simplicity in Operation, as well as in construction; together with the efficiency obtained from the **Mott Direct Pressure Hose Machine** has proven a very valuable asset to the Monumental and Granite Trade.

Special attention is directed to the fact that all sand and air controls are placed on the outside of the sand blast machine within easy reach for the operator. No valves or moving parts on the inside of the machine.

Machines can be operated under various pressures ranging from 10 lbs., to 100 lbs.

Full information covering your requirements will be gladly furnished upon request.

Do not fail to write for Bulletin No. 86.

Mott Sand Blast Manufacturing Co.

24 to 30 South Clinton Street
Chicago, Illinois

2-4-6-8 Frost Street
Brooklyn, N. Y.

MODERN LETTERING

with the sand blast machine demands the highest grade of material

Ordinary bank sand or sea sand will not cut with the clean, uniform effect given by using



the specialized abrasive for fine lettering and carving.

Used by such firms as Chas. G. Blake & Co., Chicago, Schricker Marble & Granite Co., Davenport, Ia.; Foley Bros. Co., Olean, N. Y.; Cross Bros. Co., Northfield, Vt.; Koontz & Woodruff, Greensburg, Pa.; Kimball Bros., Lincoln, Neb.

**Recommended by the owners
of the Scantlebury Process**

Ask for circulars telling why "Flint Shot" is ideal for sand blast lettering.

United States Silica Company
1941 Peoples Gas Building
Chicago

BARCLAY BROTHERS



GOOD work and good service in monument making result from ample facilities and adequate experience. We have facilities to cover every need, and an experience--for over a third of a century--long and varied enough to enable us to utilize our aptitude to its fullest extent. The confidence of our many customers in our ability to serve them is our highest recommendation, and the best guarantee of our capacity to give all who trade with us continued satisfaction.

BARRE
VERMONT

PERRY BROS.
CONCORD, N. H.

QUARRY
OPERATORS



MANUFACTURERS
POLISHERS DESIGNERS
ROUGH STOCK MONUMENTS
MAUSOLEUMS BASES

A CARLOAD OF ROUGH STOCK
OR A CARLOAD OF BASES CAN BE
FURNISHED ON SHORT NOTICE

OUR FINE BLUE STOCK IS THE HARDEST, BLUEST
AND BEST QUARRIED IN CONCORD, N. H. GENUINE
BLUE WESTERLY MATCHES UP WELL WITH IT



Modern Equipment Best Service

OUR new plant is equipped to give real service. It is 166 feet long, 40 feet wide, and constructed of poured concrete on the most modern engineering lines possible; properly lighted, heated, and ventilated. Our machinery is all new and installed on the Unit System, from hand tools to Electric Crane thoroughly up-to-date labor-saving.

"Rose Red" or Gray St. Cloud

We are equipped to give prompt and efficient service and the needs of the trade for Red or Gray St. Cloud will be promptly taken care of. Try us for the best there is in stock, service, or equipment.

A. M. Simmers & Sons St. Cloud, Minn.

Highest Quality Craftsmanship In Barre Granite Memorials



HEN you want to be assured of the most skillful execution of your best work, whether carved, hammered or polished, you are safe in trusting it to a manufacturer who has produced the highest class of craftsmanship. This beautiful memorial executed by us and erected in Barre, Vt., is evidence of our ability to satisfy the most critical.

B. M. & V. Stock used in all of our polished work.

South Barre Granite Co., Inc. Barre, Vt.

Have You Ordered Your Copy of

"The Monument Dealers Manual"

"The Monument Man's Encyclopedia"

The Trade's first handy hand-book of ready reference on innumerable subjects pertaining to Monuments. Your library is not complete without one of these Reference Books on Monumental Art and Construction, the most useful book ever published for the Monument Craft.

A MINE OF MONUMENTAL FACTS

A thirty years' collection of the facts and methods that the monument man wants for every-day use. The answers to your vexing problems are here given from the other man's experience.

Practical accurate advice from other monument men and experts in this field on such subjects as these:

How to Remove Tool Marks from Granite
 How to Use the Air Brush
 Installing an Air Compressor
 Glossary of Architectural Terms
 How to Make a Combination Truck and Banker
 How to Gild Letters
 Care and Cleaning of Bronze
 Removing Stains From Bronze
 Cleaning and Preserving Old Monuments
 Crushing Strengths of Monumental Granites
 Crosses, Meaning of Various Forms Of
 Handy Way to Set Curbing
 Cemetery Lettering With Carbonic Gas Tank

Hundreds of practical articles on practical subjects like these are indexed for ready reference so you can find them when you want them.

This permanent reference book should have a place in every monument man's library; every shop, every office, every salesman, every designer, every workman needs one; handsomely and strongly bound in flexible covers; over two hundred special illustrations; two hundred pages.

PRICE Special Save a Dollar Offer: Send \$7.00
\$5.00 and "Monumental News" and "Monument
 Cash With Order Dealer's Manual;" regular price, \$8.00, will
 be sent you, as a special combination offer.

Monumental News, 536 S. Clark St., Chicago

Your Library is Not Complete without a Copy of
"The Cemetery Hand Book"

The First Encyclopedia of the Cemetery Field. A complete manual of useful and practical information on every branch of cemetery development, maintenance, organization and management.

In announcing this first encyclopedia of the cemetery business, we are offering to cemetery men the most useful book ever prepared or planned for this special field.

This book is the crystallization of thirty years of experience. In these thirty years Park and Cemetery has been asked for information on practically every problem or subject pertaining to the industry in all its branches. With the assistance of the best experts in each branch and the best informed practical authorities, these problems have been answered, the vexed questions settled by the application of the best thought. From this storehouse of practical information, we have gathered together the most practical and useful facts, the every-day helps, the short cuts and handy ways of doing things—all the information worthy of permanent preservation for ready reference—and compiled the Cemetery Man's First Encyclopedia, "The Cemetery Hand Book."

A thirty years' collection of facts and methods the cemetery man wants for every-day use. The answers to your vexing problems are here given from the other man's experience.

Following are some of the leading articles:

"Organizing and Developing a Modern Cemetery." Ten chapters by Sid. J. Hare and S. Herbert Hare.

"Construction Work in a New Cemetery." Four chapters by Otto Sonne.

"Preliminary Work in Cemetery Development." Four chapters; illustrated.

"Subdividing a Cemetery into Sections, Lots and Single Grave Sections," by W. N. Rudd.

"Advertising the Modern Cemetery;" describing and reproducing successful examples of cemetery advertising.

"Grouping of Cemetery Entrance and Buildings;" illustrated.

"Selling Cemetery Lots on Credit;" symposium of methods of many cemeteries; forms and contracts for installment sales of lots printed.

"Care and Management of Single Graves;" illustrated.

Over 600 pages; more than 400 illustrations. Price \$12.00 cash with order. Special combination offer: Add \$2.00 to price of book and get "Park and Cemetery," or "Monumental News," for one year, regular price \$3.00 if ordered separately.

PARK AND CEMETERY

536 S. Clark St.

CHICAGO

Ernest Heckelmann, Pres.
2251 Argyle St. Phone Ravenswood 4864

Walter Heckelmann, Sec.-Treas.
Residence Phone, Lincoln 4125

HENRY HECKELMANN, Inc.

1836 North Park Ave., Chicago Phone Lincoln 4125

MAUSOLEUM AND MONUMENT SETTERS

Heavy Work a Specialty — Cleaning and Repairing

Estimates Cheerfully Furnished.



Lehmann Mausoleum, Graceland Cemetery, Chicago

Have set work for:

Chas. G. Blake & Co., Chicago.

Harrison Granite Co., New York

Lorado Taft, Chicago.

McDonnell & Sons, Buffalo.

Albert Weib'lein Marble and

Granite Co. New Orleans, La.

And many others.

WISCONSIN GRANITES

Pike River Gray Marinette Red

Montrose Red Adirondack Green

G r a n i t e s

PIKE RIVER GRANITE CO. MARINETTE WIS.

GEORGE BROTHERS CO.
Dixon, Illinois

W. O. WILLISON
Insurance Exchange Building
Chicago

Wm. Highton & Sons Co.

Designers and manufacturers of
standard bronze work, memor-
ial tablets, honor rolls, ventilator
grills, insignia, ornaments,
bronze letters for buildings and
monumental work.

Factory: Nashua, N. H.

48 Portland Street
Boston, Mass.

129-131 Bread Street
Philadelphia, Pa.

Anderson-Friberg Co.

MEMORIALS
ARE
DISTINCTIVE

Whether Polished From B. M. & V's

Rock of Ages

Or in Axed or Rock Finish in Light Barre Granite
Write us at Barre, Vermont

Rolls and Round Work

SPECIALISTS IN GRANITE TURNING AND POLISHING



Consult us when you want—

ROUND MONUMENTS ROLLS URNS

BALLS VASES COLUMNS

CAPS PLINTHS BALUSTERS

J. F. REID & COMPANY

FURNACE AVENUE WEST QUINCY, MASS.

Rolls shipped same day as ordered.

GOOD workmen are known by their tools. In the monument industry they almost universally favor ours. Therefore we can say with equal truth that good tools are known by their workmen.

TROW & HOLDEN COMPANY

STONE WORKING TOOLS AND SUPPLIES

BARRE, VERMONT



"DALLETT" TOOLS

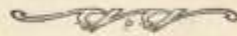
inspire confidence in the Carver or Letterer. The smooth, uniform action of the piston insures speed and accuracy on every character of lettering.

Bulletin on request.

THOS. H. DALLETT CO.
PHILADELPHIA, P. A.



R. C. BOWERS GRANITE CO. Montpelier, Vermont



SCOTCH STEEL SHOT, CRUSHED STEEL, CARBORUNDUM GRAINS AND BRICKS, PUTTY POWDER, ACID, FELT BUFFERS, and in fact EVERYTHING CONNECTED WITH GRANITE POLISHING

SEND FOR PRICES AND SAMPLES

**OUR
STOCK SHEET**

FREE ON
REQUEST

Ask for Prices

We Make Monuments from
All New England

GRANITES

And Specialize in the Ever
Popular Kind of
QUINCY



J. H. JENKINS & SON
Intervale Street Quincy Mass.

:: BRONZE ::

FOR MAUSOLEUMS AND MEMORIALS

MEMORIAL TABLETS

HONOR ROLLS

DOORS AND GATES FOR MAUSOLEUMS
GRILLS WINDOW FRAMES ART GLASS
CATACOMB HANDLES AND FITTINGS
VENTILATORS :: CEILING HANGERS
DECORATIVE BRONZE :: BAS-RELIEFS
BRONZE LETTERS FOR MONUMENTS
.. .. AND BUILDINGS

DETROIT MAUSOLEUM EQUIPMENT WORKS

611 Fort Street, West

Detroit, Michigan

Work of Quality

Reasonable Prices

**PLATES OF FULL SIZE LETTERS
FOR SAND-BLAST WORK**

ABCDEFGHIJKL
MNOPQRSTU
VWXYZ —
1234567890

KLJIHGFEDCBA
VUTSRQPNM
—ZYXW
0987654321

Blueprint plates of the alphabet for inscription letters in a Roman Classic Style in five sizes from 1 inch to 2 inch inclusive, full size, made in proportion best suited for sand-blast work.

These plates can be had right-hand or opposite-hand, like cuts above.

Letters can be traced from opposite hand plates with a white or yellow pencil and applied direct to stone. Right-hand plates can be used where it is necessary to lay out inscriptions to be sent for approval.

These plates will save two-thirds the time in laying out inscriptions and the letters have no long tails to leave open spaces between certain letters. \$3.00 a set of the five sizes; \$5.00 for the two sets one right-hand, one opposite-hand.

R. B. KNOX, care Jones Bros. Co.

BARRE, VERMONT

THE REALLY BEAUTIFUL MONUMENT

invariably includes a statue or an allegorical figure artistically executed.

THIS IS THE HIGHEST CLASS OF MONUMENT WORK AND THE MOST PROFITABLE BECAUSE OF THE FAVORABLE ADVERTISING IT GIVES TO THE MAN WHO FURNISHES IT.

Come to us with your Statuary Problems.

We are experts in the production of Statues in Marble, Bronze, Metal and Cement

DAPRATO STATUARY COMPANY

762-770 W. Adams Street
Chicago, Ill.

51 Barclay Street
New York, N. Y.

966 St. Denis Street
Montreal, Canada

Lebel Lettering Triangles

The Quickest and Best Lettering
Method Yet Devised

Well spaced Letters of correct proportions easily laid out. Poor work impossible by the **Lebel Method**.

One-half the time saved; no fumbling for the proper proportions; height and width clearly established by the scale.

No groping for spacings, the triangle establishes them; the Lebel Triangle is transparent, non-breakable, accurate and permanently useful.

It is made in two sizes—

No. 1 Letters from $\frac{3}{4}$ to $3\frac{1}{2}$ in.

No. 2 Letters from 4 to 6 in.

Price, \$3.00 each, or \$5.00 set of two. Send cash with order to

Lebel Triangle Co.

Montpelier Road

Barre, Vt.

ONCE USED, ALWAYS USED

Morganstown, W. Va.

Lebel Triangle Co.

Gentlemen:—In November I purchased a set of your Lebel Lettering Triangles and as they have more than paid for themselves in the saving of time, we feel that we should advise you that we are more than pleased with them. Our draftsman says to tell you the triangles are O. K. in every respect, and that he believes that if they are once used they will always be used.

Yours respectfully,
MORGANTOWN MARBLE & GRANITE WORKS.
Per J. S. Martin, Sec.

AS ESSENTIAL AS THE PNEUMATIC TOOL AND SQUARE ARE IN THE SHED

Northfield, Vt.

Lebel Triangle Co.

Gentlemen:—In regard to the triangles we bought of you, we desire to say, after a month's use of them, we have come to consider them as essential to our drafting department as the pneumatic tool and square are in the shed. It is a great time-saver and no manufacturer or dealer can afford to be without them. Wishing you success in its introduction, we are

Yours very truly,
PHILLIPS & SLACK.

Order Your
Dark or Light
**BARRE
GRANITE
SLABS**
Sawed or Polished

on the
HEADGRAIN

from the



**PRESBREY -
LELAND CO.**



Barre, Vermont

Large stock always on hand.
Send for pricelist.



Tel. changed to Rhineland 0855
**SPECIAL LOW PRICES
FOR MONUMENT MAKERS**

When you want Better
Service and Better
Work in

**BARRE
GRANITE
MONUMENTS**

Try us. Your
best work is safe
in our hands.

UNION GRANITE CO.

Waterbury

Vermont

**The
West Townsend
Pink Granite**

is unexcelled for monu-
ments and masoleums;
shows lettering and tracing
beautifully in polished
dies; hammers to a fine,
smooth, light pink; blends
nicely with bronze.

Any size in rough or cut
work at reasonable prices;
send for samples.

Duncan Rusk

Proprietor

West Townsend, Mass.

K. W. Fagerlund, Prop. Telephone 903-W

**National
Granite & Polishing
Company**

Manufacturers and
Wholesale Dealers in

Quincy Granite Monuments

of Best Light, Medium and
Dark Stock

ON ALBERTINA STREET
QUINCY, MASS.

**Gray
Granite**



E. M. Thompson
Fitzwilliam Depot
N. H.

Capitol Granite Co.

A. B. Staples, Proprietor.



Fine Memorials in

BARRE GRANITE

Montpelier, Vt.



We use B. M. & V's

"ROCK OF AGES" GRANITEfor our polished work and
Wetmore & Morse's light
for our axed and rock work**CAPITOL GRANITE CO.**

193 Barre St.

Montpelier, Vt.

J. P. SAPORITI & CO.

BARRE, VT.

Manufacturers of
ARTISTIC MEMORIALS
In BARRE GRANITE**Rutland Marble
Mfg. Co. Inc.**

BRANDON, VERMONT

**Imperial and
Blue Marble**

At Wholesale

**MONUMENTAL WORK**
a specialtyWrite us for pricelist and estimates
Note address: Brandon, Vermont**AMERICAN - FAIRHURST**

Silent, Self-Oiling

Dust Proof

Air CompressorsAll Sizes For
Every Requirement
Send for Catalogues**"Silent Plate Valve Pioneers"****AMERICAN AIR COMPRESSOR WORKS**

25 Church Street

New York, N. Y., U. S. A.

