

The Art of Engraving



James B. Meek

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The flintlock hammer on the preceding page is an elaborate and elegant embellishment of a rather plain John Cookson (signed) lockplate in the Victoria and Albert Museum, London, and shows the engraver's prerogative of designing and cutting something that catches his imagination.

The Art of Engraving

A Book of Instructions



by James B. Meek

Book Design, Drawings and Photographs
BY THE AUTHOR

F. BROWNELL & SON, PUBLISHERS, Inc. — MONTEZUMA, IOWA



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INTRODUCTION

About James B. Meek ("Bruce" to his friends) . . .

Even after 20 years, plus, of knowing Bruce and Jeanette Meek on an every-other-Sunday-dinner basis, I still get butterflies in my stomach whenever I watch Bruce work, along with a deep sense of awe over the man's complete dedication to perfection - a perfection carried to the nth degree. Whether it is doing an oil painting or a pencil sketch, faceting a precious gem, finishing and checkering or carving a rifle stock, casting a gold miniature, re-building one of his many Parkers, or engraving a beautiful shooting piece, Bruce spares no effort, ignores no avenue of research to insure a complete faithfulness of presentation. Such devotion in the complete artist results in finished pieces that are a delight to the critical professional eye.

When Bruce and I first discussed the possibility of his doing **The Art Of Engraving**, and during the 7 years following until the book was completed, his aim has been twofold - to do a book no one would surpass and to create a monument to the engraving art. During these years of endeavor, money, time and effort were of no consequence to him in his drive to produce a classic. To satisfy himself, he ended up with each original illustration being a photograph of an actual engraving. Originally, the hundreds of engraving samples and illustrations were all done with pen & ink, but, to him, did not "look" like quite "right". As a consequence he re-did them all - this time as actual hand engravings cut through a white lacquer coating into black plexiglas. He felt this mountain of extra work was the only way he could be honest with himself and the reader.

There is no way Bruce will ever recoup his investment in out-of-pocket money and hours of time spent. And here is where the artist bit comes out that only another artist will understand. Said Bruce: "...But I am not doing it for the money, Bob - but because I want to create something that is needed, that will be used and which will be beautiful." This I believe Bruce has accomplished. He worked under very unique circumstances which were all in his favor of achieving his ends. During the first four of the seven years of writing and drawing, he worked on the book before and after working hours as head artist for an advertising-printing company. He then retired and devoted the last three years on a full-time basis. Not many artists/writers have such a golden opportunity - nor the drive after retirement, for that matter - to do such an unusual project. But, Bruce is truly an unusual fellow.

As Bruce progressed with the book, still another facet of his abilities

became apparent and developed - that of "teacher" (which was really the intent of **The Art Of Engraving** in the first place). When he first started writing, he exhibited the characteristic that all fine craftsmen seem to have and too often exhibit in their "how-to" articles or books, which basically is: "Heck, if I can do it, anyone can" and proceed on that assumption without giving any of the details as to just "how"!

In discussing the above with the author, I pointed out that most of the readers were not going to be accomplished artists, but just average people who wanted to learn; that every move, every detail, should be pointed out, described in depth and illustrated - even to a point where the readers should be told when to wipe off the sweat from their brows. Frank Brownell, who was editor for the book, and I are not artists or engravers - quite to the contrary; yet, because of Bruce's ultimate mastery of the teaching ability, we both have a yen to grab a graver and a piece of practice steel and start "cutting" every time we read some of his writings. We both feel that if he can so inspire a couple of fumble-fingered individuals such as we are, **The Art Of Engraving** will inspire anyone who reads it!

Finally, it is the hope and design of all of us in any way involved with **The Art Of Engraving** that the reader will find instruction, knowledge and inspiration between its two covers - That the person who wants to engrave can proceed with confidence because what he needs to know is here for him - That the person who appreciates engraved pieces will have a new and keen understanding and appreciation of the work, style and motifs created for him by the engraver - And that the fruits of James B. Meek's lifetime of devotion to his love of expression through art can inspire others to equal or surpass the ideals and abilities of this fine craftsman, instructor and author.

Bob Brownell

*Montezuma, Iowa
August, 1973*

FOREWORD

From the beginning of time there have been those individuals who have had an inclination to express themselves in some manner. As leaders in the military, in politics and in the arts, these men have left their mark. Among the earliest recorded art forms, the decorated caves of the primitives show this urge to create. The wealth of the early Chinese, Japanese, Indian and Persian decorative art is an amazing record of man's ingenuity and his ability to create. All of these, in addition to the Greek, Roman, French, German and English styles of ornamentation, which have had more of an influence on our own culture, make an imposing storehouse from which to draw inspiration.

With all of this treasure of accomplishment, the beginner has difficulty in finding explicit, detailed instructions to guide him in this formidable endeavor of beginning to engrave. Presumably, any instructions that were given to apprentices were given by word of mouth. This hard-earned knowledge and these "trade secrets" were not to be cast recklessly into the open market since reputations were built on craftsmanship of quality and style. The master engraver was a creative artist devoted to his craft, and the describing, explaining and relating in print of even a simple procedure could put a demand on his time that would have been prohibitive. Whatever the reasons, this lack of written information

on the details of engraving imposes quite a handicap on the progress of the beginner. With this book we will attempt to anticipate and answer many of the questions the novice will ask, and give him a comprehensive coverage on each phase of the subject. It is important to the beginner that he be given more than the bare essentials of the topic, lest he get lost in an endless series of trial and error efforts.

There will probably be some of you who are interested in the processes and procedures, but have no intention of actually working at engraving. To you, we hope that you will find the book both understandable and interesting.

With the furor over the possession of guns and the fact that they may be restricted, it behooves the younger engraver to seek out new avenues into which to channel his talents. Many of the present gun engravers are, or have been, engaged in the die-making craft or as jewelers and engravers. Even L. D. Nimsche, who was so prolific in an era when the gun was so common, also engraved watches, spoons, plates and dog collars. In fact his card stated "Engraving on firearms - Lettering on all metals". The old saying that "you cannot teach an old dog new tricks" makes some sense, but some of you young dogs with a fresh viewpoint may start a whole new trend or fashion. So keep an open mind and an active one. You might contact your sporting goods stores and provide them with samples of your engraved, person-

alized, ornamental nameplates for their customers' golf bags, fishermen's tackle boxes or brief cases. Such an area might include individualized, decorated cigarette lighters. A smoker who is proud of his rifles and shotguns would surely have a similar pride in an object that he uses and displays so often. It would take some advertising and promotional work, but if it once caught the fancy of the public, who could predict where it might lead!

There are a number of fine engravers whose work I should liked to have included but space did not permit. Mr. Prudhomme's book the **Gun Engraving Review** has covered this field very well, with many fine reproductions for the beginner to study. To Arnold Griebel, Alvin A. White, John E. Warren, E.C. Prudhomme, Lynton McKenzie and John R. Rohner I particularly extend thanks for the photographic material that they so willingly and generously contributed. I want also to thank Lt. Col. F.B. Conway (Ret.) for comments and photographs that I am sure you will find interesting. Thanks also to all of those good friends who have permitted me to photograph their firearms for use in this book.

Especially valued is the inspiration, the critical interest, the experience and occasional prodding of Bob Brownell, the publisher, who has been largely responsible for the creation of this effort.

Next, a note of appreciation for my wife, Jeanette, whose encouragement and forbearance in social and recreational matters has made possible the time to accomplish the job.

I know that you are anxious to begin, and to get started you must have a design for your engraving. So now let us develop that design from the very beginning for the novice who has no idea even what a design is. Along the way I will give explanations and examples that should help to clear up any hazy conceptions or wrong directions. The areas of uncertainty will be replaced with a few concrete ideas that are basic, and from these, your ideas can then be expanded into elaborate and complicated layouts.

It is my intent and hope that this book will be a source of aid to the beginning craftsmen of tomorrow. So, to you young beginners - of whatever age - I should like to dedicate this book, with "Best Wishes" for many happy hours with the gravers.

James B. Meek

*Newton, Iowa
May, 1973*

The Art of Engraving



Chapter One

Design and Layout



any beginners want to take up engraving but are bewildered and perplexed at just how to get started. This is understandable because there is a scarcity of material on the subject, and the material that is available has been published in an assortment of different magazines and books over a long period of time. Most beginners are completely unaware of these articles or have no idea as to where to go to find them. So, to those of you who are taking up this fascinating art form for the first time, let us start at the very beginning.

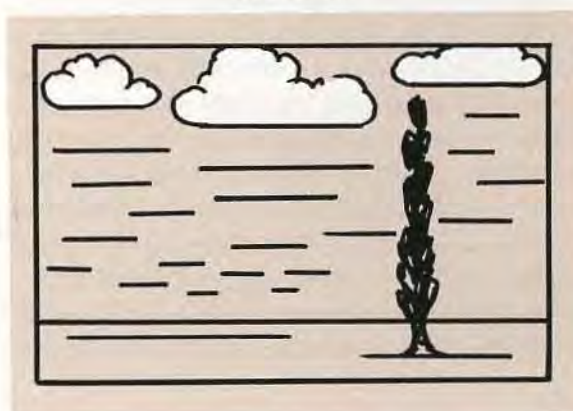
It may come as a surprise that we will not begin by picking up the graver and starting immediately on the practice of actual engraving. To do a good job of engraving you must have a good idea of what you want to cut into the metal. So, let us go to work on the first requirement of a good engraving job, namely a good design. You should be able to put your design on paper, for by so doing you can alter and change the design until you are satisfied that it is what you want. This will give you some assurance that once the lines are cut into the metal, they will have been cut exactly where you wanted them. The clean, polished surface of a piece of metal is a distinct challenge, and having a well thought-out design will reduce the qualms about cutting into that beautiful surface.

Let us start by assuming that you have had no art training, and it is necessary to give you some simple facts that will help to organize

your thinking about design. The two lines that are basic in all design are the straight line and the circle. Naturally, the curved lines will not all be segments of a circle, but they will be varying parts of the ellipse and the circle. The straight line is the least interesting because of its lack of variety. The perfect circle by curving uniformly in its entirety has this same lack of variety. This does not mean that the straight line and the circle do not have a function in design. These will be discussed as we get into the subject and as they relate to the whole design. Here are two simple examples which demonstrate the effectiveness of a few simple lines.

Figure 1a shows the effect of straight horizontal lines that one commonly sees in an early summer landscape; the long flat horizon line plus the flat bottoms of all of those white cumulus clouds drifting lazily across the deep

FIGURE 1a



blue sky. All of these straight lines along with the straight vertical line of the tree contribute to the calm, peaceful character of the scene. To transform this calm, peaceful picture into one of tempestuous violence, a change in the character of the lines is all that is needed. A sudden, strong rush of wind, ushering in a storm, blows leaves and dust ahead of it which obscure that long clean horizon line. Black churning clouds are discharging a slashing attack of hail that further adds to the discord of the violent scene, while the force of the wind is seen in the yielding lines of the tree. See figure 1b. To return

FIGURE 1b



to a calm scene, had the straight lines been vertical instead of horizontal the same feeling of quietude would have resulted. For example, the feeling one gets while standing quietly in a forest of lofty redwoods or towering pines. Many of the great cathedrals with their tremendous vertical lines terminating in lofty arches convey this same feeling of quiet exaltation.

In figure 2a is a circle within which the straight line is used to divide the circle into eight sections. Notice that they are not hard, continuous lines but that the design has been drawn so the feeling of a straight line carries through. This combination of curves along with the straight lines makes for an interesting design. In figure 2b the straight line as it might be used for a border is shown. The scrolls



FIGURE 2a

FIGURE 2b



relieve the simple severity of a single straight line.

To get back to the original question of starting a design then, let's go back to the circle. As a distinct advance over the circle as a decorative device, the Greeks came up with the egg and dart motif. The circle, when it is drawn in perspective, appears as an ellipse which introduces some variety into the line that was a circle. The two ends of the ellipse, however, are still the same, so they added some variety by making the two ends different as in the shape of an egg. This adds a maximum of interest while the two sides (being similar) supply the touch of unity for the whole design. Figure 3 shows this use of the egg and dart in some decorative designs. The egg and dart has been the basis for many fine designs used by both the Greeks and the Romans.

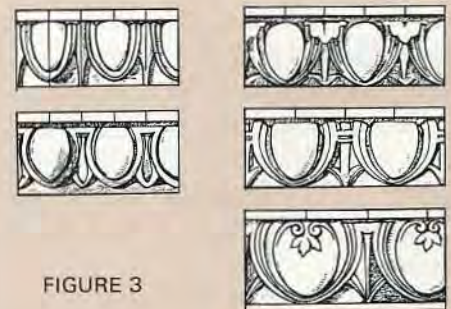


FIGURE 3

The popularity of the scroll with its infinite variety has always been a favorite with decorators and engravers. At figure 4 are shown two examples: the one is a demonstration plate by A. A. White showing different scrolls and the other is a typical example by the late Arnold Griebel. To get back to our scrolls again, a curved line that is of uniform thickness does not have the same quality as one that has some variation (from thick to thin). Figure 5 shows several scrolls, the right side of which shows scrolls with lines of varied thicknesses. The left side shows them cut to a more uniform width. The scrolls on the right side are def-

initely more interesting and lively because of the variation. The straight lines will of course be as straight and as uniform as you can make them. This will not be as contradictory as you might think for the curved lines of the scrolls are enhanced by the relief of some good straight lines. The straight line in nature tends to be associated with strength. The straight, clean lines of the well-muscled athlete as contrasted with the soft curves of the fat man.



COURTESY OF A. A. WHITE ENGRAVERS, INC.

FIGURE 4



BY PERMISSION OF ARNOLD GRIEBEL



FIGURE 5

To those of you who want to become seriously involved with engraving, there is only one way and that is to engrave - engrave as much as you possibly can. I am convinced that almost anyone with an aptitude and a serious desire can learn to handle the tools, the chasers hammer and graver. The hand-propelled graver is another problem. This problem has now been solved by a new miniature pneumatic hammer which allows the use of both hands without that feeling of insecurity that all beginners experience when starting to engrave by hand. There will be more about this tool later in the book.

Before we start seriously with the pencil and layout, there is one point that I should like to impress upon you. It is difficult to explain and it may be even harder to understand. The eye by its very nature tends to focus on one point. The artist trains his eye to perceive (for example in painting a portrait) the complete subject. That is, he looks at the whole picture

and in this manner he can get a true comparison of the color of the background, as compared to the color of the face. If he looks at the background only, the eye rapidly adjusts to what it sees in that area only. The color of one part effects the color of the surrounding areas. You will not be called upon to accomplish this, however the same effort will be a big help in laying out your design. By keeping your total area in mind you will be able to apportion your scrolls more effectively. Plan ahead so that the



FIGURE 6

layout fits the area that it is intended for, see figure 6. Until you have become an accomplished artist, it would be wise to adopt such a system of planning your drawings. At figure 7 two drawings are shown to give you an idea of how to proceed. In both drawings only the big proportions and the character of the subject are drawn. These are drawn in ink so as to reproduce sharply, but in your drawings they will be made lightly and in pencil. At this stage the drawing is easily corrected. Once all of the parts are as nearly correct as you can make them (as to proportion and character) then is the time to search out the details.

In the beginning portrait classes you would find the new students starting with the nose, the eyes or whatever part their eyes focused on first. After finishing that part they would find that it was not in the correct position, that it was too large or too small, and they would have to go through all the effort of redrawing it. Soon they would get the idea that it was faster and better to plan the overall drawing before starting to finish any of the details. See figure 7 again. Position the eyes, nose and mouth in

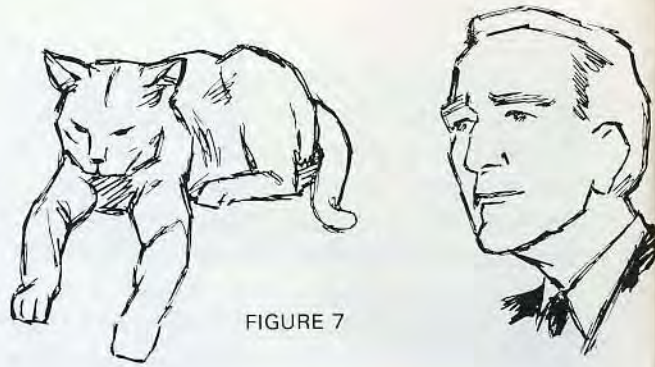


FIGURE 7

their correct proportions and determine, after careful observation, the variations of the parts of this particular model. You will find that practically everyone has one side of his face a little higher or lower than the other and that the two sides are not exactly alike. So plan your initial layout critically and the parts will fall into place like the parts of a jigsaw puzzle.

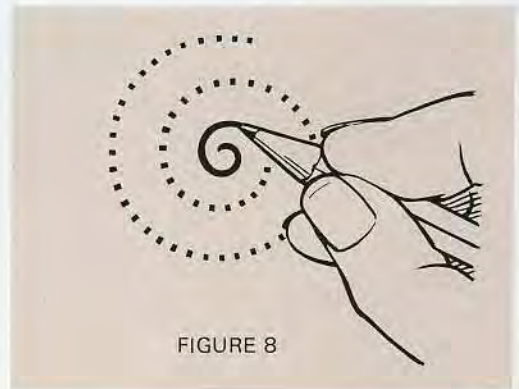


FIGURE 8

When you start to practice your scrolls remember the idea of the widened vision and try to develop its use because of the increased control that it brings to your work. The beginner has a natural leaning toward following the pencil point with his eye and it will be some time before he can transfer his attention to the whole scroll. If you watch only the pencil point you will probably end up as shown in figure 6, with too much scroll in too small a space.

Start to practice your basic scrolls using a medium soft pencil and a good white paper. As you practice, use a light touch with the pencil. Developing such a touch will help you later when you come to drawing animals and figures. Do not start making scrolls haphazardly even at first. See figure 8, and from the very first try to visualize the area into which the scroll is to fit. It is very important that you do NOT begin by picking up a pencil and dashing off scroll after scroll. Such effort will not develop the mastery or control that you will need.

from one side, then start the next one at the bottom and reverse it. Each time that you do one, attempt to enlarge your area of vision so that you are aware of the whole area of the square.

You need not confine these practices to a square; try rectangles horizontally and vertically, see figure 10. With practice you will find them smoothing out. Be alert and do not let them become lumpy or uneven. You can practice these in odd moments of doodling (on scraps of paper, magazines, newspapers or old envelopes) if you have a pencil with you at all times. See how many ways you can place a scroll in that square or oblong. To repeat, start in one corner one time, a different corner the next time or in the middle of any one of the four sides. Do not allow yourself the habit of making all of the scrolls in one direction. You will probably make them more naturally in one direction than the other. The direction that

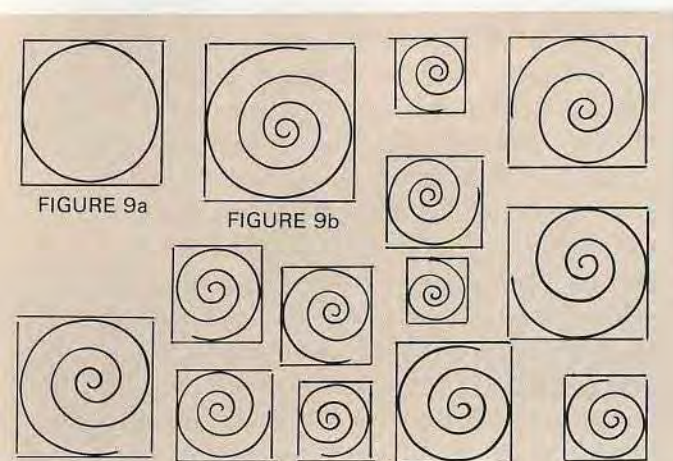


FIGURE 9

Draw each scroll rather slowly, concentrating on your control and making it as evenly progressive as you possibly can. This thoughtful, serious effort is bound to show results. Draw a square (which need not be perfect) and if it will help, you can even indicate a circle inside the square to help guide you in your first efforts, see figure 9a. The objective is to force yourself to make the scroll fit a definite area. Make your squares of assorted sizes, see squares 9b and beyond. Make them differently by reversing the direction of the scrolls since you will eventually be making them in all directions. Start a scroll

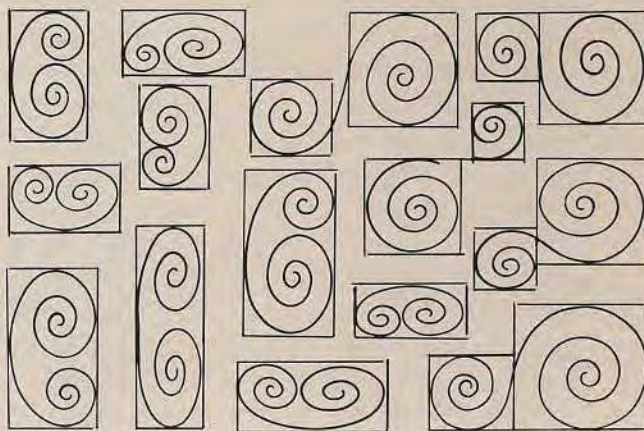


FIGURE 10

seems more difficult will require more practice. You can also vary the number of spirals in your scrolls to get some variety.

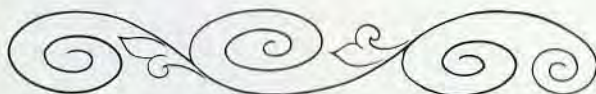
These scrolls are somewhat comparable to the notes of the scale, for after practicing

the scale to boredom, you are anxious to try a tune. So we shall explore the possibilities of extending this scroll and increasing the interest of the design. Put two squares beside each other, see figure 10 again. To add a little variation make one square smaller than the other. Within the two squares you can lightly indicate circles. Connect the two circles and complete the scrolls. Practice these in your doodling and you will have acquired a little larger stock of design capabilities. As with the single scrolls, practice variations of this arrangement. After making the first one, change the small square to the other side and connect them up differently. Make as many changes in this association as you can devise. Eventually these basic forms will become effortless to you. They become as much yours as is the alphabet, which you use without any conscious effort.

Until now, we have confined ourselves to the scroll and extended it to one additional scroll. Before we start a layout on a finished design, let us see how we can expand our design



FIGURE 11



and its interest by combining several scrolls. The running scroll is one of the first that seems to develop naturally. These can be fully formed as though the scroll was made in one of your squares, or it might be extended (as though it was made in a rectangle) which will give it a different effect, see figure 11. It may be that a given area will dictate what will most effectively decorate that space. For example, a long narrow area may call for a simple repetitious

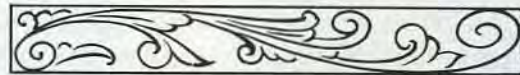


FIGURE 12

motif, or you might decide on a modified, elongated scroll, see figure 12. You should build up a good file of reproductions of engraving from which you can find guidance for almost any situation that might confront you. In designing your first plates, keep them simple enough that you can execute them. As your talents and abilities develop you will experience the thrill of executing the more complicated cuts as though you were the first to ever do them.

As you go through your files and note how different engravers develop the scroll, you will find one that will execute one full scroll with a continuous cut. From this one he will take off and complete another full scroll, see figure 13a. A little more complicated but certainly a more flowing scroll is shown at figure 13b. By interrupting your cuts, a continuous flow of the metal connects one scroll to the next with no cuts separating them. The floorplate by John E. Warren is an example of the cutting as shown in figure 13a while the derringer by E. C. Prudhomme exemplifies the continuous scroll as shown in figure 13b. Both methods are commonly used. The scrolls at 13c are drawn from a reproduction of one of Kornbrath's engravings. The arrows point to two scrolls that show the use of each method.



FIGURE 13a



FIGURE 13b



BY PERMISSION OF
JOHN E. WARREN



FIGURE 13c

From the middle of the 19th century until around 1900, an engraver by the name of L. D. Nimsche was one of the foremost engravers of his time. If you have an opportunity to study a book published in 1965 by John J. Malloy, entitled **L. D. Nimsche, Firearms Engraver** by R. L. Wilson, you should do so. From it you can study the work of a man who accomplished a tremendous amount of work (they estimate as many as 5,000 guns). He was equally at ease doing animals, portraits, or figures and he was a fine lettering man with his gravers. His scrolls were carried to a high degree of perfection. In addition to their flowing lines,

he introduced a great amount of variety. Figure 14 is a drawing from a reproduction of one of his engravings. It does not do justice to the engraving, of course, since it is only a drawing and cannot show the sparkle and the mastery of the cutting.

You should have had a lot of practice by now with the pencil, making scrolls and carrying them on. Now you can increase the interest



FIGURE 14

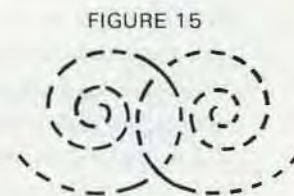


FIGURE 15

and complexity of your design by interweaving some of the scrolls to create the illusion of the lines passing over and underneath each other. To bring about this illusion you will have to interrupt your cuts and pick them up again. In the beginning, plan them carefully, as an unwanted cut can be difficult to cover up. Draw the intended scrolls lightly. Now pin down the intended lines that are going over the others by making them heavier. Stop the lines that are going underneath short of the lines that are passing over. Make a definite break so that you cannot mistake the fact that the one cut must stop, see figure 15. Carry a pencil and practice these scrolls in your spare moments, and you will be surprised at how much you will have accomplished. By doing your exercises with a pencil you can drill yourself and develop your procedure mentally. Here again do not forget to practice your training of the visual concept. This will be very important to you when you come to the cutting of the scroll.

As you make the cut around the scroll, you must know where you are at all times and you must know where you are going to conclude the cut before you get there. If you can make a good accurate outline and follow it precisely, this will serve you well until you have developed the ability to "keep ahead of your cut" visually. The experienced engraver will indicate his scroll lightly as a guide to the area that it is going to occupy. This layout is a guide to the area only and will not be a line that is slavishly followed. As his cut progresses, it does so under his full command. The finished cut is so much smoother and cleaner than a hand drawn line that there is no comparison.

As you become more acquainted with engraving, you will see examples of engraving where the cuts are not all perfectly smooth and bright. In a later chapter we will explain and show photographs of the causes of the



FIGURE 16a

smoothness or the roughness of the cuts. The fact that the cuts are not perfectly smooth and bright does not necessarily mean that it is bad engraving, as is shown in figure 16a; this shows a well planned design and is one the beginner can study and profit from. Figure 16b is an



FIGURE 16b

enlarged view of a portion of the design to allow a little better study of the way that the cutting was done. Note that the cutting is not a real smooth, bright cut and that there are slight nicks here and there, but the conformation of the scrolls and the masterful design are all so well done that these slight imperfections do not detract from the overall impression of excellence. The woodcock at figure 16c is en-



FIGURE 16c

larged still more to show you a fine example of how to cut a bird to get that modeled effect that shows so well in the overall reproduction. This also shows you that if you can make your subject into a good pen and ink drawing, it can be cut into the metal to get a very similar effect. From the boldness of the cutting, you can tell that this engraver knew what he wanted to say.

To review our steps this far: you should have a basic scroll quite well in hand. Secondly, you will be able to carry it into a second scroll in any position with no problem. Thirdly, your ability to continue these scrolls to cover an area will be well practiced by now. Finally you are increasing the variety and interest in these scrolls by interweaving and making them more intricate. Only after you feel that you have a good control of these patterns should you start to explore the field of finishing detail. Here again some of the good reproductions will be of great help to you. There is a very good book out, authored by E. C. Prudhomme, entitled **Gun Engraving Review** that would be a fine source of material for your study.



FIGURE 17a



FIGURE 17b

Two examples of scroll work are shown in figure 17. Both are conventional in treatment, yet each is different in design to give you a basis for comparison. In 17a, the scrolls are kept very full with a minimum of background removed. From a little distance this makes for a tapestry effect with the design muted and

the finished surface presenting more of a texture than a bold design. Another example of this style of engraving is the floor plate by Kornbrath shown on the inside of page 6 of **The Gun Engraving Review**. The design at 17b has more of the background removed in relation to the scrolls and the details stand out quite well displayed and visible for some distance. In the same book just mentioned, on page 16, the second gun from the top of the page shows a fine design by the late Arnold Griebel that is typical of his excellent layouts. How you eventually feel about design will determine which of these two types of design you will want to work. A design to be displayed conspicuously must be well planned and executed as it is right out in the open for everyone to see. A design that goes to an overall pattern will not display its flaws so blatantly. They may be there but they are less easily detected. While you are examining the reproductions of various artists, use your pencil to fix some of these forms in your mind. Even go so far as to use some matte acetate or thin tracing paper and follow in detail some of their designs. You will be surprised at how easily the details will develop after you have the main lines laid out.

Most of our designs are based on things the artist has been acquainted with. The elements of decoration are many. You might develop geometrical designs, or designs based on flowers, leaves, vines or natural objects. Many are based on animal or human forms or sometimes a combination of the two, such as the centaur at figure 18a. On occasion, you will find the



FIGURE 18a



FIGURE 18b