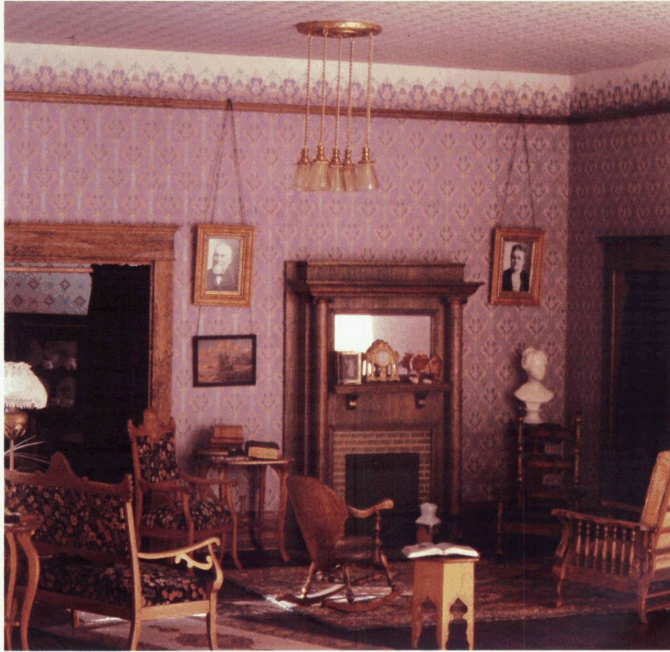


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□MONITOR TOP REFRIGERATOR□ADAPTING THE COPY CAT TO THE UNIMAT SLD
□VICTORIAN RENAISSANCE SECRETARY□TWO CASE CLOCKS□SCALE MEASUREMENT□
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Beginner's Workbench: Thinking in Scale: An Editorial Essay

by James Dorsett

A Sample Article From the Pages of The Scale Cabinetmaker, Volume 11:3

As the name implies, *The Scale Cabinetmaker* was, at its very heart, a journal and a resource for *scale* modeling. In a hobby too often aligned with the "that looks about right" scale, TSC set a standard, which was maintained over its 20 year lifespan. In his concluding essay concerning scale and *The Scale Cabinetmaker* (TSC 20:2), Jim Dorsett wrote:

Swimming across what was then and still remains the dominant current in a hobby that is the preserve of the collector of miniatures, we proposed the magazine should be focused exclusively on *scale* modeling. There were and will always be publications which reflect the interests of collectors, the need was for one which with tunnel vision served the needs of the builder of miniature, the person whose passion was for the process of building the object rather than possessing it.

By scale modeling, we meant the reduced scale reproduction of full scale or life size houses, furniture, and related objects...we accepted a scale of 1:12 (one inch to the foot) as our norm.

Applying that definition, we determined that the content of the magazine should begin where kit assembly ends...Instead, the new magazine's content would begin with the modification of kits in which the modeler changes the design and the structure of the kit model on the basis of knowledge and additional measurement. We called it "kit bashing" in the early issues of TSC, introducing to the hobby a term long known to model railroaders but foreign to miniaturists.

The core of the magazine's content would be the presentation of scale modeling plans and directions, coupled with information on tools and modeling techniques essential to their reproduction... We intended to put a measuring instrument, a tool, a piece of material, and a plan into the hands of the reader, depending on that combination to work its own magic. As we predicted that the measure of the magazine's success would be the development of its reader beyond its plans to the measurement of the prototype itself, the design of the scale model, and any further dependence on the publication. In effect, the success of the magazine would be measured by the eventual graduation of its readers.... (TSC 20:2)

Beginner's Workbench

Thinking in Scale

An Editorial Essay

Jim Dorsett

There is one question asked by beginners in scale modeling that recurs with a regularity rivaling that of the seasons. Having examined with mounting frustration TSC's drawings for a piece of furniture and the listed dimensions of its parts in a Bill of Materials they ask "But what are the *miniature* dimensions of the piece?" What is baffling is that, although a drawing in TSC of a small table, for example, appears to be the size that it should be for a dollhouse and the legend assures you that the drawing is in a scale of 1":1' (one inch to one foot, one inch scale, 1:12, one twelfth), the dimensions on the drawing and in the Bill of Materials are the dimensions of the *full-sized table* after which the scale model was patterned. So the question is asked, "What are the miniature dimensions?"

It's a question to which in our first issue ("Why Scale?", TSC 1:1) and periodically since we've tried to provide an answer. I think it's time for another focus on

measurement in the world of scale modeling and in *The Scale Cabinetmaker*.

There are, basically, two ways that modelers measure their model and its parts. One measures the miniature with the same ruler used to measure the full-sized world. This is the familiar ruler, used since grade school, dividing the "English" foot into 12 inches and each inch into 16 equal parts and their multiples (1/64 and 1/32 less frequently than the more familiar increments of 1/16, 1/8, 1/4 and 1/2). Because its physical size and its markings are so familiar, we want to use the same ruler for marking out the dimensions of our model's parts.

The other approach uses a "scale rule", a measuring instrument whose markings are right for the scale in which we are working, one inch to the foot. It is still the familiar English scale with its twelve inches per foot and its inches divided into sixteen or more equal parts. But its "feet" are only one twelfth the size of those on the full size rule. It is the use of such a rule that has always been the standard in TSC's drawings and dimensions (even though projects and drawings dimensioned for the full-sized, non-scale ruler also appear with regularity, depending upon the author's preference or the peculiar demands of the piece being built).

The contrast between these two approaches to measurement and dimensions in TSC's drawings is illustrated by the Front Elevation of the small Shaker night stand from TSC 11:2, shown in Figure 1. On the left (Fig. 1-A) is a drawing made with the "full size" 1/16th ruler which is shown below the figure. And the dimensions are those familiar ones for which those who ask for the "miniature" dimensions wish: 2", 1/16", 1/8", 5/8" and so

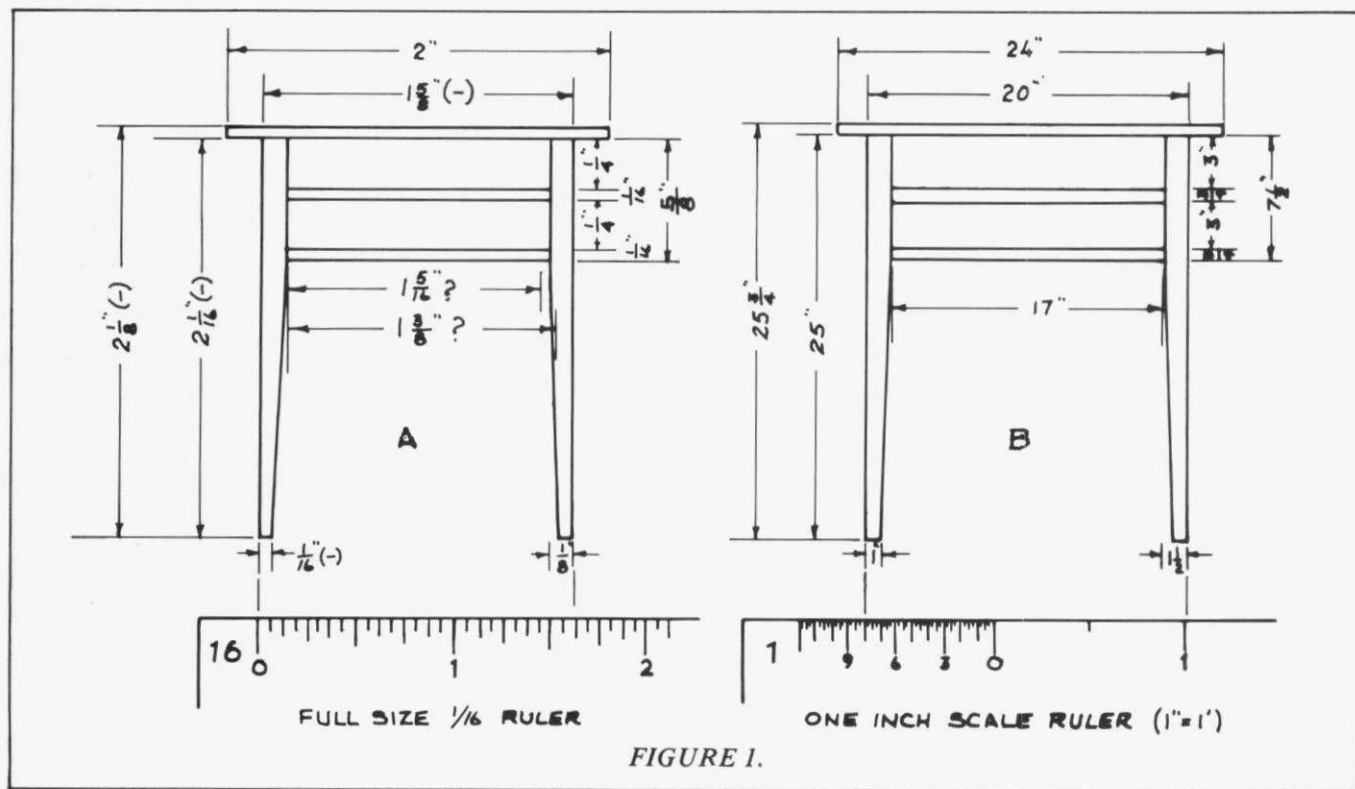


FIGURE 1.

on. From the perspective of our full sized world and full sized ruler they *seem* right, i.e., the sizes that “little” pieces should be in order to make a night stand that will fit into our inch scale dollhouse. By contrast the dimensions on the right hand drawing (Fig. 2-B) appear all wrong! How could anything that is 24” wide (top) fit into our small house?

This feeling completely ignores the **central fact** which distinguishes *modeling* from *scale modeling*. (And it is what TSC is all about, if you think about our name!) Modeling, whether in kit assembly or the assembly of small parts cut from patterns provided by someone else, is great fun and an entry level activity to scale modeling. We assume that the parts have been sized to fit into the one inch scale world of our dollhouse, but we take the word of someone else about that fact. We simply enjoy the fun of putting the parts together and we learn skills in the process. But, assuming that the parts we’ve glued together were the right size (one inch scale), we’ve left the *scale modeling* to whoever designed the parts or patterns.

Scale modeling goes a step beyond this. It begins with an object in the full-sized world, not a kit of precut parts or premeasured patterns. It takes the full measure of that object with the appropriate 1/16th rule. And then it does a most wonderful thing. It steps “through the garden gate” (as Alice did) into a wonderland whose sizes are reduced *by a known ratio* from those in the full sized world left behind. For the “one inch” scale modeler everything has been reduced to exactly one twelfth of its previous size, i.e., a full foot in this scale world is only an inch long as viewed from the world left behind. (And for the “half inch” scale modeler the foot is only a half inch long when viewed from the world left behind).

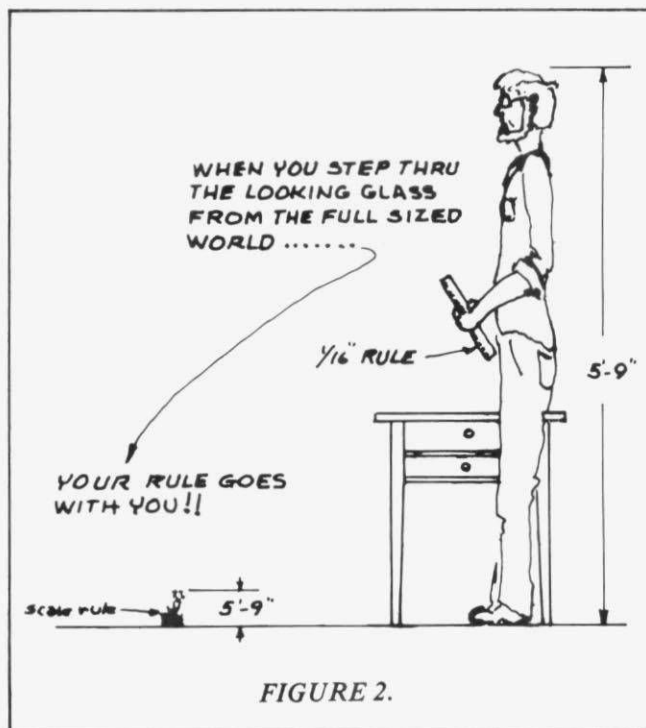


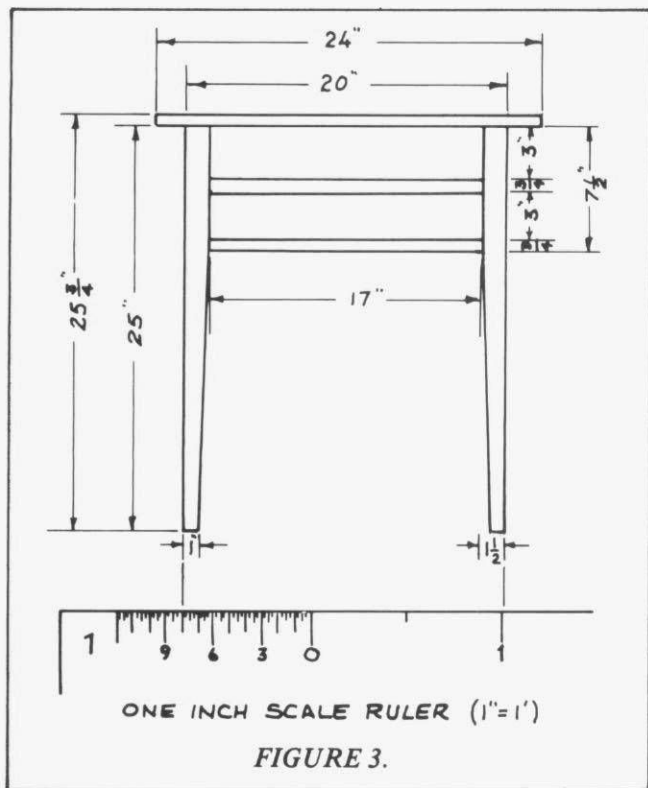
FIGURE 2.

If you look for drawings in TSC dimensioned like those in Figure 1-A, asking “Where are the scale dimensions?”, you’ve stepped into the inch scale wonderland.....but left your ruler behind. The most important thing to remember when you enter the miniature or scale world is to take your ruler with you! It must shrink by exactly the same proportions that your eye and all that it sees in this small scale world have shrunk (Figure 2).

Imagine, if you will (and that’s most of what we do in this hobby), that standing beside the small Shaker stand in the full sized world you are given a tape and asked to measure the stand. “How wide is the top?” you are asked; you measure and reply, “24 inches.” At that very moment you, your tape measure and the stand are all spirited into a one inch scale world. Still standing beside the night stand, you are asked again about the width of the piece. What would you say now? “Two inches?” No. You would look puzzled by the question and repeat the previous answer, “Two feet....24 inches.” And you would prove it by again applying your shrunken ruler to the shrunken piece. At that moment you would have, indeed, entered the world of scale modeling. And if you stood there and continued to apply your rule to the night stand until all the dimensions had been listed and drawn into plans for the piece, you would have a drawing and dimensions in the fashion that has always been the standard in *The Scale Cabinetmaker* (Figure 1-B). In addition, if you and your rule returned to the full sized world and repeated the whole process you would end up with an identical set of drawings and dimensions.

Those who, looking at the night stand in Figure 1-B, note that these are the dimensions for a full sized piece are exactly correct. (Indeed, after the plans for TSC’s tambour desk from the 3:4 issue appeared in *Fine Woodworking* as an illustration for an article contrasting full sized and scale cabinetmaking, we were deluged with phone calls from full-sized woodworkers making full sized roll-top desks from our plans for a one inch scale miniature!) But they are also the correct dimensions for a one inch scale miniature, if you remembered to “take your rule with you”.

And there are advantages to using a scale modeling ruler (Figure 3). First, the measurements you have made in the full sized world can be exactly and easily duplicated in the inch scale world. There is no intermediate figuring to be done! Most scale modeling rules (the architect’s rule, shown here, or any one of the steel inch scale rules currently available from hobby dealers) are divided into the same marks as your full size 1/16th rule, usually showing each of the twelve inches divided into quarter and half inch marks. On the architect’s rule shown in Figure 3, full feet are read to the right of the zero mark and inches to the left. Thus the 20” width of the night stand frame is read as 1’-8” (i.e., 12” plus 8” equals 20”). While only the 3, 6 and 9 inch marks are numbered, the other inches are easy to find.

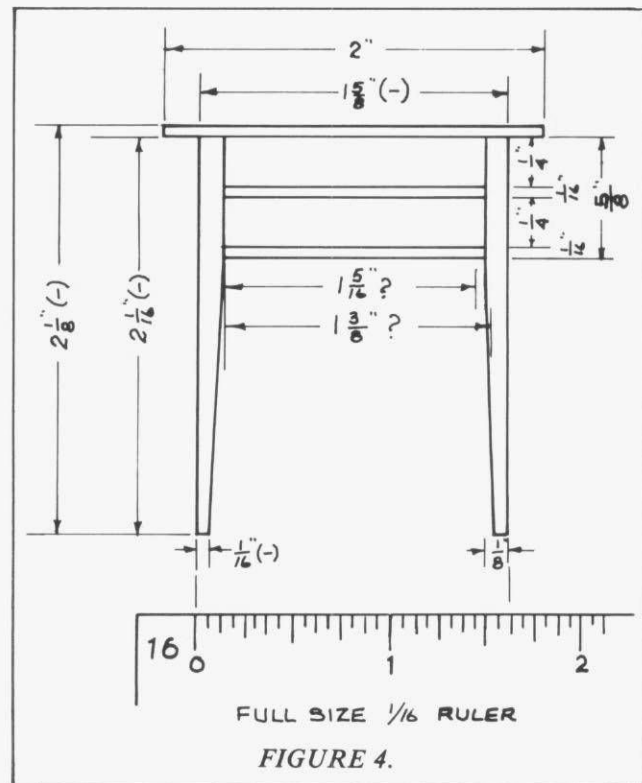


A second advantage of the scale rule is that the resulting miniature model will more accurately reflect the sizes found in the full sized world. Have you ever looked at a miniature in a setting and thought to yourself "That's gross!?" Why did you think that? It is usually because something about the model is obviously over- or under-sized, giving it a too heavy or too spindly look. So the accuracy with which you translate the dimensions in the "real" world into those of your "miniature world" does make a difference to the eye.

There are matching disadvantages to the use of the full-sized 1/16 rule for measuring scale model parts (Figure 4). The first is that it makes scale modeling much more difficult and, second, less accurate. Remember that as scale modelers we are not beginning with some small pre-cut parts or with pre-sized patterns but with a night stand in the "real" world. The dimensions of the piece in the "real" world must be translated into the markings on the full-size 1/16 rule before we can mark and cut out a miniature part. That is easy and accurate only so long as the markings on the rule coincide with a dimension in my inch scale world. And at some points they do coincide. One sixteenth on your full size rule is the same as 3/4" on your one inch scale rule. So multiples of 1/16" in the full sized world are the same as multiples of 3/4" in the inch scale world: 1/32 equals 3/8, 1/8 equals 1 1/2, 1/4 equals 3", 1/2 equals 6" and 3/4 equals 9". But as you can see, you are already deeply into the process of having to figure out what these measurements are if you wish to build the night stand.

But at some point in this whole process you will have to begin compromising the accuracy of your scale model. There will be measurements from the night stand that

simply don't translate exactly into marks on your 1/16 rule. These can be minimized by using a rule with 1/64 or 1/32 markings; these will reduce the error but will not eliminate the problem. In Figure 4 we are on safe ground when dealing with such dimensions from the full-size piece (Fig. 3) as 24", 7 1/2", 3", 1 1/2" and 3/4"; these translate on our 1/16 rule into 2", 5/8", 1/4", 1/8" and 1/16". So far, so good! But now the problems and compromises begin, some of small consequence but some that are big. The width of the front is 20" (Figure 3) and that is close to but slightly smaller than 1 5/8". OK, we'll use 1 5/8"; no one will notice. Next is the height of the piece below the 3/4" thick top, 25" (Fig. 3). We've rounded down to the nearest sixteenth and produced a dimension that is 2-1/16" for our stand. But that is visibly shorter than the true dimension.



Now, our problem really begins to build. The legs are 1 1/2"; we'll use square 1/8" stock for them, which is just right. That leaves 17" between the legs (Fig. 3). That translates into a distance somewhere between 1-5/16" and 1 3/8", one too small and the other too large. At this point you begin to fudge a bit with such measurements as "1 3/8" minus a tad, or a smidgen, or a tick". (I'm not certain which is these is bigger, but I think that two ticks and one tad equals one smidgen.) But that isn't the same as the 17 scale inches produced by a scale ruler.

The problem for the scale modeler is compounded by the fact that many commonly available commercial modeling woods are sized in fractions of the full inch (1/32, 1/16, etc). And while you may take your rule with you into the world of scale, these wood sizes stay behind (Cont. on p. 44)

SCALE (cont. from p. 37)

unchanged. You discover that two commonly used materials in cabinetwork (1" and 2" scale thicknesses) are often not available (although some manufacturers, e.g., Northeastern Scale Models, S. H. Goode, do provide material in these sizes). 5/64" and 3/32" thicknesses are used as substitutes for 1" (0.0833") scale lumber, but one is too thick and the other too thin. Unless you size and thickness your own modeling materials, these optional elements of error are the constant companions of the scale modeler. (In TSC Bills of Materials we've always listed the scale dimensions of parts as well as the full scale thicknesses of the lumber stock from which they are cut.)

Scale modeling is a frame of mind, a way of thinking as though you and your measuring instruments were as small as the miniature world in which you work. While the degree of precision in scale measurement sometimes outdistances the need and has no real impact on the appearance of the model, the goal is really not that of pursuing precision as though it were the holy grail, an end in itself. Rather, ease of measurement and the scale modeling frame of mind remove some of the hassles from the craft and improve the results. At least that's the way the world appears from the pages of *The Scale Cabinetmaker*. (Jim Dorsett)

19th Century Country Furniture

Helen Dorsett



A Cabinetmaker's Guide for Dollhouse Furniture: Volume 1
50th Anniversary Edition

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