

THE BLUE PROCESS OF COPYING TRACINGS, ETC.

This process is now extensively used in the drawing-rooms of a number of firms and companies, and saves not only much labor but a great deal of weariness to the junior draftsmen to whose lot it usually falls to make copies or tracings of drawings. The *Railroad Gazette* says that in the office of Messrs. William Sellers & Co., and in the drawing-room of the Pennsylvania railroad at Altoona, all tracings, when more than one copy is required, are made by this method. It is described as follows in a short paper read by Mr. P. Barnes before the Institute of Mining Engineers:

The process is believed to be of French origin, and has been used for many years. Special attention seems to have been directed to it recently, and its great value to engineers appears likely to be fully recognized.

The manipulations required are of the simplest possible kind, and are entirely within the skill and comprehension of any office boy who can be trusted to copy a letter in an ordinary press.

These particulars may be summarized somewhat thus:

1. Provide a flat board as large as the tracing which is to be copied.
2. Lay on this board two or three thicknesses of common blanket, or its equivalent, to give a slightly yielding backing for the paper.
3. Lay on the blanket the prepared paper with the sensitive side uppermost.
4. Lay on this paper the tracing, smoothing it out as perfectly as possible so as to insure a perfect contact with the paper.
5. Lay on the tracing a plate of clear glass, which should be heavy enough to press the tracing close down upon the paper. Ordinary plate-glass of $\frac{1}{2}$ " thickness is quite sufficient.
6. Expose the whole to a clear sunlight, by pushing it out on a shelf from an ordinary window, or in any other convenient way, for six to ten minutes. If a clear skylight only can be had, the exposure must be continued for thirty or forty-five minutes, and under a cloudy sky, sixty to ninety minutes may be needed.
7. Remove the prepared paper and drench it freely for one or two minutes in clean water, and hang it up by one corner to dry.

Any good hard paper may be employed (from even a leaf from a press copy-book up to Bristol board) which will bear the necessary wetting.

For the sensitizing solution take $1\frac{1}{2}$ oz. citrate of iron and ammonis and 8 oz. clean water; and also, $1\frac{1}{2}$ oz. red prussiate of potash and 8 oz. clean water; dissolve these separately and mix them, keeping the solution in a yellow glass bottle, or carefully protected from the light.

The paper may be very conveniently coated with a sponge of four inches diameter, with one flat side. The paper may be gone over once with the sponge quite moist with the solution, and a second time with the sponge squeezed very dry. The sheet should then be laid away to dry in a dark place, as in a drawer, and must be shielded from the light until it is to be used. When dry the paper is of a full yellow or bronze color; after the exposure to the light the surface becomes a darker bronze, and the lines of the tracing appear as still darker on the surface. Upon washing the paper the characteristic blue tint appears, with the lines of the tracing in vivid contrast.

It will readily be seen that the process is strictly photographic, in the ordinary sense of the word—the tracing taking the place in the printing of the ordinary glass negative. Hence all details are closely reproduced, even to the texture or threads of the tracing-cloth.

A working drawing thus made furnishes its own background, and does not require to be placed over a white ground, as is often the case with a tracing. If desired the copy can be made upon common bond paper, which can be mounted upon a board in the usual way.

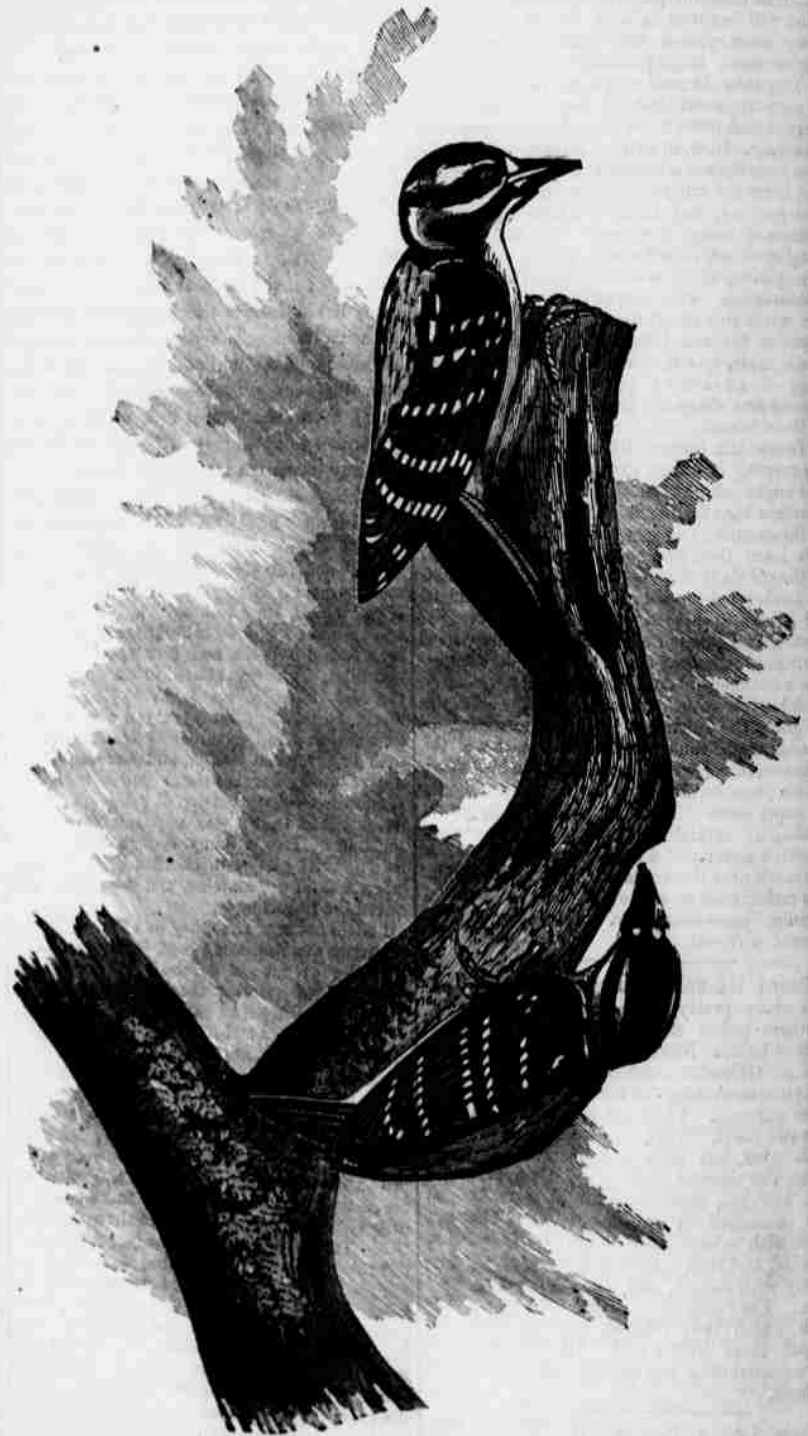
Inasmuch as such copies can be made from tracings only, it may be well to suggest, and urge, that drawings can be completed or nearly

so in pencil upon paper in the usual way, and that all the inking can be done upon tracing-cloth laid upon the pencil-work. In this way the cost of the tracing (in the ordinary sense) can be wholly saved, and the single copy of the finished tracing can thus be made in the "blue" way to the best possible advantage.

It may safely be said that this method of copying can be employed if only one or two copies per week are needed of ordinarily com-

THE HAIRY WOODPECKER.

The engraving on this page shows a pair of "hairy woodpeckers" (*Picus villosus*) common on this coast and widely distributed throughout the whole country. The birds are lively, noisy and fearless of men. In the South it may be seen at all seasons in orchards, among the trees of cities, along the borders of plantations, on



THE HAIRY WOODPECKER—(*Picus Villosus*.)

plex drawing, with excellent results and with a very important saving of time and money.

A ready means of adding to or correcting the blue copies may be found in the use of a solution of carbonate of soda or potash, used with a pen or brush.

An immense number of bogus coins are circulating in Idaho. The are made of block tin, bismuth and powdered glass.

the fences, on isolated fields, and in the densest forests. It is even found in the salt marshes at the mouth of the Mississippi, where a straggling cotton tree or willow affords an opportunity for the exercise of its skill in boring. In the Northern States it disappears at the approach of winter and returns with the apple blossoms. In most parts of the Southern States it is quite familiar in winter, and comes boldly to the barnyard to glean its food.