

## **Leather and its production / [H.R. Proctor].**

### **Contributors**

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Wellcome Collection  
183 Euston Road  
London NW1 2BE UK  
T +44 (0)20 7611 8722  
E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
<https://wellcomecollection.org>

# LEATHER AND ITS PRODUCTION

THE skins of animals have been used for clothing from very early times, and some way must therefore have been known of converting them into leather, and so preserving them from decay. At first, no doubt, skins were generally prepared with the hair or wool upon them, as furs and wool mats still are, but for most purposes in these days, the first step in the production of leather is to remove the hair, which is generally done by soaking the skins for a week or more in a mixture of lime and water. The natural skin consists of two layers, the inner or true skin, which has nerves and blood-vessels, and which bleeds and hurts when it is cut ; and the thin outer or scarf skin which has neither of these, and which consequently feels nothing. On the palm of the hand, for example, where the scarf skin is fairly thick, it is easy to pass a needle through it without producing any pain. The hairs, which have bulbs like little onions, are planted in the true skin, but the scarf skin passes down underneath them and lines the holes ; and as it is softened and dissolved by the lime, the hair is easily scraped off with a blunt two-handled knife. This is done by the tanner on a sloping "beam" of a rounded form, and on it the fat and loose flesh is also cut and scraped off the inner or flesh side of the skin with a sharp tool. After washing in water, the heavier hides of cows and oxen are ready to be tanned, but lighter hides and skins, and especially those for very fine and soft leathers, such as morocco and kid, require a further treatment to free them from the



lime and natural grease, and portions of the scarf skin and hair roots which still remain. This consists in soaking in a solution of dogs' or pigeons' dung; which, however unpleasant, seems to answer the purpose better than anything else as yet found out. After this the skins are again worked and stretched with the knife over the beam, and are also frequently soaked in fermenting bran and water, which has a further cleansing effect. In this stage the skins are soft, clean, and white, but would still easily putrify if left wet, and if dried would become almost like a piece of horn. They are now, however, ready for the tanning, which will change all this and make them into durable and pliable leather.

This is done by soaking infusions of barks and other astringent vegetable matters which have a harsh rough taste, like that of strong tea which has stood long on the leaves. This astringency is caused by the presence of matters called tannins, which will tan skin and other animal membranes, and which are consequently useful in making leather, but very injurious to the stomach. One of the oldest and most important tanning materials is the bark of the oak tree. The acorns of an evergreen oak which grows in the Levant and in Greece also contain much tannin (quite three times as much as oak bark). They are much used for tanning thick leather for the soles of boots, and are called Valonia. The inner bark of the cork-oak is also a valuable tanning material. Among other barks may be mentioned those of the larch, of the American hemlock pine, and of the Australian mimosa or wattle. The leaves of the sumach bush from Sicily are greatly used in tanning fine and soft leathers; and the bean-like pods of Divi-divi, and Algarobilla from South America, and the hard-dried Indian fruits called Myrabolanes are very rich in tannin. Several woods, such as the oak and chestnut in Europe, the Quebracho in Brazil, and the areca or cutch



tree in India, yield tans which are principally used in the form of extracts, which are made by soaking the rasped woods in water, and boiling down the infusions so obtained. A very important extract called gambier or terra japonica is thus made in the East Indies from the leaves and twigs of a shrub. This comes in small hard cubes or in pasty blocks wrapped up in matting. It tans very quickly but makes rather spongy leather.

When the hides and skins have been rendered soft, clean, and white, as before described, they are at first kept moving about in weak liquors made with one or more of these tanning materials, and are afterwards laid flat in stronger liquors in deep pits, and generally with some of the solid ground material dusted in between them to keep the skins apart and maintain the strength of the liquor. The skins become yellow or brown, and are gradually converted into leather (the gelatine of the skin combining with the tannic acid) by sucking the tannin out of the liquors, which have to be frequently strengthened or renewed. Some thin skins can be tanned in a week, but the thickest and best sole-leather still takes twelve months before it is thoroughly solid. An interesting way of tanning thin skins for morocco consists in sewing them up into bags or bottles, like those used by the ancients for wine and water, and still to be seen in the East. These are filled with sumach liquor, and floated in the same, and at intervals are piled up in heaps, when their weight soon squeezes the tanning liquor through the skin. Tanning is much quickened by keeping the skins moving in the liquors, and for this purpose they are often placed in vats with paddle-wheels, something like those of a steamer, or in large revolving drums like enormous churns. When completely tanned, the thick heavy hides intended for soles of boots are hung up in drying rooms, generally with windows fitted with louvre boards like Venetian blinds, until about half-dry; and are then



smoothed out under a machine, or with a steel tool called a "striking-pin," and rolled under a heavy brass roller, to make them as solid and firm as possible, and are finally dried in a warm room. Leather which is intended for straps and harness, and the thinner hides and calfskins for the upper parts of boots, and many other purposes, are well scoured before drying, with brushes, stones, and a steel tool called a "sleeker," and are then daubed over with a mixture of fish oil and tallow, which is called "dubbing," and dried in a warm room. The grease is now often applied in a "drum" similar to that used in tanning. As the water dries out, the oil is drawn into the leather to take its place, and renders it soft and waterproof. Leather which is intended for boots is then generally blacked. This treatment is called "currying," and is frequently not performed by the tanner, but by the currier, who buys the rough dried leather, and again wets it before scouring and currying.

Another sort of tanned leather is what is called "patent," "enamelled," or "japanned." The bright, shiny surface of this leather is produced by stretching the leather on boards which will slide into stoves heated by steam pipes, and giving it a number of coatings of a sort of varnish made with linseed oil and prussian blue, of which one must be thoroughly dry before the next is laid on. The rooms in which this is done are generally so hot that the men have to work stripped to the waist.

Sheep, goat and seal skins which are intended for coloured leathers are usually rough dried after tanning, for purposes of storing, and when required for finishing are soaked in water and well scoured out with a brass sleeker on a table. They are then dyed the required colour by turning over in a tray filled with the dye-liquor, which for the brighter colours is generally a solution of coal-tar dyes. After dyeing they are stretched and smoothed, or, as it is called, "struck out" with the sleeker, and are nailed on



boards in a warm room to make them dry smooth. When dry, they are again slightly damped, and laid on a table, and one edge of the skin is doubled over, and the fold worked and rubbed forwards or backwards under a flat board covered with cork, so that every part of the skin is creased and flattened out again. This process raises the grain of the skin, and produces the rough surface, which is so much admired in moroccas. To give a polish to the leather it is rubbed under a machine with a round piece of glass, agate, or hard wood. This glazes and flattens down the grain, but it is easily raised again by a repetition of the boarding which is called "springing up."

The soft sheep-skin morocco called "paste-grain" which is much used for pocket-books, albums, and such like, is made in a very ingenious way. The skins in the soft limed condition before tanning, are put through a "splitting machine," in which they are drawn against a long, sharp knife-blade, which is driven rapidly back and forward, like the cutting blade of a reaping machine, and which cuts them into two thicknesses. Of these, the inner, or "lining" is made into wash-leather, while the outer one is tanned, and called a "skiver." This is too thin to take a handsome grain in the ordinary way, and is therefore pasted over on the back with thin glue, which, as it dries and shrinks, draws up the skin, and forms a grain which is easily raised by boarding in the usual way. Artificial grain is also often formed by passing the leather through a powerful roller press like a wringing machine, in which the top roller is engraved like the grain it is desired to imitate, or covered with an electrotpe taken from an actual skin. In the latter case the imitation is often so exact as, when made up into goods, to deceive even the experienced.

Wash-leather or "chamois leather," is treated in an entirely different way to tanned leather. After liming, and splitting, instead of being tanned, it is put into a



machine called "stocks," where it is kneaded with fish oil under powerful hammers, till quite saturated, when it is thrown into heaps, where it soon becomes very hot from a sort of fermentation, taking a yellow colour, and giving off a very pungent smell, resembling that of mustard. The superfluous oil is then washed out with soda, and the skin, after drying, is ready for use, and forms the well-known and very useful wash-leather, so called because it will bear hot water without injury. White leather, which is used for whip lashes, laces, and for capping medicine bottles, is tanned or "tawed" with a mixture of alum and salt; and the "kid" of which gloves and thin boots are made is done in much the same way, but with the addition of flour and egg-yolks to the mixture, to give softness and fulness. Immense numbers of eggs are used for this purpose, and though very expensive, nothing has yet been found completely to take their place. The dyeing of kid-leather is either done by brushing on the colour on a table with a smooth zinc top, which is washed after every skin, to keep the flesh side clean, or by dipping in the dye tray.

These are some few of the processes by which leather is made, but its manufacture is one of the most ancient of arts, and an extraordinary instance of the perfection and complexity to which processes may be brought by long ages of trial and experience, even in the absence of much scientific knowledge.

*The foregoing was written by the late Prof. H. R. Proctor, F.I.C., F.C.S., Examiner to the City and Guilds Institute, Lecturer on Leather Industries at the Yorkshire College, Leeds, etc., and was published by us with the kind permission of Edw. and Jas. Richardson, Elswick Leather Works, Newcastle-on-Tyne, to whom we are indebted for the following additional notes.*



Since the preceding article was written by Prof. Proctor a quarter of a century ago, there have, of course, been many alterations and improvements in the manufacture, both in processes and machinery, but as far as it goes, there is perhaps no better account of the manufacture of vegetable tanned leather, and though machinery may have taken the place of much hand labour, the processes as described are practically all in use to-day.

During the last twenty-five years, however, a new method of making leather has come into general use, namely, CHROME TANNING. This method had been known to chemists for many years, but had not been developed, and at the time Prof. Proctor wrote it was in its infancy. It has, however, grown enormously and it is true to say to-day that practically all the boot and shoe uppers in general use are made of chrome tanned leather, viz., box calf, box hides, glace kid, patent leather, etc.

Hides and skins that are to be chrome tanned are treated in the first place in exactly the same way as those intended for vegetable tanning, as far as removing the hair, cleaning the skin and making it ready for the actual tanning, but instead of then treating it with any vegetable tanning material, the skin is treated with chromic oxide, which is obtained from bichromate of potash or soda. There are two methods in use—the one bath and the two bath processes.

In the one-bath process, the chrome liquor contains all the necessary chrome oxide. The hides or skins are usually “drummed” in this, i.e., they are put into revolving vats or drums with the chrome liquor and are fully chromed or tanned in two to three days.

In the two-bath process the hides or skins are first drummed in a solution of chromium salts, and after they are thoroughly impregnated they are then drummed in a



solution of hyposulphite of soda, which gives the necessary "reducing" action.

In both the one and the two-bath processes the resulting leather is of a bluish green colour. It will be observed that the actual tanning process in chrome takes only two or three days, as against as many weeks by the vegetable tanning process.

Chrome leather has many advantages, for some purposes, over vegetable tanned leather. It is better water resisting. It will stand more heat than vegetable leather, for instance—chrome leather hosepipes will stand hot water where vegetable leather will not, but of all uses it is most suitable for boot uppers. Box calf, and hides, hosepipe leather, belting leather, etc., are generally one-bath chromed, while the two-bath process is usually employed in the manufacture of glaze kid as it produces a rather mellower leather.

Chrome leather will make first-class sole leather, but it has first to be stiffened by being impregnated with wax in a melted state. For some reason, chrome sole leather, though having some advantages over vegetable sole leather, has never been fully appreciated by the public.

Chrome tannage is very suitable for sheepskins that are now so largely used for making motor coats, but for light leathers such as moroccos for bookbinding, ladies' fancy bags, pocket-books, upholstery, etc., the ancient vegetable tanning is still the best.

## DRYAD HANDICRAFTS

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# STAINING LEATHER

*by*

PAUL I. SMITH

1st Class Certificate in "Leather Dyeing and Finishing"  
London City and Guilds Institute.



DRYAD HANDICRAFTS

42 ST. NICHOLAS STREET, LEICESTER  
and 17 Duke St., Manchester Sq., London, W.1



# STAINING LEATHER

There are two important groups of stains or dyes which are used for colouring leather.

First there is the Acid Group, which comprises all those stains which dissolve in water and require a little weak acid to develop the full colour.

Then we have the Basic dyes, so named because of their chemical structure. The majority of these Basic stains are soluble in methylated spirits.

As there are more water stains than spirit stains it is possible to obtain a far better range of shades by the use of the former than of the latter. Again, the acid or water stains are faster to light and brighter in tone than the Basic, although they are not so fast to rubbing. It is an excellent practice to use both Water and Spirit stains. The ground work should be done with the first named dyes and the final coating or "topping" achieved by the careful use of the Spirit stains. In this way very rich and full colours will be obtained which are greatly desired for all high class work. On no account should the Spirit stains be used in too strong a solution, otherwise an objectionable metallic or bronze effect will be produced. The best procedure for the handicraft worker is to make up stock solutions of the Spirit and Water dyes, and then dilute them according to requirements.

## WATER STAINS.

Dissolve approximately  $\frac{1}{2}$  ounce of dye in 1 pint of boiling water and heat until all the dye has entered into solution. Allow the liquid to cool, then add four fluid ounces of Acetic Acid from the chemist. Before bottling it is always advisable to sieve the mixture through a piece of fine muslin, as small particles of undissolved dye may cause patchy results if applied to the leather. The most useful Water Stains are:—Yellow, orange, red, violet, blue, green, brown, black.

Of course, it is not strictly necessary to have such a full range of dyes, but the handicraft worker will find his work easier if a good selection of colours is at hand.



## SPIRIT STAINS.

Exactly the same proportions should be maintained, namely,  $\frac{1}{2}$  ounce of dye to 1 pint of solvent, which in this case is methylated spirits. No acid is needed. On no account should the spirit solution be heated, otherwise a serious fire may result. The easiest way to dissolve stains is to shake them up with the methylated spirits in a large bottle, then when the solvent is saturated, sieve the liquid through fine muslin into a clean bottle. It will sometimes be found that all the stain will not dissolve, in this case the residue in the bottle may be dried and used over again. Similiar colours as mentioned for the acid stains are usually found necessary for good work. The number of applications varies according to the leather used and the depth of colour desired. When Water and Spirit stains are used on the same piece of leather, then two applications of each should prove satisfactory. If the stains are used singly and no great penetration of colour is desired, then three applications will prove sufficient.

## COLOUR MIXING.

It is possible to obtain every conceivable colour by mixing the Primaries, Red, Blue and Yellow.

Thus the following simple group shows some of the effects which may be produced.

Primary	Secondary	Tertiary.
Red	Orange with Black gives Brown.	
Yellow	Green with Black gives Olive, Sage.	
Blue	Purple (violet) with Black gives Puce, Maroon.	

It is possible to obtain an enormous range of colours by mixing the primaries with the secondary and tertiary colours. With a little practice the handicraft worker may obtain the most delicate shades by mixing solutions of three or four dyes. Notes should be kept concerning the proportions of dye solution used to obtain a given effect. Black is a very useful colour for mixing with the secondary and primary colours to obtain soft, pastel shades of grey and green.





### KINDS OF LEATHER USUALLY STAINED.

All leathers suitable for colouring are natural or undyed. The most important variety is modelling calf. This leather is, of course, the finest obtainable for high class handicraft work. Natural bark tanned calf takes both Water and Spirit stains very well, providing the usual precautions are taken. To obtain the rich, full shades so much admired, always bottom with the Water or Acid stains and finish off with the Spirit stains.

Hides and cheaper calf may be used in place of the more expensive calf. These leathers take the dyes quite well, but as they are heavier and more solid than calf, it is advisable to wet them down a little more than usual. Natural tanned goatskins stain full shades with both water and spirit dyes. The same applies to Persians. Ordinary English basils are the cheapest materials the worker has to deal with and consequently the colouring effects are not always completely satisfactory. In the hands of a skilled worker, however, some really effective staining may be accomplished. Spirit stains take better on this leather than Water stains. Natural tanned skiver is sometimes coloured for backing and lining, but generally it is purchased in the dyed and finished condition. Spirit stains take well on this leather.



## PREPARATION OF THE LEATHER.

Leather sold to the handicraft worker by reputable firms usually requires little if any preparation before dyeing. The tanner takes particular care that the leather is well cleansed and scoured before it is offered for sale. As a special precaution, however, it is quite a good plan to rub over the surface with a little leather cleaning solution, using a soft rag.

It sometimes happens, however, that cheap and really unsuitable leathers are foolishly purchased for staining. The skins in these cases are loaded with dirt and grease. In this latter case it is advisable to damp the leather in warm water (not hot) and then brush on to the grain surface the leather cleaning solution, Dryad leather cleaner. A small, clean brush as used for the bath room is very useful for the purpose. The scouring liquid should be worked well into the pores of the leather and the latter well scrubbed with warm water. All these preparatory operations should be carefully performed if really good results are to be obtained. For cleansing, the leather is best tacked on to a large board or table by means of drawing pins, taking care to insert the pins in the very corners of the leather.

On no accounts should stains be applied to the treated leather until the latter has dried to a damp condition, as distinguished from a wet or sodden state. The above cleansing treatment is useful in the case of soiled or much handled leather.

All leather should be damped before staining. The object of this simple operation is to decrease the rapid absorption of dye by the leather. It is exceedingly difficult to stain evenly if the Water or Spirit colours are applied direct to the dry leather, as the latter soaks up the colour like blotting paper.

The moistening of the surface should be done with a piece of clean sponge using lukewarm water. It should be remembered that it is only necessary to damp the thin surface and not the entire leather. This treatment should be carefully and methodically performed, otherwise the staining cannot be carried out successfully.



## METHOD OF STAINING.

After damping the surface of the leather it may be regarded as ready for staining.

First of all the stains should be mixed and diluted ready for use in small saucers. Water stains should only be thinned with water and Spirit stains with methylated spirits.

The colour should be applied by means of a soft piece of velvet or soft sponge. Some workers prefer a brush, and with a little practice good results may be obtained by its use. In the case of small surfaces the stain should be worked quickly over the grain of the leather in small circular movements, and then when the entire surface is stained the movement should be changed to a straight left to right so as to give a uniform and level effect. For large surfaces the same principle should be used only the circular movements must be extended. It must be remembered that quickness is the keynote of success in this operation. Again the same movements must be followed for each piece of work.

As regards patterns, it will generally be found advisable to use swabs of cotton wool and fine paint brushes for colouring intricate figuring and designs.

Cover the surface regularly in straight strokes, as in this case it will not be possible to employ a circular movement.

If Water stains are used first, to be followed by Spirit stains, then the best procedure is to allow the leather to dry for half an hour before applying the final spirit stains, but it must be re-damped to allow the stain to spread evenly.

The applications of stain should be followed one after the other immediately. The leather must on no account be allowed to dry, otherwise uneven and patchy results will inevitably be the consequence.

## POLISHING AND FINISHING.

After staining, the leather should be allowed to dry a little, and then polished very briskly with a piece of soft velvet.

Always rub the surface with a circular movement, starting in the centre of the leather and gradually working over the



entire area. To finish off, polish from left to right. It is essential that the leather should be just damp and not quite dry before polishing.

If the colours appear too hard and bright, it is advisable to sadden them with a little milk and water. A solution made up with half milk and half water will be found very satisfactory. After a single application the leather should be allowed to dry a little then polished as described. In this way a really soft and attractive finish will be given to the grain.

To complete the work, that is to give the leather that peculiar sheen so characteristic of good handicraft work, a slight dressing with Dryad White Polish will be found eminently satisfactory. Polish with velvet as above.

The use of "dopes" or cellulose lacquers is not advised as the real charm of handicraft work lies in the artistic and beautiful soft colours and finish, anything approaching a garish or "imitation leather" appearance should be avoided.

It will be helpful to leatherworkers to know that the stains referred to in this leaflet are supplied by the Dryad Handicrafts, in boxes containing approximately  $\frac{1}{2}$  oz. to make 1 pint of stain. They also supply a full range of good quality leather, tools, polish, leather cleaner, etc., etc., a catalogue of which will be sent post free 2d. on application to

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# BLIND AND GOLD TOOLING ON LEATHERWORK

*by*

J. S. HEWITT BATES, F.S.A.M.

AUTHOR OF "BOOKBINDING FOR SCHOOLS"

THE DRYAD PRESS  
LEICESTER



## INTRODUCTION.

A well made piece of leather work, which fulfils its purpose, is in itself a thing of beauty—but there is no reason why its beauty should not be enhanced by the use of simple “Blind” and “Gold Tooling.”

“BLIND TOOLING” is the working of the pattern on to the leather by means of heated tools, making what is called a “blind” impression.

“GOLD TOOLING” is when the impressions of the tools are worked in gold. Method of working will be described in detail later.

If it be true “that only a good texture can hold a good design,” it is equally true that only a well constructed piece of work, true in all its details, can be the foundation of super-added decoration—I say super-added advisedly, because a really well made article, though it may only have a few lines and a dot or two of gold, may be a pleasure to look at and to handle, because of its exquisite shape, its delicate thonging, its well fitting parts, and the beautiful colour and grain of the leather.

The reason that so much of the leather work of to-day is without interest is simply because one sees so many lamentable instances of poor decoration attempted on badly made articles.

A few principles may be laid down to govern the student in designing for leather work. The decoration of a flat surface—such as a wallet, purse, bag, or blotter—should, generally speaking, be purely ornamental and not pictorial. The design ought always to be simple and flat, without shading.

Tools used in the design should be simple in form and few in number, so that they will bear orderly repetition without becoming monotonous. They should be grouped or distributed according to some geometrical plan, within a well defined border. All pattern must be harmonious in its detail and sympathetic in the nature of its development.

The student should aim at making use of construction for decorative purposes.

Decoration begins with the planning of the shape, thonging and general make up, and should be felt or considered in all



subsequent processes. In the following pages these matters will be dealt with in detail. First a list and description of the necessary tools will be given, then the making of patterns; afterwards the method of working.

### LIST AND DESCRIPTION OF NECESSARY TOOLS FOR MAKING PATTERNS FOR "BLIND" OR "GOLD TOOLING."

FOR MAKING STRAIGHT LINES a one line fillet is needed. This is a brass wheel about  $3\frac{1}{2}$  in. in diameter, the edge of which is turned up in a lathe to the required thickness. About 1 in. is cut out of the circumference so that in working the line may be begun and finished at a given point as in mitreing.

FOR MAKING CURVED LINES a set of gouges is required. These are arcs of circles of different sizes cut in brass and each fitted in a wooden handle.

SET OF LINE PALLETS of different lengths; these are used for making short lines and connecting the various tools used in the design.

FLOWERS, LEAVES, DOTS, ETC., each cut in brass and fitted in handle.

BONE FOLDER for marking lines.

BRASS STRAIGHT EDGE for use as a guide when tooling straight lines.

SET SQUARE for ensuring accuracy in making right angles.

PAIR OF DIVIDERS for measuring and marking distances.

SMALL GAS RING or oil stove for heating tools.

GOLD CUSHION AND GOLD KNIFE for laying out and cutting up the gold leaf. The cushion is padded with blotting paper and covered with rough calf.

### MAKING PATTERNS FOR BLIND AND GOLD TOOLING.

All patterns are better worked out on squared ruled paper, ten lines to the inch. This ensures accuracy in putting down the tools and saves much time in measuring out.

With the few tools already mentioned many varied and pleasing patterns may be made, as will be seen in the illustra-



tion, and as the student experiments many others will suggest themselves.

### MAKING A SIMPLE LINE PATTERN FOR A GENTLEMAN'S WALLET.

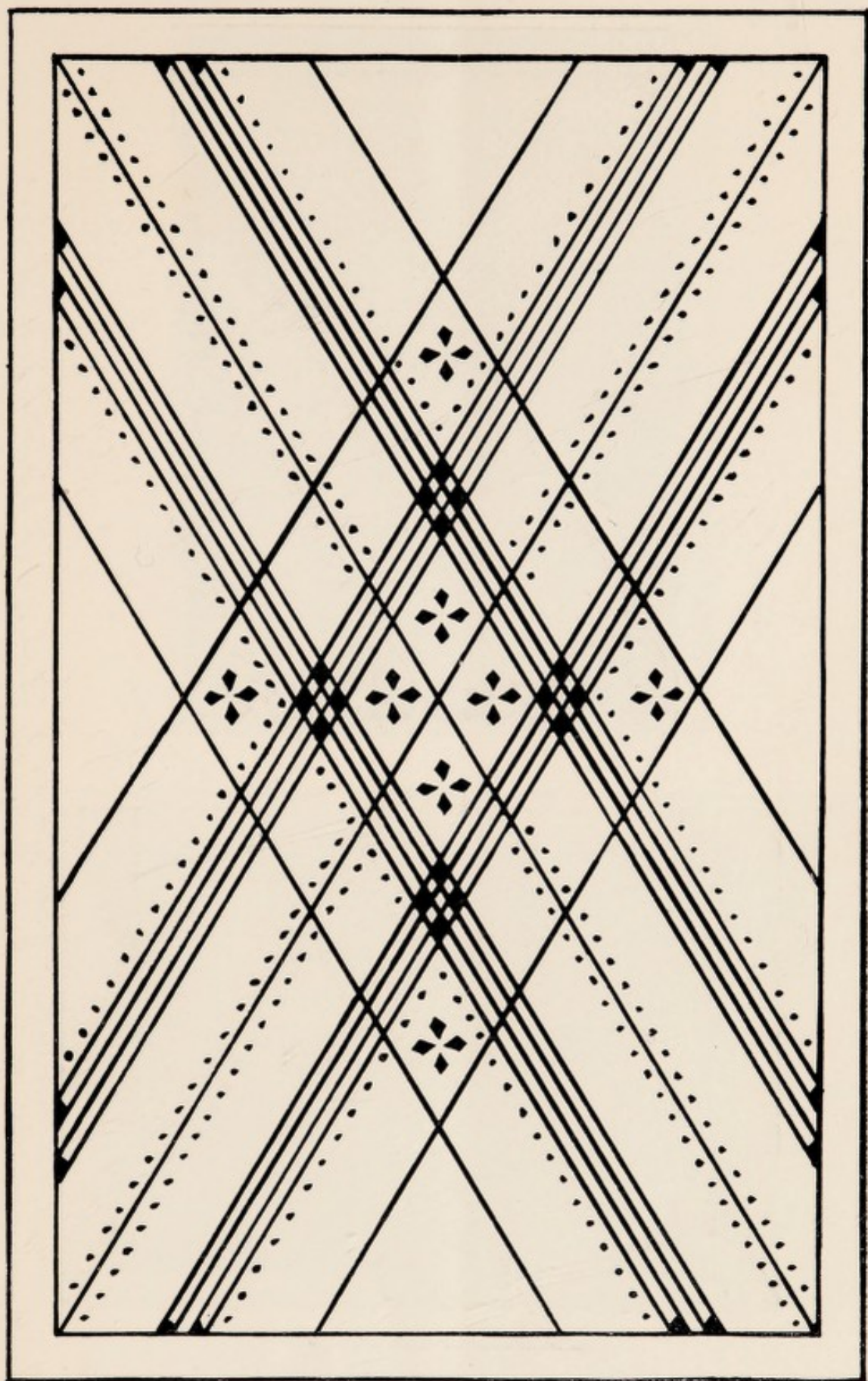
Having decided the size and shape, the leather must be accurately cut out and the tooling done in the flat before making up. We will assume that the size of the leather for the outside of the wallet to be made is 8in. by 6½in. This will allow £1 notes to be placed in the pockets. A piece of squared paper should be cut out to this size, folded down the centre and a line marked ¼in. from the edge all round to allow space for sewing or thonging, also ½in. for the fold. This will give the size of the panel 6in. by 3½in. where the pattern is to be tooled.

First draw the diagonal lines from corner to corner. Mark off 4-10 of an inch on either side of the diagonal lines and allow ⅒ of an inch between each parallel line, and draw these lines in with a pencil. Put the dots about ⅓in. apart, using the tool against a straight edge. Now press the tool in the diamonds as shown opposite.

### "BLINDING IN."

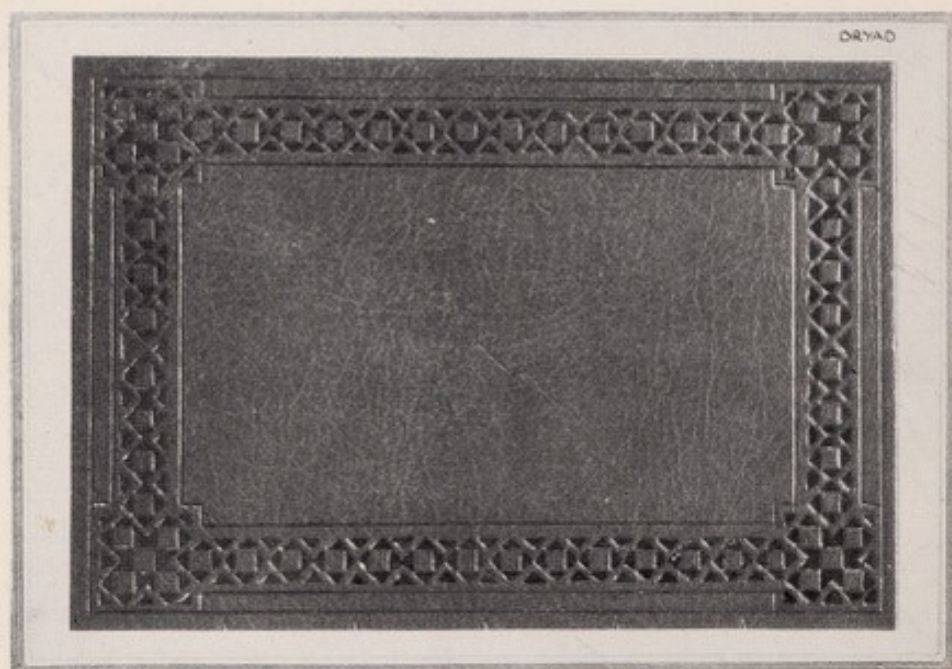
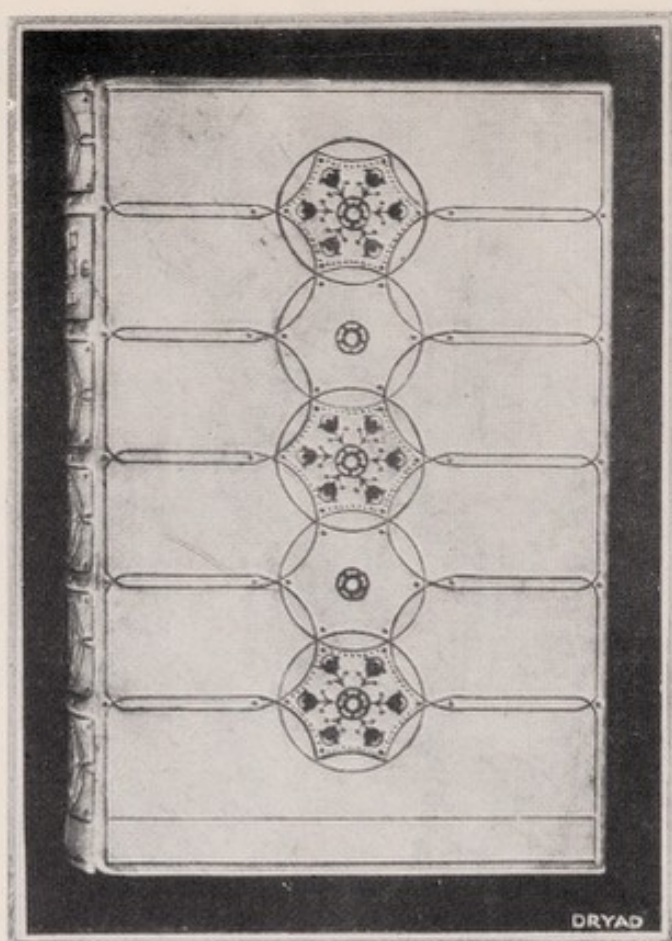
When the paper pattern has been made out successfully each corner should be just tipped with paste and placed in position on the leather. Before tooling the leather should be placed on a piece of strawboard. This will obviate the marking of the table or bench. Impressions are now made through the paper on to the leather with warm tools. To test the heat of the tool it should be put on a pad of wet cotton wool. If it only just slightly hisses it is the right heat. With a one inch line pallet go over the lines first, using it by the side of a straight edge. The tool should be held so that the thumb is on the top of the wooden handle. See that the lines begin and finish on the outside line, which should be put in first. Then impress the dots and other tools in their correct positions. When the one side of the wallet has been "blinded in" the other side must be





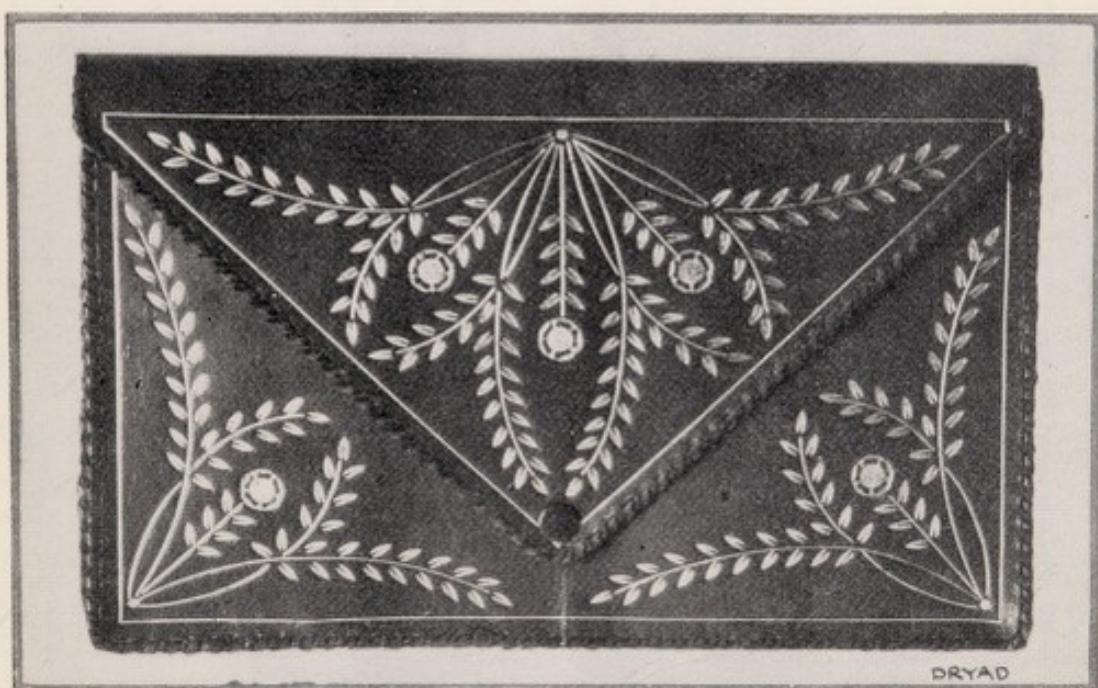
BLIND TOOLING FOR A WALLET





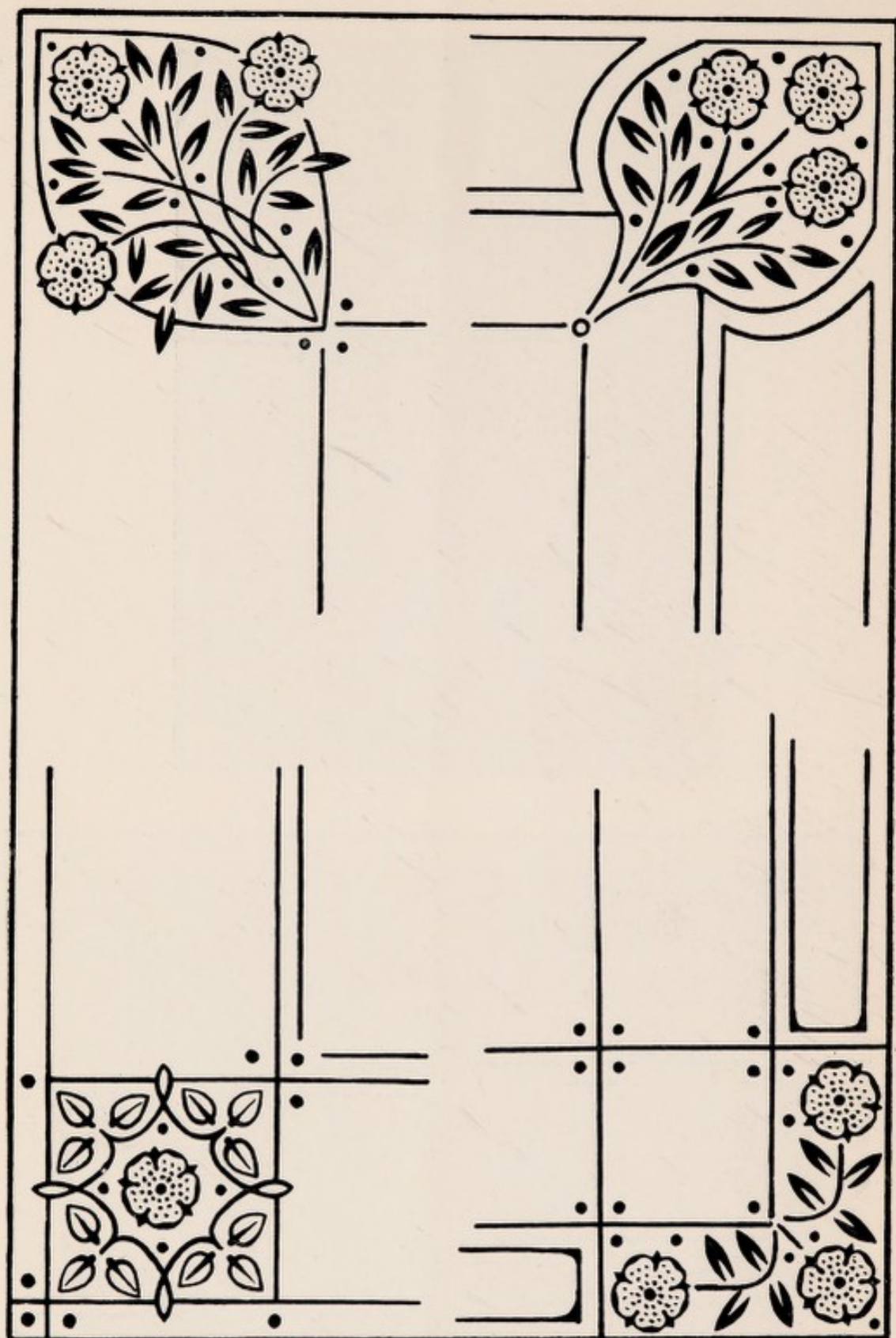
EXAMPLES OF BLIND TOOLING





EXAMPLES OF GOLD TOOLING





#### DESIGNS FOR CORNERS

The above, and also the design on page 5, illustrate the actual size of the impressions made by the tools



treated in the same manner. Moisten the corners before removing the paper or the dried paste may damage the surface of the leather.

When both sides have been worked and the paper removed, if the tooling is to be in "blind" the leather must be slightly dampened with a moist sponge, and the tools worked in again direct on to the leather, the tools being only slightly warm. This will deepen the impressions and give them a dark and bright appearance. When going over the lines when the leather is damp a wooden ruler should be used, as a metal straight edge is apt to discolour the leather. On some leather it is advisable to go over the tooling again when the leather is dry.

In making line patterns, as on page 5, the whole design must be made out as illustrated, but in the case of patterns for corners, only one corner need be designed.

In working corners the outside margin lines are first marked on the leather and each corner is worked separately through the same paper. They must be tipped with paste and placed at each right angle exactly in correct position, so that when all corners are worked in the border lines will connect properly. This will need great care.

Monograms are first drawn and then worked with lines and gouges to fit. They are "blinded in" in the same way as other patterns. Each letter might be stained a different colour and the outline worked in gold. They give a personal touch to any piece of leather work.

Gold and blind tooling look well when worked together, and it should be emphasised that a simple, well spaced design, having regard to the worth of the material, has a much more dignified and restful beauty than any amount of indiscriminate gold tooling can possess.

### METHOD OF GOLD TOOLING.

The following preparations will be needed in connection with gold tooling:—

PASTE for attaching the paper patterns and preparing the leather for gold tooling. This is made by adding a little cold



water to 2ozs. of flour and a dessert spoonful of powdered alum and the lumps beaten out to a smooth paste. A pint of cold water should be added before the paste is put to boil. It should be continually stirred until it boils and thickens. A few drops of oil of cloves will prevent the paste from going mouldy.

**GLAIRE** for making the gold stick to the leather. This is made by beating up the white of one egg with about half that quantity of vinegar. It should be well beaten up so that it goes into a hard froth, allowed to stand for twelve hours, and then strained off. A little powdered camphor added will preserve the glaire and make it non-odorous.

As a substitute for the white of egg, dried albumen may be bought. When sufficient water has been added to make it about the thickness of milk and the crystals dissolved, it must be strained and is then ready for use. A few drops of milk added will prevent it from frothing.

**A SOFT GOLD RUBBER** for cleaning off the superfluous gold after tooling. When preparing for gold tooling the paper through which the design has been worked must be carefully removed as described for "blind tooling," and any tools that have not made a clear impression worked in again, since in the subsequent washing the impressions of the tools are apt to dry out.

**GOLD LEAF.** This can be bought in books of 25 leaves at about 2/6 per book.

The preparation needed depends on the nature of the leather. Calf and sheepskins, which are very porous, need washing with paste water. A little ordinary flour paste is put on a wet sponge and rubbed well over the leather to fill up the pores.

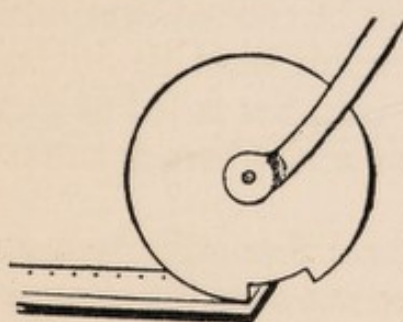
**GOAT SKINS, i.e., moroccos**, which are less porous, need only be washed over with vinegar. When the paste washing or vinegar is dry the impressions of the tools must be painted in with glaire. A fine sable brush is best for this. When the glaire is dry the gold may be laid on. A sheet of gold is taken from the gold book, laid on the cushion and cut into squares or strips to cover the impressions of the tools. A little vaseline



or cocoanut oil is put on a small piece of cotton wool and rubbed on the back of the hand to distribute it evenly, making what is called a "grease cotton."

A larger piece of cotton wool formed into a flat pad by pressure on a flat surface or the back of the hand makes a pad to lay on the gold. When this is slightly greased by rubbing across the hair or the greased hand of the worker, the gold will adhere to it and may be picked up from the cushion.

The portion of the design to be worked should be greased over evenly with the "grease cotton" to hold the gold down. The gold is picked up from the gold cushion with the laying on pad and pressed well into the impression. If it breaks another piece of gold must be laid on. To make the second layer adhere the worker should breathe lightly on the first layer of gold. Do not lay too much gold on at a time. If tooling patterns such as those illustrated on page 8, only lay one corner on at a working. The tools to be used are now placed on the stove to heat. The fillet, when heated to just hissing point, is used first for the lines.

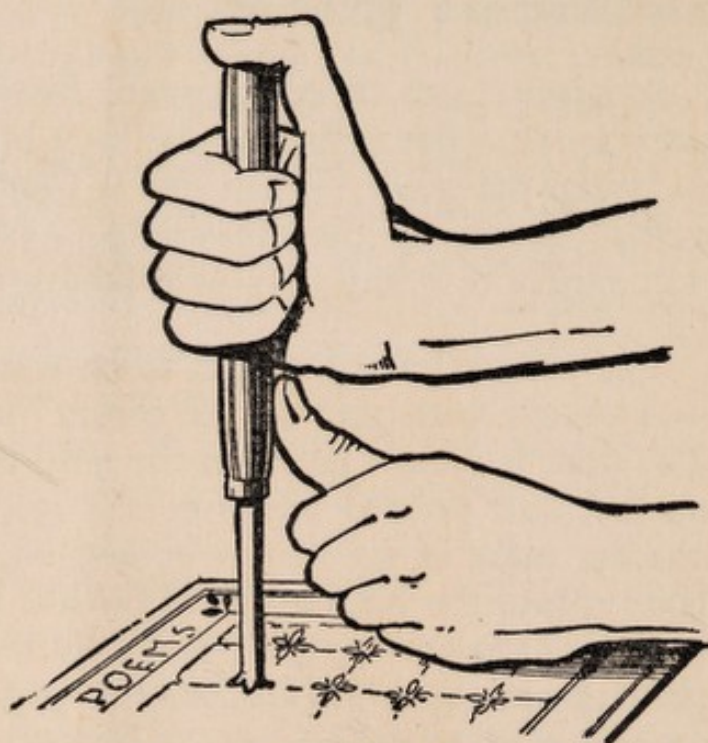


Method of using fillet  
when mitreing

It should be held by the bottom of the handle in the right hand with the top resting on the shoulder, and guided into the impression of the margin line at the corner by the left hand thumb nail. With a firm pressure on the fillet it is run along the line as far as the gold has been laid on. The flowers and leaves are then put in. These tools should be held with the thumb on the top of the handle and placed in each impression with a slight rocking motion. In working the pressure should vary according to the size of the tool. Short lines, dots and gouges need very little pressure. Gouges should always be sighted from the inside of the curve and should be put down firmly without sliding but with a slight rocking motion.



When striking the flower or leaf the face of the tool should be held about  $\frac{1}{2}$  in. above the blind impression and in the same position and a sight of the impression obtained. It should then be quickly lowered and placed in the impression, pressing in the centre first and then slightly rocking from side to side. The length of time the tool should be held down varies with its size and the condition of the preparation.



Method of holding & guiding tool

When all the pattern has been tooled the superfluous gold is rubbed off with the gold rubber. To remove the grease used for laying on the gold the leather should be rubbed over with benzine applied with a small piece of cotton wool.

If after rubbing off it is seen that the gold has failed to stick in a few places, these must be reglaid and when dry more gold should be laid on and retooled.

It is found sometimes on certain leathers that gold does not adhere properly. In this case the tool has not been hot enough, the glaire has been too dry, or the pressure uneven or insufficient. If the tools have been the right heat and the impression even and firm the gold should be clear and bright.

The half-tone illustrations show a few examples of gold tooling on blotters, wallets, etc., done by pupils of the author.

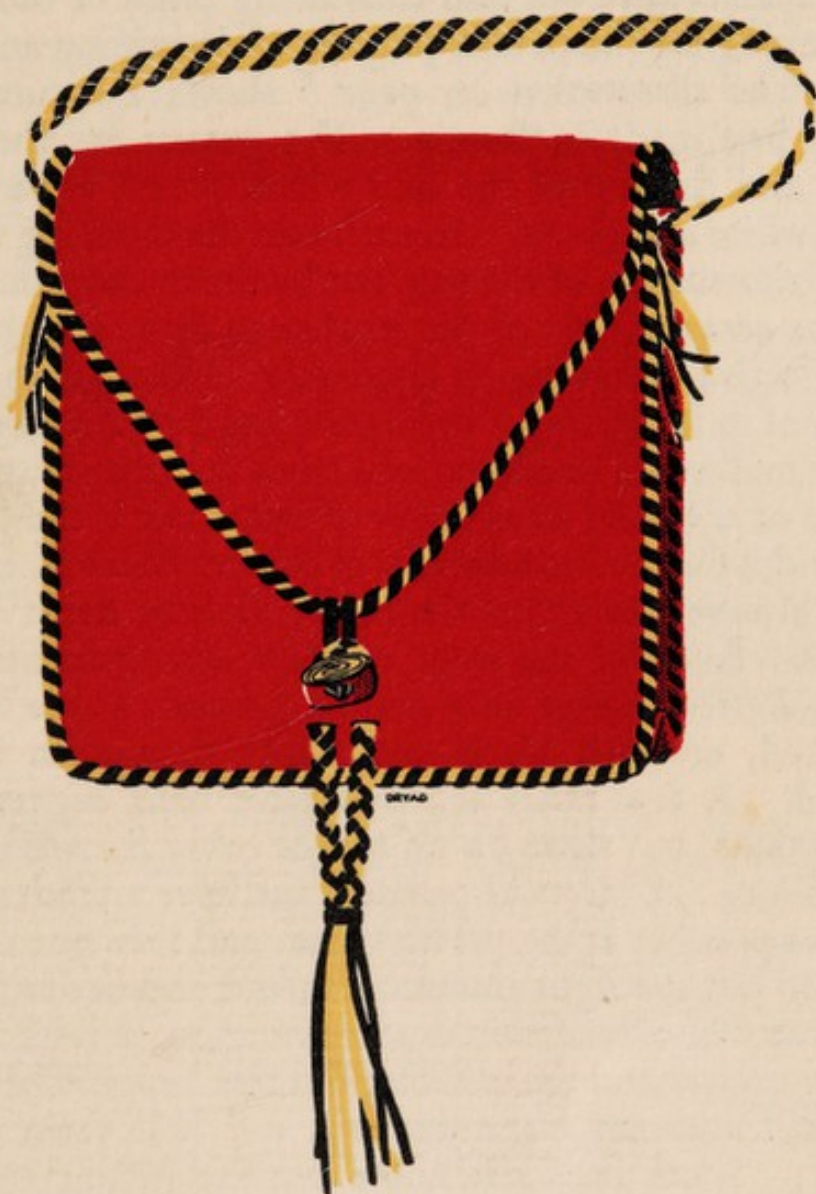
For further detailed information of gold tooling see Chapters XIII. and XIV. "Bookbinding for Schools," by J. S. Hewitt-Bates, and for constructive leather work, "Leather Bags and Purses," and "New Leatherwork Decorations," by Elsie Mochrie, published by Dryad Press.





6  
DRYAD HANDICRAFTS LEAFLET No. 63

# DECORATIVE LEATHER THONGING



THE DRYAD PRESS  
LEICESTER



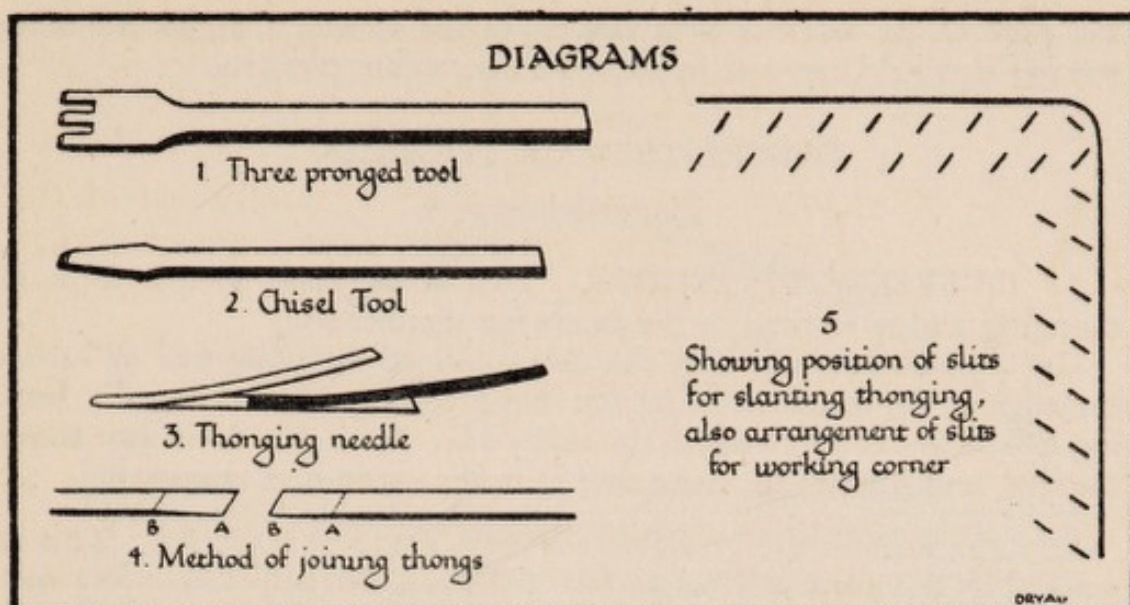
# DECORATIVE LEATHER THONGING

ANY form of ornament that arises naturally out of the making of an object is generally more successful than that which is added later for effect only. Amongst native leatherwork we find convincing proof of this in the use of thonging for the double purpose of decoration and construction. The illustration on page 5 shows a natural coloured leather bag made in Bosnia. The gussets are thonged with black, and the top of the flap which is red, is thonged with black, white and green. In each case the thonging is necessary to the construction of the bag, but by the introduction of colour and the arrangement of the stitches to form a pattern, a bold and effective decoration is obtained. Although in most cases sufficient in itself, thong decoration can be used very well with simple tool work, as will be seen from the same illustration.

One of the chief advantages of this work is the opportunity it provides for the introduction of colour, which in leatherwork is not always easy unless the object itself be made of coloured leather. Some of the most effective arrangements are made with coloured thongs on a natural ground, as the bag already described, or with black and white thongs on a coloured ground. A few other schemes have been suggested in the descriptions, but these by no means cover the whole range of possibilities. Objects of personal use have a tendency to be as plain as possible at the present time, and this type of thonging will add just the right amount of colour and decoration.

Those who already know something about leatherwork will readily understand the working of these new stitches, and with care and accuracy beginners will not find them difficult to master. Space does not allow for the cutting-out measurements and details of the making of the articles illustrated, but it should be possible to follow the shape and construction sufficiently well from the photographs to cut a pattern the size required. For those who wish, full instructions for making





up bags, purses and other leather articles of various kinds which are equally suitable for decorative thonging, will be found in "Leather Bags and Purses," by Elsie Mochrie, and "Leather Craft," by G. Shaw, both published by the Dryad Press.

Most of the examples of thonging in this leaflet are taken from the bag already mentioned, but many workers will probably be able to find in local museums similar examples of native work from which they can develop other arrangements.

#### GENERAL NOTES.

Slits are used for all the types of thonging described, except in No. 1 Pochette, for which holes are necessary. The slits are made either with a fork-like thonging tool with three prongs (diagram 1) or a single thonging tool like a chisel (diagram 2), according to the arrangement of the slits. When the first mentioned tool is used, the first prong should always be placed in the last slit that has been made, so that the distances between all the slits are uniform.

A flat needle designed for thonging should be used to hold the thong, which cannot be pushed through the slits with the fingers. The end of the thong is skived and stuck with glue between the two ends of the needle (see diagram 3).

When it is necessary to join the thong, the ends of the old and the new piece must be skived and stuck together with glue (see diagram 4). All thonging is worked from left to right and is greatly improved if hammered gently when finished. For all kinds of button-hole stitch



the edge of the work is held nearest to the worker, but for the other stitches it is held away or in the most convenient position.

## DESCRIPTION OF THONGING.

Illustrated Page 9.

1. OVERSEW THONGING. This is the most simple form of thonging and is worked in the following manner:—

Cut a number of slits with the three-pronged thonging tool  $\frac{1}{8}$ " from the edge of the leather. Bring the thong up through the first slit, leaving an end about  $\frac{3}{8}$ " long on the underside. Stick this down just above the slits, and proceed to thong over it in the manner of oversewing.

2. OVERSEW THONGING WITH TWO COLOURS. This is worked in the same manner as No. 1, but in alternate slits, using first one colour and then the other.

3. COUCHING. One thong is sewn down with another, generally of a contrasting colour, in the manner of oversewing. Cut a series of slits with the three-pronged thonging tool  $\frac{1}{8}$ " from the edge of the leather.

Skive one end of the thong to be sewn down, and stick it just above the first slit so that it lies in a horizontal position. Thong over it with the other thong in the manner described in No. 1.

4. CRISS-CROSS THONGING. Cut a row of slits with the three-pronged thonging tool  $\frac{3}{16}$ " from the edge of the leather.

Thong in the manner of oversewing in the alternate slits. Through the remaining slits work in the same manner, but in the opposite direction, thus forming a series of crosses.

5. CLOSE CRISS-CROSS THONGING. Two thongs of contrasting colour are used for this stitch. Make a number of slits with the three-pronged thonging tool  $\frac{3}{16}$ " from the edge of the leather, and work with one of the two thongs as described in No. 1. After this thong through the same slits with the other thong, working in the opposite direction, thus making a row of V shapes on either side of the leather with the two thongs crossing on the edge.

6. RUNNING THONGING. Cut a row of slits in a vertical position with the single thonging tool  $\frac{1}{16}$ " from the edge and  $\frac{1}{8}$ " apart. Bring the thong up through the first slit, down through the next, up through the third, and so on. Be careful not to twist the thong and to keep the right side uppermost.

Finish the ends of the thong by sticking them down flat on the wrong side.





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Plate I. Native Bag from Bosnia.



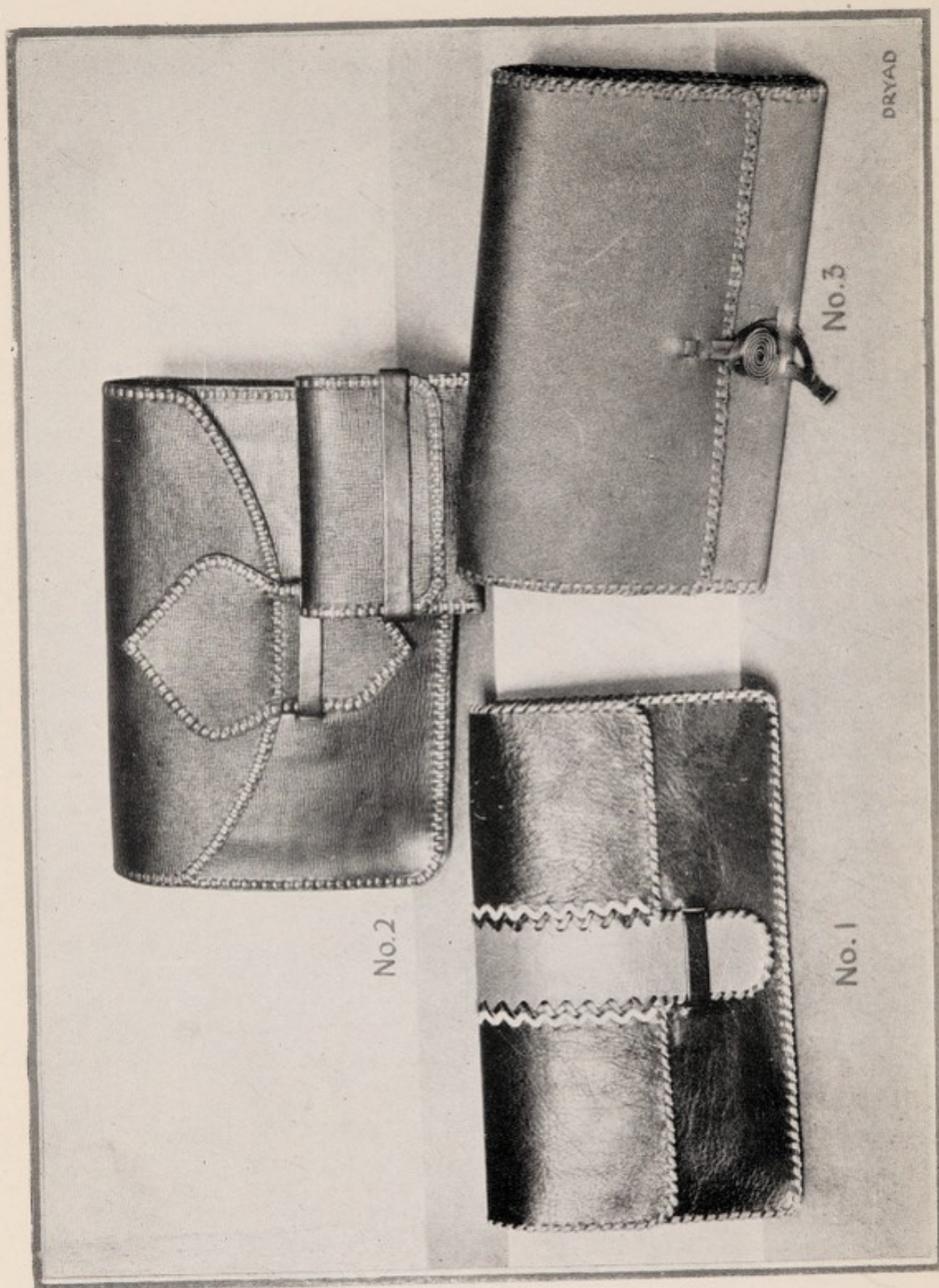
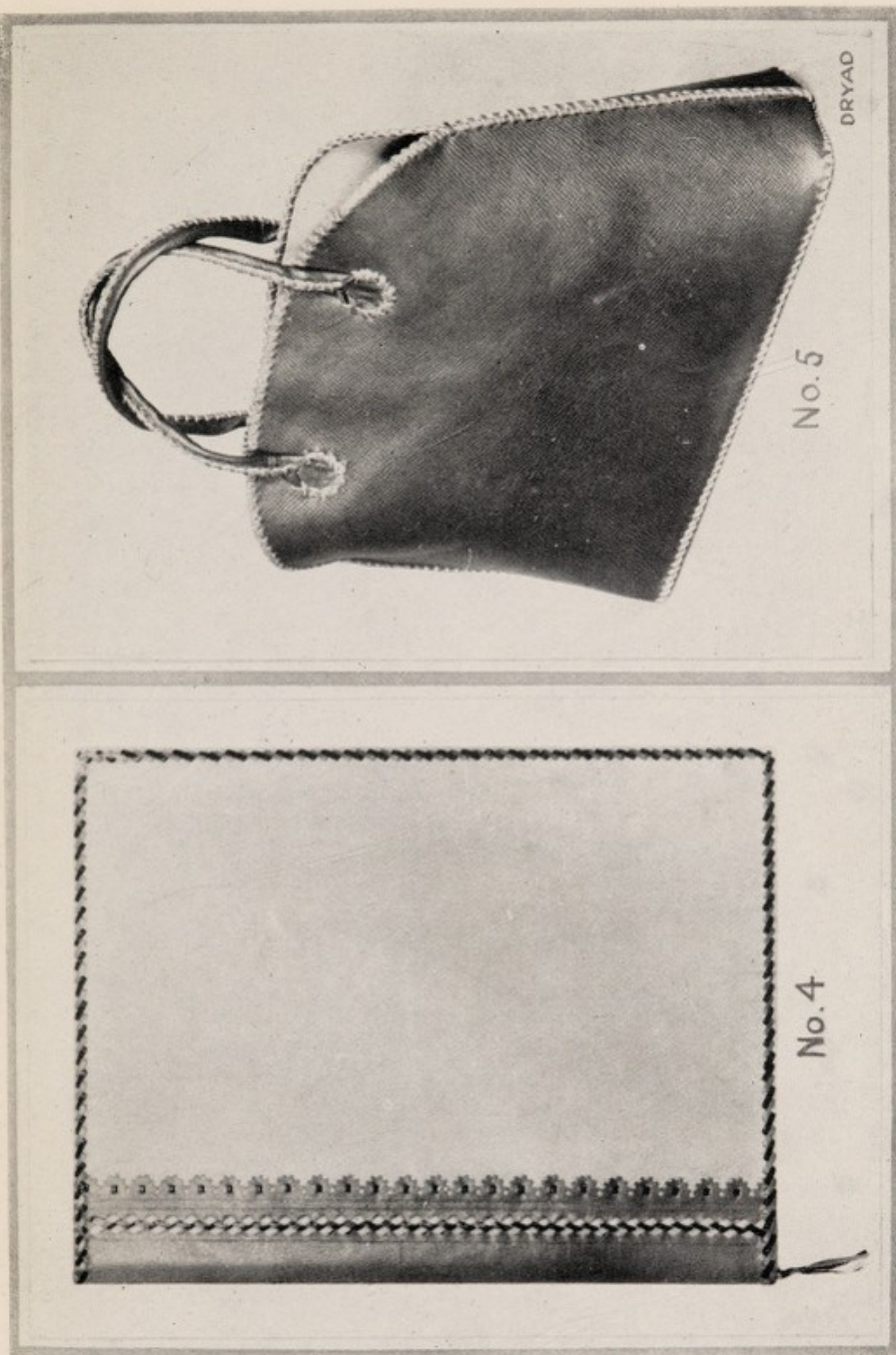
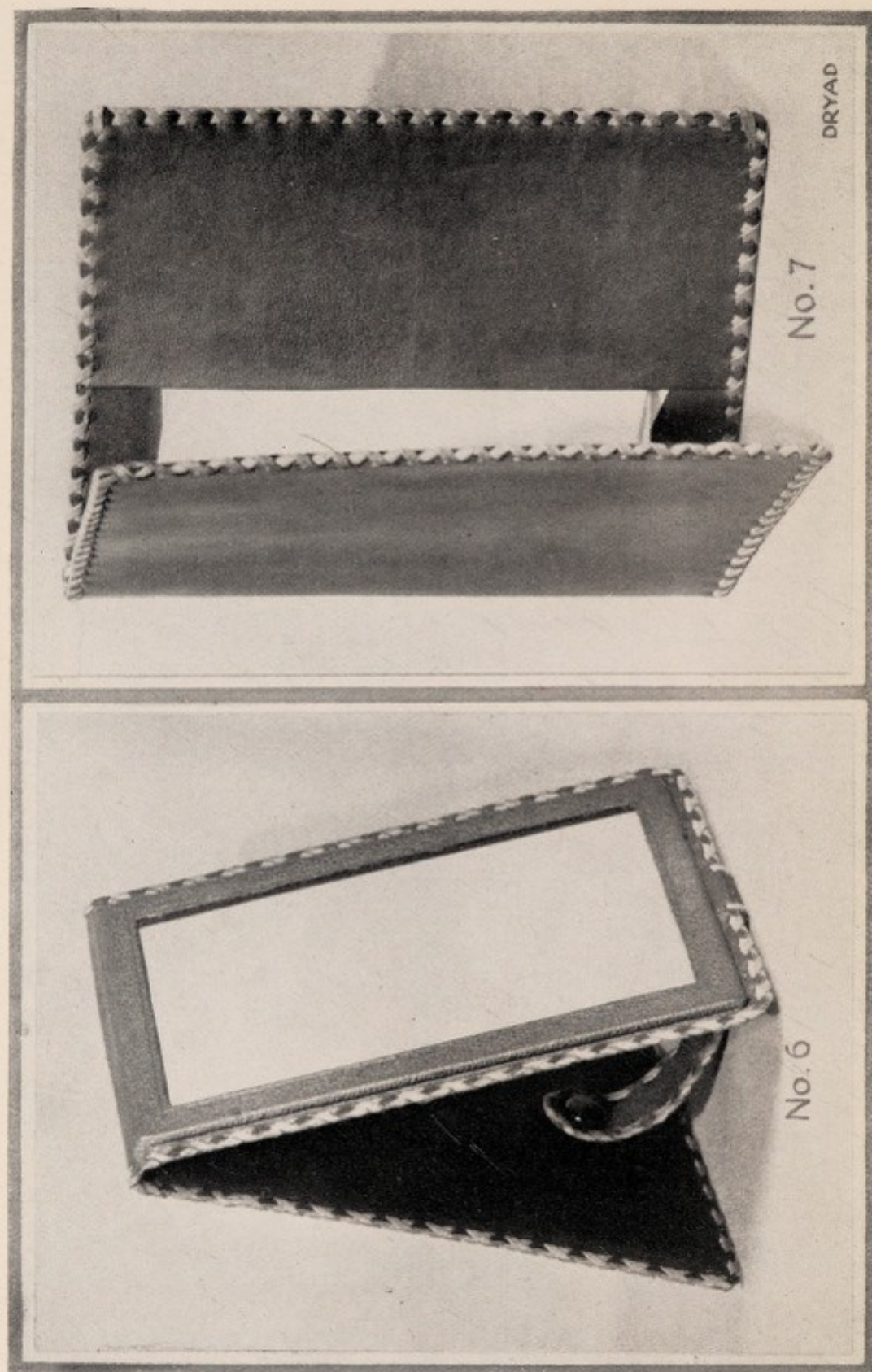


Plate II—No. 1. Pochette of Oasis Morocco. No. 2. Pochette of Willow Calf.













1. Oversew thonging



2. Oversew thonging with two colours



3. Couching



4. Criss-cross thonging



5. Close criss-cross thonging



6. Running thonging



7. Point de Ganse



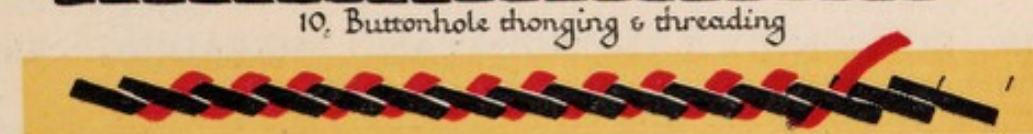
8. Slanting thonging



9. Buttonhole & oversew thonging



10. Buttonhole thonging & threading



11. Slanting thonging & threading

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7. POINT DE GANSE. Make a row of slits with the three-pronged thonging tool  $\frac{1}{10}$ " from the edge.

Bring the thong up through the first slit and down through the second, leaving a small loop. Bring the thong up from the underside and pass it down through the loop from the top, pulling the stitch tight. Pass the thong down through the next slit, leaving a small loop as before. Bring it from the underside and down through the loop from the top, again pulling the stitch tight. Continue in this way for the required distance, taking care to keep the right side of the thong uppermost all the time.

The ends of the thong are secured by threading them through part of the thonging on the wrong side and sticking them with glue.

8. SLANTING THONGING. Make two rows of slits with the single thonging tool, in a slanting direction as shown in diagram 5. The first row is  $\frac{1}{8}$ " from the edge with the slits  $\frac{3}{8}$ " apart.

Bring the thong up from the underside through the first slit marked A in diagram, and down through the first slit in the bottom row marked B. Bring it up through the second slit in the top row, and down through the second slit in the bottom row, continuing in this way for the required distance. The arrangement of the slits for a corner is also shown in diagram 5.

The ends of the thongs are glued flat on the wrong side.

9. BUTTONHOLE AND OVERSEW THONGING COMBINED. Two thongs of contrasting colours are used, one for the oversew thonging and one for the buttonhole thonging. Cut a row of slits with the three-pronged thonging tool  $\frac{3}{16}$ " from the edge. Thong through these slits with one of the thongs, preferably that of lighter colour, as described for No. 1. After this buttonhole into the oversewing with the darker thong in the following manner. Thread the thong through one of the overcast stitches already made and secure it with glue on the wrong side of the work. Pass the thong down through the bottom of the next stitch of the oversewing and pull it through, leaving a small loop. Bring the thong up again through the loop and pull it tight. Pass the thong down again through the bottom of the next stitch of oversew thonging and bring it up through the loop, pulling the stitch tight. Continue in this way for the required distance.

10. BUTTONHOLE THONGING AND THREADING. Three different coloured thongs are needed for this stitch.

Cut a number of slits with the three-pronged tool  $\frac{1}{4}$ " from the edge of the leather. Work a row of black buttonhole thonging as described for the latter half of No. 9, but passing the thong through the slits.

To begin the buttonholing, take the thong down through the first slit, leaving an end about  $\frac{3}{4}$ " long. Bring the thong from the under-



side on to the left-hand side of the end just mentioned. Pass the thong over the top of the end, pass it down through the next slit, and up through the loop, pulling the stitch tight. Stick the first end on the underside of the leather with glue.

When the buttonholing is complete, the red and natural thongs are threaded under the long stitches thus made, first the red alternately under and over, and then the natural in the same manner, but under and over the opposite threads to those of the previous row. Both rows of threading should be pressed down as far as they will go, and the ends stuck down flat with glue.

11. SLANTING THONGING COMBINED WITH THREADING. This makes an effective border and is also useful for securing one piece of leather to another, as for instance, in the blotter on plate 3.

Two thongs of contrasting colour are used, and a length of slanting thonging is worked with one of the colours, as described in No. 8. In this case, however, the slits must be  $\frac{3}{8}$ " apart instead of  $\frac{3}{16}$ ".

When this is done, thread the other thongs under and over the slanting stitches as shown in diagram 11.

#### DESCRIPTION OF ARTICLES ILLUSTRATED.

No. 1. POCHETTE of brown and light tan oasis morocco with gussets and lining also of tan, the latter being of skiver leather. The tan coloured tongue is applied over the brown leather and continues down the back of the pochette. All the edges are thonged with oversew thonging No. 1 in tan, and the bottom of the flap with oversew thonging in brown. The decoration which holds the tongue in place is in brown and cream. It is made in a manner similar to slanting thonging, but with the holes made with a punch and much further apart. The stitches are worked just in one direction and then back through the same holes but slanting in the other direction, thus making a zig-zag.

No. 2. POCHETTE in brown willow calf lined with brown skiver and decorated with running thonging No. 6 in orange. There is a small inside purse decorated in the same way, and the unusual shaped tongue which is slotted through a small strap fixed in the front of the bag adds further interest.

No. 3. POCHETTE in green machine-grained goat, lined with grey skiver and made of two pockets joined together in the centre to form a small pocket for an inside purse. All the edges are thonged with orange Point-de-Ganse No. 7. The fastening is made with a small coil of leather secured to the flap and a loop threaded through slits in the front of the pochette.



No. 4. **BLOTTER** of blue stained calf lined with the same coloured skiver and with two inside pockets. The edges are thonged with criss-cross thonging No. 4 in red and orange.

No. 5. **ROYAL BLUE SHOPPING BAG** with a stiffened base made of willow calf and lined with grey skiver. The decoration is of close criss-cross thonging No. 5 in green and magenta. The handles, which are decorated in the same manner, are made of straight strips of leather folded along the centre with the edges thonged together, and then hammered flat to make a tube.

No. 6. **TRAVELLING MIRROR** in brown machine-grained goat thonged with criss-cross thonging No. 4 in orange. There is a pocket for a comb on the back flap, and the strap, which holds the mirror in place when open, holds the flaps together when shut.

No. 7. **WRITING CASE** in wax-polished natural calf. The lining is of natural skiver, both covers are stiffened with cardboard, and there is a large pocket for paper and envelopes. The back of the blotter is bound with red oasis morocco fastened in place by slanting thonging and threading No. 11 in black and cream. The edges of the morocco are scalloped and then pinked with the smallest hole of the sixway punch, and the scallops are held down by running thonging in black. The edges of the blotter are secured with slanting thonging No. 8 in black and red, and the cord that holds the blotting paper is a three-fold plait of black, cream and red thongs, ending in a small tassel.

**FRONTISPIECE.** BAG of red machine-grained goat, lined with black and thonged at the edges with black and cream couching No. 3, the cream being sewn down with the black. Thongs of these two colours are plaited together for the handle and made to form a small tassel at each end. A smaller plait is used in a similar way for the loop of the fastening, while the button piece is made with a coil of leather.

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