

- I. *An Account of Mr. James Christopher Le Blon's Principles of Printing, in Imitation of Painting, and of Weaving Tapestry, in the same manner as Brocades.* By Cromwell Mortimer, M. D. S. R. Secret.

MR. *Le Blon* endeavouring to fix the true Harmony of Colouring in Painting, found that all visible Objects may be represented by the three primitive Colours, *Red, Yellow, and Blue*; for out of them, all others, even Black itself, may be compounded. We are beholden to the great Sir *Isaac Newton* for the Discovery of the *Difference of Colours contained in the Rays of the Sun*; and that the Union of them all produces a *White, which is Light itself*.

For Distinction sake Mr. *Le Blon* calls those Colours which are comprehended in the Rays of the Sun, *Impalpable Colours*, and those used in Painting, *Material Colours*. In the material Colours, a Mixture of *all Three* produces a *Black* or Darkness, contrary to what is observed in the *Impalpable*, which I said just now produce *White*. Mr. *Le Blon* takes this Phenomenon to be owing to the Body or Substance of which these *three material Colours* consist, and to the Particles of them being *Opake*, and not *Transparent*; for they only reflect certain Rays of Light, that strike on their Surfaces; and therefore when small Particles of different Colours are placed close together, if they are so small that each of them cannot be seen separately by the Eye, we do not discern the
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Colour of each particular Atom, but only the blended reflected Rays, proceeding from the adjoining Particles: Thus Yellow and Red produce an Orange, Yellow and Blue a Green, &c. which seems to be confirmed by placing two Pieces of Silk near together; *viz.* Yellow and Blue: When by intermixing of their reflected Rays, the Yellow will appear of a light Green, and the Blue of a dark Green; which deserves the farther Consideration of the Curious.

He hath reduced the *Harmony of Colouring in Painting to certain infallible Rules, built on this Foundation*: Whereas, according to the common Practice of Painters, their Colouring is the Effect of meer Chance or Guess-work at first, but improved by Experience; all Painters usually declaring that there can be no certain Rules given for mixing Colours. Mr. *Le Blon* published, some Years ago, an ingenious Book on this Subject, intituled, *Coloritto*; or, *the Harmony of Colouring in Painting*.

By these Rules he light on the Manner of Printing any Object in its *natural* Colours, by the Means of *three* Plates, and the *three* primitive Colours; an Art attempted and sought after ever since the Invention of Printing, but in vain, and thought impossible, till he put it in practice about fifteen Years ago.

The Plates are engraved chiefly after the *Mezzo Tinto* Manner; only the *darker Shades*, and sometimes the *Out-Lines*, where they are to appear very sharp, are done with a common Graver. Each Plate is not compleatly engraved, but only contrived to take such a *Portion of the Colour* as is necessary with the *other two Plates*, to make the Picture compleat.

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This *Art of Printing* consists in six Articles ; *viz.*

- I. To produce any Object with three Colours, and three Plates.
- II. To make the *Drawings* on each of the three Plates, so that they may exactly tally.
- III. To engrave the three Plates, so as that they cannot fail to agree.
- IV. To engrave the three Plates in an uncommon Way, so as that they may produce 3000 and more good Prints.
- V. To find the three true *primitive material Colours*, and to prepare them, so as that they may be imprimable, durable, and beautiful.
- VI. To print the three Plates, so as that they may agree perfectly in the Impression.

The *first* of which is the most considerable, comprehending the *Theoretical* Part of the Invention ; and the other *five* are subservient to bring it into *mechanical* Practice, and of such Importance, that if any one of them be wanting, nothing can be executed with Success or Exactness. Sometimes more than the *three Plates* may be employ'd ; *viz.* when Beauty, Cheapness, and Expedition require it.

The Observation of the *compounded Colours* reflected from two Pieces of Silk, of different Colours, placed near together, first gave him the Thought of what the Effect of weaving *Threads* of different Colours would be, when all the *Threads* were so fine, as not to be distinguished at a small Distance one from another.

By the same Principles of producing any visible Object with a small Number of Colours, he arrived at the Skill of producing in the *Loom* all that the *Art of Painting* requires. An Art likewise often attempted, but as often abandoned, and declared impossible till now, as well as the other of Printing in Colours. And 'tis probable, many Improvements may from hence be made in several Trades, especially in combing of Wool, where the Mixing of several Colours may be of great Use; but he hath not yet had Time to apply it to any thing else besides Painting, Printing, and Weaving.

The Colours used in *Weaving* being only *superficial*, and so differing from both the *impalpable* and the *material* Colours, and not being to be so closely joined or incorporated together as those, will not of themselves produce a *White* or *Black*, but only a *Light Cinnamon*: Wherefore, in *Weaving* he hath been obliged to make use of *white* and *black* Threads, besides *red*, *yellow*, and *blue*; and tho' he found he was able to imitate any Picture with *these five* Colours, yet for Cheapness and Expedition, and to add a Brightness where it was required, he found it more convenient to make use of several intermediate Degrees of Colours.

There are two Ways in Use at *Brussels*, and at the *Gobelins* in *Paris*, for making *Tapestry* after the common Manner: One they call the *flat Way*, and the other the *upright*. In the *flat Way* they have the *Warp* stretched in a *Frame* length-wise of the Piece: It is made of white Worsted, and the *Pattern* lies close under it; so that the Workman can see the Figures through the *Warp*: He is provided with *Bob-*
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bins of various Colours of Silk or Worsted, as the Piece requires: Then he takes up with his Fingers one Thread after another, as they answer to any Colour in the Painting beneath; and with the other Hand passes the *Bobbin* with the same Colour, and strikes the Threads close with an *Ivory Comb*. Some of these *Frames* are made like a *Loom*, with a *Warp* passed through the *Leisbes* and *Tredles* for the Feet, with which they open the Threads of the Warp, to pass a common Shuttle through them, when it is necessary to make a long Throw, as is required in *Grounds*, *Pillars*, and *tall Uprights*.

In the *upright Way* the *Warp* runs from Top to Bottom of the Piece; the *Pattern* is placed upright, and close behind it, and the Out-lines are drawn in Charcoal upon the *Fore-side* of the Warp. The Workman is placed with his Back to the Light, by which means he can see the *Pattern* better; then he takes up the Threads one by one, and passes the *Bobbin*, as in the other Way, and strikes it close with the Comb: All which is near as *tedious* as *Needlework* itself; which is the Reason why *fine Tapestry* comes to such high Prices, so that none but *Princes* care to buy it; and what can be had at a moderate Price is always *coarse*, and of a low Taste: For Workmen who have any good Notion of *Painting*, and are capable of adjusting the Colours, are not to be had, but for excessive Wages; which much enhances the Price likewise: But in Mr. *Le Blon's* new Way of *weaving Tapestry in the Loom with a Draw-boy*, Tapestry may be performed almost as expeditious as fine Brocades: For when the *Loom* is once set and mounted, any com-

mon *Draft-Weaver*, tho' not acquainted with *Drawing* nor *Painting*; nay, hardly knowing what Figure he is about, exactly produceth what the *Painter* hath represented in the original *Pattern*: And thus a *Piece* of *Tapestry* may be woven in a Month or two, which, in the common Way of *working*, would take up several Years: And what in the common Way costs a thousand Pounds, may, by this means, be afforded finer and better for a hundred Pounds. Therefore, it is likely, this *woven Tapestry* may become a currant Merchandize; and that many thousand industrious Families may be well employed about it.

The main *Secret* of this Art consists in *drawing the Patterns*, from which any common *Draft-Weaver* can mount the Loom; and when that is done, the Piece may be made of any Size, by only widening the *Reeds* and the *Warp*; and a *Reverse* may be made with the same Ease; which is done by the Boy's pulling the *Lashes* up again in the same Order in which he pull'd them down before; by which Contrivance the *Tapestry* may be suited to any Room, whether the Light comes in on the right Hand, or on the left.

The *Patterns* are painted upon Paper, whereon are printed Squares from Copper Plates, and these subdivided by as many Lines as answer to the Threads of the *Warp*, which run length-wise of the Piece; then they try how many Threads of the *Shoot* answer in Breadth to every Subdivision of the Squares. Every Thread of the *Warp* goes through a small Brass Ring called a *Male*, or through a Loop in the Leish, and hath a small long Weight or *Lingoe* hung below, to counter-

counter-balance the Packthreads, which going from the Top of the Rings or Loops, are passed over the Pul-
lies in the *Table* directly over the Loom, and are continued nearly in a *Horizontal* Position on one side of the Loom, to a convenient Distance ; where they are all spread on a Cross-piece fastened to two Staples: These are called the *Tail of the Mounture* ; and from each of these Packthreads, just by the side of the Loom, are fastned other Packthreads called *Simples*, which descend to the Ground ; so that by pulling these *simple Chords*, you raise any of the Threads of the Warp at pleasure ; wherefore they fasten a Loop or *Potlart* to as many of these *simple Chords* as there are Threads of the Warp to be pull'd up at every Shoot, or every Throw of the Shuttle ; by which means the Shoot shews itself on the right Side, where the Warp is pulled up : And in ordering this, they are guided by the *Pattern*, on which they count the Distances of the Subdivisions, which contain the same Colours in the same Line, and can be shot at once : Then they fasten *Potlarts* to the several *simple Chords*, that draw up the Rings, through which those Threads of the Warp run, which are to lie behind this Colour ; they tie all these Loops together, and fasten a Piece of Worsted or Silk to the Knot, of the same Colour that the Workman is to throw ; and the Boy, when he pulls each Loop, names the Colour, that the Weaver may take the proper Shuttle, and so on for every Colour to be thrown.