

Cambridge University Press
978-1-108-00907-2 - The Grammar of Lithography
W. D. Richmond
Excerpt
[More information](#)

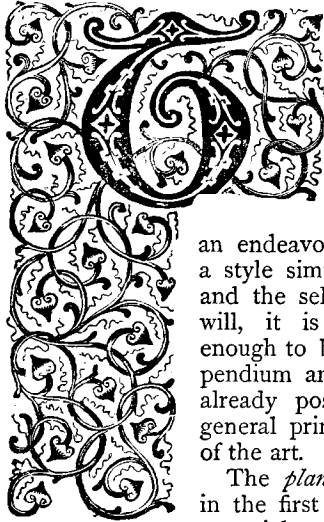
PART I.
DRAWING, TRANSFERRING, AND PRINTING.

Cambridge University Press
 978-1-108-00907-2 - The Grammar of Lithography
 W. D. Richmond
 Excerpt
[More information](#)

THE
 GRAMMAR OF LITHOGRAPHY.

—o—
 CHAPTER I.

Introductory.—Chemical principles on which Lithography is based—
 Principal branches of the Art—Materials employed by the artist—
 Stones : their varieties, characteristics, defects, and prices—Inks—
 Chalks—Transfer-paper, writing, and drawing—Water—Tracing-
 paper.



THE object of the following treatise is to present a full and explicit account of the ART OF LITHOGRAPHY in its various branches, adapted to the requirements alike of the amateur and professional. In its manner, an endeavour has been made to adopt a style simple enough for the learner and the self-educator ; while the matter will, it is hoped, be comprehensive enough to be regarded as a useful compendium and *vade-mecum* for those who already possess a knowledge of the general principles and ordinary practice of the art.

The *plan* of the treatise is to give, in the first place, a description of the materials, tools, implements, and machinery ; then to show their application. The subject is divided into two chief portions,—those appertaining to the provinces respectively of the Artist and the Printer.

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

The principal subjects are referred to in independent paragraphs, numbered consecutively. This plan insures facility of reference, avoids repetition, and obviates unnecessary recapitulation.

1. The art of LITHOGRAPHY is based upon a chemical principle,—that of the attraction and repulsion of various natural substances, and more especially upon the antagonistic qualities of grease and water, or of those substances which are soluble in water and those soluble in oil.

Every one must have observed that grease will not directly combine with water. On this property depends the whole principle of Lithography, however simple or complex the result may be, from the ordinary circular in black to the highly-finished imitation in colours of water, or oil painting.*

2. Practical Lithography may be divided into two distinct branches, viz., *Drawing* and *Printing*.† The former includes drawing and writing both upon stone and transfer-paper; the latter, those multifarious operations necessary after the drawing or writing has left the hands of the artist or writer.

3. Before pursuing this interesting and, to many, fascinating study, it will be necessary to become acquainted with the *materials* ‡ necessary for its practice. Some fifty or more years ago, when the art was in its infancy, its pursuit was attended with many difficulties which do not now

* Stated more precisely, the art of Lithography rests upon the following properties of the substance forming the printing surface :—

1. That a drawing made upon it with fat ink adheres to it so strongly as to require mechanical force to remove it.

2. That the parts of it free from the drawing receive and retain water.

3. That a roller or other instrument covered with fat ink, being applied to the printing surface when wetted, the ink will attach itself only to the fatty drawn parts, and will be repelled from the wetted parts.

† Those who practise the two branches are respectively known as lithographic *artists*, *draughtsmen*, or *writers*, and lithographic *printers*.

‡ The materials necessary for drawing and colouring upon paper, &c., will also be required for the complete equipment of the lithographic artist; but it is considered unnecessary to detail them in this treatise, the student of lithography being supposed to be already acquainted with them. His attention will therefore be mainly solicited to the specialities connected with the subject in hand.

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

LITHOGRAPHIC STONES.

3

confront the Lithographer. At that time it was necessary that he should make, or cause to be made under his immediate superintendence, presses, rollers, varnishes, writing and printing inks, crayons, and any other instrument or material that was peculiar to, or necessary in, Lithography. Of course the chances of failure were *then* very great; but at the present time they are reduced to a minimum, for not only in the metropolis, but also in the provinces, may be found persons whose business it is to supply the trade with every preparation and appliance required.

Every person in commencing is recommended to purchase his requirements from some well-known dealer, as he then may feel confident, if any mishap occurs, that the fault is with himself, and not the material he is using; and this will greatly conduce to his progress. It is only when he has learned to know and appreciate what good materials are, that he may safely venture to make them for himself. Everything that it will answer his purpose to prepare, this treatise will make him acquainted with; it is, however, economical to purchase ready-made many things which he is actually able to prepare for himself. It is nevertheless advisable that every one who aspires to a thorough acquaintance with the art of Lithography should spend some little time in experimenting on the manufacture of the materials, as valuable information is gained thereby,—information that cannot be so well or so thoroughly acquired in any other way. Experiment teaches him to judge not only of the quality of the article, but to estimate the difficulties that attend its production. The beginner should only do so when he has pretty well mastered the use of those materials that are obtained from persons who make their actual manufacture a study and a business.

4. STONES for the purpose of Lithography are imported chiefly from Germany. They may be obtained from dealers who carry on business in London or elsewhere. Lithographic stones are very compact homogeneous limestones, varying in colour from a light cream, dull yellow, drab, or grey, to darker shades of the same colours. The light tints are softer than the dark, and the grey are harder than the cream-coloured stones. Some are uneven in colour, having light and dark patches, which render them

B 2

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

unfit for drawings of which the artist requires to see the effect he is producing during the progress of his work ; but for ordinary transfer-work this appearance is usually unimportant, as also in show-card and other simple ink-work.

Chalky stones have *light spots* scattered about in patches, or these may occur all over the stone : these places are soft, and render the stone unfit for any but the commonest work, and should *never* be used for chalk-work, because the acid used in etching attacks those parts with greater energy, and produces similar spots in the impression. For the same reason they must not be used for *etched tints*.

Among the ordinary defects of stones may be mentioned *holes*, and *specks* termed pins. The latter are hard points, usually of a dark colour, but are not of very frequent occurrence, nor of much disadvantage in use. Neither chalky stones nor those having holes will do for engraving upon.

Veins are frequently found, and appear to arise from cracks at some period of the stone's history. Through them has percolated water charged with the carbonate of lime of which the stone is formed. In process of time this crystallizes and cements the portions of the stone together so firmly that it is a rare thing to find a stone break in the direction of these marks. Being of the same chemical nature, they behave in ink-work as the rest of the stone ; but as they differ in mechanical structure, when a stone is grained for chalk-work they receive the grain differently to the other parts, so that when the drawing is made the vein shows darker than the rest of the drawing. Some veins are scarcely visible, while others are not only broader, but sometimes patches occur in the course of their length which distinctly show their crystalline character.

While any stones of the description before-mentioned will do for common purposes, great care should be exercised in selecting those required for particular work. This advice pre-eminently applies to chalk-work, in selecting stones for which, preference should be given to those which are of an even grey or drab colour ; and though these are not of so agreeable a tint to the artist as the lighter ones, yet experience has shown them to be the best for the purpose of chalk-drawing.

Stones are sold by weight. Small ones may be had as

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

now as 1d. per lb., while very large ones command as much as 4d. Thin stones and grey stones are a little higher in price. *Double-faced* ones, on account of the difficulty of obtaining stones equally good all through, command as much as sixty per cent. more than *single-faced* ones.

Stones have been found in France, England, and other parts of the world, which will yield impressions in the lithographic press, but none possess the qualities of the best German stones in a sufficient degree to become successful rivals.

No other surface, yet discovered, fulfils the necessary conditions of lithographic drawing and printing so completely as the Solenhofen limestone, yet other substances are in use, possessing advantages peculiar to themselves; the most important of these being zinc plates, and the chromitized gelatine films used in the Albotype and other kindred photo-mechanical printing processes.

Any compact substance that carries a good face and has an affinity for both grease and water, may, no doubt, be used for printing by the lithographic method with varying degrees of success; hence, surfaces of metal, artificial stone, glass, wood, &c., have been at various times used and advocated. For the present, however, the student's attention will be confined to the methods applicable to the use of lithographic stones.

5. LITHOGRAPHIC INK.—The manufacture of this important preparation will be described in due course, but at present it will be only necessary to mention that good ink may be bought from any dealer in lithographic materials. The inks of Lemer cier and Vanhymbeeck have deservedly gained a high reputation; but there is, in the eyes of many artists, one drawback to their use on stone, and that is a deficiency of black. Good lithographic ink should contain as much black pigment * as is consistent with the necessary

* This black pigment is added to the ink merely for the purpose of enabling the artist or writer to see what he is doing and to estimate what the effect of his work will be when printed. If more black be put into the ink than is required to attain this object thoroughly, it will probably be injurious, because the artist could then see to use it, though it might be too weak to fulfil the conditions necessary to success in transferring and printing.

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

strength for rolling up, and should flow freely from the pen or brush without a decided tendency to spread, though in this respect it differs considerably from either common writing or China ink, as from the same pen a much thicker line is made with the lithographic ink. The mode of using will be mentioned in its proper place.

The price of this ink is from 1s. per cake.

6. LITHOGRAPHIC CHALKS, OR CRAYONS.—Those most generally used are manufactured by Lemer cier, of Paris, and are so well known that every printer experienced in chalk-drawings knows how to treat a subject in which they have been used. They are made of several degrees of hardness.

The *copal* chalk is hardest, and is used for outlining. Next in order come Nos. 1, 2, and 3. There is also a *stumping* chalk, though not so much used.

These crayons are very carefully manufactured, and may be relied on for great, if not absolute uniformity; so much so, that the lithographer should, under all ordinary circumstances, use no other. This rule may be departed from when the quantity used is very large, or when some competent person is at hand to make them. This duty usually devolves upon the foreman printer in such cases, as he is responsible for the drawings after they leave the hands of the artist. If such a printer should supply the artist with crayons of his own production, they may be used with perfect confidence.

There are at present no crayons in use for Lithography which equal in facility of manipulation the black-lead pencil or the *conté* crayon, when used on paper; but as these substances are in no degree qualified for printing purposes, the artist must necessarily make use of those special productions prepared for his use, which have been found to not only answer his purpose, but that also of the printer.

7. TRANSFER-PAPER FOR WRITING AND DRAWING.—The facilities afforded to Lithography by transfer-paper are so many that its importance cannot be too highly estimated. Its use obviates the necessity of working backwards, as must be done on the stone. When a piece of writing, for example, is transferred face downwards to the stone, and

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

the paper upon which it was written is removed, the back of it is then seen ; and when this in turn is inked by the printer, and a piece of paper laid upon it and an impression taken, this impression shows the same appearance as the original piece of writing upon the transfer-paper.

Transfer-papers are prepared by coating the surface of paper with gelatine, starch, or gum, either singly or in combination, or united with other substances. The object of this coating is to interpose a soluble film between the writing or drawing, in lithographic ink or chalk, and the paper. Paper being more or less porous, would, if used alone, absorb some of the ink, instead of permitting the whole of it to be transferred to the stone. Hence the necessity of covering it with some substance which, during the process of transferring, can be moistened through the back of the paper, which is then peeled off, and the work, with the whole or part of the mucilaginous film, left upon the stone.

There are two distinct kinds of transfer-paper for drawing in the ink style and writing, one prepared on ordinary paper and the other on transparent or tracing-paper. These have smooth surfaces ; but the transfer-paper for chalk drawings has a finely granulated surface adapted for receiving the lithographic crayon. There are also transfer-papers for taking impressions from copper-plate, type, and designs upon stone, to be transferred to stone for the convenience of printing more impressions at once than that obtainable from the original alone.

The use and manufacture of these papers will be hereafter fully described, though they may be bought ready prepared at about 8s. per quire, demy size. Chalk transfer-paper 24s. per quire, imperial quarto.

8. WATER is used for dissolving the ink for writing or drawing on stone or paper ; and inasmuch as soap is used to render the other materials of the ink soluble, it is important that hard water should not be used, but distilled or rain-water filtered through blotting-paper. A four-ounce bottleful, with a nick cut in the side of the cork, so that it may be shaken out a drop at a time, will last for a long while if kept for the purpose.

9. TRACING-PAPER for making clean and neat copies

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

8

THE GRAMMAR OF LITHOGRAPHY.

of the work to be done, and *red* tracing-paper for transferring the same to the prepared paper or stone, will be required by the artist. (See *Appendix*.)

10. The foregoing constitute the principal *materials** required by the writer or artist. Instruments will be treated of in another place, as well as the machinery and tools required by the printer.

CHAPTER II.

Mechanical and Chemical Principles of some of the Lithographic Materials used in Printing.—Varnish—Printing-ink, black and coloured—Gum-water—Plate Transfer-paper—Plate Transfer-ink—Retransfer-paper—Retransfer-ink—Type Retransfer-ink—Nitric Acid—Sponge—Damping-cloth—Sand—Pumice-stone—Snake-stone—Turps.

HAVING referred in the preceding chapter to the principal Lithographic agents—stones, ink, and water, as materials required in lithographic drawing and writing, we now proceed to notice the chief materials used in printing.

11. By VARNISH, in Lithography, is understood the vehicle in which pigments are ground to form the printer's ink. It is made by subjecting the best linseed-oil to the continued influence of heat, until it becomes more or less thick and viscid. The heat must be raised until the oil will take fire, and must be kept at that heat until the varnish is brought to the proper consistency. The operation is very dangerous, inasmuch as the flame from the burning oil will sometimes reach a great height, even though the quantity of oil be only a quart or two, and, for that reason, every precaution should be taken in its manufacture.

One reason for making varnish for one's self would be to obtain an article known to be pure, for comparison with that which may be bought, as it is possible to thicken the

* "Materials" are here intended to mean those matters that require frequent renewing, or are used up in the operations in which they are employed.

Cambridge University Press

978-1-108-00907-2 - The Grammar of Lithography

W. D. Richmond

Excerpt

[More information](#)

varnish with resin (as is done with varnish for letter-press ink), instead of producing the viscosity by burning only.

As varnish is an article manufactured on a large scale, there is no difficulty in purchasing it of a quality to answer the lithographer's purpose. It is made of several degrees of strength, known in the trade by the terms *thin*, *tinting*, *medium*, and *thick*. The more transparent and free from colour it is, the better it answers the purpose of Chromo-lithography, as frequently the ink, in this style of printing, is only varnish, stained, as it were, with a little colour or pigment. If this is light or delicate, it is essential to have the varnish as colourless as possible.

Varnish is sold by the gallon, but smaller quantities can be bought. The price varies from 10s. to 18s. per gallon.

12. PRINTING-INK.*—This important material is sold to the trade ready ground, to suit various classes of work, and the price varies from 2s. to 40s. per lb., a good medium ink, for ordinary black printing, costing about 5s. per lb. It is put up in tins, and most inks keep well.

In the state in which it is bought, Lithographic ink is too thick for use, and requires to be thinned down with varnish to answer the printer's purpose. Considerable experience, united with a keen appreciation of the nature of the ink and varnish, is necessary to enable the printer to master this part of his trade; and though much assistance may be given him by pointing out principles for his guidance, yet it is only experience that can qualify him to carry on his printing with success.

Ink made with *thin varnish* leaves the roller freely for the stone, and will soon spoil a drawing if used by an inexperienced hand—*first*, by adding to the greasy properties of the work already upon the stone; and *secondly*, by spreading under the pressure. This is caused by, *first*, having too much ink on the roller; *secondly*, rolling too slowly; *thirdly*, rolling after the stone has begun to dry; *fourthly*, the weather or the stone being too warm. This result will be aggravated by the paper being too hard and

* The nature of this ink is more fully treated of in paragraphs 116 and 117.