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THE STUDY OF MEDIEVAL CRAFTSMANSHIP

A lecture delivered by

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Craftsmanship is generally regarded as a very good thing in itself, but its relation to art is sometimes a little obscure. The phrase 'Arts and Crafts' has insinuated itself so thoroughly into our speech that we accept uncritically the implication that art and craft are the same sort of thing, generally with a vague sentiment that art is somehow better. A favorite formula of the critics goes: 'That is not art. It is mere craftsmanship.' And there is another with a familiar ring: '. . . lifted craftsmanship to the level of art.' There is some justification for these formulas, but it does not lie in the accurate choice of words. The reflective mind is not satisfied with this conception of art and craftsmanship as similar sheep, one of them pure white and the other, if not absolutely black, at least of a dark shade. The function of technique has not generally been assessed quite dispassionately and accurately by writers upon art. Its place has been exalted or debased often unduly, but seldom determined in cool reason.

All arts have this in common, that their products take their final form through craftsmanship. The white sheep is dumb without the black sheep's voice. Poetic thought must be cast into words before we can know it as poetry. The workings of the painter's mind, the sculptor's, architect's, musician's, dramatist's, must all be reduced to concrete form through the operations of the appropriate techniques before we can know them as works of art. A work of any art may be regarded as the product of three factors: intention, invention, and execution. What did the artist undertake to do? How did he resolve to do it? What did he choose to do it with? Full understanding of the work requires consideration of each of these factors and its effect upon the others.

The artist's intention is the task which he sets himself, or his conception of the task which someone else has set him. This is his fixed problem, the *punctum saliens* of the whole business of creation. All the elements of this problem, whether they are ideas, or emotions, or practical applications, or all three combined, have to be met by the artist's invention. Partly by calculation, partly by intuition, he has to devise within himself a plan which will satisfy all the requirements of his original *parti*. Intuition may be absent. (Intuition may be absent because the worker lacks it, or because the problem, as he sees it, is purely practical or rational. The first cause leads to bad art, the second, to 'mere craftsmanship.' The distinction is quite clear.) But calculation cannot be absent. Whatever the problem is, its solution has to be planned in some degree deliberately; and an integral factor in this planning is the technique which is to be used.

It is a truism that art cannot exist apart from craftsmanship. It is, however, sometimes considered that the technical elements in the nature of art represent a sort of burden of Original Sin, and that art would be somehow purer and finer if they were not there. Mankind was at one time taught to regard the human body with this same sensitive distaste, and to consider it rather an incubus upon the soul than a matter of any dignity in itself. This doctrine is no longer popular. We know that minds and bodies work together, and affect each other. May we not recognize that in

the creation of a work of art spirit and matter are similarly linked? Style and technique are inextricably bound in reciprocal relation to each other, in all arts; and an acquaintance with style which does not include its interaction with technique is as imperfect as an acquaintance with character which takes no notice of behavior.

'Es ist der Geist, der sich den Körper baut,' without distorting the meaning of the German too greatly, we might translate: 'The mind shapes matter to its own design.' The history of art is the history of human minds shaping matter to their own design. The history of craftsmanship is the history of the shaping process. In some departments it has been so far too little studied, for it has much to tell us, not only about matter, but also about the mind, and its design.

The relation between style and technique is close and causal. A change in one leads to a change in the other. If a man had two notes to write, one to his partner, agreeing to play tennis as proposed; and the other, to explain to a formidable hostess how he happened to forget his engagement to dine with her before the opera, there is every reason to suppose that the notes would be different in the amount of attention paid to margins and letter-formation, and quite likely in note-paper! The technique would be adapted to the style. If a man had a dozen notes to write, and his only pen had a broken nib, and sputtered ink, he would not give very free play to his literary fancy. He would favor a terse style, I think. But in compensation, when his pen was put in order, with perhaps a new bottle of ink for good measure, he might be led by the sheer pleasure of penmanship to write at unusual length, with more than usual inventiveness. I know that fresh writing materials do sometimes have that effect. Technique influences style.

The influences of technique on style are often obvious, most obvious, perhaps, in architecture. Roman vaults depend on Roman cement; Gothic vaults, on Gothic stone-cutting; sky-scrapers, on steel construction and the speed of lifts. A pot is round because the potter's wheel rotates. The influences of style upon technique are not so picturesque. It is easy to see the change in style in the last quarter of the fifteenth century in Florence, when Flemish painting methods influenced Italian painters; but it is not so easy to see the steady movement of Italian style, for fifty years before, toward a technique which it did not know. Florence, however, had gone so far in science in the quest of realism that she would have found a technique on her own account to give her the new power she needed. The limited value range, the restrictions on transparency, the discontinuous modelling, imposed by her classic technique were bound to go. The relations of technique and style are close and causal, but not always simple to discern.

There is besides this important observation to be made, that though any single style is based upon the resources of a particular technique, a single technique will allow the development within it of a great number of different styles. The primary effect of this principle historically is that style changes very much faster and more frequently than technique. The individual tends to accept the technique and modify the style. The rate of change of style in relation to technique follows a regular pattern: stylistic developments take place with great rapidity after the development of new technical facilities; they diminish in speed and number as the possibilities of the prevailing technique become exhausted, gradually approaching stability. And their falling off invariably heralds the coming of a new cycle, with a fresh technical impetus at its centre.

The tide of these developments in modern architecture is in full spate. Changes in style have not yet by any means caught up with modern inventions affecting construction. Perhaps the same is true of modern poetry. Style in modern painting stands very nearly still, or moves fitfully about within a narrow range, mired as it is in an outworn technique, save for a few areas of promising activity in the centre of which stands technical innovation.

It is extremely important to regard these phenomena of style and technique with the critical mind of the scientist observing natural phenomena, and to avoid the dangers of prejudice and premature conclusion. We observe a technical change, and immediately after it a group of closely related stylistic developments. The observation may be verified and multiplied. But we must on no account argue, *Post hoc, ergo propter hoc.* Style and technique are related in the same sort of intimate and metaphysically troublesome way as the Egg and the Chicken, with perhaps some added complications. It is enough, for present purposes at least, to recognize the existence of a relation between them, and of principles governing their behavior towards each other.

Style and technique are inseparable. The causes and effects of metrical invention are a normal part of the study of poetic history. So too in music, the technical bases of style are recognized. We know that Boehm's inventions changed the character of the wood-wind section of the orchestra, and that the style of orchestral composition was at once affected. Some of us can remember what dance music was like without a saxophone. In architecture we constantly recognize the influences exerted upon style by the methods and materials of the builder. So too in sculpture. We know that when you copy a Greek bronze in Roman marble you have to stay it up with tree-trunks or dolphins. We know that the depth and breadth and sharpness of the cutting must depend upon the stone; and that a sculptor may be frivolous in limestone, but that in porphyry he is apt to be careful. We are only too ready to admit a technical inspiration for that exceptional style which found expression a few years ago at Wembley in the ephemeral medium of Empire butter. Most, perhaps, in the study of painting we tend to confine ourselves to style and to ignore the craft which first affects and then expresses it. Particularly, we are apt to confuse a showy style with technical ability.

In essence, every painting technique is a method by which colored bodies are fastened upon a supporting ground. A painting technique may be defined in terms of four factors, three of them physical—the ground, the vehicles, the pigments, and one mechanical—the application. The word "technique" is generally made to cover also certain rational processes which lie properly within the province of style. The selection of a modelling system, the disposition of transparent and opaque colors, and the deliberate control of surface texture, for example, are stylistic factors, expressed by technique, perhaps inspired by it, but determined by considerations of style. It is evidence of the close relations of technique and style that the dividing line between them is so loosely marked in common speech, but loose definitions do not make discussions clear.

There are three ways to approach the study of the history of painters' craftsmanship. The most direct way is to investigate actual paintings, to discover analytically the physical and chemical properties of the grounds, the vehicles, and the pigments, of which they are composed, and to observe the character of the manipulation. Sporadic analyses of fragments of painting of various periods were made throughout the nineteenth century, by Sir Humphrey Davy, Professor Branchi of Pisa, Raehlmann of Weimar, and others. The first effort at systematic classification of painting materials through analytical methods was made by Dr. Laurie, the present Professor of Chemistry to the Royal Academy. Dr. Laurie devised means for identifying pigments by optical examination and chemical determinations performed upon microscopic samples, and published the first scientific account of the material character of a large number of related paintings. He also worked out an ingenious process by which the whole layer-wise structure of a painting may be analyzed, from the ground to the surface. These methods, with others which have been developed since, or which may be developed as need arises, make it possible to determine the whole physical character of any painting or group of paintings.

Analysis, however, reveals only the

nature of the materials, and leaves the manner of their application to inference and observation. These must be based upon experiment. Only experience can train the eye to recognize, and the mind to understand, the effects of manipulation upon the physical components of a painting. No physical or chemical test, for example, no microscopic examination, no x-ray, will by itself explain the little scar in the paint surface which is almost always found in *fondo d'oro* paintings, between the eyes of figures seen full-face, or near the end of the eye of those in profile. Analysis can describe this little scar, but it requires inference to explain it, inference based upon experiment to know it as the mark made by one arm of the compasses while the other arm was swinging the lines of the halo.

This simple illustration is enough to show that craftsmanship cannot be estimated fully by material analysis alone. The element of handling, application, is best approached synthetically, as its nature would suggest. A highly trained observer, thoroughly acquainted through practice with all the elements of painting techniques, may approach the complete solution of any given case, even without recourse to the laboratory.

It is axiomatic that equal causes produce equal effects. That equal effects are necessarily the result of equal causes is an untenable position; but if a painting exhibits a certain character, based upon an unknown technique, and a precisely similar character can be produced in another painting by the action of a known technique, there is good *prima facie* reason to believe that the two methods are in a high degree similar to each other. Copying a painting, therefore, may provide a check upon inferences about its technical character, and also an instrument for investigating it. If the method of the copyist can not be made to yield the physical characteristics of the thing copied, it is logically certain that it is not the method of the original. If the method of the copyist does reproduce the technical nature of the original, it argues identity or close similarity between the procedures of copyist and copied.

The copies by Nicholas Lochoff of Italian paintings in tempera and fresco reproduce their originals with something more than fidelity. To suggest that his technical understanding represented in any way the limits of Lochoff's genius would be as unreasonable and unjust as to speak of Simone or Botticelli as 'mere craftsmen.' In his copies the effects of time and accident are subtracted from the appearance of the originals as they now exist; the paintings are reconstructed in their original condition. Operations equivalent to the experiences undergone by the originals in respect to varnish, dirt, disintegration and abuse, when performed upon these copies, bring them by automatic action to the present appearance of the masters' works, as perfect duplications in craftsmanship as they are in every subtlety of style and spirit. Lochoff's techniques are patterned scrupulously upon those of the masters whom he copies. The materials which he uses are to a large extent identical with those used in his models, and those which are not identical are closely equivalent. Any good analytical chemist with an eye for color could equip himself or anyone else with these materials. Lochoff's unique power, as far as it is technical at all, lies in his knowledge of the behavior of the materials in action, their effects upon each other, the whole kinetic function of technique.

It is not necessary to possess all Lochoff's talents to apply the experimental method in investigating a technique. Synthetic processes of this sort yield significant results in almost any hands when scientifically applied. Copying as it is usually performed, with the docile eye of a color-sensitive photographic mechanism rather weak about the joints, is about as valuable to a student as pumping the pedals of a player-piano and watching the perforated paper roll go past the row of air ducts; or the 'argile que pétrit la pouce quand flotte ailleurs l'esprit.' But, except for people definitely afflicted with two left hands, the effort to reproduce the technical characteristics of a painting by the use of a corresponding technical approach is certain to be instructive. It

may fail of its purpose, but it will open the student's eyes to unsuspected elements in the original, stylistic quite as often as technical.

In this connection, penmanship provides some brilliant illustrations of the dependence of style upon technique, and the perils of ignoring craftsmanship in the estimation of design. Many a black-letter inscription has been written by people who conceived the Gothic form of Roman letters as a pattern drawn in outline and filled in, and their interpretations have been sadly lacking in rightness and beauty. The line of a scribe's pen is like a ribbon, twisting, according to the style he writes in, sharply or slowly, much or little, to show now its flat surface, now its thin edge. Its form is rigidly conditioned by the breadth and thickness of the effective edge of the pen and by the angle which the pen makes with the writing line. Nowhere is style more exquisitely dependent upon the action of technique than in a fine page of formal writing. Nowhere is failure to understand the influence of technique more disastrous than in the study of the art of penmanship.

There is a third way to find out about techniques, to study the history of craftsmanship, and that is through written records. Documents which describe the materials and methods used by the old masters suggest lines of investigation to the analyst and to the synthesist. In turn, what the analyst finds out about materials and what the trained hand and eye discover about method make it possible to interpret the contents of these documents. Benevolent Providence, which saw to it that mankind should leave behind him written records of his progress through the Vale of Tears in which we live, and placed in the human viscera a particular predisposition in favor of writing cook-books of one kind or another, saw fit, for reasons which I cannot question, to deny these authors the humble literary virtue of clarity. The Middle Ages especially abound in collections of recipes and 'secrets' and accounts of technical procedures which are to a high degree un-understandable to anyone who does not understand them. Once one discovers what they are about, they generally prove to have been quite clear all the time, but it requires science and experience to read them with intelligence.

These documents have been collected and studied fervently in many periods. In Roman times, Pliny stands out as the enthusiastic amateur of technical information, and the Middle Ages cherished the heritage of the *Historia naturalis* with passion and credulity. In the fifteenth century, when text-collecting was in the air, many handbooks of technological practice were compiled from earlier sources. Three fifteenth-century collections in particular stand out among those dealing with the arts: the *Segreti per colori*, in Bologna, published in 1849 by Mrs. Mary Philadelphia Merrifield; a volume of assorted treatises in Paris, collected by Jehan Le Bègue, Licentiate in Law and Notary General of the King's Mint at Paris, Anno Domini 1431, when he was 63, also published by Mrs. Merrifield; and an unpublished manuscript at Oxford, largely compiled by Master Bernard of Trier; but there are many others. At the end of the eighteenth century, interest in these documents was revived by the great critic, Lessing, who discovered a twelfth-century manuscript of one of the most influential medieval works, the *Schedula diversarum artium* of Theophilus, in the Ducal Library at Wolfenbüttel.

New impetus was given to the study of writings upon craftsmanship by the determination of the Queen's ministers, in 1845, to endow the researches of Mrs. Merrifield. The decoration of the Houses of Parliament in fresco had raised problems which Mrs. Merrifield had sought to answer by translating the *Libro dell'Arte* of Cennino Cennini, then newly published for the first time in Rome, and her work upon that led to the extension of her program, the support of Robert Peel, and the granting of a Royal commission. With the aid of her two sons, and the support of all Europe, this scholarly lady assembled a great body of medieval and renaissance tracts, 'original

treatises,' as she calls them in the title of her epoch-making work, 'dating from the twelfth to seventeenth centuries, on the arts of painting in oil, miniature, mosaic, and on glass; of gilding, dyeing, and the preparation of colours and artificial gems.' At the same time, Sir Charles Eastlake, the first director of the National Gallery, and arbiter of the artistic elegances of his day, pursued the study of the history of oil painting, and discovered and interpreted new documentary evidence bearing upon it. Theophilus was edited and re-edited or otherwise reviewed every few years in London and Paris. Didron published his 'Manual of Christian Iconography,' based on a Greek text of somewhat uncertain character. A polemic correspondence was waged in the *Archaeological Journal* against the Russian owners of medieval technical handbooks which they would not publish.

The fever of discovery and publication gradually died down in England and France, to rise again in Germany and Austria. Ilg and Hagen brought out new documents in Eitelberger's *Quellenschriften;* Berger, in Munich, published his momentous 'Essays on the History of the Development of Painting Techniques'; and Loumyer summed up the work done up to the beginning of the War in his 'Technical Traditions of Medieval Painting.'

Not unconnected with the growing interest in the history of science is the revival of research now actively in progress in this field. Medicine, alchemy, and the arts moved hand in hand through centuries, and disentangling the lines of one brings out the others too. Berthelot, the first scientific student of alchemy, wrote, as Professor Charles Singer has said, 'too many books about too few manuscripts.' The International Union of Academies has taken alchemy in hand, and turned the light of serious investigation on its history. In that light much documentary material has appeared which, when it has been studied, will tell us much that we do not know about the methods of medieval art: what the methods were, how they circulated, through what influences they were modified, when, how and why. The historian of chemistry sees in these artist's recipes important matter for the story of his experimental science. We should be poor historians of art if we could find in them no substance to enrich our understanding of the objects which they were designed, with care and love and all the scientific wisdom of the ages, to produce. *Nihil alienum* is the historian's device, and surely nothing is less foreign to a work of art than the materials and methods that gave it form.