CHAPTER X. MODELING

Modelling is the art of imitating forms, or of giving shape to ideal creations, in plastic and soft materials, such as clay, wax, plaster, etc. The model embodies the design, and its perfection constitutes the chief labor of the artist's mind and hand, and forms the *pattern*, or guide, in the more mechanical operations by which statues, reliefs, etc., are produced in marble, bronze, or other harder and more durable materials.

The sculptor's art, considered in a strict sense, would seem to signify the actual process of carving any substance into a purposed form, and it is as common to speak of the achievements of his chisel as of a painter's pencil; while, in truth, the entire process of blocking out, or of casting and chiselling the rough material, may have scarcely occupied more labor on his part than the general supervision and direction of the work. To be capable, however, thus to make successfully available the labor of others in the perfection of a design, involves the requirement of at least capacity to supply the deficiency of a merely mechanical hand by that of an artist's, whenever it may be needed. To what extent the sculptors of antiquity may have bestowed their individual labor upon the best of their works that remain to us, it is not easy to decide; but it is very certain that they bear the evidence of a hand in their completion beyond the capacity of that of a mere workman. It is this that gives to their productions, in a great degree, their superiority over copies from them; and in which the reason is discoverable, that a bronze fac-simile, as far as relates to form, of the Venus de Medici, or a plaster-cast from the Venus de Milo, or the Apollo Belvidere, fails, in producing the impression of beauty and perfection, in comparison with the originals—different materials requiring not only different treatment in respect to texture, etc., but an adaptation of design and actual form to their peculiarities.

2. Excellence in all branches of art must be founded in knowledge, both practical and theoretical, of the general principles of design; and the rules and maxims, as well as skill, which may be requisite in one, if not equally, is at least to a very great extent applicable to all. Thus the sculptor who can not draw—who does not comprehend the means of expression—the harmonious arrangement, or composition, of forms, masses, and lines—the power and effect of light and shadow—is as deficient in the requirements of his art as the painter who is not familiar with the structure of the human figure, and who can not model. Practical efficiency with both rests in assimilating capacity. A drawing or picture, to approach the degree of truth requisite to excellence, should be as correctly *modelled*, in an artistic sense, as a plastic model should be correct in *drawing*. It is as commonly said, and as clearly understood, with reference to a statue, that it is well or badly drawn, as it may be of a picture that it is well or feebly modelled. The most eminent sculptors, without an exception that we can call to mind, have all been accomplished draughtsmen; and the practice of modelling, both as a means of study and as assistance in the execution of their finished works, has been always common among painters.

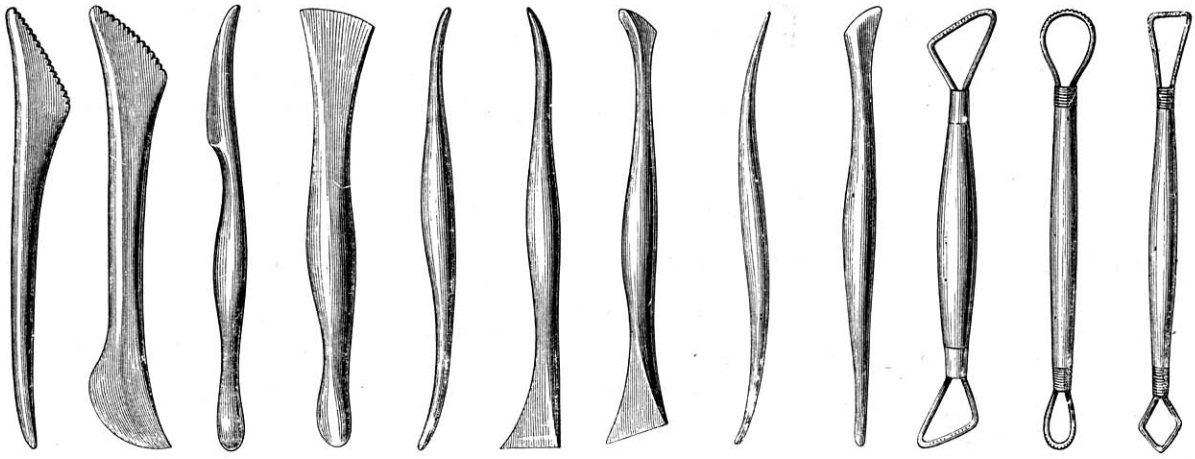
3. It is an error most injuriously prevalent to consider that education in the different branches of art may be limited, or economized, to such attainments as only appear most obviously requisite

to individual purposes; whereas, the strength and extent of human capacity of attainment should alone prescribe its limits.

Added to the vastness of his capacity as sculptor, painter, and architect, Michael Angelo was one of the most skilful engineers, both military and civil, of his time—a poet and a philosopher. Scarcely less accomplished was Leonardo da Vinci. Both ranked, not only among the most eminent anatomists of the age in which they lived, but by their investigations, their pens and pencils, most effectively contributed to the advancement of that important science. Raphael, although he lived not to half the number of years of either, attained an amount of knowledge and capacity in all relating to the arts of design which appears to be almost incredible. It is said that "Titian and Tintoretto, by the mere use of modelling, far surpassed those who designed statues."—"Correggio disposed of the masses of his lights and shades with an art purely natural in its foundation, but in the selection and effect altogether ideal. And he arrived at this degree of perfection by the very same path pursued by Michael Angelo, availing himself of models in clay and wax, the remains of which are said to have been found in the cupola of Parma, not many years ago. It is also currently reported that, while employed in that city, he engaged the assistance of the famous modeller Begarelli, whom he conducted thither at his own expense."—(Lanzi.)

It would be easy to fill pages with instances in exemplification of the importance to artists of general knowledge on all subjects in any way connected with their art; and further, that the acquirement of such knowledge need not necessarily interfere with, or divert the steady pursuit of, leading and individual purposes. We would by no means be understood as encouraging indecision of purpose or action in the course of study, exertions, or ambition, of the art-student; nor would we exact of him labor to weariness, or to the peril of either health or comfort. Art demands no such sacrifices of its most earnest followers, but freely and abundantly affords time and opportunity for that rest and relaxation essential to the preservation of healthful vigor of both mind and body, without the necessity of arresting or deviating from a direct, onward course.

Let the painter seek relaxation in his labors by modelling, and the sculptor by recourse to the pen or pencil. Let both go forth together to the bright and beautiful out-door world of Nature, breathe her free air, and receive strength and impulse, delight and instruction, from the refreshing influence and study of her truths, and both in their respective pursuits may reap equal profit. The limits of the walls of a studio should no more prescribe the field of study of the sculptor than of the painter. Canova was a painter as well as a sculptor. We have seen sketches of landscape by Thorwaldsen, made on the way, when he first came a student to Rome, and models by Allston, and drawings by Greenough, which would do equal credit to a sculptor in the one case as to a painter in the other.



4. Clay, of the quality and prepared in the manner in which it is generally employed by potters, is the material most commonly approved and used for modelling. When it can not be conveniently procured of a potter, it may be readily prepared by wetting it with water, and by beating and working it into a proper state of firmness. Care should be taken that it is free from stones, chips, or such like substances.

Very few tools are requisite, and these of the most simple character, which may be made by the artist himself, of ivory or bone, box, pear-tree, cedar, or any close-grained wood. Tools formed of bent wire, set into handles, are useful for cutting away the clay, and for other purposes. The most experienced sculptors employ very few tools, and rely much upon the bare fingers in modelling.

5. Wax offers some advantages over clay, particularly in small models, and for amateur purposes. From its extreme lightness, and being tougher and more adhesive, it sustains its weight better, and does not require the same attention, when the work is laid aside or suspended. By practical artists, however, clay is most generally preferred and employed.

Clay requires to be kept constantly in a proper state of moisture, especially if metal or other braces have been found necessary, which, by their not yielding to the contraction and expansion which takes place in the clay, if not kept at an equal degree of dampness, causes the latter to crack and often fall to pieces. The requisite degree of moisture is preserved by occasionally throwing water over the model with a syringe, the rose-head of which is perforated with very fine holes, something like that of a flower watering-pot, only much smaller; or by blowing it from the mouth, or sprinkling with a large brush; and by hanging over it at night, or when the work is suspended, wet cloths.

Models in which no other material than clay has been employed, by allowing them to become

gradually dry and hard, may be preserved in that state; and in cases where the masses are equally distributed throughout, or have been hollowed out so as to preserve an equal degree of thickness therein, they may be afterward baked, in the same manner as a piece of ordinary pottery.

6. Terra-cotta, the name given to works in clay thus treated, is a most valuable application of design to practical purposes, and may be made as well a delightful accomplishment, well suited to the exercise of the taste and skill of both amateurs and artists. By the ancients it was very extensively employed, not only in small subjects, such as figures, reliefs, architectural ornaments, vases, lamps, tiles, and domestic utensils, but also in works of larger proportions.

Clay is further capable of receiving very sharp impressions from plaster and other moulds and, from the durable character which may be afterward given to it by the process of baking, it may be rendered for many purposes scarcely inferior to stone.

7. Figures or groups entirely insulated, as statues usually are, are technically classed as works in "*the round.*" If not thus detached from a background, they are called *reliefs;* and further distinguished, according to the degree of such relief, as *high*, *medium*, and *low relief (alto*, *mezzo*, and *basso-relievo).*

8. It is unnecessary to attempt detailed instructions or directions with regard to modelling, as all that has been or that may be said and urged in relation to the general principles of design, and their practical exemplification in reference to drawing and painting, is equally applicable thereto, with such modification as the intelligence of the artist, the material employed, and the object to be attained, may suggest. The artist who has received proper training of mind and hand in the essential requisitions to excellence in other branches—he who is already an accomplished draughtsman, or painter—has but by trial to become very soon a successful modeller.

9. The sculptor usually begins his work precisely as the painter, by a sketch—not always on paper, but in clay or wax. On this he bestows his preliminary study, as well as therein embodies the conception of his subject; often seeking, during its progress, suggestion or verification of his conclusions by reference to Nature—imbues his imagination with a clear perception of all the prerequisites of the finished work, and as well decides upon the possibility and means of their accomplishment. Having perfected the sketch, so far as may be necessary to determine the general character, proportions, and effect of his composition, he proceeds to build up the statue, in clay, of the size required.

10. According to the massiveness of the figure and the detached position of its parts, and as they may require more or less support beyond the strength and nature of the clay to supply, skeleton braces of iron must be prepared, suited to the action of the subject. These may be formed, in most cases, upon the general direction and character of the natural skeleton, and should be firmly bolted or fixed to the modelling-stand. Their protrusion beyond the surface of the model may sometimes be unavoidable, but care should be always taken that this may occur at unimportant points. The figure is then gradually developed by building it up compactly with the clay, upon the basis of generalized masses, and progressively advancing to detailed elaboration.

11. It is almost a universal custom, whether the figure be ultimately draped or not, first to model it naked, as thus that severity and truth of form, which constitute in so high a degree the excellence of sculpture, may be insured. Sculptors generally make their studies from wet drapery, as in that state the forms, over which it may fall, are more distinctly marked, and its effect is considered better adapted to the requisitions and capacities of their art.

12. Reliefs are most commonly modelled on a ground of slate, or some such material, to which the clay may adhere with sufficient tenacity to render braces and supports rarely necessary, and which may not be injuriously affected by the dampness to which it is subjected.

For small reliefs in wax, grounds of glass, porcelain, or metal plates, wood, etc., may be used. Wax for modelling requires very little preparation. It may be tempered, according to the season and the nature of the work in which it is to be employed, by adding to it, while in a melted state, small portions of olive-oil, tallow, or lard, to which some artists add Venice turpentine or Canada balsam. At the same time its body and opacity may be increased by the addition of white lead, vermilion, or any other finely-pulverized pigment.

The annoyance which may be sometimes experienced in using wax, by its adhesion to the fingers and tools, may be guarded against by touching them occasionally upon a cloth or sponge slightly greased with oil. A little spirits of turpentine occasionally applied to the surface of the model with a brush, may at times be found serviceable. The tools used are similar to those for clay. In models for ornamental purposes, particularly for designs of a highly-elaborated character, to be executed in metal, wax is most generally preferred, as it admits of application to any material to which it adheres very firmly. Thus any required design may be added or adapted to a given form with the utmost facility.

13. To form a mould, and therein a cast in plaster from a clay or other model, is a process extremely simple, yet one requiring so much caution and judgment, as well as practical experience,

that we would by no means advise the experiment of a first attempt in any case involving peril to the result of much pains and study, unless the services of a professed moulder can not be obtained. The operation once witnessed, an artist will find little difficulty in conducting the process himself on any future occasion in which he may require to do so.

Further finish of the model may be often advantageously effected in the plaster, if required. In large or complicated works, this may be not only a very great convenience, but in many cases absolutely necessary. Parts and details of statues or groups in plaster, such as heads, limbs, etc., may be removed from their places and wrought upon separately under some circumstances with greater facility than in the position they occupy in the composition, to which they may be refitted without risk or difficulty, by means of bolted or other joints. The entire process of a model is sometimes conducted with plaster alone.

14. Small models, particularly reliefs, may be very successfully reproduced in copper by the galvano-plastic process, and by the same means they may be very effectively gilt or silvered, or perpetuated in gold or silver, with an economy in time and expense of labor and material, rendering its application of the utmost value in many of the ornamental arts.

15. The chasing or sinking of dies for medals was formerly a long and laborious process, which, by the aid of the electrotype and mechanical improvements in the turning-lathe, has been rendered not only extremely simple, but the spirit and integrity of the artist's design are preserved thereby in much greater perfection.

From an electrotyped duplicate, or mould in copper, of the original model, which may be much larger than the intended medal, another is made of cast-iron, which serves as the guide to the peculiar action of the turning-lathe, whereby an exact copy is produced in soft steel, and of any desired dimensions. The steel die, after being retouched and finished, is hardened for the process of striking in the usual manner.

16. Architectural models are made in various materials, such as wood, cork, card-board, plaster of Paris, etc. Plaster is generally preferred for those in which the repetition of much elaborated detail occurs. By it mouldings, columns, and other ornaments, as well as more massive parts, can be formed, both by casting and carving, with great facility; and the effect of the whole may be increased by the addition of the proper colors, either combined with the plaster or afterward applied. Capacity to construct or to direct the construction of an architectural model, must be, of course, possessed with that for its design and actual execution.

17. The importance of modelling, not only as a means of artistic study and production, but in the application of design to mechanical and other purposes, should not be estimated by the comparatively limited space which we have expressly devoted to the subject. To be able to make a sketch, or even an elaborate drawing of a design, is not always sufficient either to mature its invention, to adapt it to a requirement, or to test the accuracy of conclusions; nor always to afford data sufficiently reliable and intelligible to direct with certainty the executive labor of others. Much time and pains, too frequently wasted in misdirected experiment and vexatious failures, might be well saved to mechanics, both masters and workmen, by precisely that sort of preparatory study and clearly-expressed decision of purpose by which the sculptor insures the comparatively easy and successful execution of his design, and by which he is enabled effectively to command the skill and labor of others.

18. Here it may occur—more aptly perhaps, than on any other of the few remaining pages of our work—to acquit ourselves of having supplied aid to those whose requirements in design may have special reference to the industrial arts, to an extent that may not appear to those who may have superficially glanced over its chapters with the expectation of finding the subject separately treated. Had it been our purpose to adapt our work exclusively to the requirements of the mechanic, it would have been requisite to have insisted upon a similar course of training in the elementary principles of design, both theoretical and practical, and to have exemplified their application in the finer arts, to have placed him in possession of their just comprehension, or of capacity to adapt them effectively to his purposes. To be capable of availing himself of the assistance of design, the mechanic must become an artist to the extent that he may require artistic aid. Both must begin to learn in the same way, and both must pursue a similar course of elementary training; from which they can only safely venture to diverge when they have reached a period of advancement by which they may be prepared effectively to apply their knowledge and practical skill to their individual purposes. The intelligent mechanic, whose mind has become imbued with artistic feeling and impulse—whose hand has been trained to artistic accuracy of expression in design—and whose sensitiveness to the harmonious consistency and beauty of Nature has been awakened—will no more need a special teacher to direct him in the application of the laws and precepts hence to be derived, and common to all art, than the painter or sculptor.