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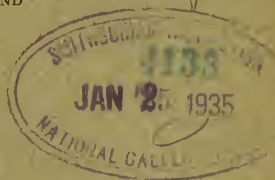
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THE  
DEVELOPMENT OF SCULPTURE

A PRELIMINARY PAPER

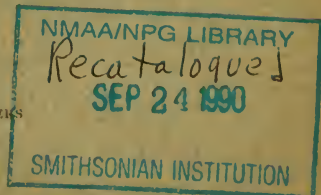
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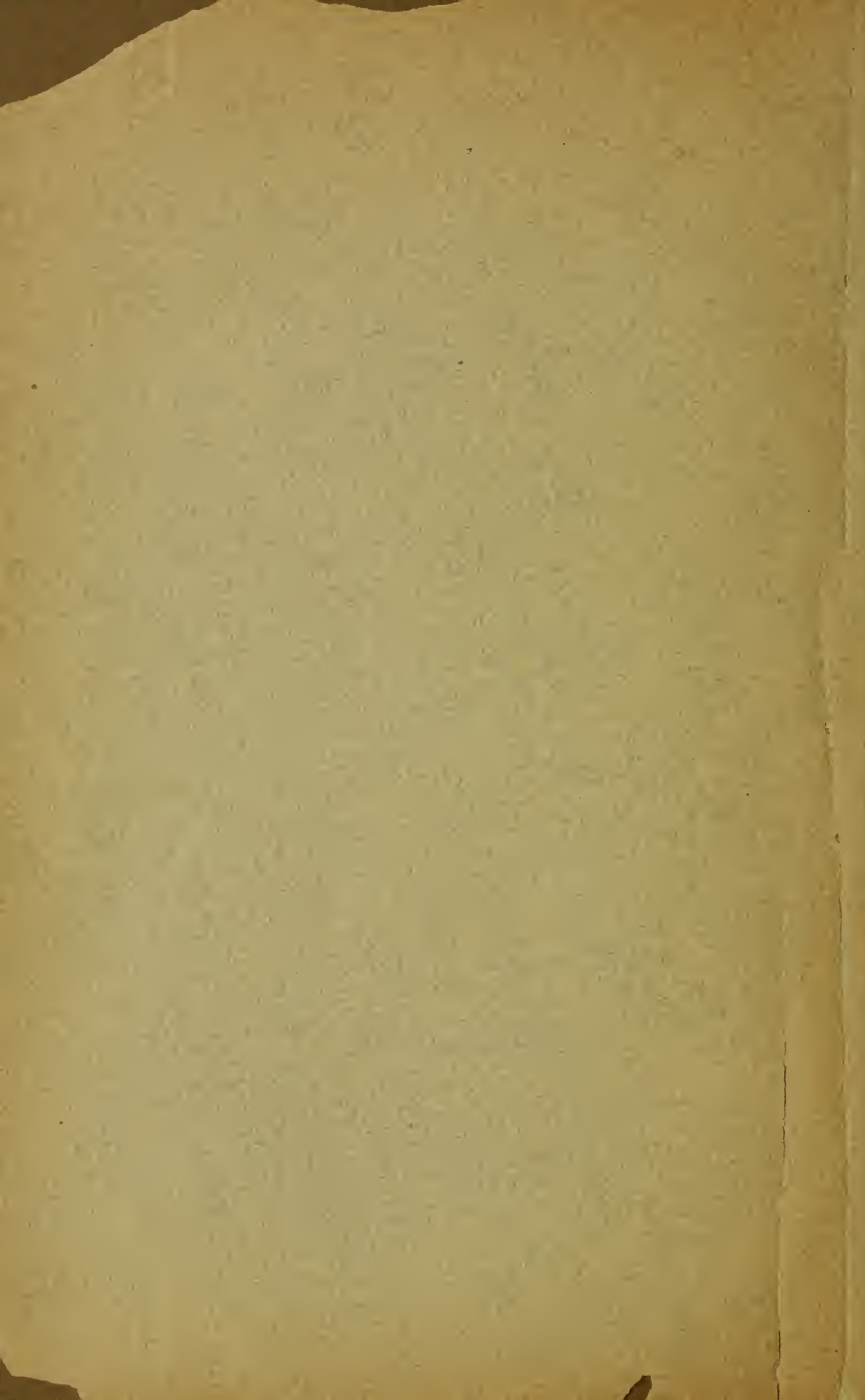
J. D. MCGUIRE  
OF ELLICOTT CITY, MARYLAND



[FROM THE AMERICAN ANTHROPOLOGIST FOR OCTOBER, 1894]

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## THE DEVELOPMENT OF SCULPTURE.

BY J. D. MCGUIRE.

The sculptures of ancient Egypt are apparently older than those of any other country. The sculptures of America may be traced to extremely crude beginnings, yet their age is a matter of pure conjecture. So far as one can judge the mechanical execution of the carvings of Yucatan, for example, there would appear to be a greater similarity between them and the carvings of China than of relationship to Egyptian work. There is such an individuality about the sculpture of Egypt and of America and much of that of the Assyrians that one hesitates to attribute to them a common origin.

Marble, now so generally employed in supplying material for statuary, has been used for this purpose probably for the last 2,500 years, yet there are evidences that at a period 2,500 years earlier, the Assyrians and Egyptians made statues which evidenced great artistic ability and mechanical skill, and these statues were made from diorites and syenites, stones harder than marble.

Notwithstanding the many centuries that have elapsed since man first made sculptures of large size, the alterations in their surfaces have been so slight that we may by comparing them one with another trace the development of the art.

The methods now employed in producing sculptures and carvings are quite similar, due entirely to mechanical appliances, and are a great improvement over those employed in the production of ancient figures, for it will be seen that carving and sculpture have in their methods of growth approached each other from widely divergent beginnings.

The universal stone celt and the familiar American grooved ax and pestle show in the method of their production the first steps toward the development of sculpture. Formed to suit the taste of the mechanic making it, the work itself by which it was produced is not distinguishable from that appearing on all early worked stone.

The polished surfaces are similar, as were the tools with which the work was performed. Sculpture accompanies a settled stage of society. On the other hand, carving is an art commonly found among the most savage races. The development of skill in carving is often encountered in the most unexpected localities and in places where no evidences are found of the sculpture of large figures. This difference appears directly traceable to the mode of life which savagery entails. Wandering during the hunter period from point to point with the change of seasons or as game or fruit became abundant or scarce, with no fixed dwellings and with no ability to transport heavy statues, there was no incentive to make them. Small carvings of bone, of ivory, or of wood appear common to every race. Their small size enabled them to be carried on the person, and an evidence that they were so carried is found in the holes generally bored through them for purposes of suspension.

The appreciation of symmetry of form or of the beauties of color is abundantly evidenced among the earliest traces of man's residence on earth, and is found to exist among all tribes and races of men, if we may judge by their implements and their manufactures.

When man first began to occupy continuously a particular site and to live in settlements, the size of statues, it is found, began to increase, as is evidenced by carved posts and wooden idols.

As settlements became more permanently established and more attention was paid to the construction of dwellings, the figures of wood would give place to the more pretentious, as well as more durable, stone statue, and nowhere is this more marked than among the ruins of Central and of South America. Among the many things influencing carving, there can be none more important than available material for tool-making. To cut diorite or granite successfully requires a tool metal as hard at least as steel, and there is no evidence of such metal possessed by the early races working such stone. Stone hammers can perform this work with little difficulty, and where statues of these stones are found the stone hammer is commonly met with. A natural inference would be that the hammer was the working tool, certainly until some one may suggest as simple an explanation.

Nowhere has carving been carried to greater perfection than in the eastern world, and among eastern peoples none have excelled the Japanese and Chinese in the skill and artistic concept shown in their carvings of ivory and of jade, as well as of wood and of serpentine. The early chapters in the history of these carvings are very ancient, and to be fully appreciated should be examined in connection with an acquaintance not only of the physiognomy and costume but of the religions and the mythology of these countries.

Notwithstanding the artistic ability in carving evidenced by the Japanese and the great mechanical skill shown by the Chinese, neither nation appears to have been familiar with sculpture; for, although certain of their carvings are colossal, they are but carvings as distinguished from the art of sculpture.

The few statuettes due to Babylonian, Chaldean, Assyrian, or Egyptian workmanship which have been discovered prove abundantly that these nations possessed artisans who were masters of the carver's art. If gaps be found in the development of the sculpture of a nation, investigation will show them probably to be due rather to some great political change than to a decadence of artistic skill. The gap existing in Egyptian carving and sculpture during several of the dynasties will be found to be due rather to a geographical change of the seat of government than to a decrease of art.

In most countries where sculptures are found it is apparently demonstrable that the method of their production has gone through regular stages of progression from extremely rude beginnings. It is impossible to prove that sculpture always began with the stage of incising outlines into the surfaces of large stones, as is generally supposed to be the case.

Conglomerates, the erosion due to the effects of alternate freezing and thawing, the carving done by sand blown by the wind, or, most common of all, the grinding of the silt held in suspension in water are all known causes of the carving of shapes and outlines, which would appear to afford a more plausible theory concerning the birth of sculpture than does the theory that sculpture owed its origin to the artificial incision of lines upon rock surfaces. A few blows given to a stone, shaped by any of the processes of nature referred to, would develop figures, and would, it is believed, soon lead to a deliberate and intentional shaping of stones.

That such is the case appears to be shown by the finding of water-washed pebbles resembling animals or natural implements, often associated with the remains of the earliest periods of human existence, especially of those of the caves and shelters which were man's first dwelling places.

The North American Indians appear to have been as ignorant of the sculptor's art as was any race which had learned its first rudiments. Their sculpture appears never to have progressed beyond the production of a rude outline upon some bowlder, which was done by an implement that ate into the stone by a series of continuous blows. Of all the examples known of aboriginal American stone-cutting, it is doubtful whether there is a single one which could be designated even as low relief.

Among the rudest sculptures are to be reckoned the colossal figures found in Easter island, wrought from a coarse basalt or lava, representing the human figure from the waist up. They are shaped by the blows of a stone hammer delivered directly upon the surface of the stone fashioned. These statues have eyes, nose, mouth, arms, and hands shaped in the most primitive way, with but little regard to anatomical requirements. These statues leave one in serious doubt whether those who made them ever worked outlines as was done by the North American Indians, or imitated wooden figures as the Greeks are by some supposed to have done, or whether they were not rather a development and growth of statuary due to direct imitation of natural forms.

Returning to the American continent, there is found from Mexico far to the southward a remarkable sculptural development, evidenced in monoliths, in slabs carved in low relief, in figures carved in the round, and in mural carvings that are astonishing in their detail and which closely resemble the finish of the most elaborate Chinese work.

The slabs of basalt or of limestone intended for sculpture were first dressed down to a reasonably smooth surface by a process of hammering with a stone having a rounded edge or by an elongated pointed stone or with a hafted stone celt.

These American carvings or sculptures evidence a skill quite equal to that of the Egyptians of a similar mechanical condition of culture, and often present a distinct individuality.

The Assyrians present a striking instance of national individu-



ality. The stone used is a grayish alabaster, extremely soft, slabs of which with winged figures carved on them and human-headed bulls of colossal size are common. The incised lines upon these figures show that the work has been done by a cutting process, probably with hafted tools, although it would be possible to produce the same effect with unhafted stone blades. Alabaster, being almost the only stone in the country, has naturally been the one most used, and its texture measurably influenced the art of Babylonia and of Assyria. To attempt to batter this stone would be to destroy it. The statuary of the most ancient Assyrian period indicates the cutting of diorites as early as 3000 B. C., as is evidenced by the discovery of two broken statues of this stone covered with cuneiform characters of an archaic type. Much of the technique and general character of these statues would appear to point to a common origin for them with some of those of Egypt.

The development of Egyptian sculpture may be followed with considerable accuracy through successive stages, beginning with the rudest and ending with the perfect round. Among the oldest efforts at sculpture by the Egyptians are said to be certain incised rocks similar to the stone-cuttings of the American Indians. There are, however, some well known carvings of small figures in limestone and in wood found in early Egyptian ruins that are considered to be of an age contemporaneous with primitive sculptures of the Nile valley.

These sculptures may be traced through the incised to the low relief, the intaglio, the high relief, the reserved, the colossal, and, finally, the round with considerable accuracy and apparently in chronological order. On the other hand, the small rude carvings of limestone, succeeded by larger squatting figures of solid form, and they in turn displaced by similar figures with more complete forms and increased size, until the colossal seated figure is reached, would indicate a possible if not a probable dual origin of the sculptures and carvings of Egypt.

The seals and cylinders of Assyria and of Egypt, of Greece and of Rome, fashioned by boring and by grinding, present art eras for these countries deserving of a study by themselves. The early Egyptian figures appear to have been produced by sawing, scraping, and grinding processes. The incised and relief sculptures appear to be produced by the hammer. This tool was

early used on the statuettes of limestone, of diorite, and other hard stones, and as late as the reign of the second Rameses.

The archaic statues of the world appear commonly to be of hard stones and of tough ones, such as basalt, diorite, or granite, the surfaces of which could be dressed to any desired form by a battering process with a stone held in the hand, which was subsequently used for grinding the rough surfaces of the statue. There are drawings of Theban paintings in almost every illustrated work on ancient Egypt representing in minutest detail workmen carrying out the processes here suggested, the practicability of which the author has tested in experimental work.

These paintings do not appear to have been correctly interpreted, nor to have had sufficient consideration, judging by the improbable theories advanced by some archeologists to account for the methods by which South American and Egyptian sculpture was done.

The most popular theory to account for the cutting of these hard stones is that early races possessed the secret of tempering copper until it was sufficiently hard to cut them; others have advanced the theory of tools supplied with points and blades of diamonds. It has even been suggested that early races could soften stone for a time sufficiently for it to be worked before hardening again. M. Émile Soldi, an eminent French author, and himself a gem engraver, suggests that the work on early Egyptian statues was done with the steel pointing tool. Another theory suggests that silica could reduce these statues into form.

The peculiar dress seen on Egyptian statues—having long beards down on the breast and scarfs thrown over the head, the legs joined together, and arms at the side and attached to the body or crossed upon the breast—is often explained by asserting that the posture and dress are due to sacerdotal influences, and that the hard diorites and syenites were selected by the Egyptians for their sculptures in order to show that although the nation was in its infancy, it hesitated at no obstacle. About the time of Rameses the Second we find that the Egyptians abandoned the working of diorite and syenite and other hard stones and commenced to work extensively the Theban sandstone. The transition appears sudden. The surface work on statues appears no longer to be produced by the pitting hammer, but by the chisel blade of metal, probably driven by the mallet, as repre-

sented in Theban paintings. The early Cypriotic statuary is of this sandstone, and appears contemporaneous with the later Egyptian art and is probably an outgrowth of it, and marks a step in advance in sculpture. The flat blade of the chisel and the gouge both appear to have been in use at this period, as well as the mallet. A close scrutiny, however, does not justify the positive assertion that stone tools had gone entirely into disuse, for many of the striations in the tool marks on the Cypriotic statues have a more scratched appearance than would be given by an ordinary chisel or gouge or by a tool of soft metal.

Here we see the old conventional headdress and beard of the Egyptian and the solid and massive figure give way to a free neck. One leg becomes slightly advanced in front of the other. The legs are no longer attached solidly together; they are slightly cut apart from each other. The arms are bent, with some freedom of action, at the elbow. The hand and wrist stand out a few inches from the body. That this freedom of action is due to the tool rather than to the art stage in which it was produced is evidenced strongly in the clinched fist. Were this freedom of action attempted in the harder stones, or especially in sandstone, with the shaping hammer, the danger of fracture of the arm at the wrist would be very great, and a free round neck would almost inevitably be broken off, because of the absence of the tenon formed of beard and scarf. In sculptures of the harder stones, angles are seldom seen; the fingers and toes are of equal length; the surface where cut in for eyes, nose, mouth—in fact, all lines are semicircular depressions due to the round surface of the shaping tool used.

The Theban sandstones show in a remarkable way the change of tool from the hammer to the chisel and mallet, enabling angles to be more readily cut and furrows of any desired depth to be made. Few examples are known in Egyptian art in which sculptures were made of marble, and when found, the piece of marble is usually small and finished as carving. Cyprus presents few examples of marble sculptures. About the sixth century B. C. we first find evidences of skill in marble-cutting exhibited by the Greeks; the hardness of metal about this period reached a point where the chisel and, above all, the principle of the file and rasp enabled marble to be worked at will, and con-

sequently there was no longer any limit to the expression of free action in statuary.

The hammer had become obsolete, the chisel had supplanted it as a shaping tool, and the pointing tool was used with the mallet to cut away the rough blocks. There was no comparison between marble, as a medium for the expression of feeling in art, and any other stone theretofore used for sculptures. Marble made perfection possible in sculpture, the tools of steel made the treatment of marble as simple as carving, and thenceforth these two arts, mechanically considered, became one.

History does not treat of a time when carving was not, apparently, well known; tradition does not appear to approach much nearer to its genesis. Carvings were well executed during the period of man's early occupation of the caves of Europe, and most persons who have familiarized themselves with archeological research know the figures of fish or seal engraved on the canine teeth of large carnivora, and the bear, reindeer, musk ox, horse, mammoth, and other animals carved on reindeer horn implements or on plates of ivory, the figures of the animals being at times cut fully in the round and found in the lowest strata of the caves, under many feet of cave earth and stalagma, and associated with the bones of a quaternary and, at times, an arctic fauna. The similarity of much of this cave work with much of the Eskimo production of the present day has given rise to innumerable theories concerning a common origin for both people.

The carvings of wood and stone of the Hupa Indians, the little stone and bone figures of the Pueblo Indians, and the wonderfully carved pipes of the eastern North American Indians show a skill in carving possessed by a race who knew nothing of sculpture. The carvings of Mexico were above the ordinary, as is evidenced by the reputed skill with which the emeralds of Cortez were carved and the known excellence of Mexican carvings of quartz crystal, of jadeite, and of obsidian. To see them is to be convinced that those who made them were thoroughly conversant with the fracture of minerals. Carvings and sculptures, if any number be examined and carefully compared one with another, appear to have been produced in a similar manner, no matter what their origin or their age, whether from Fiji or the French caves. If the material be hard and tough, a stone

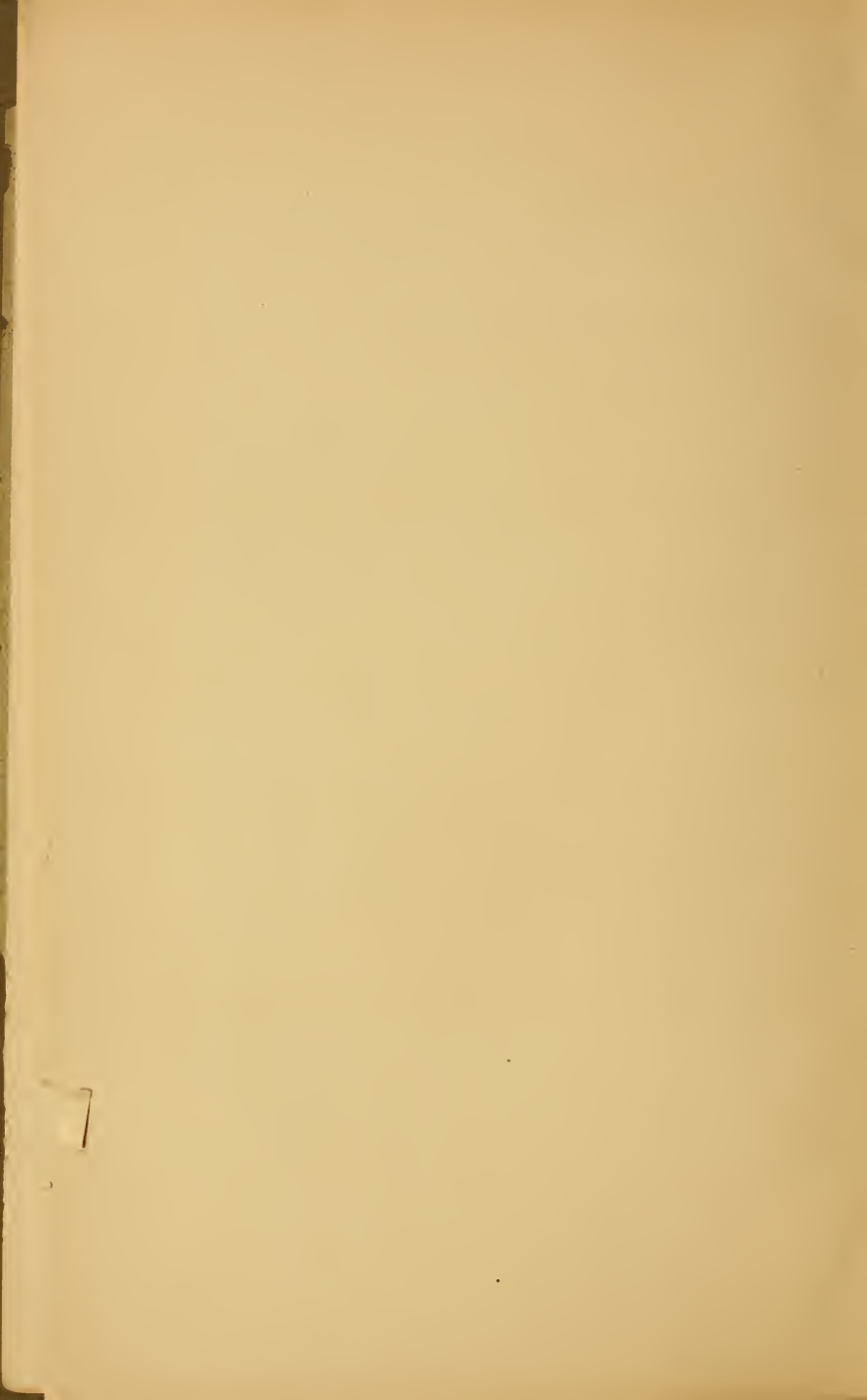
tool batters it into shape; softer material is worked according to its texture. One may be cut, another scraped, or it may be that the saw is found most useful; but whatever method has been employed, it will be seen that it was the one best suited to the material.

The crude hand tool gave way to one with a handle, and in time its working capacity was increased by means of water, air, or electric power.

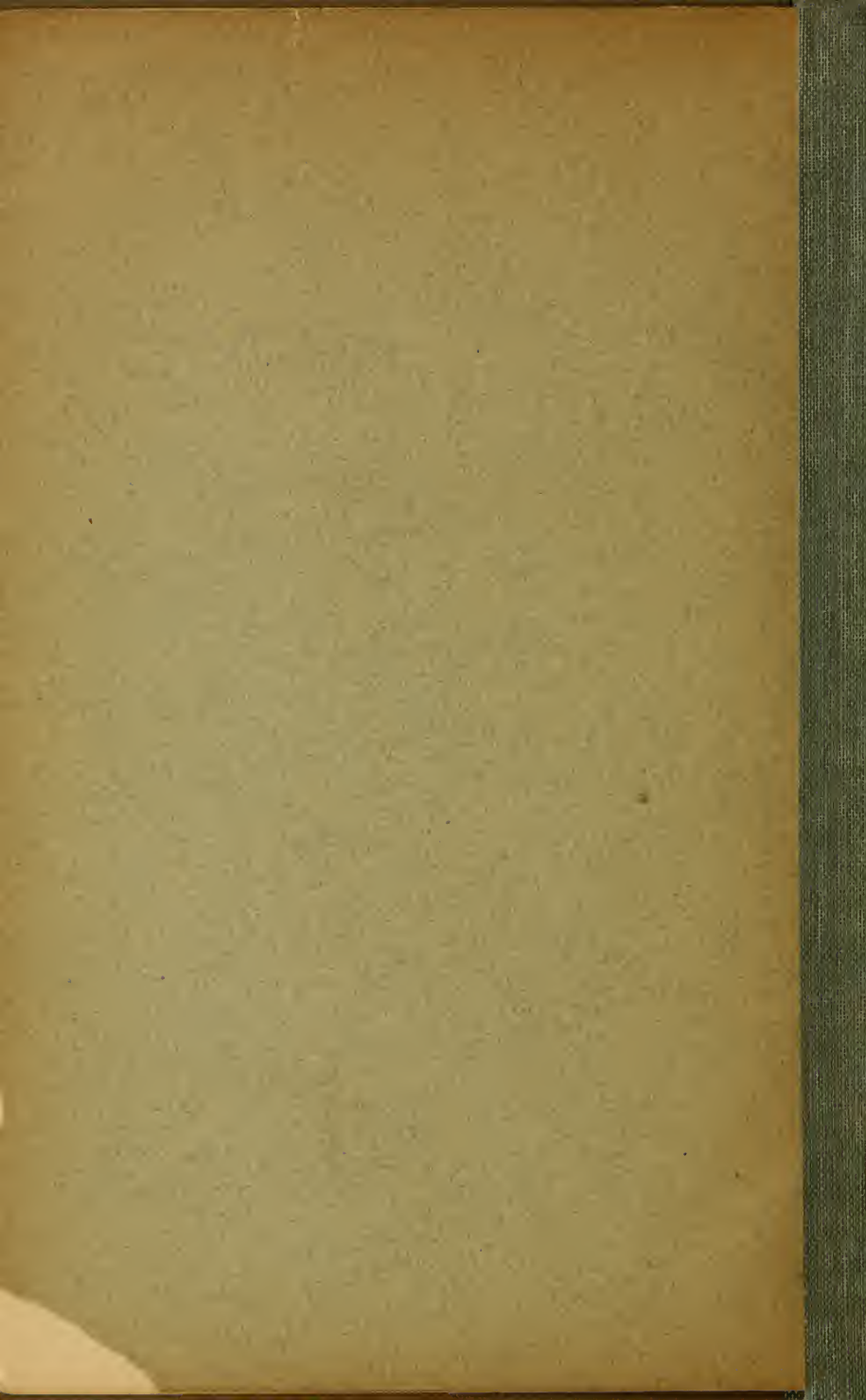
To attain an appreciation of the sculptor's art, at all thorough, would necessitate a study of the monuments of Egypt, the rock temples of India, the façades of the wonderful palaces of Cambodia and of Central and South America, as well as of the subterranean galleries of those countries.

With the Greeks the tool and the stone combined and made perfection first possible. To improve upon it would necessitate an improved tool and better material. It appears to have stood the test of two thousand five hundred years at least.

*Ellicott City, Maryland.*



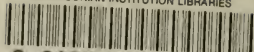






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