THREE ORIGINAL SCULPTURES IN METAL
DESIGNED AS GARDEN FOUNTAINS

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CHAPTER I

INTRODUCTION

The affinity of sculpture for water is universally known and is enjoyed by the general public as much as it is admired by connoisseurs and cognoscenti. Whether the sculptural forms are cast in metal or carved from some sort of stony material the happy relationship of water's various reflections, to say nothing of the extra animations possible to liquids in motion, over the solid surfaces seem always entrancing, invigorating and intriguing to all kinds of imagination.

In fact many people find even the most kinetic styles of sculpture dry and monotonous without the added attractions that water makes beneath, through or over sculptured solids and voids. Convincing arguments could be advanced for many of the flowing movements and textural variations in carved and modeled surfaces which prevail in many countries during different eras. On the grounds that sculpture has been so richly enhanced by the effects of water pouring over it perhaps imitative impulses have naturally developed to keep the effect of undulations, rain drops and foam as a permanent part of the forms.
The problem then of designing sculpture might be said to depend on how well the artist can reflect the influence of watery surroundings. To be successful in that line would be synonymous with being extinct. So, since every serious artist wants to create works that will become memorable and influential instead of invisible, the three-dimensional forms must assert themselves and dominate their liquid adjuncts.

Statement of the problem. This study was concerned with the adaptation of modern sculptural principles to the design and execution of three metal sculptures to be used as garden fountains.

Definition of terms used. A decision to design sculpture for fountains that will accomplish this in some new and yet logical way requires considerable study. The Encyclopaedia Britannica explains a fountain as:

A term applied to simple arrangements for letting water gush into a basin, and to more elaborate ones in which water is forced mechanically in high jets. The term is applied equally to the ornamental receptacle and to the jet of water itself.\(^1\)

Examined carefully it becomes apparent that this definition fits ancient as well as modern fountain designs but it also

serves equally to define the more mundane developments in sanitary engineering which enable water to run into kitchen sinks, washing machines, lavatories, shower baths and other useful household accoutrements.

Sculpture is a word with meanings that are even more elusive than those of the word fountain. Every adult and many children know what sculpture is; but almost nobody can define it satisfactorily. Nineteenth century art books speak of sculpture as the art of external form but modern developments have long departed from this restriction. Nowadays sculpture may be only a few thin wires, bounding no external forms at all, relying entirely on linear stimulations to visual and kinesthetic imaginations.

As if in contradiction to the traditional meaning many modern sculptors like Alberto Giacometti, Louise Nevelson and Alexander Calder work almost entirely with inside, not outside, sensations. Among Calder's long-lifetime productions is a huge iron stable which he constructed in 1964 for the American Republic Life Insurance Company in Des Moines, Iowa. Obviously Calder wanted this work to be experienced internally since it is placed in a courtyard with walls around it so high that although viewers can easily walk into it there are few who can see it from a distant enough vantage point to comprehend its external unity.
More modest aims were set by the writer of this report. She chose the second definition given in Webster's Unabridged Dictionary which says that sculpture means:

(a) to carve, engrave, mold, weld, or construct (plastic or hard materials) into a primarily three-dimensional work of art.¹

This sounds sufficiently inclusive and exclusive and leaves a hopeful sculptor facing only the technical kinds of carving, engraving, molding, welding or constructing something that will solve the ever-present puzzle called "What makes it art?".

Need for esthetic interest in this area. The writer's intention was to design and execute sculpture for three contemporary fountains that would actually function in existing Des Moines gardens. These should give pleasure, stimulation and relaxation to their owners and visitors. In other words the attention of a comparatively narrow segment of possible observers would be directed toward works of art that should be smallish in scale, harmonious with their surroundings, personal in character, and yet vital enough to be noticeable.

With so much current emphasis on modern civilization's need for leisure and escape from the tensions of business

competition, deadlines, vehicular traffic, and more intimate types of psychic involvement. It seems to the writer that there is a great need for the creation of more of this kind of sculpture. Anything that will provide even a temporary surcease from these frictions and frustrations should be a worthwhile project.

There are available many kinds of commercially manufactured furnishings and accessories for terrace and patio gardens. Comfortable and decorative as these are they cannot supply the unique qualities that are associated with the better types of hand-made art. Only the kind of synthesis that is possible when various antagonistic differences are resolved will create these human satisfactions. When there is evidence that some personal insight has improved an environment in ways that are more esthetic than practical or status-seeking then a step has been taken forward in the culture of mankind. Underlying meanings, previously unsuspected and perhaps new to this universe, will have been revealed. These will be of lasting benefit to any observer.

As stated by Lewis Mumford:

... the sculptures of the Constructivists, particularly of Naum Gabo, come close to revealing and interpreting the new world of space, time, energy, motion, and to constructing equivalent forms that captivate the spirit. On the whole this art has been a healthy influence; ... modern man
made himself at home in the very world from which the antiseptic, dehumanized procedures of science had excluded him. That too was a gain in values; likewise a gain in spiritual balance.1

This is merely a tiny part of Mumford's summation, "Yet man's highest work of art is neither a poem nor a symphony, neither a mathematical equation nor a city: his highest work of art is himself."2

Let it not be inferred that the somewhat hortatory tone of Mumford's prose calls for larger and more imposing ambitions in art than those within the capabilities of any senior student. It is too often forgotten that this kind of awareness can be conveyed as effectively in small works of art, intimately presented, as in tremendous conquests of space and with great expenditures of expensive material.

Many of the most highly regarded masterpieces in the long history of art are meagre in size, simple in style, and humble in materials.

Their value lies in their sensitivity and selectivity, which may be synonymous, together with their ability to stimulate various kinds of esthetic awareness. The art teacher's motto, "Variety in Unity," has as many possible interpretations in garden fountains as in more grandiose

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2 Ibid., p. 218.
commissions. Emphasis on the varieties in Pop Art have recently given way to the repetitious unities of Op. Nevertheless the tutelary adage remains helpful.

A more alliterative bit of advice, "Form Follows Function," also helps to check extraneous excursions into creative dead ends even though the late great Frank Lloyd Wright insisted that for himself the "Form IS the Function." But the pivotal centering of attention on a carefully designed fountain can climax the diversified setting of flowers, earth, furniture and architecture. The fountain can not only make a conversation piece; it can gurgle its own liquid language.

That the pitter-patter of sprinkles and the murmur of swishing spills can not be translated according to the conventions of human language does not lessen the delights of listening to them any more than the inability to comprehend the lyrics of grand opera interferes with its enjoyment. Through these sounds in addition to the changing flickers of light on a well-designed garden fountain a complete work of art is very possible. It can focus the attention in one spot and seem to sum up the purpose of its whole environment in ways that no other single object could accomplish.

Fountains as a symbol of modern living. The eighteenth century concept of the noble savage with his concomitantly vague but noble background succumbed to nineteenth century
romanticism in which the forces of nature, moody and grandly unpredictable, were supposed to inspire mankind's greatest development. Looking back on these oversimplified fixations, or so they appear nowadays, produces only a patronizing kind of nostalgia. It takes a conscious effort for most modern observers to share yesterday's creative excitements with anything near the point of view of those who made them.

Since American and European sculpture during the 1700's and 1800's was not yet prepared to turn loose of accustomed animal-vegetable-mineral subject matter, usually with physically sublimated humans as apogee of its content, it made difficulties for itself in communicating extrasensory perceptions. The means of establishing emotional states or purely esthetic responses are hampered and contradicted by finicking concerns for anatomical accuracy and irrelevant detail.

Having discarded these mores the contemporary sculptor of fountains is free to use any kind of structural material that will withstand soaking. Through the development of mechanical hydrodynamics he can plan water pressures that will stay as constant or as intermittently varied as are needed for any specific intentions. Hidden tubes and spouts can play almost any variety of watery games. The effects of artificial illumination, fluorescent or incandescent, flood
lighted or spot lighted for effects at night, are incal- 
culable.

So the busy fountain, sculptured to accomplish its 
fev or many activiues, seems a symbol of modern living. 
Its continued movements shift according to changing winds 
and flickering shadows. Its controls are man-made. It 
works only when it is turned on. Then it performs quietly 
or excitingly, dependent on its inherent design, but always 
with sufficient surprises to hold a viewer's interest.

Not only does it associate best with equipment for 
outdoor living in which swimming pools, terraces and patios 
require their garden furniture, barbecue grills, specially 
designed cooking and table ware, but it accommodates itself 
to varying degrees of heat, humidity and times of day. It 
responds well to contemplation while providing a therapeutic 
extension of the observer's personality. The garden foun-
tain may no longer be accomplishing any of its historical 
purposes, either religious or practical, but it is certainly 
a pleasure to watch it working.

II. THE PROBLEM

Three water fountains in which the main interests 
were to be sculptural rather than hydrodynamic comprised the 
aim of this project. It was decided that no special
illuminatory appurtenances would be incorporated. All three were designed for construction in metal, the largest of the three to be formed of heavy copper sheeting and the two smaller ones of bronze.

Suitable sites were studied and owners of gardens in Des Moines were consulted about their personal interests. Decisions on whether each sculptural fountain would be placed above, on, or below the eye level were reached. Whether to place the sculptures in comparatively open spaces or in locations that would more positively seem to contain them also had to be decided. Finally it was determined that each would be presented "in the full-round," meaning free-standing instead of being visible from only a narrow range of vision.

Copper and bronze are both affected fairly readily when left exposed to changing weather conditions. Unless in the gardens it was decided to keep each one of a material of total abstraction, while respond to air-borne chemicals.

Bronze is an alloy of copper and tin that has been popular with sculptors since remote ancient times. According to the Encyclopaedia Britannica it "was the first metallic compound in common use by mankind."¹

It was decided that these materials should be left unprotected so they would develop the effects of flocculence, carbonation (usually called verdigris), and other corrosions that with aging would naturally add to the interest of the sculptural patina.

Statement of the specific problems. With copper as the basic material it was next determined that each piece would be planned with the emphasis on long and open interests so that the gardens surrounding them could become integral parts of each design. Supporting members would be kept as small as possible so these necessary parts would be practically invisible. The resulting effects would be buoyant and airy.

Not wishing to model any of the sculptures so realistically that it would appear as if miniature humans were intruding in the gardens it was decided to keep each one stylized almost to the point of total abstraction. While enough recognizable features would be incorporated to engage human responses the main consideration would be on decorative simplifications with hints of whimsical humor.

European gardens and public parks are apt to be, replete with statuary of men and women, usually representing religious, mythological, or historical characters, in
Various stages of costuming or undress. Although a surprising number of these are better than excellent their traditions are hardly those that will suit the purposes of modern fountains. Apparently the last of the sculptors who could strongly vitalize those academic standards was Carl Milles whose work will be discussed in Chapter II.

American garden sculpture is likewise inclined to feature fountains where bathers demonstrate their anatomical charms from the first day of babyhood. Airing his opinion of the extreme artificiality practised by members of the National Sculpture Society, long one of the most reactionary academic strongholds, New York Times art critic John Canaday wrote:

It isn't just that the sculpture is old-fashioned. It's just plain bad. At best innocuous, . . . the National Sculpture Society thinks . . . in terms of spun sugar.  

In a world where books on dieting are best sellers and the international ideals of beauty stay close to the bone these are harsh words.

Among the more contemporary approaches that have added variety and excitement to the sculptural scene is one that was initiated by the great modern master, Pablo Picasso, thirty-seven years ago. In his "Design for a Construction

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in Iron Wire" of 1928 Pablo Picasso created what is essentially a Cubist interplay between the outlined, interpenetrating voids and the suggested, but intangible solids of the bizarre pinpoint of a head, the still more curious arms which sprout three-fingered hands, or the skeletal torso, oval in front and rectangular in back. Cubist, too, is the tension between this austerely geometric vocabulary and the human anatomy that it describes.¹

This particular type of emphasis still suits the present intentions of sculpture while allowing sufficient latitude for individual improvisations.

Many present-day designers are still exploring the directions that Picasso discovered, even before 1928. If the aim is not to imitate the great Spanish-French master but to make use of some of his ideas the esthetic results should be valid enough.

The art of sculpture has taken many forms and has served many uses throughout history. It first appeared in Paleolithic caves. From then on it took its place honorably in tombs, inside palaces and outside in the gardens, in temples and in churches, in courtyards and public parks, as well as in private homes and their surroundings. Wherever people met, statuary was formally arranged to add dignity, beauty and meaning to their environments.

Small pieces, carved of rock or cast in metal, were carried in the hands of devotees as fetishes during ceremonial events. Large carvings became incorporated as architectural portions of huge buildings.

Man’s need for constant supplies of water and his universal habit of locating villages, cities and towns near dependable sources of water seem to have led naturally to his combining sculptural art forms with the water itself. Sculptors collaborated with builder and artisans to provide the most effective placements of their works. For citizens who could not afford the more elaborate productions there were usually figures made of terra cotta that was beautifully painted or glazed.
All of this developed in a continuous flow of changing styles through the centuries. Representing different religions, secular customs and heroic leaders in different nations people's varying tastes seemed to share at least one urge. Wherever civilizations paused long enough to establish settled communities some kind of sculptural monuments would be developed. Some of these were sure to decorate the more important springs, wells or fountains.

**Fountains in ancient environments.** As early as 3000 B.C. the ancient city of Lagash, now called Tello, had a carved Babylonian basin in a rock where water flowed. A thousand years later the Assyrians shaped similar basins in the stone gorge of the Gomel River. Here they provided special conduits for the water to follow in descending steps until it reached the lowest of these basins which was richly ornamented with rampant lions.

Aegean civilizations and the Hellenic Greeks who followed them dedicated many natural springs to gods or goddesses. They built sacred shrines around these springs with a fine regard for combining esthetic and practical features. The spring water was conveyed into artificial basins, often with sculptural decoration, balustrades and platforms. Occasionally these were protected by classic columns supporting a roof over the spring itself. Corinth
was especially noted for its beautiful fountains which served many utilitarian purposes besides being sacred and decorative.

Still one of the most admired features of the ancient Roman civilization was its development of the castellum, a terminal reservoir which supplied public baths and large private houses. The magnificent baths, hugely vaulted and richly ornamented with marble sheathing and mosaics were interspersed with fountains. Often the water gushed from the mouth of a stone sculpture into a basin notched for its overflow.

Votive sculpture, set up in connection with public fountains, helped to establish in the public mind respect and regard for the sacred figures whose images were shown. By constant association the people who used the water came to feel that somehow the sculptured gods were responsible for the water's presence.

Gardens in the courtyards of ancient Pompeii and Herculaneum were not considered complete without fountains. These were quite often so charming in their use of bronze sculpture showing maidens and fauns, mermaids and tritons, dolphins or imaginary beasts that they have been frequently copied in nineteenth century fountains in America and Europe. Many a private Roman atrium had a basin, raised
high on its standard, much like a modern garden's bird bath. These were elegantly designed and prominently placed.¹

**Chinese and Japanese sculpture.** The history of far eastern sculpture shows a great contrast to that of the classical Greek and Roman traditions. Instead of arranging architecture and sculpture, ceramic accessories and vegetation in orderly precisions the oriental taste preferred more irregular placements suggesting the way interests might be found in natural and wild surroundings.

Both China and Japan early developed sculptural styles which share some common traits, those of China being much the older. Great Chinese sculpture dates back to Neolithic eras almost 3000 years B.C. Japanese art does not show national characteristics until about 300 B.C. although the making of haniwa (clay images) in Japan does predate the establishment of strong political or governmental units.

Their art traditions however share fewer identical traits than most occidentals suppose. As Sherman Lee explained:

> But the surroundings of the Chinese palace or house are quite different from the restrained and natural gardens of Japan. In the Chinese garden, we find the same interests evident in painting.--

¹Hamlin, loc. cit.
a fondness for old and interestingly shaped trees, sometimes of great size; flowers and living still lifes arranged in beds or basins as if they had been arranged from or for a painting; and, above all, strange and fantastic beasts, such as the Lion Rocks of the garden in Suchou made doubly famous by Ni Tsan. The effect of the Chinese garden is more formal than that of the Japanese, with its informality, freedom, and careful suppression of any evidence of the constructive hand of man.  

Lee also stated that "The use of cut stone in pavement or stone railings, of beds of trees or shrubs with boundaries of stone, creates an effect (in Chinese gardens) allied to European garden styles."  

In Japan as the political center moved to Kyoto, then to Kamakura, and with the increase of religious activity in various other places, taste began to alter. Non-conformism and change appeared in the organization of temples and religious dogma. 

With the change more statues were produced in a greater number of places, and these were more varied in kind. However the force of tradition has kept most of the significant sculpture in Nara and Kyoto. These works of art for gardens and fountains as well as for interiors ranged in material from gilt bronze to molded earth, dry lacquer, wood, and stone. All of these expressed the differing


2 Ibid.
essences of Japanese sculptural tradition which continue to play so great a part in temples, parks, and private Japanese gardens.¹

In addition to the development of sculpture for Japanese gardens, Zen Buddhism brought a different concept to the creation and placement of other ornamental solids in the gardens. Through their religious translation there was a fusion of natural forms in garden design. Using carefully selected stones that had been naturally burnished, sensory experiments similar to those used by contemporary abstract expressionists were created in garden design.

Combined with sand and water, the irregular shapes of tree limbs, twigs, leaves and flowers during the ninth, tenth, and eleventh centuries emphasized horizontal movements creating almost abstract forms to symbolize the peaceful aspect of the Heian Period. Late in the Heian Period the emphasis was changed into vertical directions which, in considering subsequent events, seemed to express a premonition of more exciting upheavals in the coming years.

In both cases spiritual harmony rather than technical perfection characterized the carved stone figures, or those

made from other materials, that were found in Zen gardens. Instead of working for polish and finesse sculptors induced the effects of weathered age.

The Medieval Period of European gardens. The western world's medieval gardens continued as well as possible the sculptural and horticultural styles of imperial Rome. Dr. Walter Falconer, in his Encyclopedia of Gardening published in London in 1879 claimed that Pliny's "Villas" gave the tone to the medieval European taste in gardening for home beautification. He claimed that it is almost superfluous to remark on the striking resemblance which Pliny's garden plans bear to the French and Dutch preferences of the Middle Ages.

The terrace adjoining the house, the lawn declining thence, the little flower garden with the fountain in the center, the walks bordered with box-hedges, and trees sheared into whimsical artificial forms, together with the fountains, were the chief characteristics of medieval monasteries as well as private homes. The rest of European civilization might be surviving in darkness but gardens and their sculpture repeated the classical practises.

Earlier medieval ages had to be satisfied with wells rather than fountains for their suggestions of the presence of water in gardens. In the twelfth century public
fountains began to reappear, and were soon introduced into the more ambitious private preserves. These fountains often took the form of a tall column or pier carrying a series of spouts from which the water gushed into basins placed one above the other.

Renaissance and Baroque gardens. Renaissance Italy began a new phase in which sculpture was much more prominent than before. Leonardo da Vinci, as his teacher Andrea Verrocchio before him, did charming designs for fountains. Verrocchio's Putto with Dolphin, a bronze sculpture barely twenty-seven inches high, still excites admiration as its dolphin continues to spout over the fountain that Verrocchio designed for the Palazzo Vecchio in Florence almost five hundred years ago.

Square gardens in the courtyards of Renaissance city homes were influenced by the classical Greek graces. They were essential parts of the house, and strove to indicate the cultured character of the people living there. The far-reaching activities of the Renaissance had their influences on garden design as much as on architecture, sculpture, painting, and on artistic life in general.

This was particularly noticeable where the palace architecture and garden terrace were so intimately related.

The overflow and pleasing use of water fountains, the judicious placing of statuary, covered walks and arbors, the secondary selection of plants, trees, and flowers were elements woven into units of great beauty. Not violating it with irrelevant formations the Renaissance designers made all component parts become sculptural elements which in turn reaffirmed their partnership with the earth. The sculpture did not exist in isolation, but became deftly fitted into its surroundings.

Fashion decreed that garden sculpture be elegantly related with water. Many beautiful and practical means were developed to introduce spring-fed water into the parks, gardens, and living areas for use as well as for the delight to eyes and ears.

Raymond Stites, now Director of Education for the National Gallery of Art in Washington, D.C., wrote of the baroque style:

A 16th-century garden on the hillside in front of the Villa d'Este at Tivoli near Rome, with its arrangement of descending terraces, was the model for many baroque plans. Here the mountain stream running below the palace has been channeled into innumerable fountains and long basins bordered with cypresses, so that the purling sound of water enhances the many shady vistas.

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Baroque designs for the Fountain of the Rivers (1647) in the Piazza di Navona by Giovanni Lorenzo Bernini and the Trevi Fountain, into which coins have been tossed since its completion in 1762, by Nicola Salvi are still famous tourist landmarks in Rome. France constructed equally splendid and ambitious fountains at Versailles as part of the garden complex designed there by André Le Nôtre in 1661.

Less royal French gardens provided avenues of trees, fountains, and sculpture to serve as dramatic backgrounds for intimate patio and terrace recreation. The carefully elegant treatment around many of their outdoor pavilions was augmented by the placement of gracefully modeled fountain sculpture.

Techniques used in both the fountains and springheads were set in overflow water. The water was conducted through the garden in channelled conduits, forming intermediate pools. Flowers and trees were placed as turf margins in the garden design with sculptured small bronze figures as accents.¹

Kate Buckingham's Memorial Fountain in Chicago imported the French Renaissance style on a grand scale. Designed by Jacques Lambert in 1927 it continues to entertain thousands of visitors strolling along that city's

lake front. To list all of the other splendid examples of fountain sculpture in this country would not only be exhausting but generally unsatisfactory. Everybody has his own favorites. However there is one outstanding designer whose achievements should certainly be mentioned.

The Swedish sculptor, Carl Milles. Many inspired and carefully engineered fountains were produced by the Swedish sculptor, Carl Milles, who lived from 1875 until 1955. Prince Eugen of Sweden said of his work,

How striking and well valued is this garden fountain by Professor Milles ... which shows his study of contrasting horizontal and vertical lines, of well disposed light and shade, and value through interesting and suitably placed ornaments.¹

One of the most famous Milles creations, Pegasus and Bellerophon, is installed toward the west end of the reflecting pool at the Des Moines Art Center. It shows his love of life, of nature, and his sense of mystery in a most personal world of expression. Sculptured in 1950, the characteristic Milles vitality penetrates every part of the daring design. Its technical aspects alone, with Bellerophon soaring out into the air, attached by only one foot to Pegasus, are enough to stop any bystander.

Water shot from a nozzle located near the opposite end of the pool adds even more excitement to the bronze surfaces. Observers forget that Pegasus is permanently immobile. They think of him as being in actual flight.

Carl Milles' fountain sculptures, here, as well as at the Metropolitan Museum of Art in New York City and elsewhere, were not only compositions of water channeled to coincide with solid forms. They masterfully provided story interests and descriptive information based on ancient mythologies, on Norse folklore, and modern customs. Their stabilized, positive forms, always buoyant and vigorous, and their negative voids are skillfully interlaced with jets of water to create fantastic images.
CHAPTER III

EXECUTING THREE SCULPTURAL WATER FOUNTAINS

The kind of interest and research indicated in the preceding chapter led to the execution of three original designs that were sculptured as water fountains. These were made in the sculpture classroom at Drake University, and were installed in private gardens in Des Moines.

After many pencil sketches had been made, still pieces of paper were cut, bent, and fastened together to form the basic shapes for "Woman in Garden." This was the largest of the three pieces of sculpture.

Clay figures were modeled, considered and changed, criticized by the instructor, sometimes rejected by the student, and then rearranged to determine sizes and positions for "Men by a Fence" and "Chatting Women." All three were completed during the spring and summer of 1965.

"Woman in Garden." A three-tiered design was developed in the form of copper globes placed one above the other on a six-foot copper pipe which had been perforated throughout over half its length. The figurative inferences in these three globular shapes suggested the head, chest,
and hips of a female figure. By keeping the shapes open and gently spiraling the humorous possibilities were increased. Also it was discovered that the sculpture would join more readily the other interests in the garden for which it was planned.

Methods and techniques of construction. Eighteen-language copper sheeting was used as the basic material for this sculpture. It was cut into fifteen petal shapes, five of which were used to form each of the three segments suggesting globes. The size of these spiral globes was planned to play component parts in the total height of forty inches. The smallest of the globes was to indicate the head, the middle-sized one the chest, and the largest was placed at the base to form the hips.

For the top globe each petal was cut to measure fifteen inches in length, the center of the petal measuring two and one-quarter inches in width, tapering to two inches near each rounded end. A hole was punched toward each end of the five copper petals, and this hole was fitted over the perforated central pipe. This top form when completed measured eight inches in diameter.

To shape the second globe, which was to be placed directly below the top one, each of the five petals was cut
twenty-four inches in length. Their centers measured four inches in width while the ends tapered to only two inches toward each end. Holes to accommodate the insertion of the perforated copper pipe were punched near each end of these five petals, and the pipe was pushed through these holes.

The third globe also had five petals. Each of these measured twenty inches in length, the width at the center of each petal being three inches. Toward each end these narrowed to one and a half inches. As in the other two globes, holes were punched in the ends of the petals so both ends could be slipped over the central pipe. This globe measured ten inches in diameter.

Previous to their having been fitted onto the pipe, each of the fifteen petals had been chased and annealed. This process gives strength to the metal as well as permitting the worker to change their forms and create more variation in the surface texture. Bags of fine sand were used to brace the metal throughout this rough hammering process. The copper increases in hardness during the hammering. Annealing, which involves heating the metal and immersing it in a diluted acid bath of one part acid to twenty parts of water, makes the copper more flexible.

The propulsion of water from the central copper pipe had been planned by the drilling of pin-point holes. Three
holes were drilled to direct the water into the top globe from three different directions. Holes were drilled in the two lower portions to direct the force into these two other globes. Here the holes were arranged so the water would shoot in six different directions.

Since the copper petals forming each globe were removable, they were pivoted by the force of the water striking their spiraling bands. When set on their base in the garden they moved slowly but constantly, changing their rate of speed as gusts of wind altered the strength of the jets of water.

The base for "Woman in Garden" is a gray featherstone, weighing 1100 pounds. It has a shallow bowl indented in its top which is oval in shape, forty-four inches wide and thirty-eight inches across its narrower dimension. The stone base stands three feet high, which makes the top of "Woman in Garden" taller than most visitors who view her.

As a final step a small copper cup was cut to form a small cluster of petal shapes at the top of the central copper pipe. The pipe was sealed at the top so no water could escape there. This makes the little copper ornament hold still while the rest of the sculpture slowly revolves. Since each of the petal shapes follows a spiraling movement, the combination of directions is always varied, somewhat humorous but pleasant.
"Men by a Fence." Separate lines formed the principal elements in the design that was used for the second piece of sculpture. From the preliminary sketches onto a paper to the final casting these lines did not serve as boundaries but as internal directions. Although "Men by a Fence" was cast in bronze, its effect is not of mass or bulk but of gestures that are direct and self-assured.

Line composition in its various adaptations has been used in almost every era in some sculptural form or other. The archaic Greeks before 700 B.C. made wonderful sculptures of men and horses in which anatomical shapes were reduced to skeletal lines. Primitive artists in Neolithic cultures throughout the world have often demonstrated their structural form. This wax mode preference for the inner axis at the expense of solid matter. Lately sculptors have been exploring the same approach, Alberto Giacometti being especially noted for his linear constructions.

Analogous to this usage of line, so historical and dynamic, were the experiments for this small scale sculptured fountain standing thirteen inches high. The jets of water for it introduced curves as a contrast to the horizontal and vertical statements forming the two main sections of the fountain's body. The seven vertical lines in the body of the sculpture represented men standing at a
peeling knife and nail file, to slice the thin wax forms.

Simple household tools were used, such as a fruit

ness for the process of modeling.

materials are economical to use, and have minimal dirty,

adaptability under wide ranges of temperature control. Wax

many articles for the easy workable qualities and for its

forming a model for casting. It is preferred over clay by

casting plaster. The use of wax is a great advantage in

later because the negative hollowness in a mold made of metal

used for modeling the sculptural forms. This wax model

After the rough sketches were made on paper, wax was

ished by the Harvard University Press in 1940.

used technical studies of field reports that have been pub-

lized for this report on direct casting in bronze. High

experimental that has been conducted by Johnson Hendsch.

book, "The Material and Method of Sculpture: Bronze Casting Methods" we use some

technical problems. Bronze casting methods were

untried state.

other to produce oppositional directions intertwined into a

acteristics of the linear characteristics intertwined each

distance beyond horizontal crossbars. The different cham-
from the more solid masses, and for the final smoothing touches on the surface of the model. Pinching, pressing, patting, and rolling wax in the hand seems to give strength to the construction of the body.

The few massive parts in "Men by a Fence" were built by using small wax balls, each the size of a cherry, pressed together. Then the small irregularities in the surfaces were considered for what the later process of molding would do. It was necessary to brush a hydrocal mixture into the small openings in order to reduce the dangers of having molten bronze penetrate too far into the slabs forming the body of the fountain.

One of the major concerns was to make a quarter inch water channel through the inch high attached bronze base. Keeping the water channel open in the sculptured base was necessary for the success of the original plan.

Casting proceeded with entire success without using a steel pipe which it had been thought might be necessary. Carefully brushed and firmly packed plaster of Paris had been extended into the mold to protect the water channel from destruction during the later process of baking the mold and pouring into it the molten bronze.

The image or idea in the first drawings developed successfully into the three-dimensional form. The
oppositional directions complemented each other to create a forceful, masculine effect. When installed in a low pool and attached to a small submersible pump, the "Men by a Fence" made a whimsically effervescent addition to a small garden.

"Chatting Women." A third fountain, "Chatting Women," was also made from a bronze casting. Its controlling design was radially circular in form, utilizing upright lines for variety. Six stick-like figures of women were suggested as if sitting in chairs around a table. Though chairs were not actually constructed, their presence as imaginary objects was implied in the design.

In the preliminary sketch, the water pipes were arranged to come through the center of the circle, which was to be the middle of the table. Later three extra pipes were placed in the three alternating women, each measuring fourteen inches high.

In order to make four sprays of water to function in rhythmic patterns, the middle spray was adjusted to bubble gently while the three outer sprays arched at different heights and directions. The inset steel water pipes in this fountain were each receiving a different water pressure. This made four different heights of water in the design.
which unified the sculpture as a water fountain. Wire pincers were used to adjust each water spout to give the required variety of heights.

"Chatting Women" was set in a small, irregularly-shaped pool at the garden of a private home in Des Moines. This low pool, roughly seven by five feet, had a shallow concrete base with large rocks around the edge. Earth and rocks with many plants made a higher background toward the edge of the garden. There the "Chatting Women" could continue their conversation through the summer months.

"Chatting Women" is twenty-seven inches long, twenty inches high, and eight inches wide. The ratio of head to body is eight to one. The sculpture is characterized by the slender lines and flowing drapery. The drapery is made of wire, which gives it a lightness and grace that is enhanced by the soft folds of the fabric. The overall effect is one of elegance and refinement, with a sense of movement and grace that is characteristic of the Art Nouveau style. The sculpture is a striking example of the talent and vision of the artist, and it is a testament to the enduring appeal of Art Nouveau as a style of sculpture.
CHAPTER IV

OBSERVATIONS AND CONCLUSIONS

Research in the history of fountain sculpture was valuable in increasing the student's original desire to design metal sculpture for three fountains. Although these sculptures were more modest in size and design than most of the famous examples seen in books, it was cheering to find that many of history's most favored fountains were created in very small dimensions. Verrocchio's "Putto with Dolphin," mentioned previously, is only twenty-seven inches tall.

Problems of relating garden sculpture to environments made an entirely different approach to the usual disregard for surroundings that designers of sculpture usually adopt. While it would not be feasible to exhibit any of these three works in regular group showings or in competitions for sculpture in general, it seemed that the pleasure of planning for specific locations and of seeing the completed work installed more than compensated for other possible rewards. Most artists enjoy seeing their work used and appreciated.

Studies and experiments in the technical methods of casting showed many possible methods of developing the
sculptural plans. Each of these variations would have altered the final forms, but the methods selected were the result of experiments and revisions that apparently justified the choices of materials and methods.

"Woman in Garden" developed into an imposing and good-natured image. It was large enough to dominate its surroundings while its open spaces invited the background to enter into its circumferences. Its globular units acted as pivots of attention, and the slow spiraling movements through each of its parts gave variation and continuity to the total effect. With its tiny jets of water setting the parts in motion it seemed well worth the investment of time, study, and materials.

"Men by a Fence," being much smaller, would have seemed a much more intimate accomplishment except that the brusque directness of its gestures gave it more apparent determination. Casual in its manner, rough in finish and even jaunty in its watery additions, it held the attention from every angle of vision.

"Chatting Women," equally small, was the most whimsical of the three. Even the sound of its droplets falling into the water around it suggested the chit-chat of a group of friendly females around a table. Its variation on a radial motif turned into a personal statement with meanings
that responded to individual interests of its observers. Some people viewing it thought that the women looked Japanese. To others they appeared American, and other varied nationalities were suggested. Everybody saw them a little differently while still enjoying the illusions that they created.

Other evidences. As further evidence of the increasing need for terrace and garden ornaments there is a study by Jack Hasting, a sculptor who said,

The sculptured objects and groups of objects were created with a vision toward harmonizing an esthetic concept with surroundings both man-made and natural, and were designed, as well, to exist functionally. Each object or group was conceived in relation to a living environment of plants, rocks, water, light, and rains. On this concept he illustrated sculptured garden pieces, lanterns, planters, and found objects to be reshaped as sculpture to create unique garden corners.

A recent issue of House Beautiful Magazine, illustrated water and fountain features as important central motifs in midsummer living. Instead of considering sculpture

2Sarah Tomerlin Lee, "Midsummer Magic," House Beautiful (June, 1965), 105-133.
for fountains as a separate interest there were repeated suggestions for making these interests appear at home with their leafy, floral and architectural surroundings.

This total concept of creating garden fountains to fulfill and satisfy needs for relaxation has been handed down from our ancestors. Today this kind of stimulating escape from tensions and problems seems more desirable than ever.
Figure 2. "Men by a Fence."
Figure 3. "Chatting Women."
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