ARETHUSA: A FOUNTAIN THROUGH SCULPTURE

by

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S.B. Massachusetts Institute of Technology
1978

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Submitted in Partial Fulfillment
of the requirements for the
Degree of
Master of Science in Visual Studies
at the
Massachusetts Institute of Technology
June 1980

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March 30, 1980

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The major work for this thesis is the creation of a sculpture, constructed as an independently running fountain. The sculpture is composed of ceramic figures, and is installed at the M.I.T. Student Center Library. The written paper begins with a statement about water and traces the myth of Arethusa, the subject of my fountain sculpture, through references in Greek lyrics. The next section selects Presocratic thought as one basis for ideas about water and continues with discussion of poetic allusions to fountains. A survey of selected public fountains from several historical periods is undertaken to illustrate the change in sculptural design and purpose of these structures through history. Next the sculptural and environmental aspects of making this thesis fountain are discussed, with accompanying photographs. A brief chapter of my own poetry is included as well.

Thesis Supervisor: Otto Piene

Title: Professor of Visual Design

Dedication

To Alva for "Waterfalls"

To my parents, brothers, and grandparents

To Alanna and Phil

To Jane English

For sharing the beauty of life and glow of love.

poi mi volsi a Beatrice, ed essa pronte
sembianze femmi, perch'ia spandessi
l'acqua di fuor del mio interno fonte.
Paradisio XXIV, 55-57.

Acknowledgement

My thesis advisor, Otto Piene, has encouraged me in the difficult beginnings of learning to be a sculptor. Professor Harald Reiche has uplifted me with his insight and inspiration. My friends Andy, Derith, Joe, and Malka have, throughout the past six years, made the MIT Student Art Association a home where I could learn, work and rejoice in their continuous faith and imagination.

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A Fountain expresses the sparkle of our inspiration by the rise up of water with power into light, by falling gently to pools. Founting water is living poetry, ever changing and moving, it gleams, pure and brilliant, in sunlight, it speaks as it splashes of a simple natural music. The Fountain is a visible expression of our celebration of water which is in turn, a celebration of life itself. Fountain water fascinates us; all that is most lyrical and imaginative about us finds a special fulfillment in the perpetual singing and shining of a fountain. The fountain, as it bursts with glimmer on the air, seems an effusion of the soul, made tangible and real. In this way it becomes a metaphor for our creative efforts, a pattern of our most vibrant life.

The work for this thesis was to create a sculpture that would become an independently running fountain. The ceramic sculpture represents human figures, characters in a myth brought to life by the water sent through and from them. The written paper is merely a comment upon my experience in making the fountain, and my enchantment with both the process and the finished work. It begins with a statement about water, of my play in water and discovery of the myth of Arethusa. The silent nymph, Arethusa, is traced through the fleeting references to it in Greek lyrics, for she is the subject of this fountain sculpture. Then, the thesis presents references

to fountains in poetry and a series of fountain sculptures drawn from history, showing how fountains, both in words and by the changing of their sculptural designs, have appeared differently, yet importantly, to generations of people. The Greeks, commencing with the first fragmentary words of the PreSocratics, and the scanty evidence for early Greek fountains, will figure as a guide and source, both for the blooming of fountains in history, and for this thesis sculpture in particular. The making of this fountain, is conveyed, both sculpturally and technically, with accompanying photographs. A brief section of my original poems is followed by a final statement of conclusion.

Water is the grace of our life and the sustenance of our survival as a community; it weaves an eternal rhythm into nature. The natural landscape, in all its multiformed variety of organisms, as well as its hills and plains and seas, grows from and is carved by water, water is an original sculptor, tirelessly smoothing stone to ultimate polish and matchless form. As it burrows through canyons and gullies, catapults down mountainsides and rushes through furrows in farmlands, the rock eventually yields to it, and the mountains are eroded, the visage of the land is shaped through the constant contact and caress of water. A sudden rainstorm, a dew-diamonded morning field, a cup filled with sparkling water, star-like, are all manifestations of the epiphany of water in our human lives. The fountain is a work of human effort both to exhibit our fascination for water, and to distribute it publically. The fountain water, continually sent into the air by spray and stream, recalls to us all our memories of rain and waterfalls, of rivers and misty lakes, the water we found special in nature. The human audience that creates and views the fountain sets its water apart, with a human significance. In this way people are always somehow intrinsically part of a fountain.

The fountain most familiar to me is a small drinking fountain at the edge of Jamaica Pond, an artifact that has

become part of my pattern of life during the time I was trying to make the thesis sculpture into a fountain. It is a simple bronze basin like a birdbath with three water spouts just at drinking height running continuously at all times and in all weather. It is located in the middle of the path that circles the pond, and each night, even to the early hours of the morning, it was still there, offering a cool drink, a respite from the long bicycle ride from M.I.T. The small Jamaica Pond fountain became somehow a symbol of what I hoped my fountain could be, as I began to know both more closely, to live with their magic through all days and seasons.

My most compelling experiences with water that relate to this sculpture work come from the midsummers I have spent in the hills, lakes, and streams of New Hampshire. There, ringed about with trees and sky floating upon mountains, I swim easily through the lustrous cold water of Raven Cove. I return again and again to watch the lake, its surface dancing with the journey of the sun, and on some days cloaked by its own white mist. At other times, I climbed with my family in the mountains, and saw the rain and mist that hangs about the peaks swell the rivulets and streams. I drank the delicious fluid of the rocky springs that are the source of these brooks in groves of ferns. In the cliffs and ravines below these springs, the water takes stunning jumps down the rocks, and froths white in cascades. I have stood within waterfalls, held by the power of pounding rain, and swum in the icy pools

beneath the falls, green from their great depth. The cascades seem to take me into their forested rainbow beauty as a fellow water creature, carving at me with the water's pull. Each one remains in my memory, etching a fine tale upon the rock and air. In the falling cast of the waterfall, I, too, realize how a human becomes a fountain.

In the wooded slopes of Crawford Notch, I first met Arethusa. There she is a long leap of water, 200 feet down an overhanging granite cliff. The water moves in fluid and lucent patterns, in delicate veils of light. The splashing sound crafts a silver sheen between water and rock, between the rippling of the creator stream and the rocks' hard angles that are malleable in the water's rush. In this secret wilderness, Arethusa seemed to me one of the Indian maidens whose shadows, in the form of legends, still linger over these mountains. After I began the study of classical Greek, and again when I undertook the making of this fountain, Arethusa brought many more meanings to her lovely name.

The story of Arethusa is the earliest account of a fountain in Greek mythology. Arethusa, a water nymph, was bathing near Olympia in the Alpheus river when the river God became stirred in love for her. She fled to escape, and finally in exhaustion cried to her companion, Artemis, for aid. The goddess veiled her in a mist, carrying her four hundred miles across the Ionian Sea to Ortygia, an island off

shore from Syracuse. There Artemis wreathed her in the earth, transforming the nymph to a fountain. Alpheus, however, dove beneath the sea, discovered her, and merged his river with the fountain. The two lovers were united in the rising spring.

Several contemporary scholars strive to understand the meaning of primitive mythologies by looking to the heavens for the ultimate origins of myth. A brief summary of the thought of de Santillana and von Dechend, in this respect, provides us a possible figurative reading of the story of Arethusa. Early human cultures evolved a system of describing their cosmology in terms whose vocabulary, syntax, and grammar has become opaque to moderns. On this working hypothesis the ancient scheme of astronomy and astrology was encoded in tales of mythology for the purpose of enhancing the possibility of accurate oral transmission from age to age (1). Fragments of the archaic language remain, with partial clues. Places in the sky are hononomous with places on the earth. The Greek god Okeanos, popularly regarded as reigning over the seas, is rather of another heritage, his attributes more properly place him in the sky. Okeanos, the 'Father of Rivers', emerges from a confused tradition as the original god of heaven. The rivers of mythology branch from the Milky Way, and occupy positions of calendaric importance at different time periods. Plutarch writes of an earlier source who described ''Eternity, whence flowed time, as from a river, into the world'' in this sense (2). Had Plutarch applied this to the Arethusa myth, he

would have to interpret it as a celestial river and the island Ortygia is also a heavenly site. The heavenly reference of the Arethusa myth is yet a puzzle, its secret locked in the sky and forgotten to memory.

The story of Arethusa subsequently entered popular culture, establishing Arethusa as the nymph of bucolic poetry and reinforcing an ancient belief that an underground river joined the Alpheus river to the fountain of Arethusa. As the photograph (pl.1) shows, the fountain of Arethusa is barely separated from the sea by a wall, and an explanation for its drinkable water was desired because of its juxtaposition against the undrinkable sea. And when it became polluted an additional explanation was required: when victims were sacrificed at the Olympic games, the fountain was allegedly polluted with their blood. Strabo (b.63 B.C.), a critical compiler of Greek and Mediterranean geography and history, recounts this tale in his Geographia as a matter of rumor, that people say the river and fountain are one. He mentions the fountain's discoloration at the time of the Olympian sacrifices. Strabo, however, discounts the fable because the river mouth is visible, it does not fall into an under sea tunnel, and if it did, how could it be pure and drinkable? The tale, for Strabo, must be patently false, he dismisses it as entirely mythical. It is against his understanding of natural processes for a river to traverse such a distance beneath the sea, and remain fresh (3). In his 'Springs of

Hellas' essay, Terrot Glover writes that Greek streams have a habit of running underground for distances and reemerging undiminished in strength. To him, Strabo is too harsh to the myth and his observation confirms in part, the legendary example of the river Alpheus (4). The name Arethusa was given to various springs as well as the one at Ortygia, and Strabo relates a proverb of the three best things, referring to an Arethusa spring in Chalcis: (5)

> ἵππον θεσσαλικόν, Λακεδαιμονιάν δὲ γυναῖκα,
> ἄνδρα θ', οἳ πίνουσιν ὕδωρ ἱερῆς Ἀρεθούσης

The water of this Arethusa spring instilled special valour in those who drank of it. Already, the sweetness of the name and story had moved with the people's culture, to another land.

The myth of Arethusa is one of the lesser known accounts of the Greek immortals; Greek lyrics make only a fleeting reference to this love between the river and the spring. The poems provide us with a perspective to understand how the myth developed into an artistic theme. Excerpts from these poems in the Greek tradition suggest how the legend itself changes as each new poet revisits it.

The earliest mention of the fountain of Arethusa is in the Odyssey, when Athene, instructing Odysseus in the procedure for his eventual vindication, advises him to seek the old swineherd there (6)

δῆεις τόν γε σύεσσι παρήμενον · αἱ δὲ νέμονται
παρ κόρακος πέτρη ἐπί τε κρήνη Ἀρεθούσῃ,
ἕσθουσαι βάλανον μενοεικέα καὶ μέλαν ὕδωρ
πίνουσαι, τά θ' ὕεσσι τρεφει τεθαλυῖαν ἀλοιφήν.

Here, the myth remains only in the beautiful name clinging yet to the fountain's site. The spot is still an unusual landmark, singled out as part of the goddess' plan. The story, half forgotten, still lures Odysseus by the power of a name to his long eluding goal.

A more primitive version of this myth of love and transformation alledges that it was Artemis, instead of Arethusa, the attendent of Artemis, that Alpheus loved. Sensing the desire of the god, Artemis fled to Letrini in Elis and covered her face and those of her companions with mud, to hold off her lover. One Greek commentator quotes a fragment from Telesilla, a 5th century B.C. Argive poetess, that seems to follow this earlier account. The lines are chosen, evidently from a hymn to Artemis, to illustrate the poetess' Ionic meter (7).

τᾶδ' Ἄρτεμις, ὦ κόραι,
φεύγοισα τόν Ἀλφέον

These few words summon an entire world of godesses in swift flight and charm, catching the kernel of the myth.

Strabo cites Pindar (5th century B.C.), one of the most magnificent and gifted of poets, as the origin, to him, of the Arethusa myth. Pindar seems to combine the two versions as he

involves the sacred island as a bed of Artemis (8).

> Ἄμπνευμα σεμνὸν Ἀλφεοῦ,
> κλενᾶν Συρακοσσᾶν θάλο Ὀρτυγία,
> δέμνιον Ἀρτεμιδος,
> Δάλου κασιγνήτα, σεθεν ἄδυεπὴς
> ὕμνες ὁρμᾶται θέμεν
> αἶνον ἀελλοπόδων μέγαν ἵππων, Ζηνὸς Αἰτναιοῦ χάριν.
> ἅρμα δ' ὀρτρύνει χρομίου Νεμέα θ' ἔργμασιν νικαφόροις ἐγκώμιον
> ζεῦξαι μελος

Pindar's lines conjure the myth with vivid beauty, calling it to share breath with us. His apostrophe to the divinity of Ortygia conceives the land as shining with glory, and infuses special excellance to his praise of the chariot race. His words fount, as the deity spring does, in sweet and eternal homage to the victor with his storm footed horses.

An anonymous epigram in the Greek anthology conveys the story in a succinct symbolic form, as a mystery of love without the specific incident (9).

> Ἀλφεὸς ἄρρεν ὕδωρ, Ἀρεθούσιόν ἐστι το θῆλυ.
> καὶ γάμον εὗρεν Ἔρως, κιρναμένων ὑδάτων.

The god of love acts by mixing the water of Alpheus and Arethusa. The identity of the characters is subsumed into a metaphor for male and female.

Another anonymous verse tells of the fullfillment in embrace between the fresh spring Arethusa and the river Alpheus, exhausted from his long voyage through the sea. The spring cleanses and purifies the brine from the river her companion, at their meeting. After a lapse of several lines,

the poem concludes with a lament for so many Greek deaths suffered in a war with barbarian invaders. The river Alpheus has been so defiled by the blood of the dead heros, and the weeping of their widows, that it no longer journeys to Sicily for it is reluctant to pollute the pure fountain (10).

> Ἱμερόεις Ἀλφειέ. . .
> νυμφίος αὐτοκέλευθος ἐὼν ὀχετηγὸς ἐρώτων,
> ἐς Σικελὴν Ἀρέθουσαν ἐπείγεαι ὑγθὸς ἀκοίτης.
> . . .
> εὐειδὴς Ἀρέθουσα φίλους ἀνεκόπτετο μαζούς,
> και δρόσος οἷα ῥόδοισιν ἐτήκετος· μυρομένῳ δὲ
> Πισαίῳ ποταμῷ Σικελὴ προσεμύρετο πηγή.

At the very edge of the sea herself, Arethusa languishes for her lover, the river who now can only gaze from afar. The poem selects this myth to honor the love that accompanies peace, and assert that even the gods and nature are defaced by the battle and death of humans.

The myth of Arethusa resurfaces occasionally in later poetry; Virgil refers to it in passing (11) , while for Ovid, who seeks to tell of the gods, and the metamorphoses they work on nature, it is so crucial to his theme that he elaborates considerably and transforms the myth into a romance (12). Dante considers the manipulations of nature Ovid relates about Arethusa pale in comparison with what his poetic power can accomplish (13).

> Taccia di Cadmo e d'Aretusa Ovidio,
> che se quello in serpente e quella in fonte
> converte poetando, io non lo'nvidio

Dante's verse is of another origin, within which the fountain is a powerful religious and poetic metaphor and not a love-chased nymph. The romance of the name and tale of

Arethusa attracts Milton centuries later in the Arcades (14).

> Of famous Arcady yeare, and sprung
> Of that renowned flood, so often sung,
> Divine Alphaeus, who by secret sluice
> Stole under seas to meet his Arethuse.

The memory sighs in its brush with poetry.

The preceding selection of quotations suggests how the myth of Arethusa has evolved through the words and imagination of poets. The story has always been handled with a poetic manner, often especially lyrical. These are the images of Arethusa already sewn within our culture, known to us by the understanding of mythology and through fragments of poems. This thesis is an attempt to bring new life to the Arethusa that I have seen in the waterfall and the poems: that I have imagined, by the agency of clay and water, into the making of a fountain sculpture. This fountain conveys an Arethusa coming up in the modern world.

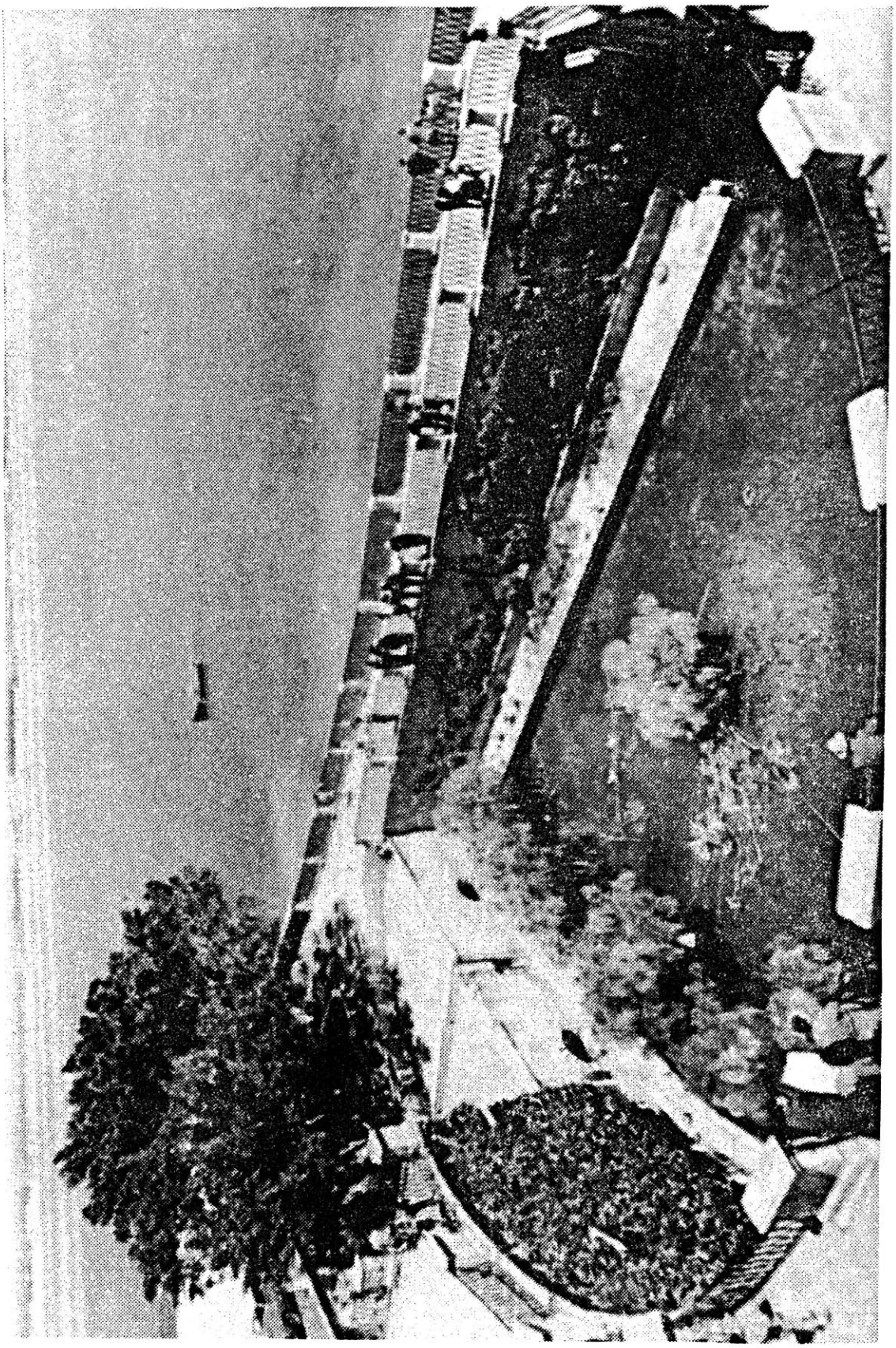


plate 1, Fountain of Arethusa, Sicily.

Poetry of Water

Water is vital as a primary source of individual as well as social life, for human, animal, and plant life upon this planet. That is why I have chosen the Greek myth of the fountain of Arethusa as the theme of my thesis sculpture. The choice is inspired by the perception of the fountain in two ways: first, the evident literal way, and the other, the figurative sense in which the Greek culture, the vehicle of the Arethusa story, is itself the fountainhead of much that we treasure in the Arts and Philosophy. Their problems, insights, and formulations continue to water our imaginations, to nourish our growth.

Not inappropriately, this section shall begin with a discussion of how four of the earliest Greek philosophers incorporated water into their perception of nature. The Presocratics, according to the fragmentary evidence that is preserved for us, were the first thinkers to exchange the mythic for a conceptual framework of explanation directed at nothing less than the cosmos in all its richness and orderly interconnections. Much of our subsequent philosophizing is indebted to their efforts; their fragmentary and frequently obscure sayings have come more and more to strike a resonant chord in modern thought. Their questions are increasingly our questions. In their philosophy of nature, water invariably looms large.

The remainder of this section will allude to the fountain images in particular as it is found within Western poetry. This, of course, is not an exhaustive treatment of the theme, but merely a survey of representative quotations that associate different emotions and meanings with the fountain. The poets chosen are ones for whom I have a special fondness, and are local and personal selections, not pretending to be a global survey of the fountain in poetry.

The first Greek philosopher to inquire into the nature of things and depart from mythic accounts is considered to be Thales, a Milesian of the sixth century B.C. An anecdote recorded by Plato tells of a servant girl who ridiculed Thales for his curiosity about things in the sky and neglect of what is beneath his feet, when he fell into a well while watching the stars. This picture of the ancient philosopher, his mind in the heavens, his body nearly forgotten, recalls the figure of Socrates riding in a basket in the 'Clouds' of Aristophanes; however, Thales' practical ingenuity is supported by some of his alleged discoveries. Two passages in Aristotle assert that in Thales' cosmogony the origin of all things is water, and that the earth rests upon water. These statements seem to be an attempt to explain the presence of life, the stability of the earth, and account for earthquakes. When the subterranean sea shook, earthquakes resulted. Speculation by Aristotle and others about these ideas suggests Thales was in some respects influenced by

Near-Eastern ideas in the course of a possible visit to Egypt. In much of Egyptian mythology, the earth was a flat dish floating on water, and the sky, too, was also water, while a Babylonian legend speaks of the earth as a reed hut raft built upon the 'waters'. Thales also believed that all things are full of gods, perhaps thinking that, as water is the essential material constituent of things, and is a basis for life, things share in life to the extent that they share in water(15). However, the evidence concerning Thales' thought is insufficient to justify any hard conclusions relating water to the life force that permeates everything.

Anaximander, a successor and perhaps contemporary of Thales, was apparently the first philosopher to attempt to derive the world as a whole. Anaximander extends beyond Thales and criticises him, when asserting that if one is to avoid infinite regress, one cannot postulate a substance, such as water, out of which things come to be, and into which they meld when no longer present, but must postulate that things come to be and end within a force field, which is both spatially finite and temporally infinite.

> ἐξ ἧς ἅπαντας γίγνεσθαι τοὺς οὐρανοὺς καὶ τοὺς ἐν αὐτοῖς κόσμους

All the heavens and the worlds come into being through it, and the pairs of opposites-- hot and cold, wet and dry-- emerged from the infinite which contains all in a constant interchange so that ultimately one opposite does not outweigh another. A

rhythm is preserved in nature. Anaximander claimed that animal life was produced in moisture, the first creatures lived in 'thorny barks' which they shed and began to live on land. The first humans were like fish until they became mature and burst out of the fish, fully grown men and women(16). Moisture or water was the necessary environment for the nurture and origin of the original living beings. In his model of the beginning of life, where creatures emerge from the moist hot mud, water is the critical ingredient.

Anaximenes was a younger associate of Anaximander; he wrote that the primary substance was not the indefinite field or water, but air. The condensation and rarefaction of this air enabled it to assume other forms; cold exacted compression and condensation of materials while heat rarefied them. The air was divine and the 'gods' sprang from it, in analogy to the breath of life-soul in man. The whole world breathes just as man does with divinity, and the divinity is in motion. Water was condensed air, intermediate in density between earth and cloud(17). Air is transformed to all substances and it moves, infiltrating its deity through all.

Heraclitus, an Ephesian philosopher active about 504 B.C., wrote enigmatic and often obscure sayings, fragments of which survive in the quotations of later authors. The world was an everliving fire and this fire changes to other things in equal balance; in this sense sea and earth are equal

transformations of the fire. Fire changes in death to water, water in death to earth, earth in life to water, and water in life to fire. The soul is fire and its death is water(18).

> ψυχῆσιν θάνατος ὕδωρ γενέσθαι, ὕδατι δὲ θάνατος γῆν γενέσθαι. ἐκ γῆς δὲ ὕδωρ γίγνεται, ἐξ ὕδατος δὲ ψυχή.

Water is at one time the source of the soul, at another its death. Heraclitus believed change is ceaseless, as stated in his 'paradox of the river':

> ποταμοῖσι τοῖσι αὐτοῖσιν ἐμβαίνουσιν ἕτερα καὶ ἕτερα ὕδατα ἐπιρρεῖ. . .σκίδνησι καὶ. . . συνάγει. . . συνίσταται καὶ ἀπολείπει. . . πρόσεισι καὶ ἄπεισι

Change is perpetual, it flows between one thing and another as the river does, always different, always new. The water is an expression of the flux of nature, while fire is its soul-filled substance. The image of water presents his sense of constant mutability in nature.

This survey of the thoughts of four Greek Presocratic philosophers outlines their successive perceptions of the universe. Each of them must deal with water, the importance of water as a substance and as an image is essential to these early thinkers. As the philosophers leave the embrace of mythic personifications of the elements, they search for ordered explanations of the manifestations of nature. Their recognition of the importance of water in a cosmogony (that must include life) is crucial and timeless.

As transition to a discussion of the words of several

poets on the fountain image, it is appropriate to appeal to the opening of Pindar's first Olympian ode. Pindar's task, in his series of finely woven songs, is to exalt the victors at the Olympic games. He compares their athletic excellence to the supremacy of water above all else. This contrasts with Strabo's proverb quoted earlier that places horses and women before the gift of drinking sweet water.

> Ἄριστον μὲν ὕδωρ, ὁ δὲ χρυσὸς αἰθόμενον πυρ
> ἅτε διαπρέπει νύκτι μεγάνορο ἔξοχα πλούτου.
> εἰ δ' ἄεθλα γαρύεν
> ἔλδεαι, φίλον ἦτορ,
> μηκέθ' ἁλίου σκόπει
> ἄλλο θαλπνότερον ἐν ἁμέρα φαεννὸν ἄστρον ἐρήμας δι' αἰθέρος,
> μηδ' Ὀλυμπίας ἀγῶνα φέρυερον αὐδάσομεν.

Beyond all things water is best; as water surpasses everything, so the manificent prowess of the Olympic games surpasses all, and is the greatest achievement to sing of. The poet, in searching for glories, finds none that might presume to equal water, gold, the sun, and the Olympic victors. By the compelling power of his language, Pindar reveres water. Water crowns life with the promise of continuation, just as the poet preserves the athlete's laurels with eternal renown.

Ronsard, the French Renaissance poet, adopts the fountain as a central central image in much of his verse. For Ronsard, the fountain is a spring of poetic fancy, instead of an emblem of contemporary court fashion that physical fountains were in his time. The same figures appear in profusion both in 16th

c. fountain sculpture and in his poems. Ronsard is absorbed in classic mythology as were the French fountain sculptors, but the role of the fountain within his idyllic vision is different.

> Car, elle m'a de l'eau de ses fontaines
> Pour prestre sien baptisé de sa main,
> Me faisant part du haut honneur d'Athens
> Et du scavior de l'antique Romain.

The muse acts through the fountain to bestow creative understanding upon the poet, to unite him to the great tradition of Greece and Rome. The fountain was inspiration, it was alive to him. Another poem excerpt emphasises how the poet's fountain is distinct from the polished contrivances in stone and water of his day:

> Et la source d'une eau saillant d'un rocher
> Est plus douce au passant pour da soif estancher,
> Quand sans art elle coule en sa rive rustique,
> Que n'est une fontaine en marbre magnifique,
> Jaillissant par effort en un tuyau doré
> Au milieu de la court d'un Palais honoré.

The fountain spouts and trickles with a music of its own without the exploitation of human craft. The fountain flows with its promised grace to the poetic recipient and is not diverted through windings. In the sense that the fountain is personified as a muse, the fountain transmits poetic tradition and skill from past generations to him.

In English literature, the fountain image is first employed as a religious symbol, an adaption of holy water, rather than a physical place. Chaucer's "Song to the Virgin Mary" addresses her as "Fountain al filthless as birell

current clere". The fountain conveys an unending source of divine perfection. Medieval interpretations represent the Virgin as a fountain referring to the Psalm (36.9), "For with thee is the fountain of life, in thy light shall we see light". The fountain was a symbol of the Immaculate Conception in medieval readings of the Song of Songs (4.12), "a spring shut up, a fountain sealed" (22).

Characters in the plays of Shakespeare use the fountain image in a variety of conversational contexts. These examples show the word in common speech, rather than as part of a poetic apostrophe. The charming Puck in "Midsummer Night's Dream" chants of how Titania and her husband never meet "in grove or green,/By fountain clear, or spangled starlights sheen" (23). The fountain is a necessary trapping for the mystique of a fairyland forest. In "As You Like It", Rosalind chides Orlando after their mock wedding, showing how she intends to treat him: "I will weep for nothing, like Diana in the fountain, and I will do that when you are disposed to be merry" (24). A classical sculpture defines a fountain whose water wells, tearlike from the eyes. The woman's identification with the figure of Diana accentuates the humor of her remark. In "Titon Andronicus", the characters are rhetorically extorted to become weeping fountain figures. Titon beckons, "And in the fountain shall we gaze so long/Til the fresh taste be taken from that clearness,/And made a brine pit with our bitter tears" (25). The perennial clarity of a

fountain is sullied as an example of their depth of sorrow. For Shakespeare, the fountain takes all strands of meaning, from the tranquil bubbling fountain, to a more sinister fountain of blood (26). The sense and feeling of the word is extended, the metaphor becomes more compelling in speech and action.

Spenser, in a lyric passage of Faerie Queen, envisions a luxurious fountain in a garden where

> ...Nature had for wantonesse ensuede
> Art, and that Art at Nature did repine;
> So striving each th'other to undermine,
> Each did the others worke more beautify,
> So diff'ring both in willes agreed in fine

The fountain, and gardening in general, evolves through the conjuction of nature and art, accenting and amplifying each other. So sculpture and water merge in Spenser's fountain, twining the action of art and nature. His fountain is regal "Of richest substance that on earth might bee/...With curious ymageree/Was overwrought, and shapes of naked boyes". Both living maidens and gold figures disport among the streamers of water. Just as the sculptures "did themselves embay in liquid joyes", so the maidens frolicked: "one would lift the other quight/Above the waters, and then downe again". Spenser imagines a splendor of form and water, of flesh and gold wrought stone, in a fountain of delight central to the fairyland paradise. It is more a fountain of enticement and visual opulence than of pure poetic inspiration.

In Milton's "Samson Agonistes", Manea demands of Samson why God, "who caused a fountain at thy prayer/From the dry ground to spring, thy thirst to allay/After the brunt of battle" cannot restore his eyesight and strength (28). In this poem by Milton, the fountain derives its meaning as a mark of grace from biblical tradition. The fountain, surging from a hostile environment is a divine miracle marking a special occasion.

The sense of a fountain is transformed again by Wordsworth in "Intimations of Immortality": (29)

> These shadowy recollections,
> Which, be they what they may,
> Are yet the fountain light of all our day,
> Are yet a masterlight of all our seeing

The "obstinate questionings" of a realm beyond become the glimmerings of radiance, the implications of a soul. The "fountain light" conveys this sensitivity of being continually refreshed, central and guiding. In the Wordsworth poem, the fountain appears as spiritual revelation, offering an eternal light, rather than endless water among stone. Divinity is explored, through the fountain image, yet in a different way from the Greek myth.

Yeat's poetic world is peopled by fairies who dwell in watery glens and impart the water with soul. Fountains, rivers, springs, are not merely natural upwellings of water, but they have a character akin to the elvin spirits. A section of "The Stolen Child" manifests this sense that

wateriness partakes in the fairy feeling (30).

> Where the wandering water gushes
> From the hills above Glen-Car,
> In the pools among the rushes
> That scarce could bathe a star,...
> Come away, O human child!
> To the waters and the wild
> With a faery, hand in hand
> For the world's more full of weeping
> than you can understand

Both hills and springs are animated and the child is lured with hints of strange vistas by the subtle arts intrinsic to fairyland. A lyric, irresistible attraction lies within the fairy's native waters.

These quotations from the works of poets touch upon the fountain theme. There is no duplication or repetition from one poet to the next. Each poet employs his vocabulary differently, remaking the meanings of words by the power of poetic metaphor. For some, the fountain is a secluded, glass-clear spring, for others a sign of religious salvation or devine intercession, or an ornate pleasure garden, or a flight of spirit. The fountain arouses a special depth in each poet, as ceaselessly made new in their language as the fountain is itself ceaselessly renewed.

This thesis begins with a myth about fountain water, of how a nymph was transformed to a fountain. We long emerged from the society in which that myth was created and believed. The discussion of the Presocratics indicates how these early philosophers, stepping beyond a world governed by myth,

attempted to explain what they saw about them. The necessity of water as a constituent within their cosmogony makes them pertinent to this thesis. In the society and tradition that have developed since, poets and artists are the new myth-makers, admittedly in an expanded and liberated sense. The quotations from several poets, in reference to the fountain image in particular, suggest this. Each of them remakes the meaning of the word within the context of their art. The poets' meanings, however, are no longer literal, but are metaphorical.

Fountains from History

The upwelling of a water spring from dry rock always seems wondrous. Early cultures attempted to explain the existence of such a spring by resorting to divine intervention, as in the Arethusa myth which this thesis evolves from. In our biblical tradition, water springs are likewise regarded with awe; in the midst of a desert their origin can only be credited to God. When the people of Israel suffered from thirst in the wilderness, the Lord directed Moses to speak to the rock, and so the water would gush forth. Moses reacted by striking the rock; the water sprang out, however Moses was prevented from entering the promised land because of his momentary exasperation (Num.20.8-11). It is by the agency of a spring where women are drawing water that Rebekah is marked as Isaac's bride, for she responds by saying, "Drink, my lord" (Gen.24.17). It was an ominous message, however, when the Nile and all the waters of Egypt turned to blood (Ex.7.19-20). The quality of spring water was important to primitive peoples; springs which produced sweet water were associated with myths of happiness while springs with bad water gave rise to tragedy. The flow of water from a spring is a miracle of sacred proportion, not to be invoked lightly.

From the perspective of the divine nature of springs, this chapter will select examples of the history of fountains,

from an ancient society which actually revered the springs the fountain structure sheltered to later times when the fountain's purpose is principally decorative. This chapter will not presume to be inclusive, but will select fountains which illustrate a myth or a stylistic trend in fountain history. It will start, where the myth does, in Greece, with the evidence for early fountains there. Since Arethusa embodies a union of the human figure with founting water, the anthropomorphic qualities which myth invites- representation of the human form - are important to the discussion.

Coupled with the Greek reverence for flowing water, the requirement of a pure water supply for community growth led to the Greek predecessor of the public fountain- an embellished shelter built around a natural spring to protect its purity. The earliest known Greek "covered spring" was constructed at Athens by Pisistratus with his sons (c.560-510 B.C.) with water falling from the mouths of nine bronze lion masks (31). An extension of the primitive covered spring, the nymphaeum was a room-sized enclosure within which a spring was housed. Named for the Greek deities of water, it contained a grotto niche for a fountain or spring, and often space for plants or flowers. Nymphs were connected with these grottos because they were considered to be the shy and elusive caretakers of streams and waterways (32). The choice of the word, nymphaeum, endows these human-made fountains with a special mythic significance formerly reserved for natural flowing

water. Thus, this reverence brought to the developing urban environment a feeling of the primitive and bucolic traditions of times past. Indeed, most Greek nymphaea were public, designed for convenience, located in the middle of a street, occasionally, as at Cuma, in a city plaza. They were simple structures, placed with regard to function and giving minimal attention to form, having only a shallow pool in a roofed area, sometimes with relief carvings and simple plumbing. In contrast to the dominance of utilitarian design in Greek fountains, the early Italian mymphaea were often placed for a visible effect, symmetrically in the midst of courtyards or gardens. Roman fountains became more decorative with the use of pumice stone and mosaic in the first century B.C., elaborating the original form with statues and pillars (33). The divine nature of the spring, personified as a nymph, was no longer free under open skies, as her dwelling place became an architectural monument for use by all passers-by and not a secluded spot.

Rome provides us with an example of the integration of water and fountain structures into civic organization and design on a grand scale. Ancient Rome boasted 1,212 public fountains and nearly a thousand public baths as well as an extensive network of water supply to private users. Aqueducts carried water to the city's fountains from springs, lakes, and rivers often as far as 50 miles away. The aqueduct water was first led to settling tanks to permit the water to clear. The

bottom of each tank was tapped for distribution of fountain and bath water; private and commercial consumers received purer water from higher taps (34). Great fountains were placed at the terminus of each aqueduct, celebrating the water's arrival to the city. When the Goths cut the aqueducts in 537 A.D., after centuries of neglect to the conduits, the fountains vanished, and the fountain structures were demolished (35). The aqueducts were a lifeline to the city; during the Middle Ages with only the Tiber river and a few springs to depend upon for water, the city became a skeleton of what it once had been. Today only fragments of the sculpture for 5 or 6 Roman fountains survive.

It was common practice in 16th century Rome to pilfer the abundant supply of ancient statuary for the decoration of new fountains (36). An example of this cultural transplantation is the classical figure of Marforio, a reclining ocean god of the classical period adapted for a Renaissance fountain in 1595 (37). Framing the sculpture into a niche, an architectural monument with pillars and inscriptions and the pool below the figure suggest the form of the early nymphaeum described previously. The graceful half-draped sculpture leans on one elbow over the pool, a remembrance of dreams from another era.

Work was initiated to repair the old Acqua Virga aqueduct by the popes upon their return to Rome after an exile in

Florence during the early Renaissance. Terminating at an earlier Trevi fountain, this was the only aqueduct to Rome for over a century. At the outset of the 17th century, two more were constructed, and in the late 19th century another aqueduct was added. With jubilance at the new profusion of water that enabled the city to grow prosperous from its past of disheveled poverty and neglect, fountains again adorned the city (38).

The wall fountain, Il Facchino, attributed by some to Michelangelo, marks a transition from the earlier nymphaeum to the humanistic values and style of the Renaissance (pl.2). The old man in a flat cap holding a barrel in his hands, is a common laborer. The new ethic emphasizing the importance of mankind permits a man from the streets to figure in a fountain monument. He seems to lean out of a niche, and a spout empties his cask into a small basin; a variation on the nymphaeum archetype of a pipe draining to a pool. The scale of the water flow in Il Facchino is that of a drinking fountain, we are enticed to partake of the fluid leaking from his heavy burden. One Latin poet writing of the fountain comments sarcastically that the Romans don't deserve the sweet water he pours out. Wine would be more fitting to the local populace (39). Clearly, the fountain's emphasis, the reaction it evokes in people, is to beckon them to drink.

From the early Renaissance, discovery of the classical

tradition of fountain design in Italy developed along two lines: the Roman and Florentine pattern. The restoration of the aqueducts gave Roman fountain designers a vigorous initiative for gushing waterworks. In most cases, Roman fountains involved extravagant manipulations of water, downplaying the role of figure sculpture in the scheme. The fountain-makers in Florence, a city always plagued by insufficient water supply, were compelled to emphasize figure sculpture more than water (40). In addition, unlike Rome, Florence had no store of classical statuary to resurrect within fountains, so all their fountains were newly wrought (41). The Tribolo fountain, constructed about 1538, exhibits elements which are typical of the Florentine tradition in fountain design (42). The sculpture is composed from three tiers of basins decreasing in diameter as they ascend. Water is subsidiary in the composition, flowing incidentally from the long hair of a girl while she combs it. This culminating figure bursts from the formal lines of the shaft with power and beauty, borne out as well by the figures sculpted in intense motion into the lower tiers.

The 'Fontana delle Tartarughe', sculpted in 1583 by a Florentine, Taddeo Laudini, in Rome (43), is a special example of the convergence of Florentine and Roman fountains (pl.3). Four youths, sculpted in bronze- a material rarely used then in Roman fountains but common in Florence- seem to support a large marble bowl in which the fountain originates. The boys

curl their fingertips up as if to shove into the bowl the scrambling turtles added humorously by Bernini in 1659. Water springs from a variety of jets throughout the fountain structure; from puffed cheeked faces set into the bowl and from dolphins at the boy's feet. It also runs from level to level in an elaboration on the type of concentric levels of overflowing bowls indicated above. The skill and litheness of these figure sculptures is dominant.

The fountain of La Barcaccia, constructed by Pietro. Bernini in 1627-9, exhibits a structure characteristic to Rome itself by depending on water not sculpture for its primary effect, in contrast to the evident Florentine influence on La Tartarughe (pl.4). It consists of a stone skiff with additional basins included within the boat to permit auxilliary waterplay. Water runs in profuse streams from lips in the boat's rim so that, paradoxically, while it seems perpetually sinking, it remains afloat. Ample cascades of water play puns throughout the fountain emphasizing the water more than sculptural form. That the fountain was read, in a nearly symbolic way, is attested to by a comment of pope Urbano VIII. The warships of the popes shoot off not fire, but sweet water (44). From the papal view, La Barcaccia and another ship fountain in the Vatican (where the water jets from canon openings), the boat's water quenches, rather than instigates, strife.

The Triton figure (half man, half fish (45)) by Gian Lorenzo Bernini 1642-3, fuses with the fountain water surging through and from him in a unity that borrows from fables of metamorphosis, where fountains are born of creatures and creatures are born of fountains. Just as Arethusa and the Arethusa spring are interchangeable names for the same idea, so the Triton and the sea are equated in this fountain through the oneness crafted between the figure and water. Because of this mythic notion, the Triton figure was a standard motif for fountains. Bernini was influenced by other Triton sculptures before him (and as we shall see, in this century Carl Milles creates Triton fountain figures of his own). The structural characteristics of the fountain are reduced to the standard Roman form of two tiers with water cascading from one bowl to the next, in an evocation of the mysteries of the sea, a gigantic shell supported by the tails of dolphins, precariously balances the Triton in its grasp. The shell is open in submission to the god, and the water creatures below send a song upon the air, amplifying his dominance in the composition so that it becomes his dominance over the sea.

The fountain of Trevi is one of the most majestic and popular in Rome, promising a return to all who toss a coin in the fountain pool and drink of its water (pl.5-7). The water pours with force and volume through a fantasy wrought in stone by the caprice and skill of Baroque architecture. Years after the work had been abandoned by Bernini, Nicola Salvi directed

the work from a new plan which was completed between 1759-62 (46). The fountain is an extension of the Palazzo Conti facade, it expands into the piazza space with its broad pool. It is a created environment of hills and Roman columns, of men and horses in fluming water, that speaks of the mountainous land at the source of the Acqua Virgo, of which Trevi is principle fountain head. Small pools cascade over carved cliffs into other pools, and the water finally ends in the large frontal basin. Water foams as it swirls about the straining figures and runs in intricate paths from level to level. The ocean god strides at the center of the fountain, his opulent robes curling into the rocks. Two satyrs on either side struggle to tame uprearing, mane-flying horses. The fountain exhibits the rich imagination and spatial complexities of baroque art, taking particular delight in the almost decorative qualities of the water. The sculptures, knee-deep in the spilling water, are immersed in the landscape's drama that also involves the visitors. This fountain, perhaps more than any other in Rome, prompts active participation from the viewers. So many people drop coins and memorabilia into the fountain that the revenue must be collected from the bottom once a week. The fountain is inextricably vital to the everyday life of the city; it is ever popular because the living people are somehow always members of it.

We identify in many ways with the figures sculpted into

fountains, but unless we take the liberty of children and actually jump in, there is always a distinction between the viewer and the monument- one is dry and the other wet. On special holidays between 1651 and 1867, in the Piazza Navone, this distinction was removed. The outlets draining fountain water from the square were blocked and the square was flooded as a shallow lake (47), (pl.8). The surrounding palace windows were crowded with spectators watching elegant horse-drawn carriages splash through the water, and water carnival events. The entire piazza was given over to the fountains and everyone became like a fountain figure in the courtly parade. The scale of fountains literally became that of society; not merely the stone horses and men as at Trevi, but real horses and men waded in the wet world of the fountain. By entering the lake in the piazza, the social elite equated themselves with the god figures installed in the city's fountains. Such activities were a way of participating with the fountain environment in a total sense.

The Fontana delle Naiadi is a more recent Roman fountain (1901) by Mario Rutelli, that employs advances in pump and jet technology for its effect (48), (pl.9). The fountain's waterworks are profuse and varied: the high central column showering everything, a ring of radiating jets, spray thrown over the sculptures, and water falling from level to level. The central figure represents a sea god grasping a fish which expells the powerful jet that engulfs the god and the four

bronze nymphs who caper in the lowest pool, identified by low jets. The central jets rise to heights far above the figures, not merely dampening them. When it was first installed in the Piazza della Republica, the fountain was controversial. Contemporary newspapers cited the nymphs' poses as offensive, morally inappropriate for such a location (49). The society identified so personally with the nymphs' frolic that it considered the sculptures an affront to restraint and dignity. The fountain's fantasy was so crafted that it deluded the viewers into thinking it real, and the candour of the nymphs provided too strong an example to the youth.

For long periods of its history, the city of Rome depended primarily on its fountains for public water supply. The sculptors who created the major fountains transformed these watering places into works of elegance and drama with a fascinating play between water and sculpture. Mistaking this display of water for a gesture of honor to herself, the visiting Queen Constantine once requested that the fountains of Rome be turned off. The reply was, "Madame, ces cascades vont ainsi jour et nuit" (50). Even now, the spectators at these fountains are intrigued and amazed, they drink and splash, occasionally wade in the water among the fountain sculptures- their likenesses. The figures in these fountains are life-size or greater, arousing self-identification between the viewers and the entire fountain-sculpture complex. The fountains invite an enhanced participation in the flow of

water, encouraging a curiosity about their many brilliances, patterns, and sounds. We can identify with the mythic divinities and creatures portrayed in the fountains, absorbed as we are by the magic of water. Their stories all tell of the ever-new experience of water and how we are part of it.

The humanistic revival of classical culture that the Renaissance inaugurated was so well a motivating force for the construction of new fountains. The mechanically moving figures and water organs of Renaissance garden fountains were based on a discovery of the Pneumatica, a text by Hero of Alexandria from the first century A.D. Hero contrived many clever devices employing pneumatic and hydraulic pressure using energy from compressed air, steam, or flowing water to activate pistons in cylinders, gear wheels, and valves for such effects as a pneumatic temple door opener and a mechanical theater of automatically moving figures (51).

Although the trick fountains were limited to private estates, during the Renaissance the nature of the waterplay possible for public fountain displays changed drammatically. This paper will show, with examples from Switzerland, Alsace and France, that Medieval fountains differ in the nature of their water flow from Renaissance and post-Renaissance fountains. Fountain design became more adept and complex in the 16th to 18th centuries with the emergence of a theory of hydraulics, the practical applications of moving water.

Leonardo da Vinci made numerous diagrams of jets, water flow through pipes, and hydraulic machinery. Bernoulli, in the early 18th century, established an energy conservation equation that states that the energy in a given mass of liquid will remain constant through changes in velocity, pressure and height along a frictionless path. It was not possible to attain water pressures and velocities significantly exceeding those available naturally until the 19th century when the theories of Bernouilli and others were linked with improved pump design (52). Without this technology of modern electric pumps, the fountain of this thesis, installed on the fifth floor of the MIT Student Center Library, far from any natural spring, would not have been possible.

Swiss fountains, of the Middle Ages to beyond the Renaissance, were formed according to a practical ethic with limited aesthetic considerations. The fountains are primarily functional, sculptural decoration is secondary and waterplay is minimal. At the ground level there is a main basin from which a carved limestone shaft rises. The spouts, sometimes heads of fantastic creatures, or merely ornamental ironwork, were set into the shaft. The plainly carved basins often had additional side troughs for drinking, washing, and drawing water (53). The basins were wider throughout the vineyard region to admit the presses and tubs for wine making (54). Historical figures, mayors, famous city men, saints in Catholic villages, or allegorical figures of justice were

common sculptures topping the shaft. The banneret, a knight bearing a standard in his right hand, was the most popular Renaissance subject (pl.10). In accordance with Baroque fashions of the 17th to 18th centuries, the more pragmatic figures of local fame and reverence were replaced by fanciful mythic figures (55). Hence the military and governmental icons were transposed to the freer thought of Baroque and Roccoco style.

Fountains for Alsace were constructed in concordance with the Swiss practice; a carved shaft with spigots dropping water into a basin. Like Medieval to Renaissance Switzerland, the utilitarian nature of the object is primary, and the sculptures of patron saints or animals were situated far above the basin, establishing a distance between the daily routine of water use and the honored statuary above. Figures of importance are placed above the fountain so they will be seen by all passersby. A community feeling evolves through daily encounters with the watering trough. The Alsacian poet Hans Karl Abel writes of the subtlety in this human landscape as perceived by the fountain (57).

> Je donne, je me donne au passant,
> C'est là ma vie,
> Au passant qui boit à la fontaine. . .
> Cette nuit un garcon en quittant ses amours
> M'a réveillé baignant son visage farouche,
> Et j'ai senti sa bouche frémissant sur ma bouche. . .
> L'eau entre nous forme un chemin,
> Elle s'en vient, mais s'en retourne
> A sa grâce je m'abandonne.
> C'est là ma vie et mes amours.
> Je donne, mon Dieu, je donne toujours!

In the poem the fountain is personified as an observer of passing charades while limitlessly offering itself to all. All are free to come to the village fountain, enjoying the water and companionship. In this culture, the fountain is a powerful force to unify the people; because of its repetitive and compulsory use, each person repeatedly returns to receive the water needed to live. The sentiment of this poem affected my feeling about making a fountain in the sense that the fountain would watch as well as be watched, and it would silently encourage a relationship of community between its viewers.

French medieval fountains also followed the structural archetype common in Alsace and Switzerland, of a curved shaft above a basin, although frequently the fountains were sited at a cloister in the vicinity of a religious house. At festival times, fountains were the focus for opulent show: they dispensed wine and water to the populace. These transitory set pieces were a culmination for state processions and ceremonies, and an offering of magnanimity to the commoners. The practice of distributing liquids other than water through fountains is ancient; in Euripides' 'Bacchae', the manaeds scratch the ground with sticks and fingers until springs of wine, water, mild, and honey surge forth (line 760). At medieval feasts, intricate table fountains circulating wine were popular, and their derivatives continue to be used now (58).

Although civic fountains continued to be built in the traditional column and pool arrangement for facile distribution of water, during the Renaissance period, private fountains in France increasingly became artifices of technique. The expansion of secular patronage during the 16th century gave further license to the creative endeavors of fountain makers. The Renaissance fountain was transformed through contemporary sculpture and poetry, according to one thesis, to an emblem of the artistic sensibility of the era. After his campaign in Italy, King Charles VIII vowed to mimic the waterworks of the gardens of Poggio Reale at Naples, designed by Giuliano da Mariano and finished in 1487, and renowned for its wealth of fountains and sculpture. Charles imported Italian artists and gardeners to France to realize his dream, in an attempt to create a secular 'Garden of Eden' through the labor of craftsmen and landscape artists. The palace of Fontainebleau which resulted was adorned with fountains in an enthusiastic adaption of Italian and classic models. The original fountain was composed about a Hercules statue by Michelangelo, later lost. The Fountain of Perseus replaced it, with four bronze water-spouting dolphins surmounted by a lifesize figure of Perseus, the Greek hero who slew Medusa (60). The refined audience of the secular French nobility was delighted by the variability of water in jets and cascades.

The French imitation of Italian water display attained

heights of unparalleled extravagence in the manipulation of nature during the 17th century. The gardens of the palace of Versailles, "the supremacy of artifice in nature"[61], are the epitomy of this period of fountain design. Andre LeNotre, who had created an extensive scheme of water gardens and statuary for one of King Louis XIV's ministers, was appointed by the king to design gardens for his palace that would outrival all Europe. Flotillions of French sculptors, working after the manner of Italian fountains, prepared plaster models for the approval of the Sun King, the court's title for Louis XIV (62). A succession of lavish fountains complementing the nearly imperial palace resulted from their work.

The system of water conveyance to the fountains was dictated by the flat and rather dry landscape about Versailles. To conduct the water to Versailles, a great pumping machine, driven by water and wind, was constructed on the Seine at Marly, in 1682. The pumps, the best available at that time, were installed with tremendous effort and expense, however, the water gardens could only be turned on for a part of a day at a time (63).

The water gardens at Verailles are organized around the myth of Apollo, a disguise for the intended glorification of King Louis XIV (64). The symbolism of Apollo identifies the Sun King with the greek god who steered the arrival of the sun with his chariots. The fountain of Apollo is an exemplar of

the royal obsession with his 'divine' role. It was erected in a small lake at the end of a long formal walkway to the palace (pl. 11). Apollo bends forward holding in rein an empire world as he and the horses rise out of the lake's surface. This fountain sculpture effectively uses the lake's water level to give the illusion that Apollo and the accompanying tritons gallop from night, represented by the lake, to day, conveyed by the air. Jets in the pool and among the tritons send high towers of water into the air. A smoke of founting water shimmers across the pool in a driving rain, and the sun mounts in grandeur through this faceted light.

In the mythology followed by the court sculptors, Latone, a Lycien, is the mother of Apollo and Diana, and when the Lycien citizens refuse to acknowledge the divine origin of her offspring, they are transformed to frogs. The fountain of Latone, installed at Versailles, is thus a comment on the rule of Louis XIV. This fountain is a formal pyramid of concentric circular tiers (65),(pl. 12). Frogs sit on each level spouting water; one row directs their jets upward to the next step, while others spit to the lower pool. White water cloaks the Latone figure who clasps her children with one hand, and beckons to the sky with another. The splendid jets of water provide an unpredictability and motion about the strict symmetry of the sculptural design.

La Salle de Bal employed curtains of spouting water as

the backdrop for an outdoor ampitheatre (pl. 13) with benches and a stage area. Behind the stage on a series of steplike tiers, water rose in jets and fell in cascades. Engravings of the time show the elaborate festivals and scenes that were held in the water theatre. Water theatres were common in other contemporary French villas, but none have survived in functional condition (66). The interest in water theatres was probably aroused by the effect of the ambiance of water upon the ambiance of drama.

The fountains in the Versailes gardens exhibit an opulence in the use of sculpture and water. No possible effort was spared in the undertaking; the gardens are carved with sunlight and founting water, the gold and crystal of daylight, just as the palace inside is carved with the gold and crystal of nature. The sculpture groups convey a renovated mythology, beginning with the identification of Apollo as the Sun King and extending beyond. The formal conception of the garden is manifest everywhere; nature is groomed and contorted marvelously to satisfy a royal taste. Saint Simon condemned the park as a place one could not enjoy: "L'abondance des eaux forcées et ramassées de toutes pautes les rend vertes, épaisses, bourbeuses...leurseffects...Sort incomparables; mais de ce tout, il résult qu'on admire et qu'on fuit" (67).

The gardens of the Versailles palace exerted tremendous

influence on the European aristocracy of the time, and imitations sprang up everywhere. One of the more interesting attempts to emulate Versailles was directed by Peter the Great, the Russian czar who introduced western fashions and culture to his country. After his visit to France, he envisoned a scheme of waterworks for his summer palace of Peterhof, even selecting the site with regard to water supply.

The palace was designed at the top of a hill where water was found, so that a mammouth cascade would flower at its steps (pl.14). Stone terraces of fountain jets mount the hill, up to the palace windows, and the water froths down to a pool (pl.15). A seventy foot plume of water shoots from a lion's jaws, on an island sculpture in the pool's center (pl.16). The pathway along the canal that empties into the pool is lined with high vertical fountains. Water, by its arrangement, mass, and power, becomes an architectural element on a scale where the gilded sculptures that emit the water are scarcely noticable. The fountains exhibit an imperial sense of the exquisite, extending the fluted and gilded carvings of the palace interior to the outdoors. Evening festivals of social preeminence were held in the gardens, as one observer writes "the most beautiful sight of all [was] the fountains...rows of lamps were placed, over which the fluid rushed from the cascade like a shower of diamonds, whilst the flashing lights beneath had an indescribably brilliant effect; the fine bronze figures untarnished glittered like statues of

gold in the rays of thousands of beaming stars" (68). The fountains pioneered the use of light beneath the waters' surface.

These European autocratic gardens, such as Versailles and Peterhof, imposed the indoor palace luxury on the natural environment. The English reacted to the example of Versailles by stating that "Gardens should bee irregular, or at least cast into a very wilde Regularite" (69). Versailles seemed to them the epitomy of tyranny; the English gardens were to be democratic. English landscape painting suggested moods to the garden designer: trees and shrubbery were imported, and throughout variety was encouraged to support the belief that "all nature was a garden" (70). Fountains were essential to the completion of an English garden as "surprizing Entertainments in the pleasant passage thro' a Wilderness" (71). The fountain was a statement of the human presence within a setting that styled itself as forest nature liberated rather than controlled. "O study Nature...[for] there's a happiness that baffles Art, In showing Nature great in every part" (72).

The fountains of the courtyard niches throughout the Alhambra and Generalife palaces in Granada, Spain, represent an entirely different feeling and culture from the other royal fountains discussed in this thesis. The Alhambra and Generalife (summer palace) were created in the fourteenth

century, during the Nastrid dynasty's Moorish occupation of Spain. A system of reservoirs and aqueducts brought water into the palace area to supply the fountains. Consistant with the code of Islamic art, there is no depiction of the human form anywhere in the palace's elaborately carved pillars and walkways, or the finely crafted mosaics. One of the fountains is a single jet rising from a lacework carved basin that stands on the backs of lions, whose mouths also spout water. The fountain courtyard is lined with rows of delicately wrought arches, and canals leading to subsidiary fountains in adjacent entryways. In the garden of the Riadh at Generalife, jets, evenly spaced either side of a long water channel, shower into the water path. Shrubs and flowerpots frame the length of fountain arches. These courtyard fountains are arabesque studies in water, as elaborate in the patterning of founting water as the mosaics and lacework carvings that ornament the building. The courtyards are hidden, almost indoor spaces, and the fountains are subtlely created within that space, as the focus for the area. The garden of the Alhambra "resemble[s] a marvellous symphonic poem which reveals to us the ecstatic qualities of the Islamic soul" (73); the human creates such a paradise land, but the image of man is always suppressed. The water itself becomes part of the intricate abstraction, the refined order humanly made. The fountains are poetic, they do not tell a story, but merely continue, perpetually shining and contemplative.

Carl Milles was a modern (1875-1955) Swedish sculptor, who created many fountains from his bronze figure sculptures. Milles had seen the Renaissance Italian fountains and attained from them a sense of how water could be integrated within the sculptural composition. His Europa fountain completed in Halmstad, Sweden, in 1926, is sparked into animation from the way the water is sent into wind about the bronze figures (74), (pl.17-18). Europa, half standing on the beast's back seems covered by a tent of water, from all the jets crossing over her. The sculpture of her and the bull is framed by a circle of water jets- even the bull's nostrils emit showers. While in many of the Italian fountains illustrated here, waterfall and pooling effects are dominant, the Europa fountain depends entirely on water shot from the figures for its display. This is closer to the waterworks of the Versailles gardens where massive quantities of water surge from jets. Milles combines the Italian style which emphasizes figure sculptures with the French innovation in water jets. Upward jetting water is more dramatic than the mediated fall of water from level to level, from pool to pool.

The 'Meeting of the Waters' fountain by Milles in St. Louis, Missouri, 1940, is a mythic representation of the confluence of the Mississippi and Missouri rivers near the city (75), (pl.19). Standing in a large pool, a man and a woman portray the two rivers. Signifying the river's numerous tributaries, a retinue of tritons and naiads accompanies them

(pl.21-22). The bronze sculptures are the source of water jets, rising as high as fifty feet, and clouding them in a delicate rain. Mississippi stands on a large jetting fish, with one hand beckoning to Missouri, who twirls her fingers in her hair. The sculptural composition conveys a modern revival of the classical river god myth. Here, as in the Greek epigram about Alpheus and Arethusa quoted earlier, the merger of two bodies of water into one is interpreted as the love between male and female. The Mississippi and Missouri rivers span the length of the entire United States, and are together the drainage for the central heartland of the nation. The rivers have been the focus for community growth, commercial travel, and local folklore, beginning with the many Indian tribes who lived at the shores, and the marvelous tales of Mark Twain. The Indian name Mississippi means 'Father of the Waters', and so Milles' sculpture of him stands, the parent both of many water creatures and of the rich complexity of modern myth. Several expeditions in the early 19th century set off to find, from its countless tributaries, the river's source, this search seems honored by the fountain, for as well as the tritons and naiads, each droplet of flying water is a new contribution and source. In this fountain sculpture two heritages converge: the classical vocabulary of river gods, naiads, and tritons, and the vast American culture that has grown up from all who have lived on or beside the river. The artist has married these two traditions, just as he has joined the rivers, into a myth of his own making, wrapt in the white

spray of water.

'The Rivers' fountain in the St. Louis Federal Building, by Robert Cronbach (1963) is an indoor fountain beneath a ceiling of skylight windows (76), (pl.23). While the other outdoor fountains described in this thesis had to be designed with personal interest to compete with a complex natural or urban environment, this fountain is installed in a large lobby, where the sculpture's pure and unemotional form dominates. It is assembled as a modular structure of hammered bronze sheets over which the water cascades. The bronze shapes can be viewed as an abstraction of the Mississippi River's traverse, from the double top wing with three spigots in it that resemble the joining of the Mississippi and Missouri Rivers, to the broad fan piece over which water flows in analogy to the river delta. The next levels convey the waters flowing to the ocean, styled as the reservoir pool. The water effects of this fountain are subtle and symbolic as contrasted with the massive quantitites of water used with such power by Carl Milles in his fountain of the same theme. 'The Rivers' reads like a diagram or map of water flow, leaving little to the imagination while the 'Meeting of the Waters' involves us in an active realm of human experience, folklore, and memory of what a river is, how its water experience feels and shines.

In conclusion, the original Arethusa fountain united the

outpouring of water for human use with the myth. Very gradually, a polarization in attitude was made from the ancient covered spring. Utilitarian concerns in fountain design, as exemplified by the Swiss fountains, diverged from the mythological and decorative intents, found in the work of Carl Milles, Bernini, and others. In different countries, fountain structures arose to fill a variety of human intents, from the simple need to drink, to the desire for self-glorification. Gradations between these fountain types now coexist at once; fountains and water displays serve utilitarian functions such as cooling the water for air conditioning systems (as in the Boston Christian Science Center reflecting pool, which cools the buildings), while others are purely aesthetic.

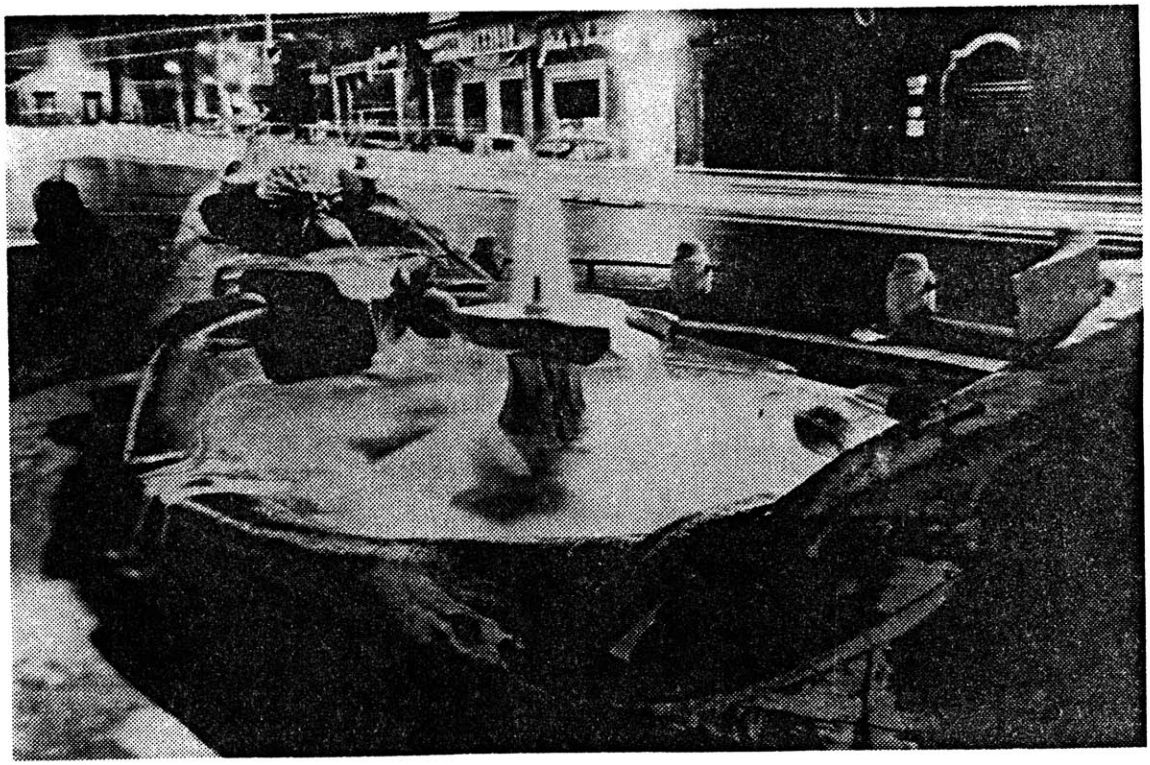
The different emphases of fountain structures are relevant to the work completed for this thesis: the Student Center Library is an environment where the utilitarian aspect of students' lives- reading and studying- is dominant. My fountain transplanted myth to that setting; it satisfied little practical purpose- except to reduce the static in the area- rather it introduced a sculptural and lyrical viewpoint to the space. The origin of the idea is the natural spring; the fountain running through sculpture becomes a human celebration of the gift of water.

Thou makest fountains gush forth in the valleys;
   they flow between the hills,
they give drink to every beast of the field;
   the wild asses quench their thirst,
By them the birds of air have their habitation;
   they sing among the branches.
From thy lofty abode thou waterest the mountains;
   the earth is satisfied with the fruits of thy work.
(Ps.104.10-13)

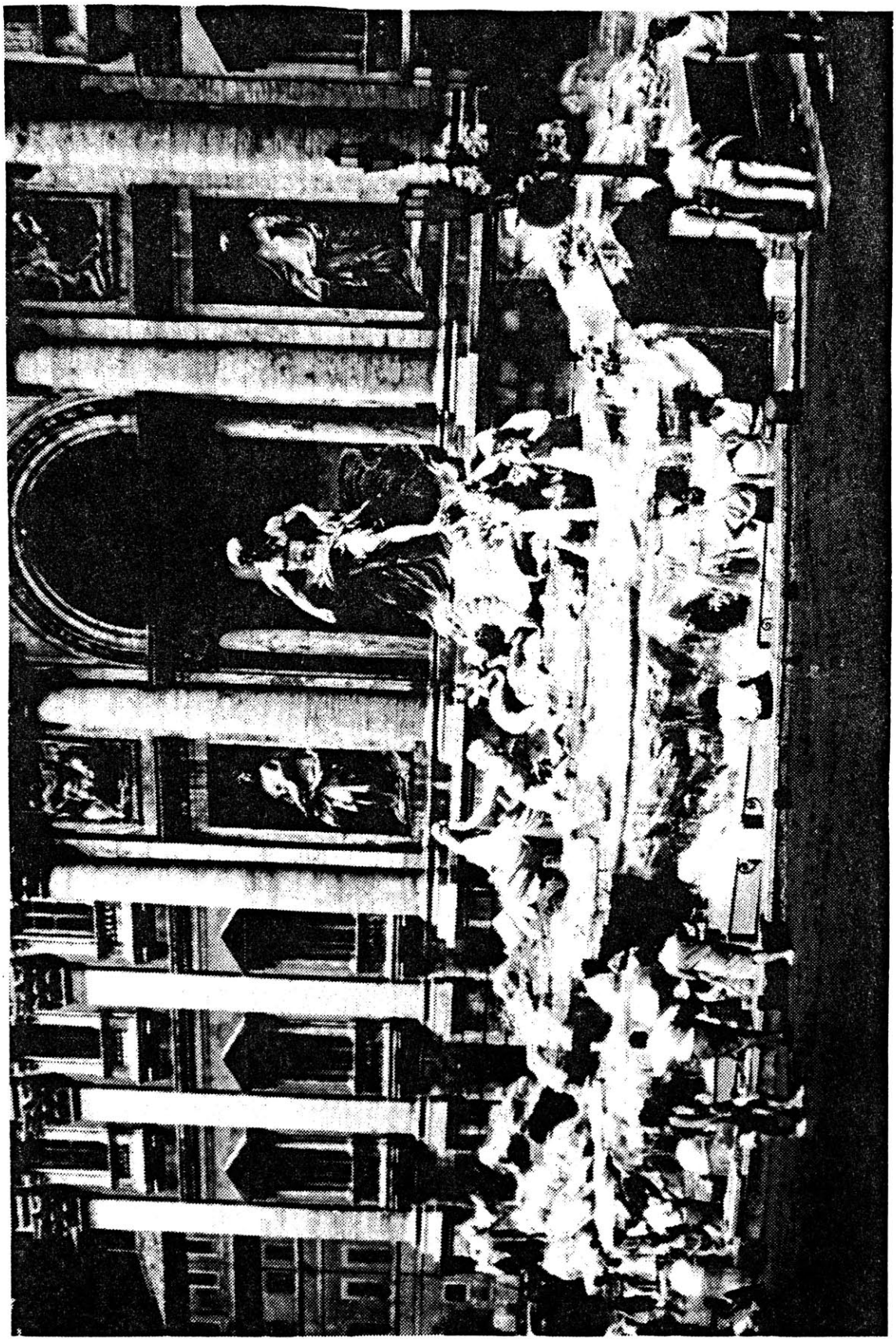
pl. 2 Il Facchino

pl.3. Fontana delle Tartarughe

pl. 4. La Barcaccia

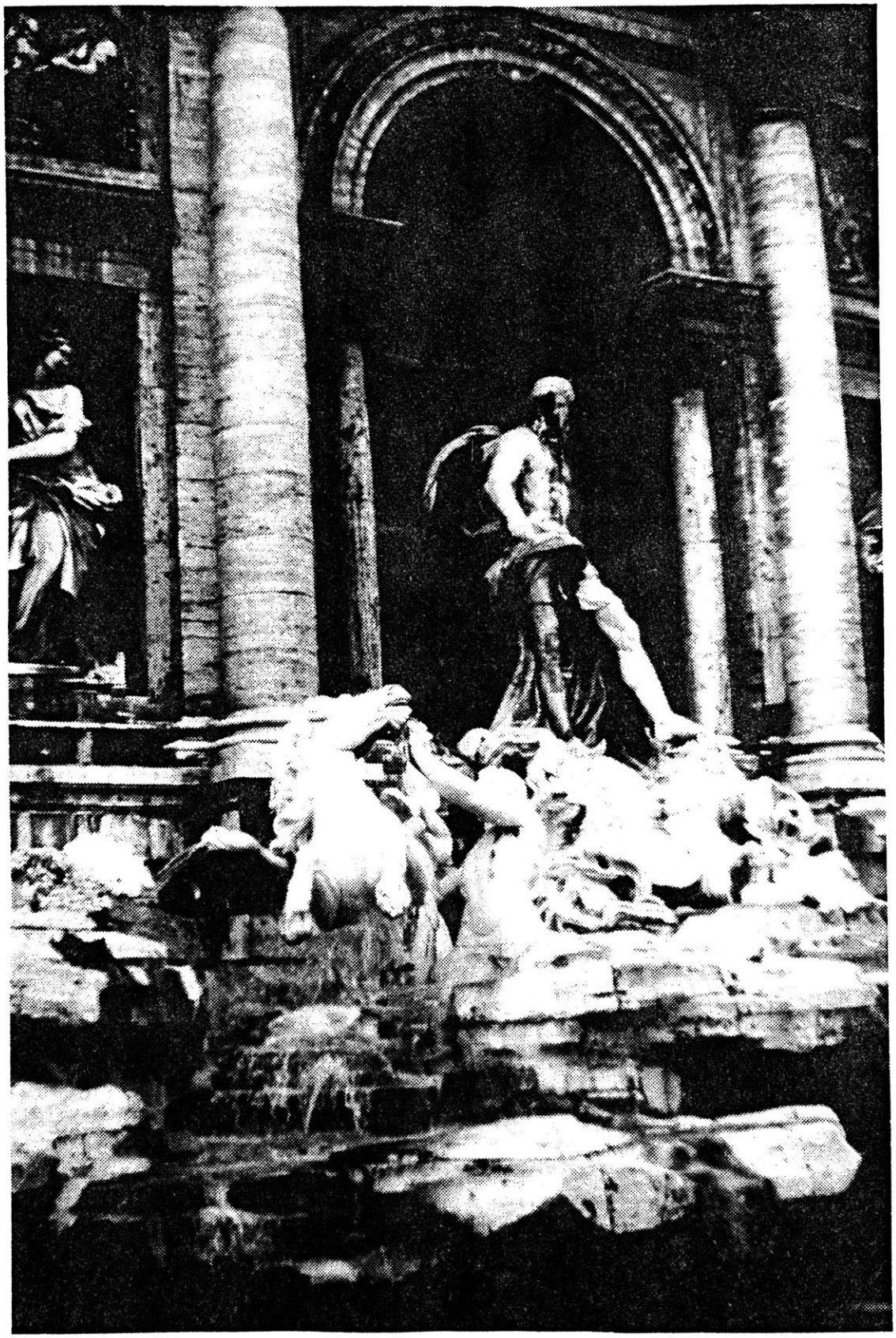


pl.5 Fontana di Trevi

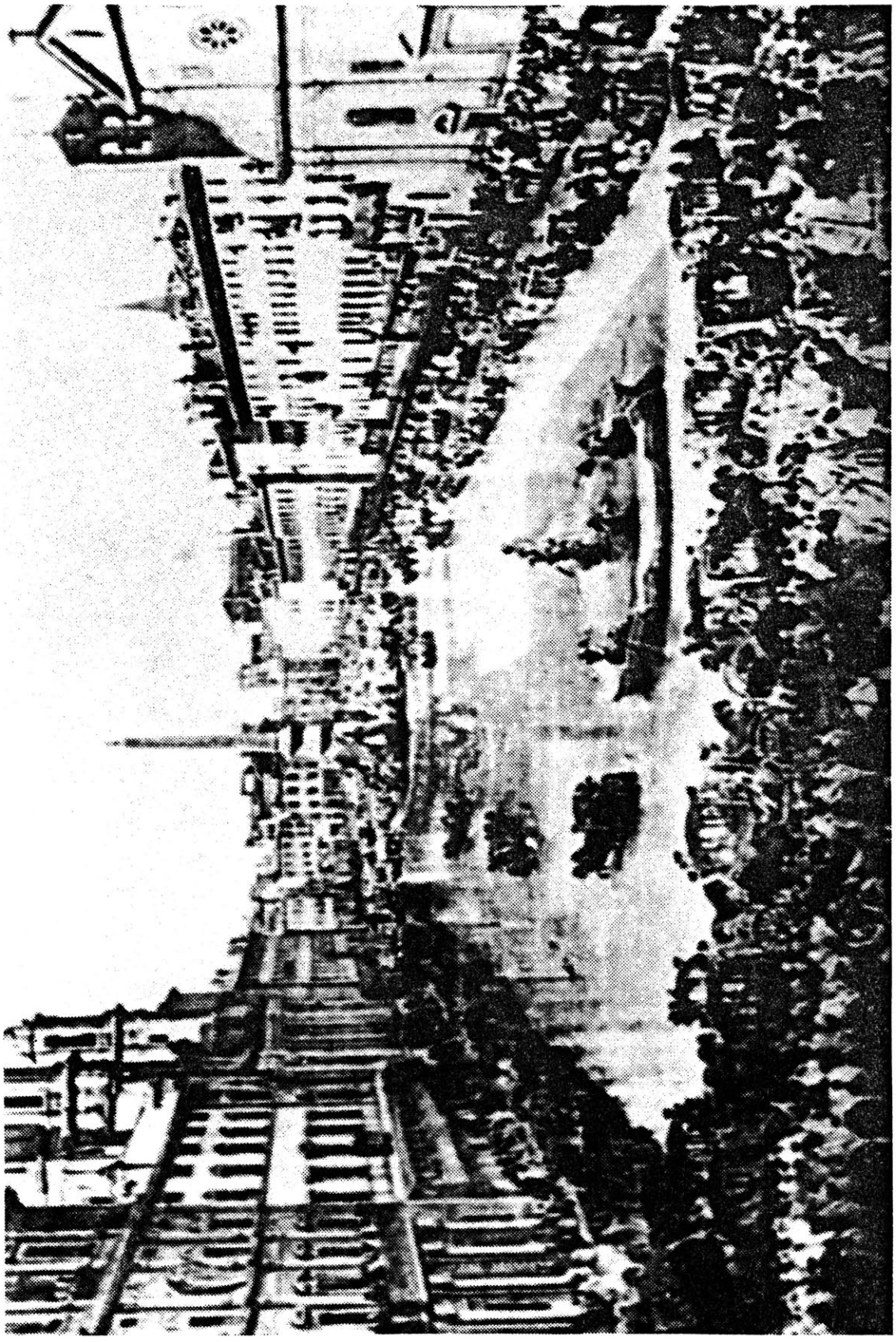


pl.5. Fontana di Trevi

pl. 7. Fontana di Trevi

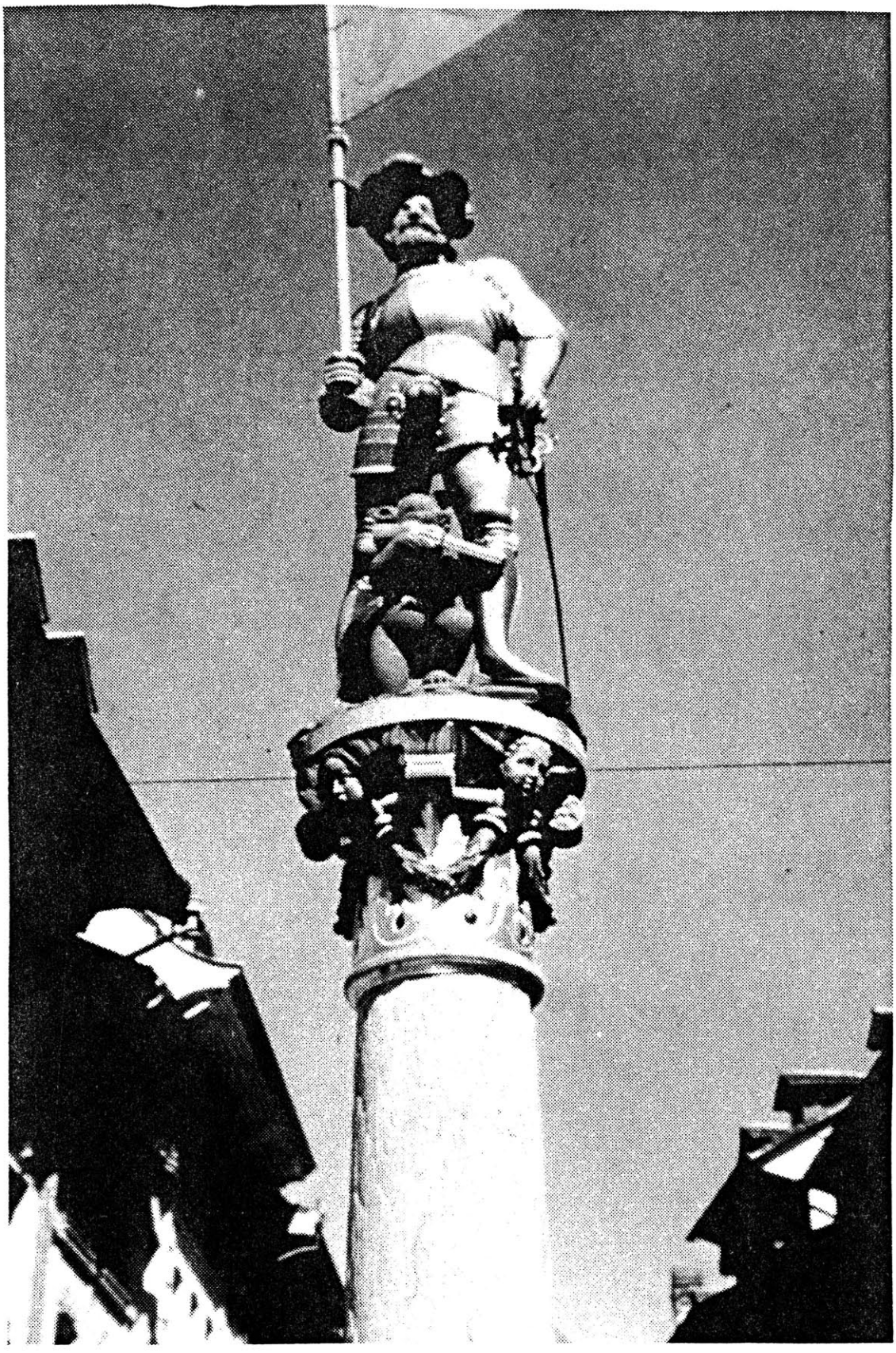


pl. 8 Piazza Navone Holidays 64



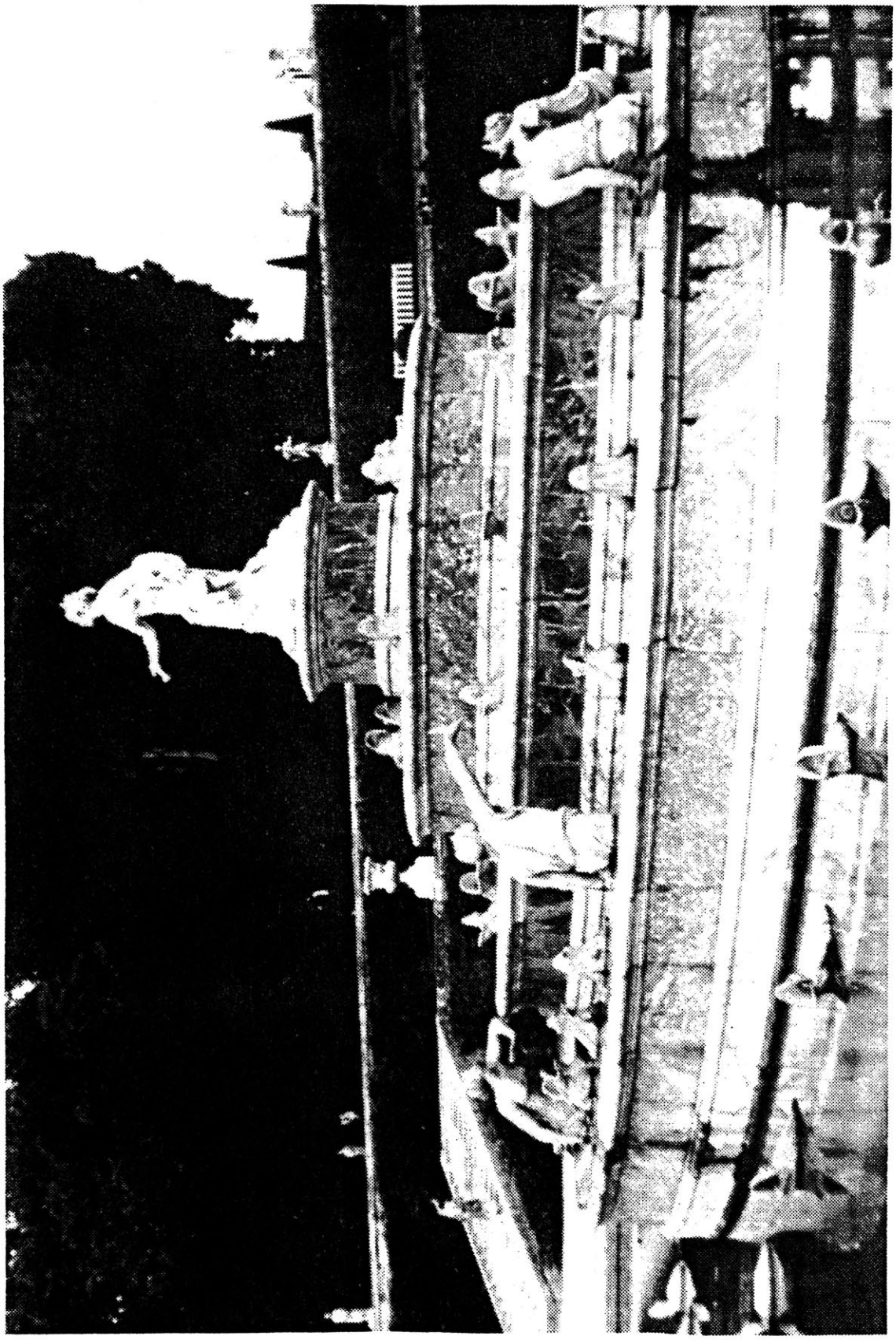
pl. 9. Fontana detta Naiadi.

pl. 10 Swiss banneret fountain figure

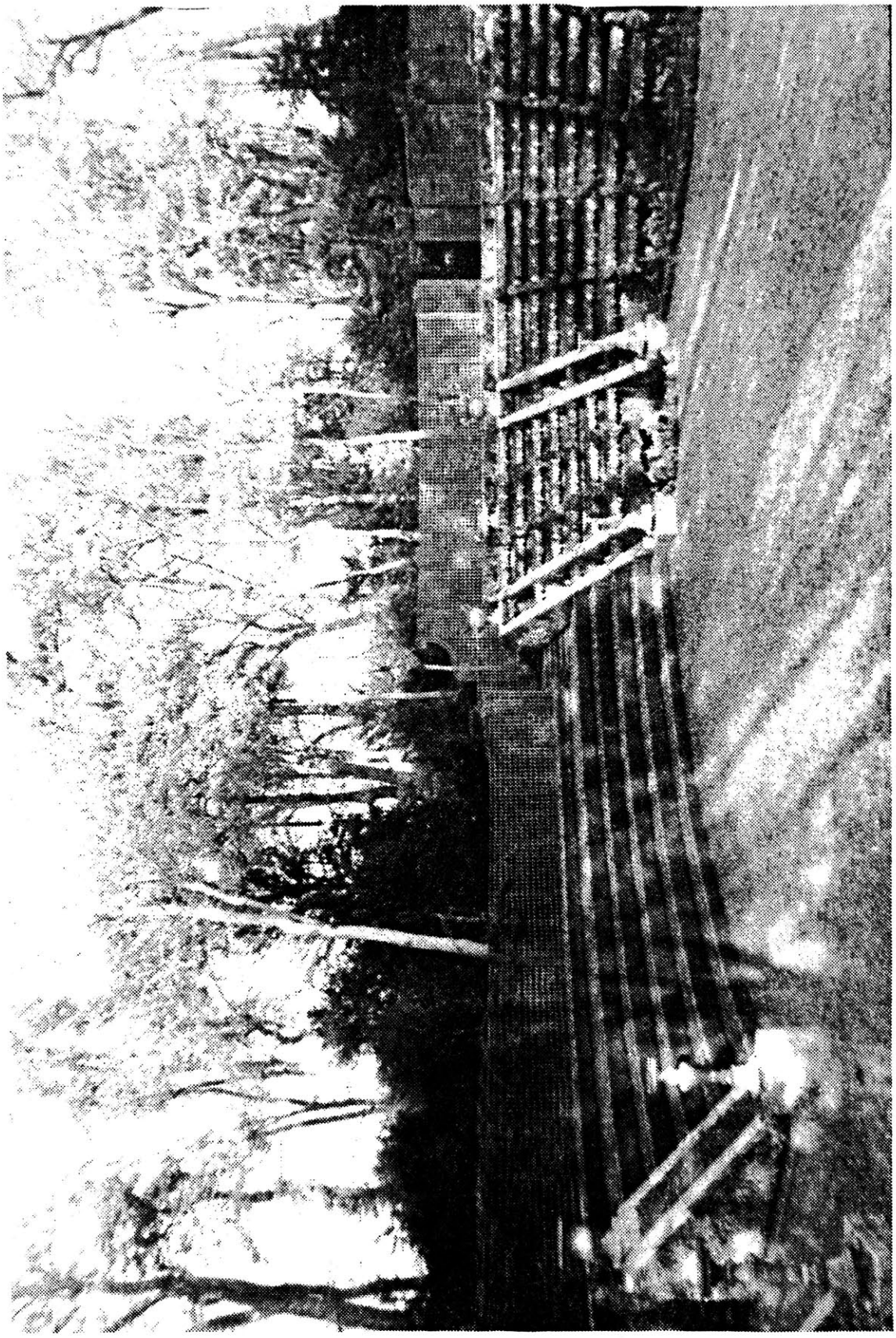


p. 11 Basin of Apollo, Versailles..

pl.12 Fountain of Latone, Versailles

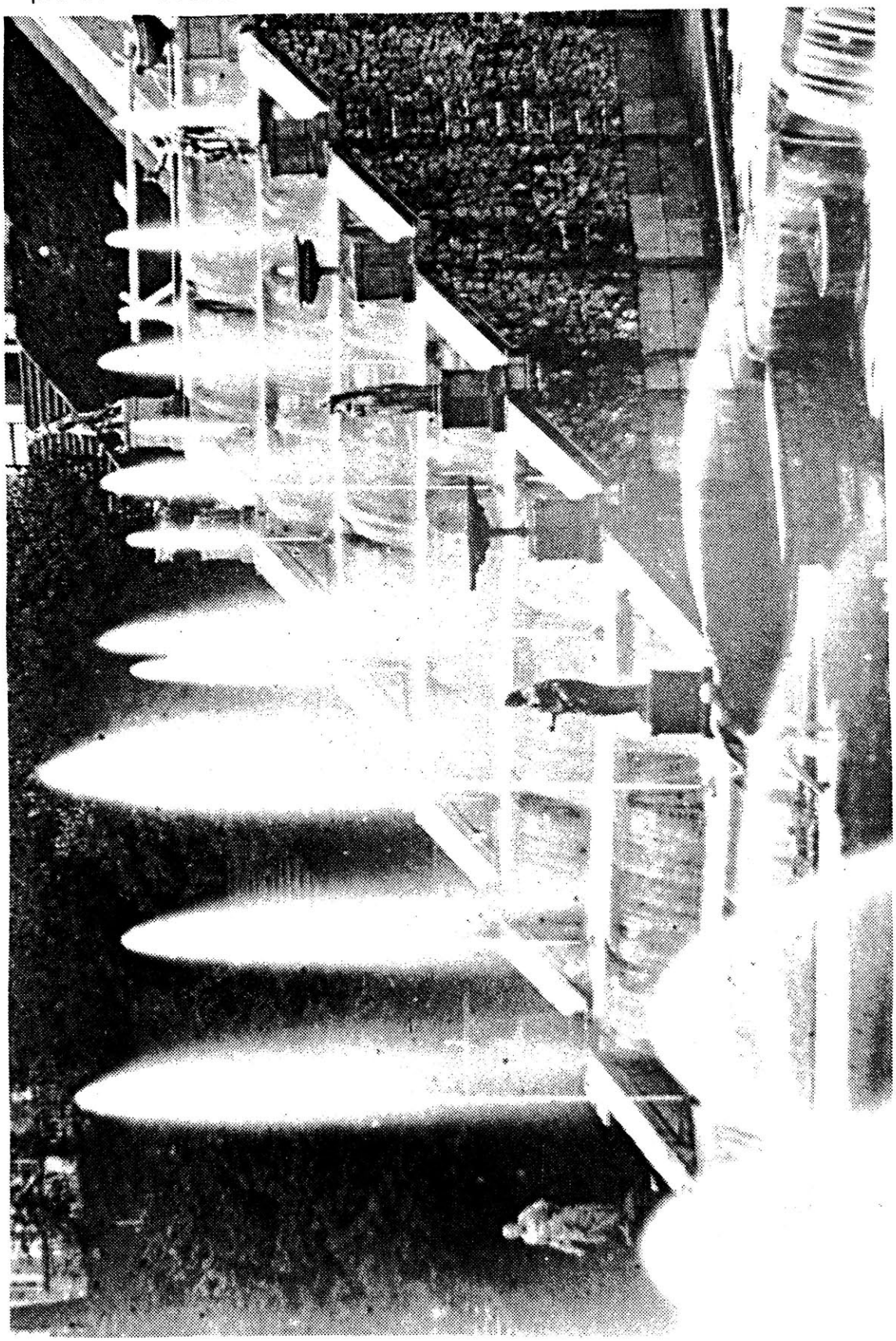


pl.13 La Salle de Bal, Versailles.

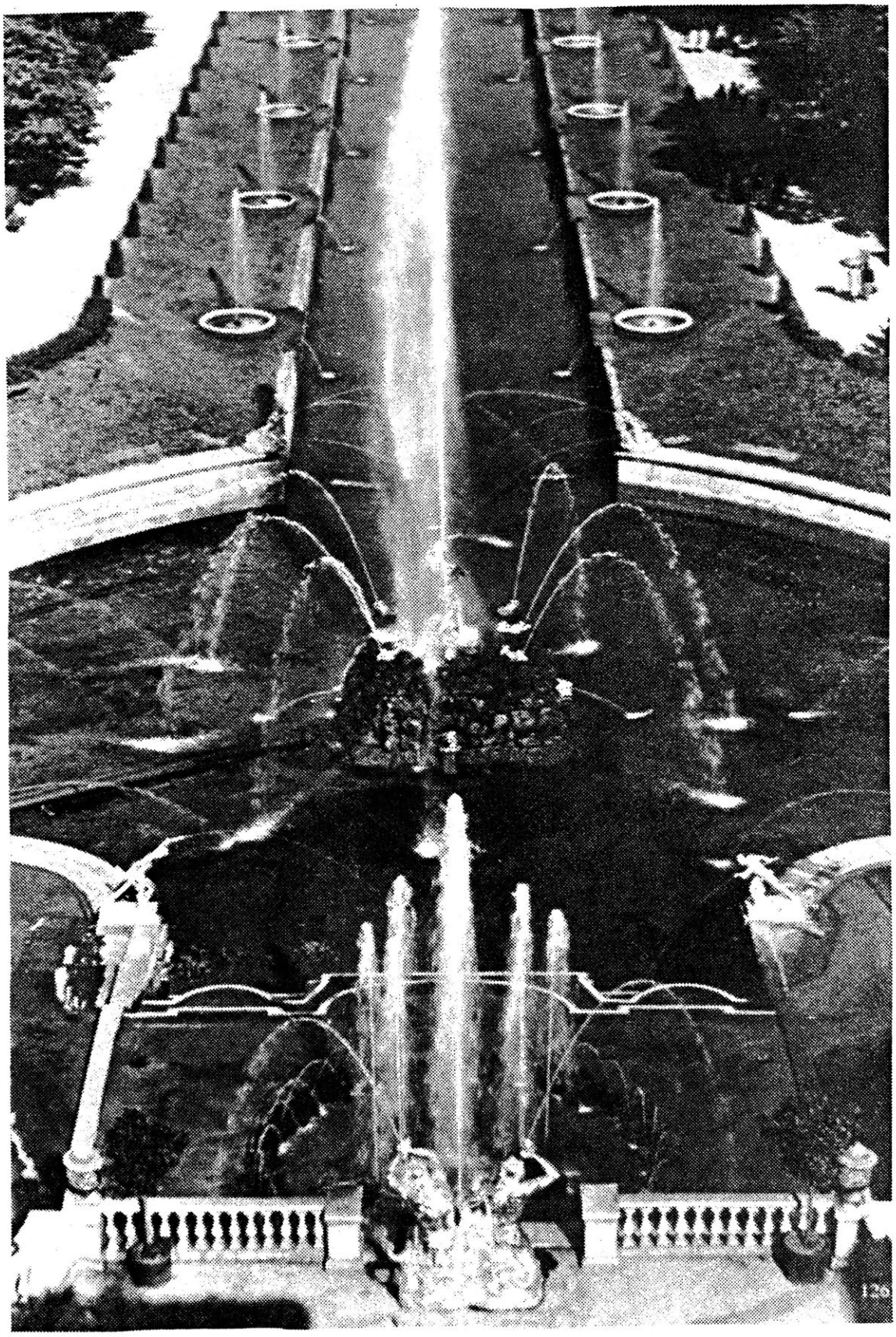


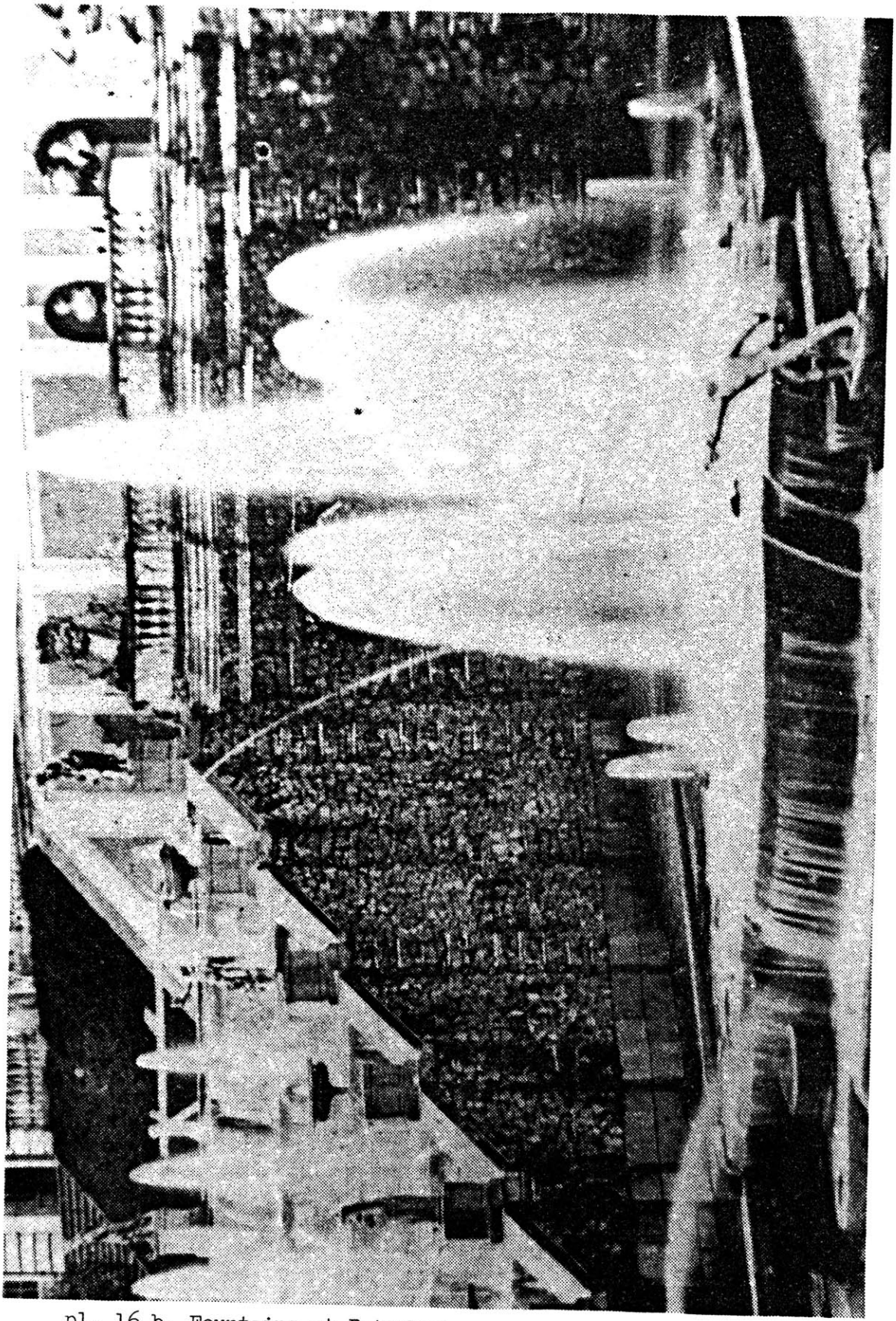
pl.14 cascade at Peterhof Palace

pl. 15 Fountains at Peterhof Palace



pl.16 fountains at Peterhof Palace



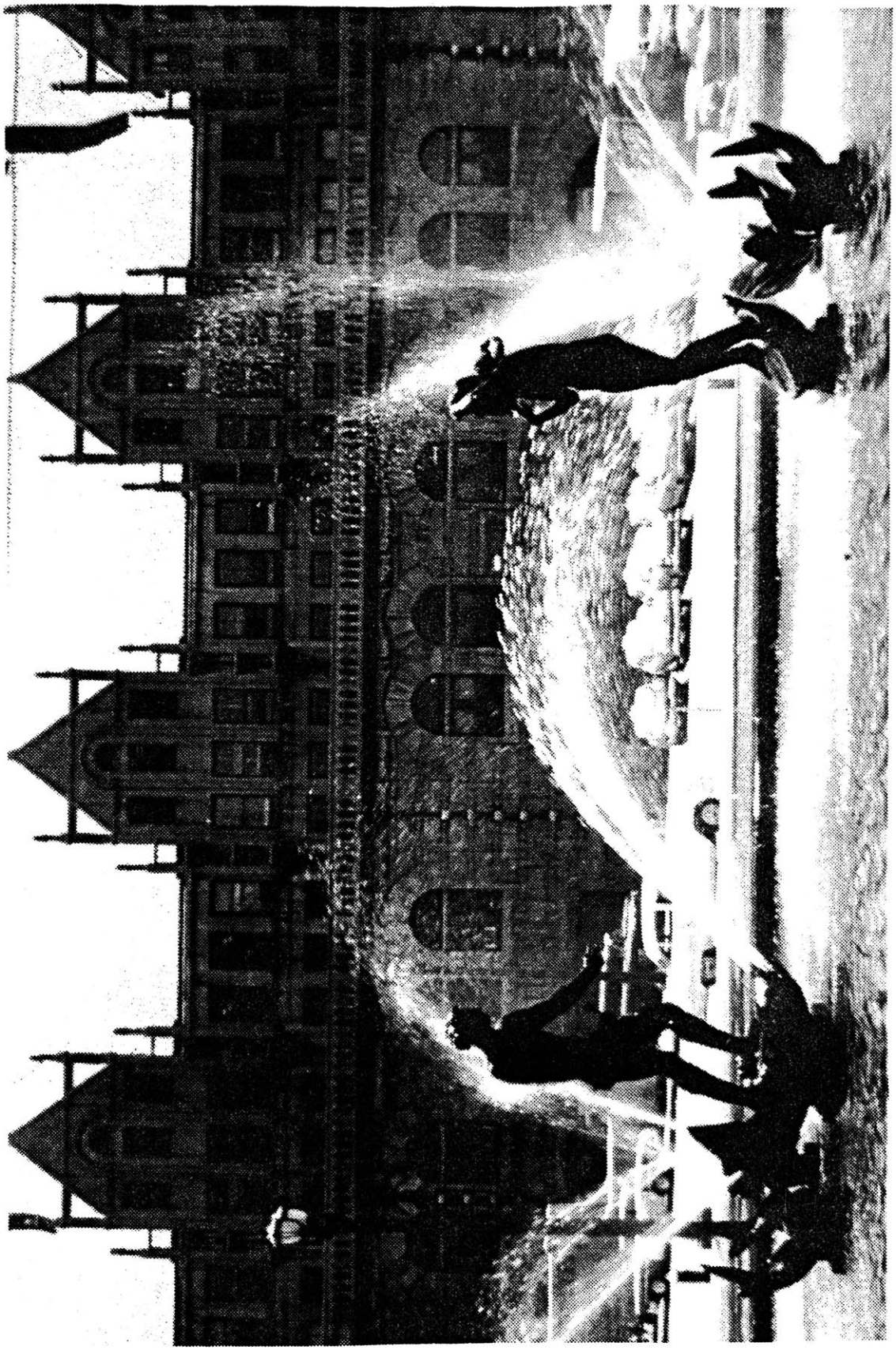


pl. 16 b. Fountains at Peterhof

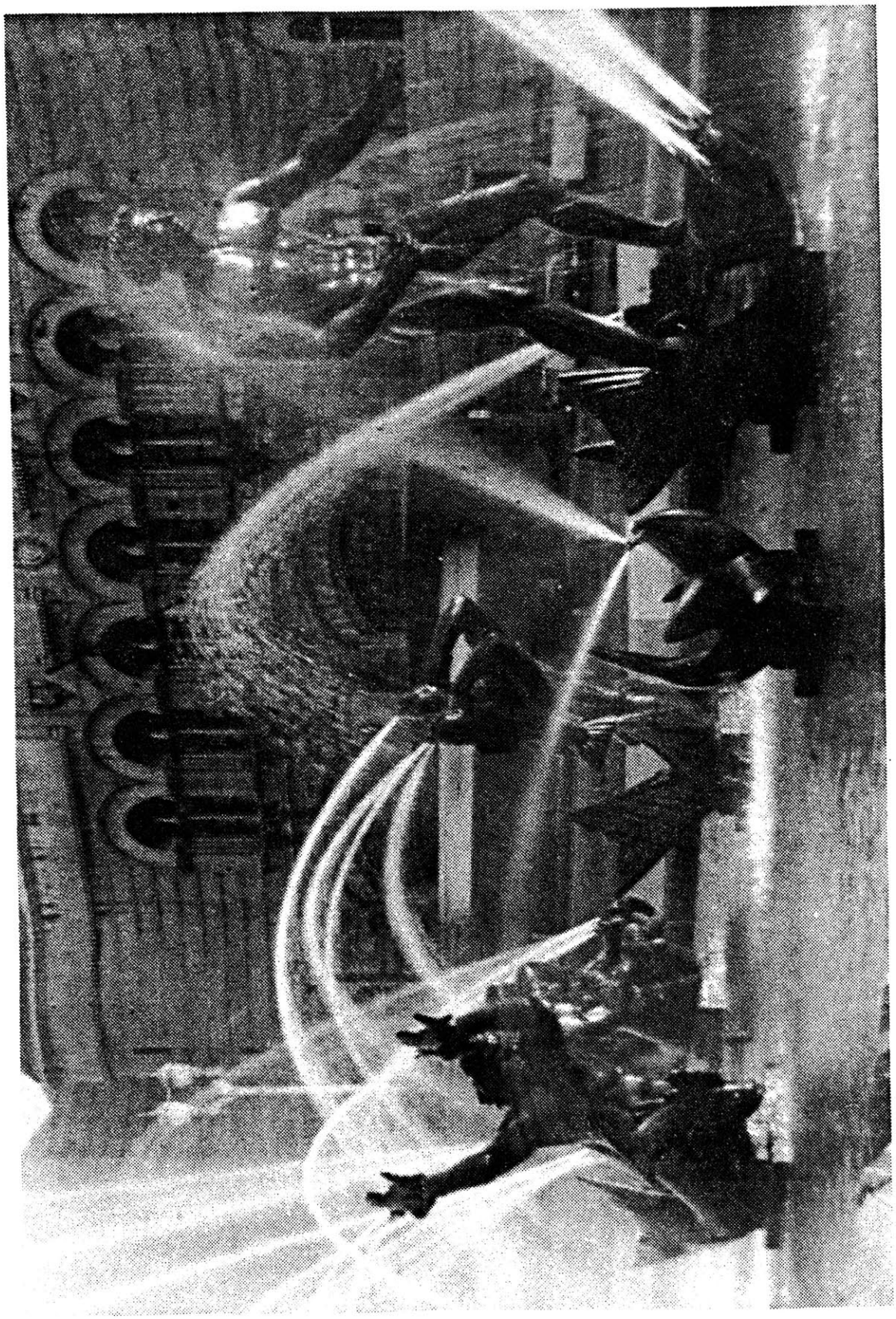
pl.17 Europa Fountain, Sweden.

pl. 18 Europa Fountain

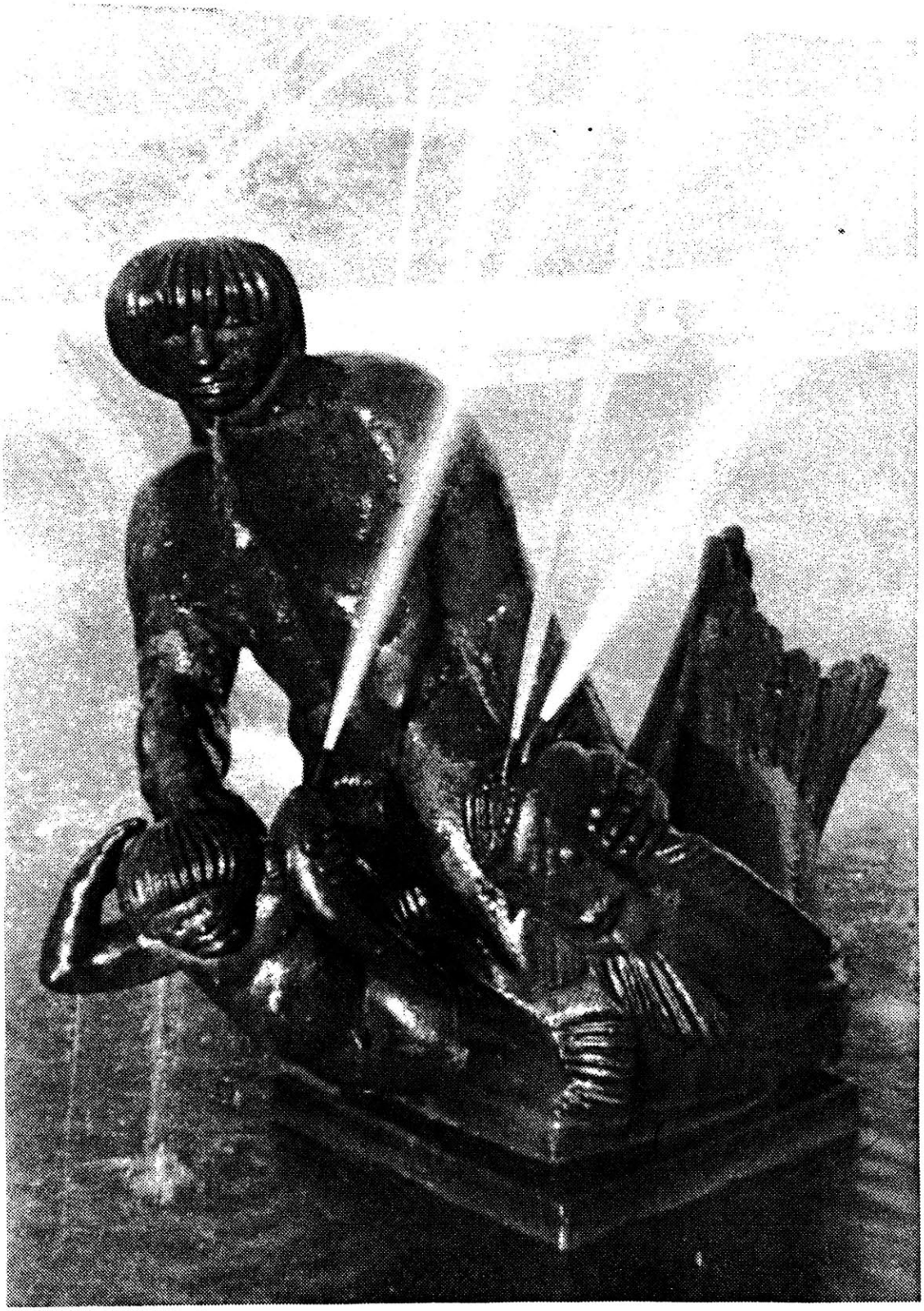
pl. 19 Meeting of the Waters, St. Louis



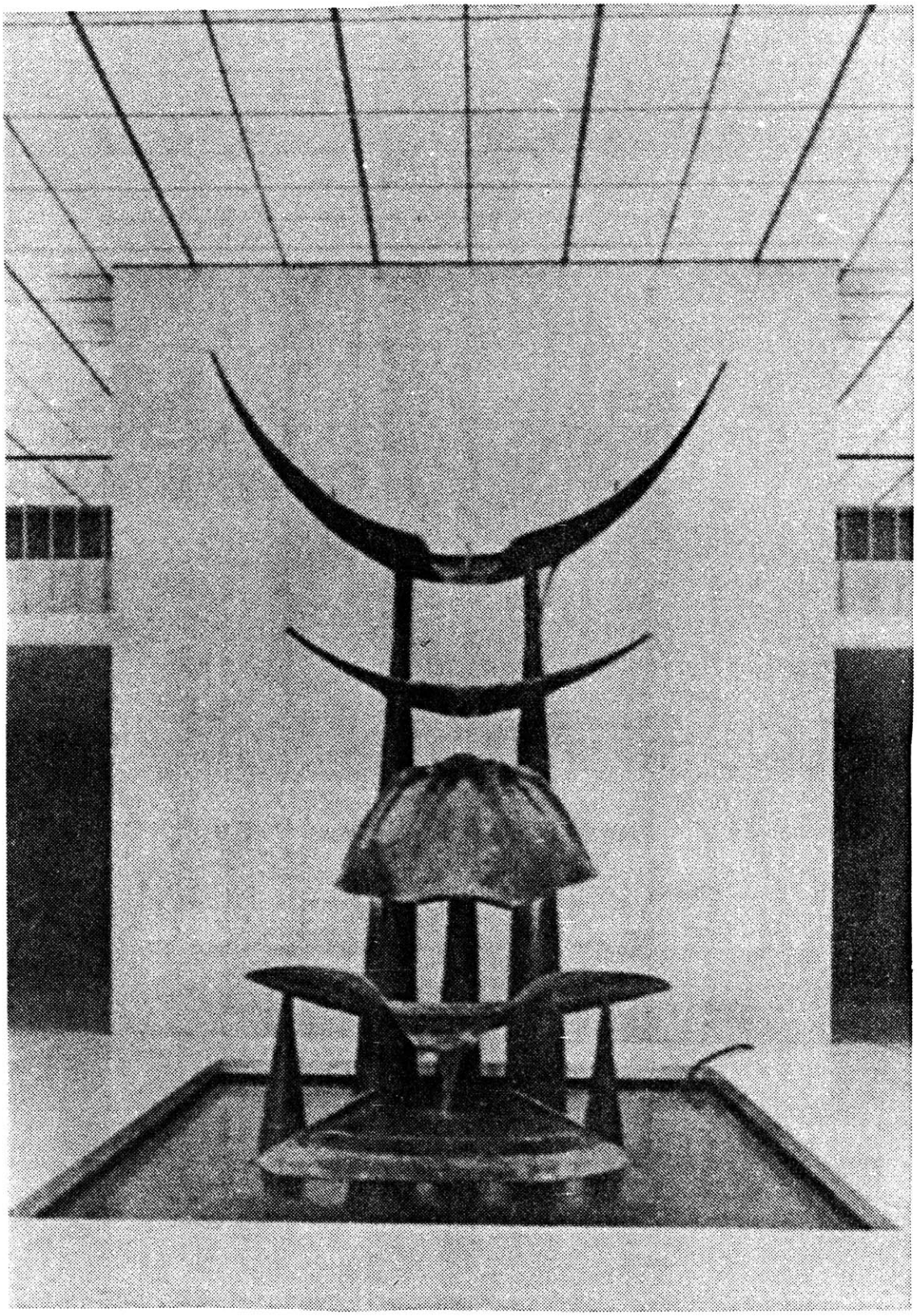
pl.20 Meeting of the Waters



pl. 21 Meeting of the Waters



pl.22 The Rivers, St. Louis



Forming the Fountain Sculpture

This thesis documents the making of a sculpture that becomes a fountain. The fountain sculpture is the creation; the paper is only a quiet footnote. The actions of seeing and sculpting, firing, moving, designing and constructing, are the essential ones. The thesis paper is not to delineate and explain meanings or an argument, but rather to present observations and wonder. It is an exclamation point to the completion of a sculpture, a sense of drama in excitement. The following section relates the process of forming that sculpture.

A walk in a springtime formal garden, roofed by dogwood and tulip tree blooms came, among stone pavings, arching rose vines, and marble pools, to a curious cherub face spouting water into a basin. My sculptures in clay of faces and figures, and study of twelfth century Italian cathedral sculptures together suggested to me a host of possibilities to baffle the spitting cherub. Gargoyles and madonnas in unpredictable conjunction might salute each other with baptismal water fights. Or a vast fountain scheme was plotted, with portraits of MIT faculty emptying the Fountain of Truth from their lecturing mouths to the students playing and bathing below. Water, fire, bubbles, and even hot air would fount from the mouths of selected personalitites, as an allegory of a heaven and hellish underworld.

> And he said unto me, It is done. I am Alpha and Omega, the beginning and the end. I will give unto him that is athirst of the fountain of the water of life freely. (Rev.21.6)

The initiative for a fountain of figure sculptures in clay, along with the sense that the clay figures could adopt a personality, a fairytale existence of their own emerged during my earlier figure studies in clay. By uniting the figures into a fountain complex, the poses could be given meaning, and relationships would emerge between figures that were separate before. The intention was not to imply a specific narrative through the composition, but to infiltrate it with an imaginative drama, a potential for activity between figures. The fountain sculpture becomes a community, rather than a story illustration; the water is an expression of that community, and a focus for their action.

The sculpture's theme was established in some preliminary drawings as an embroidery of the Arethusa myth, as it tells of a fountain surging from a woman. Groups of figures celebrating the water by dancing and playing through it floated in pyramid formation on the page. The drawings conveyed a theme, but were inefficient at developing a sculptural form. When I began to form clay models of the scheme, the idea evolved with force. I shaped small individual figures, approximately one quarter the final size, into postures and pressed them together as a study for possible gatherings. I varied poses and method of arranging

them from tightly packed rings of sitting and standing figures to a more open mix of low and high poses. The perimeter of the model sculptures was roughly an oval with sitting and reclining figures at the edge rising to higher standing and jumping ones in the center. Since the models were so small, I could join the entire sculpture together as one piece, directly connecting the arm of one figure to the leg of another, and so on. In the course of this period of model making, active spaces developed between the figures and I decided upon several distinctive gestures. Arethusa was to look up at the water streaming from her raised arms, and Alpheus was to sit or kneel slightly lower, and gaze toward her. Figures leaping, or with uplifted arms formed something of a ring about them. Others were reclining or sitting in conversation, or playing with children. There were roughly thirty figures in these model sketches. I selected the last clay model as a guide for the sculptural composition; it represented a freer, less pyramidical association of figures. The continuation of a rhythm from figure to figure was less regular and uniform and more fluid than in earlier tries. Both the individuality of a figure as expressed by a gesture, and the place of a figure within the total grouping was phrased with a looseness and imagination depending on the other models, yet to me more clearly formulated. By that time, I was not so much experimenting (to demonstrate for myself the variety of possibilities) as I was beginning to evolve a single unified composition. This change in approach

and feeling about the work encouraged me to begin the final sculpture. The clay models, later fired and glazed, were the first hint to me of how dialogue and movement might enliven the fountain sculpture.

> You turn things upside down!
> Shall the potter be regarded as the clay;
> that the thing made should say of its maker,
> "He did not make me";
> or the thing formed say of him who formed it,
> "He has no understanding"?
>
> (Is. 29.16)

The sculpture of the figures for this thesis project was made in clay; the quality of clay, its movement, flexibility, and texture, was essential to the making of these dancing and human forms. Clay is a fine evenly grained material mostly composed of crystalline minerals which becomes plastic when water is mixed with it and takes on a variety of properties in color, flexibility, and structural strength when it is modified by the addition of pigments, minerals, and sand. For the artist who works with clay, the wet clay has a special character and feel; it is not simply a colored mud. The volume and mass of clay, its suppleness that still holds a form, relate it to the flesh it models, and the clay object seems to breathe not by air, but by water, inhaling as water is added to it and exhaling as it evaporates. At times I could not overlook the clay's own initiative; somehow a latent will of its own awakened, affecting the way it would stand or be assembled. The sculptural intent was to retain the integrity of clay while at the same time forming something

independent from it. When the clay rebels, the figure must be remodeled by working with the substance and not against it, until a more functional harmony of the clay as sculpture is achieved. A combination of gentleness and strength is necessary in order to sculpt the material, to pull forth subtlety of form. Through a respect and love for the clay, with a responsiveness to its consistency and shape, clay becomes a powerful medium for artistic speech.

The clay preserves a nobility, both when wet and after the firings, that does not cheapen the human image it embodies. The process clay undergoes to become a finished work can be phrased in a metaphor appropriate to its destiny as a fountain sculpture. Water is integral to the shaping of clay; the wet clay's plasticity, its ability to keep a form and permit that form to be changed, identifies it as a sculptural medium. Textures can be pressed into the wet clay and images can be pulled forth from it. Once the clay dries, however, the water, so crucial to its attainment of that form, would be deadly to it. A dry clay figure placed in a fountain would quickly dissolve back to a lump of sediment. Although the elimination of water from clay that the kiln firings produce is essential to the clay's permanence, it gives a rigid, deadened character to the clay. The clay exhibits a completed history; even slight adjustments, so easy in the wet clay, are impossible. Fountain water rushing through and about the clay returns the ceramics to life. This final addition of

water to clay is a ressurection; clay and water again unite in sculptural activity.

With the clay model as a reference for the sculpture, I began to make its individual clay figures. I commenced each one while watching a human model posing for a drawing class. These poses were brief, typically 20 to 30 minutes, and simple. In drawing classes at the M. I. T. Student Art Association, I was able to make nearly 10 clay figure sketches a week. The sketches caught a certain attitude of the human model, a feeling of proportions and stance, without individual details. Forming the figure directly from a human model afforded a suprise as the amorphous lumps of clay assumed human features. Each figure was reshaped after the classes so that it became sculptural in three dimensions, beyond the initial view. Bodies were hollowed, both so they would not explode during the firings from clay thickness, and so a plastic tube might be threaded through. Later when I had a small congregation of partially finished figures, I brought them into companionable groups, roughly following the model construction. At this stage, each figure acquired an identity; its gesture and sense of character emerged from the reworked surface. Limbs were removed or changed, heads were tilted, some lept with dance while others were content to recline to the patter of conversation. The figures did not remain a copy of a human model's pose and attributes, for I continuously changed them, searching for ways to give them a

charm as figure groupings. The total composition governed their stance and attitude more than features of the original human model. The clay figures come closer to an expression of an emotion or gesture.

I built units of two or three figures together on a single clay base that would fit, like a jigsaw, into the total formation. The size and number of figures in each section was affected by a sense of how well it would structurally stand, and the weight I could carry. Most figures were independent from each other, the whole was not molded in a continuously connected structure as in the models. The ceramic model could only be a suggestion; its figures are a few inches high, while the final figures are approximately more than 12" high. The impact of each figure within its group is more pronounced at the larger scale, since more detail and character could be added to the figures. The figure groupings can be read as scenes: a mother and child, several women arguing showfully, a father and daughter, two lovers, and pairs of dancers. The clay models gave me a feeling for figural groupings, but differentiation of the figures with an aura of consciousness is possible in the larger sculpture. Gestures clear enough to be interpreted and the potential for water play give the sculpture a human feeling; it is not merely a network of sculpted clay. The sculpture attains a sense of presence and focus not articulated in the models.

The total sculptural compostion emerged through working directly with the clay. Before beginning each day, I laid out the entire sculpture in order to work in the midst of it, and always be able to see and feel its spaces, its landscape of figures. As each new figure was formed, I positioned it in different places and attitudes, imagining the role it might adopt. When a new section was added into the puzzle-like base, I returned to rework its neighbors, tilting a head, strengthening an arm, echoing a curve. The figures were gradually tuned by adjusting one and then another until they sang harmonies together. The perimeter figures, as in the earliest sketches, sit or recline, while inward toward the center, the figures kneel, stoop, stand, and finally jump higher than their base level. The two central figures, Arethusa and Alpheus, are built into a hollow mountain that lifts them into view above the arms of the others. The figures' gestures project them into different directions and relate them to each other. Each figure was to play an integral part within the sculpture. I gave considerable effort to dreaming of and modifying the composition, the dance of all the figures together. It was a delicate and exciting process of looking carefully and changing the positions, either significantly or barely perceptibly.

The technical assembly of the figures strove both to maintain the sense of composition and to facilitate the passage of water through them at a later stage. Each figure

that was intended to spurt water was carved hollow from its opening spout to the base at bottom or foot. In several figures, intermediate holes were added near joints to facilitate threading a line through the passage. After subsequent working of the clay, and the shrinkage associated with firing, a few of the passageways became blocked so a tube could not be laced through. Before this project, I had not attempted independently standing figures, so standing, bending, and dancing figures provided a special challenge. To permit figures to stand on their legs, I often used clay props that were knocked or carved away when the figure was drier, or made the legs very thick. With a clay extruder at the Materials Science Ceramics Lab, I made 8 or 9 feet of clay tubes that provided a hollow support to build legs about. In a few figures, I tried stuffing the legs with paper to support them and letting the paper burn during the firings. The ashes did not always burn or fall out, leaving a blocked tube. Later the insides of the legs were hollowed and the outside carved to slimmer proportions. Each standing figure required several days to make because the clay collapsed frequently when too wet, from cracks in the legs or body, from attempts to reposition and form the figure, and from the clay's unpredictable will. When several of the units of figures on a single base were completed, I began to bisque fire them. Space limitations at the Student Art Association required that the sculpture be disassembled when other classes needed the room. This removal of the figures from their positions

coupled with shrinkage in drying and firing to make it impossible to fit the bases closely together. The final sculpture includes 41 figures joined on 24 bases. Five bisque firings to cone 08 in the M.I.T. Student Art Association kiln were necessary to finish the figures in the sculpture, in addition to firings for the clay models and tiles. Rarely, a figure suffered a minor explosion in the firing; in a few cases, refiring the figure with mortar filling was a temporary solution.

Two colors of clay were used in the sculpture; a white raku and a tan stoneware , both mixed with considerable proportions of grog. The color of clay for an individual figure was determined by the supply available at a given period, rather than by deliberate or aesthetic choice. The inner ring of figures, mostly of brown clay, were done at a later time than the perimeter, nearly all in white clay. The white clay is more plastic, however the two clays were similar in flexibility. I waited until most figures had been bisque-fired before preparing them for glaze firings. I decided to color the figures with oxide pigments, rather than with glaze. Ceramics instructers advised that glazes do not increase the strength or water impermeability of the clay. The decision was artistic, not technical. The figures will glisten when the water jumps and flows over them. I painted the figures with a brush using a sponge to soften the color. The pigments applied were: red and black iron oxides,

vanadium, yellow ochre, burnt umber, cobalt carbonate, and barnard clay. A thin transparent glaze coats the bases of the figures. The figures were then transported by a cart across the street to the Materials Science Ceramics Lab. I was fortunate to be able to use an electric kiln there with the permission of Pam Vandiver. With the completion of the glaze firings, the figure sculpture, with its weave of space and figures, reached its final form.

The introduction of water to the sculpture involved me again in a sculptural activity of forming and decisions. Eighteen of the forty-one figures were continuously hollow, from bottom to top, so a plastic tube, or water, could pass through them. Intermediate holes in the figures near the joints eased the process of threading, first a line or wire, and finally a tube, through the object. Four figures had a partial blockage in the tunnel, or were constructed so a tube could not be run through from end to end. For these, I plugged the intermediate holes with putty, affixed a tube into the bottom at the foot, and inserted small nozzles of tubing at the hand where the water spouted. A system of branching tubes strung underneath the sculpture, bears water from the pump to the individual figures. Screw clamps on the tubing regulate the water flow to an individual so the supply on one can be lessened, increasing the water the next will receive. The first tap on the pipeline goes to the Arethusa figure in the center. Several sizes of hosing nozzles were inserted in

the upper hand, but since the smallest (1/16") produced the most spectacular jet, it was selected. Pinprick holes in her head emitted water streams, producing a nice effect, but with the higher pressure of the narrow jet, the head water squirted across the room, compelling me to plug those holes. The mouth lets out a fine spray and the lower arm, partially blocked with clay, gurgles slightly. Water flow through the remaining figures was carefully orchestrated until the desired height and direction was produced. Efforts were made, especially with the high jets, to orient the water to fall toward the center, and reduce secondary splashing beyond the tiles. More powerful jets, of fanning sprays and high shot streams were achieved by shaping and crimping copper tubing into elaborate nozzles. With such a range of methods for spouting water, the stream from each figure could be made personal and expressive, an extension of the figure's character and motion.

The jet from the Arethusa figure shoots up more than three feet in the air and plummets at the top in a sparkle and rain, down to the figures below. The fine arcing mist from her mouth shifts delicately up and down, back and forth in her mouth, as if she is truly singing, and lands in a diagonal corner of the tiles. A wide stream of water from Alpheus, the river god, coming from beneath the hill he sits on seems to emerge from his hand, and gurgles up in large drops, bathing Arethusa, sometimes crossing her mouth spray, and falls to the hand of a dancing figure, Paris, below. This is the heaviest

run of water in the fountain. The two dancing couples, on either side of Arethusa, raise their hands and shaped copper nozzles send forth high fans of droplet sparkle, nearly as high as the Arethusa jet. They are oriented in opposite directions so they fall in arcs, to merge with and frame the central fountain. Moriah, a jumping figure in front of Arethusa, releases a fanned rain of spray that arches through the center, just over the heads of figures and pattering in a small pool about the swimmer.

Water sent by the rest of the figures is more personal and confined-- a mother raising her arm as if washing her child, water jetting from a man's mouth in even stream to his hand. These communications are more local in effect. One woman, jumping and raising both arms as if flying, lets free a bubbling vertical jet. Her neighbor, lifting her arms in joy at the water, thrusts a stream of water backwards from her hand. These two dancing women, heads thrust back, arms upheld and bodies covered with spray recall to me the manead's gesture in the Bacchae (77). Two men, one on each side of the sculpture, send streamers of water from their chests, or as a hose beneath their arms, into the midst of the conversation about them. A jet of water from the ground level intercepts one of these streams in a mid air splash collision. One woman holds a cupped hand dripping with water, to the man lying in pain at her feet. Another small woman gushes water from her breast into the swimmer's pool. These lower plays of water

are whimsical in a more private way than the main, high flung mountain jets that fall delicately over all.

The composition of the water in the sculpture extends the figure's gestures and feelings into the air with movement. Locally, each water jet is related to and dictated by the figure it springs from; the water flows with the variety of directions the figures assume. However, overall the water sprays begin to form patterns. Beyond all others, the highest jet surges from the Arethusa figure in the center, falling vertically in a shower. The other upright jets (not nearly as high) arch in complementary arrangements. Two arches approach each other diametrically and another high velocity jet bounds upward, striking and shattering an otherwise peaceful jet in midstream. The lesser runnings of water from mouth to hand or hand to hand introduce a scale to the waterplay. The water arrangement fluctuates between the smaller personal world of the figures, and a rise to grander heights as a surge of a founting being into light, that is on the scale of the room's human-dwelling environment. The fountain's waterplay attempts to evince a dialogue between the two worlds.

Throughout the hours and days I have worked with and watched this fountain, the moving water continued to fascinate me. The jewels of water exchanged by the figures were, for me, their communication, a way in which the sculpture proceeds out of human hands and experience into its own realm of

feeling and story. The fountain is a response of harmony between the figures and the water. By their association with the life-like pulse of water, the sculptures themselves seem to speak:

> [The Lamb] will lead them to living fountains of water. And God will wipe away all tears from their eyes. (Rev.7.17)

The myth of Arethusa afforded a context within which the sculptural and water effects were executed. Arethusa, the central figure, marvels as the high fountain jet surges from her hand; and by the delicately shifting spray of water that leaves her mouth, she sings of her thoughts. The underground river linked with Alpheus spouts in a wide arc from an opening in the hill out of which the lovers are formed. The arrangements of dancing and playing figures about these two are the reaction of the world as it perceives, transmits, and celebrates the myth. Because of my personal acquaintance with the same figures over a period of months, some figures have acquired names, endowing them with personalities external to the myth, making them individuals in the excitement of water. The varied colors of the figures became a statement of the diversity of the MIT community; many came by and inquired about the different races present in the fountain. No script or mythological origin prescribed to the surrounding figures; they evince their own myth as a moment swept from life and played with sparkle. For me, the figures dance in a quiet drama and the water they send into air projects starlike through light.

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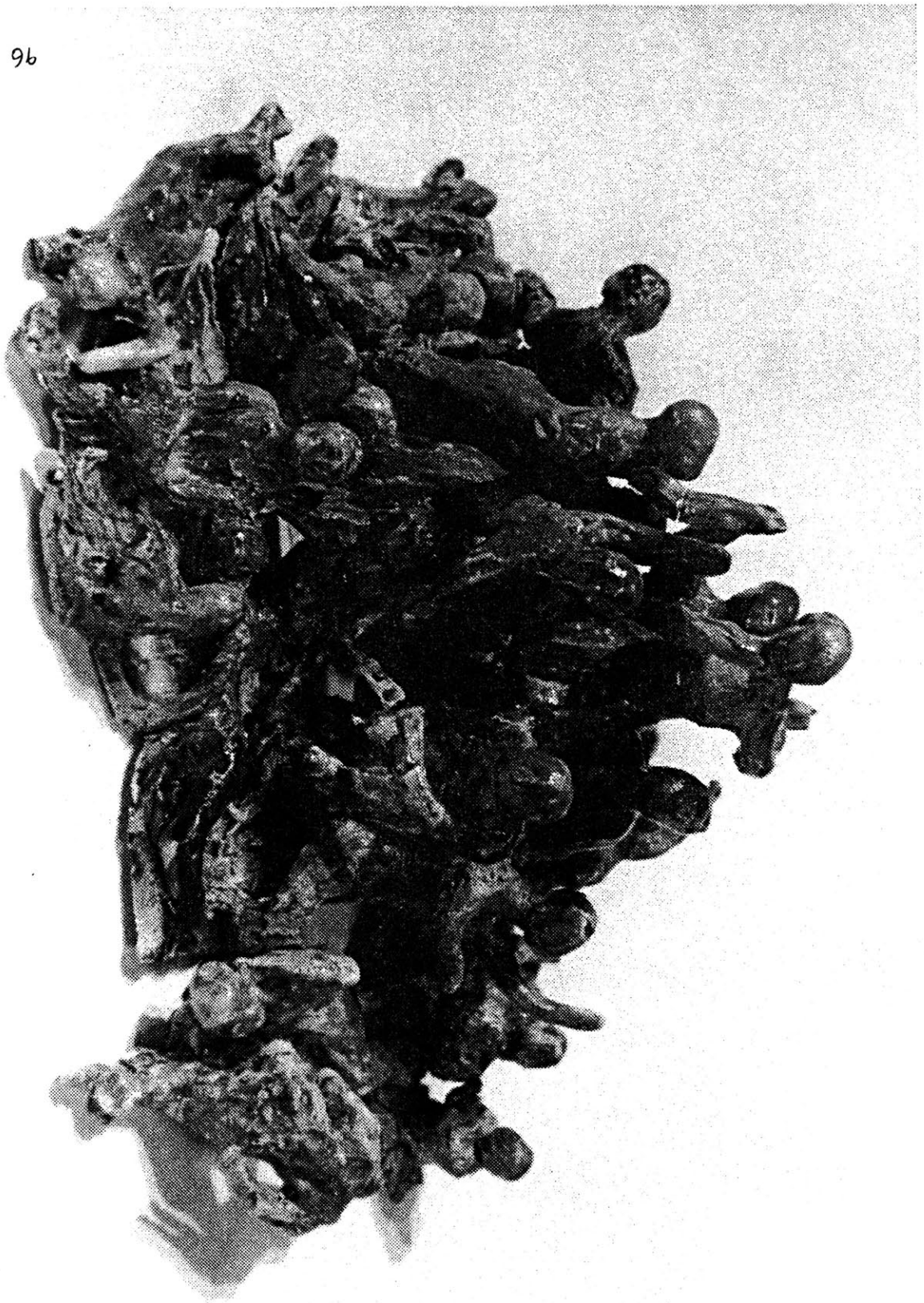

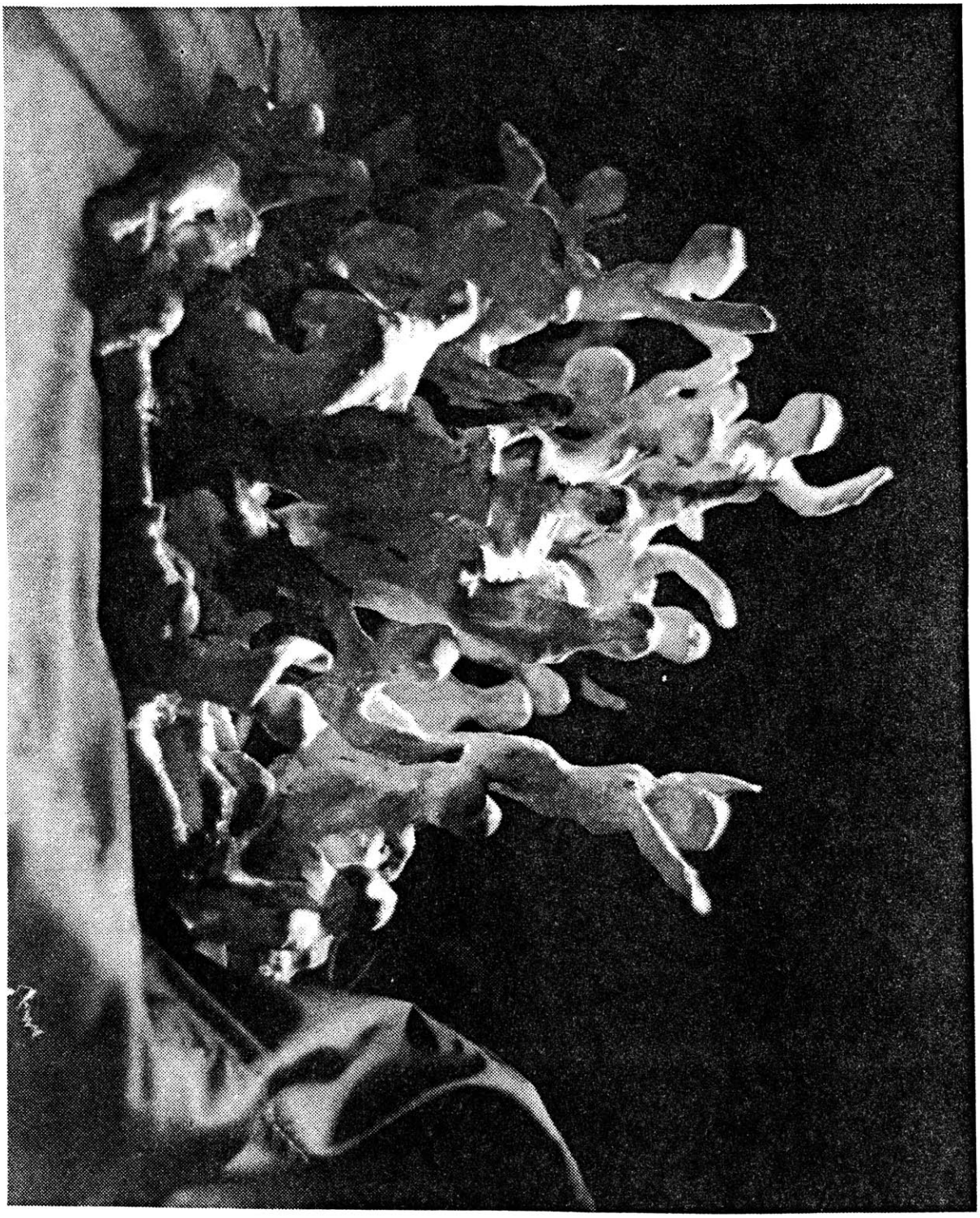

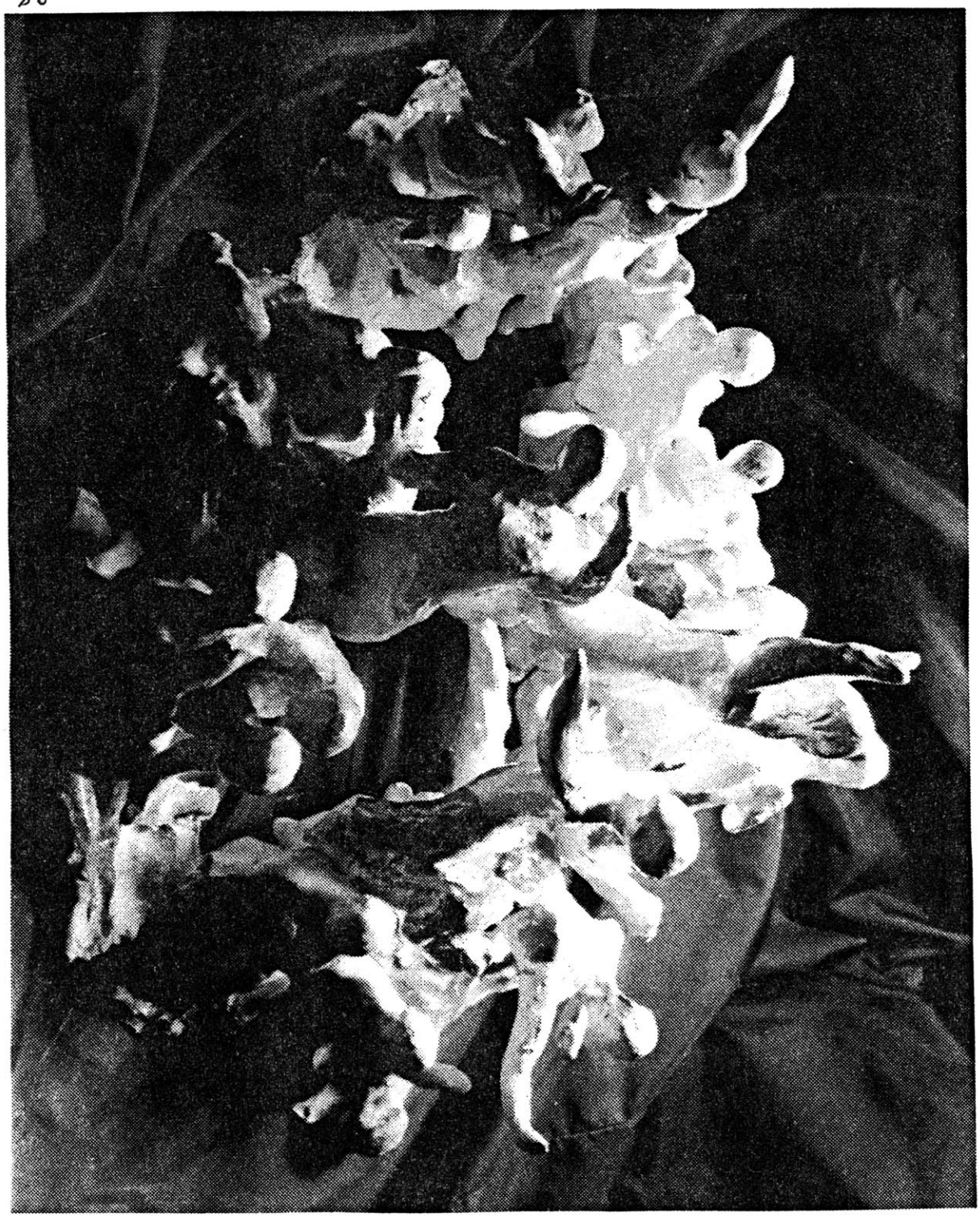

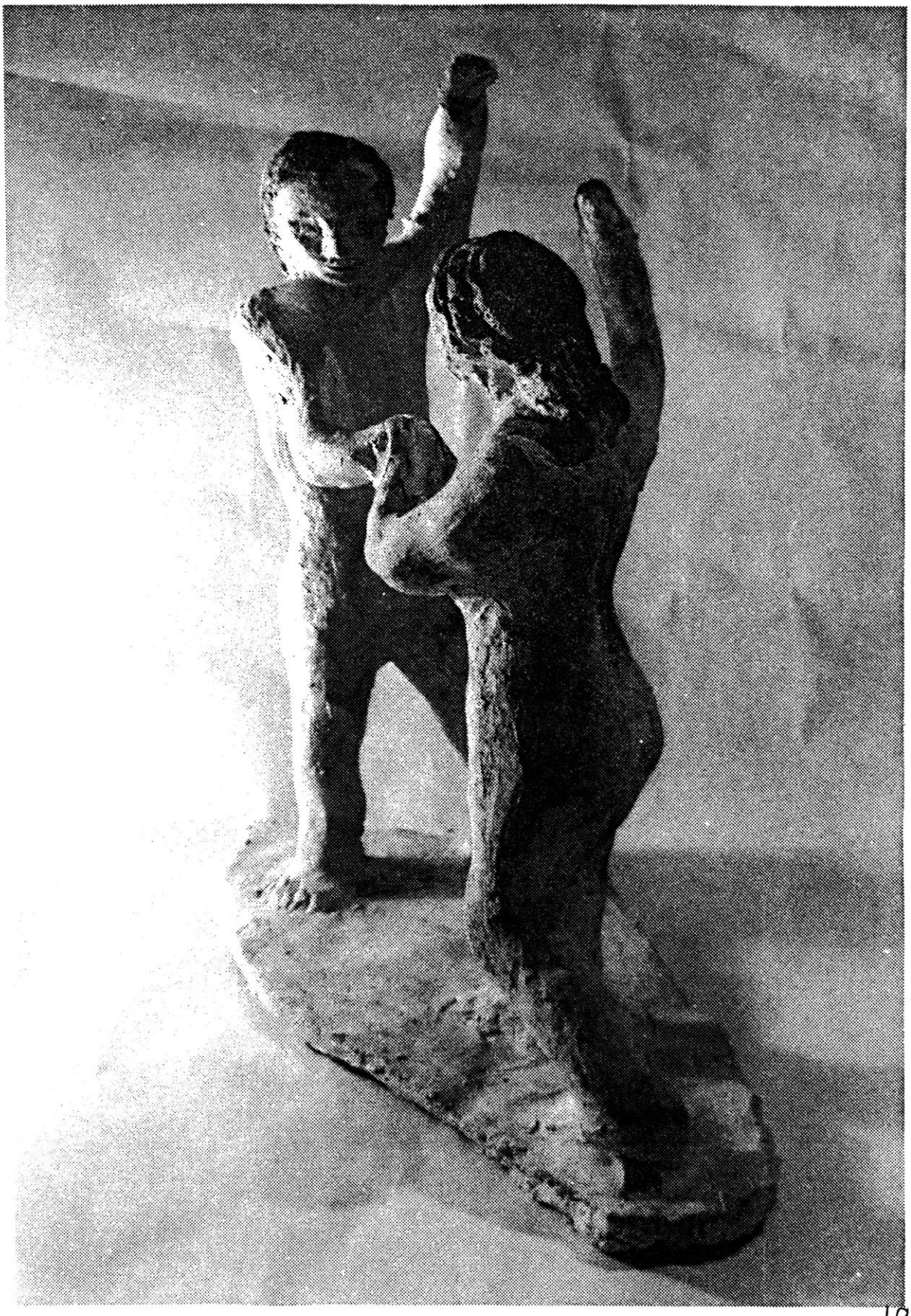

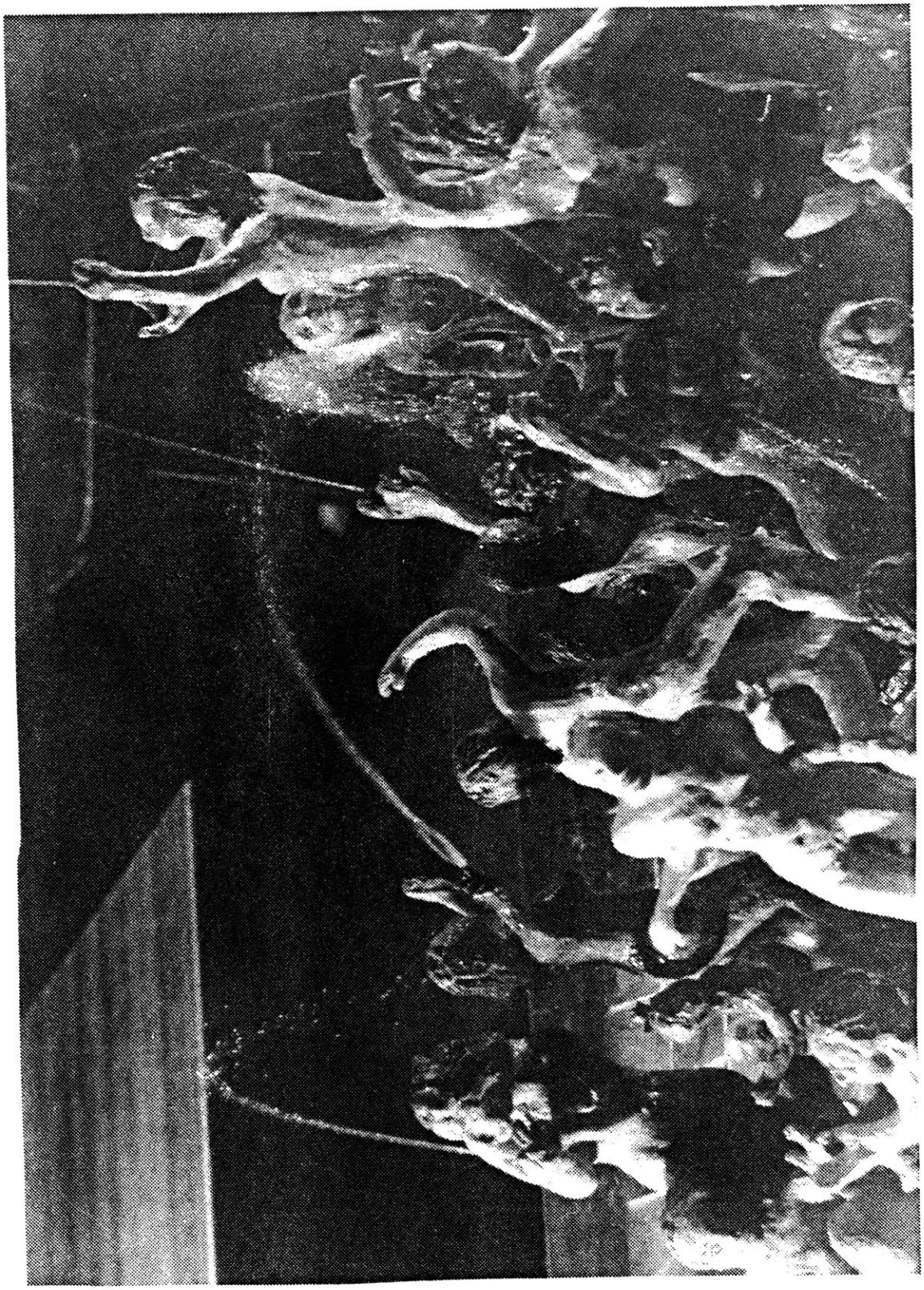

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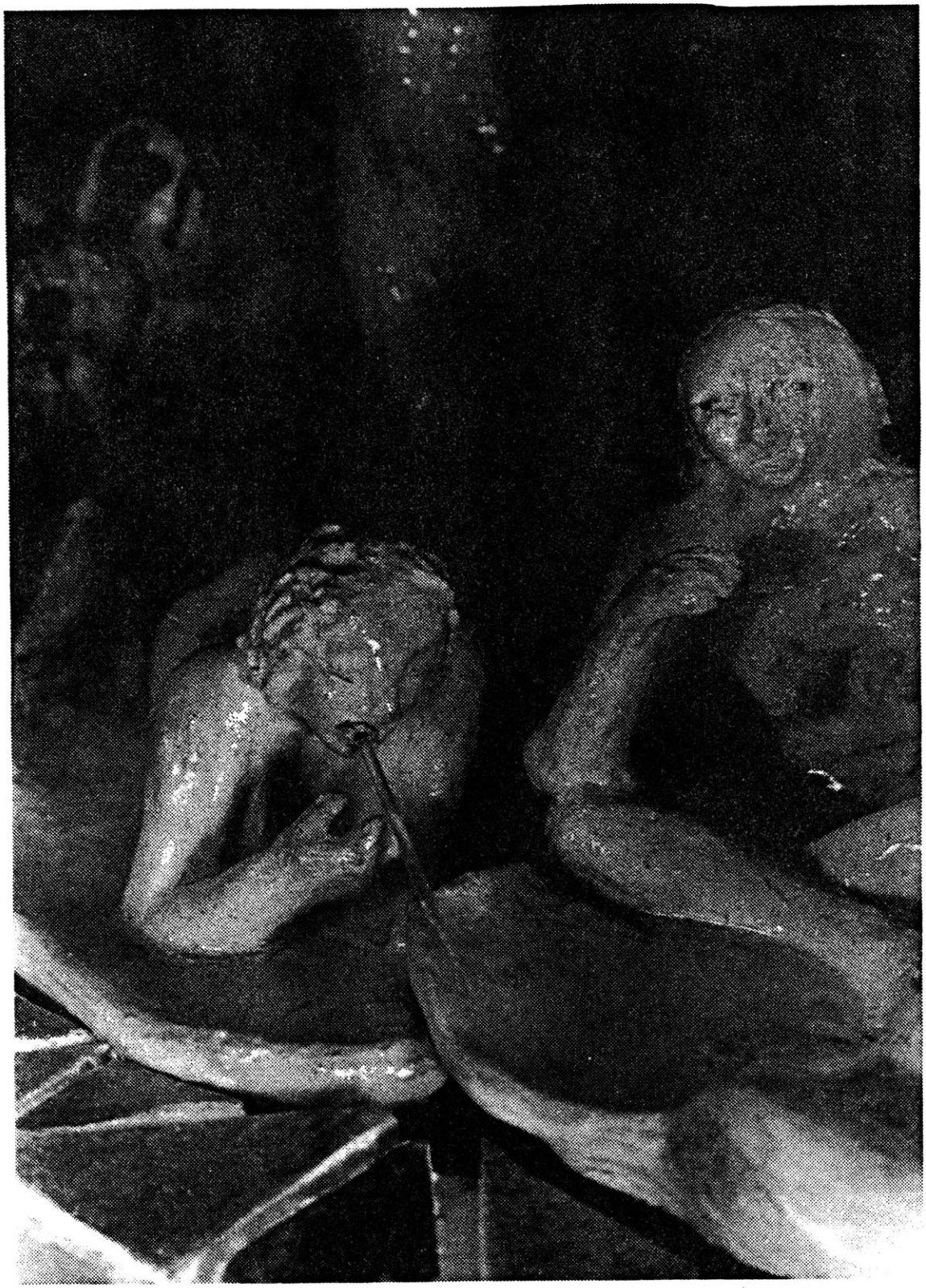
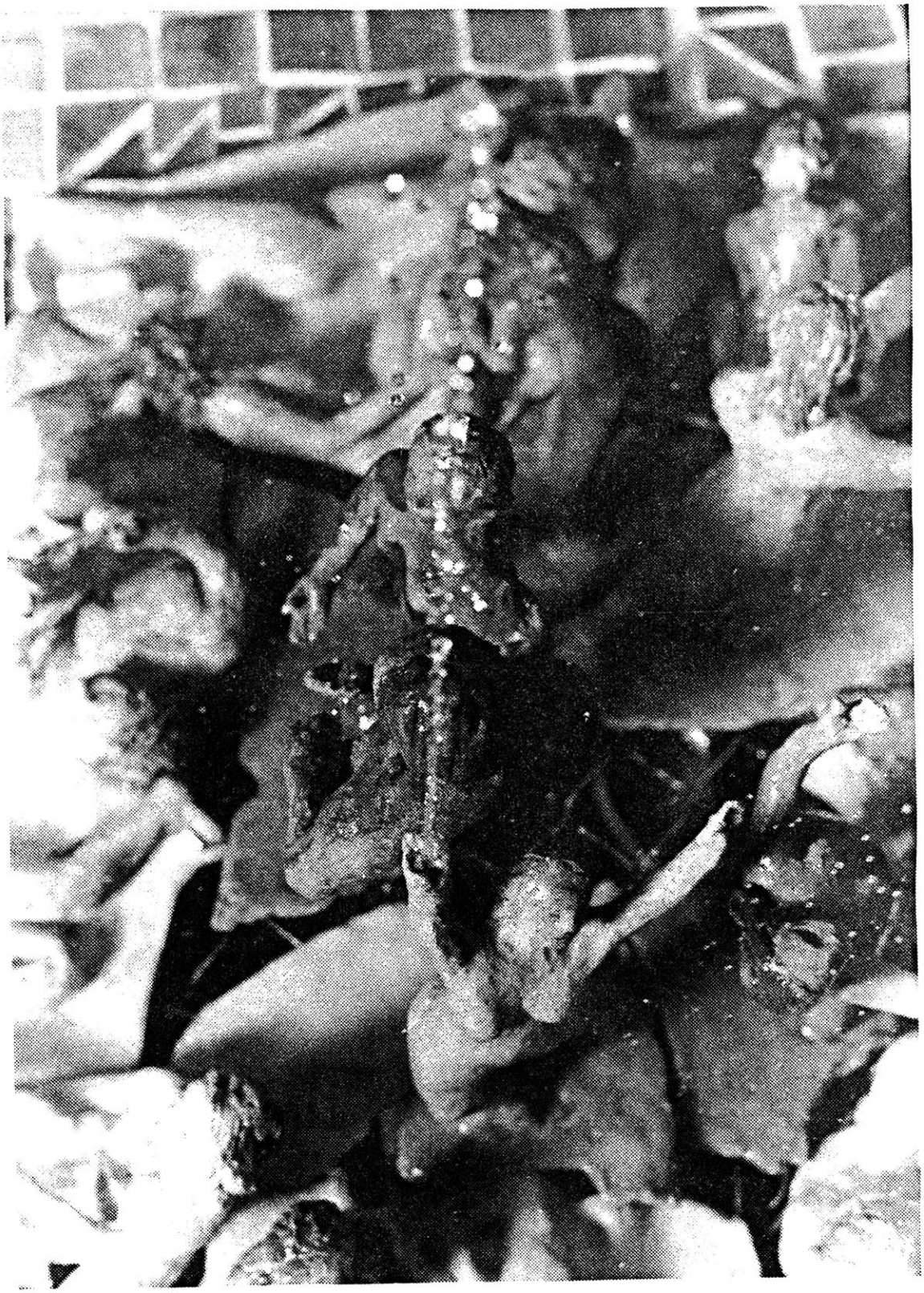
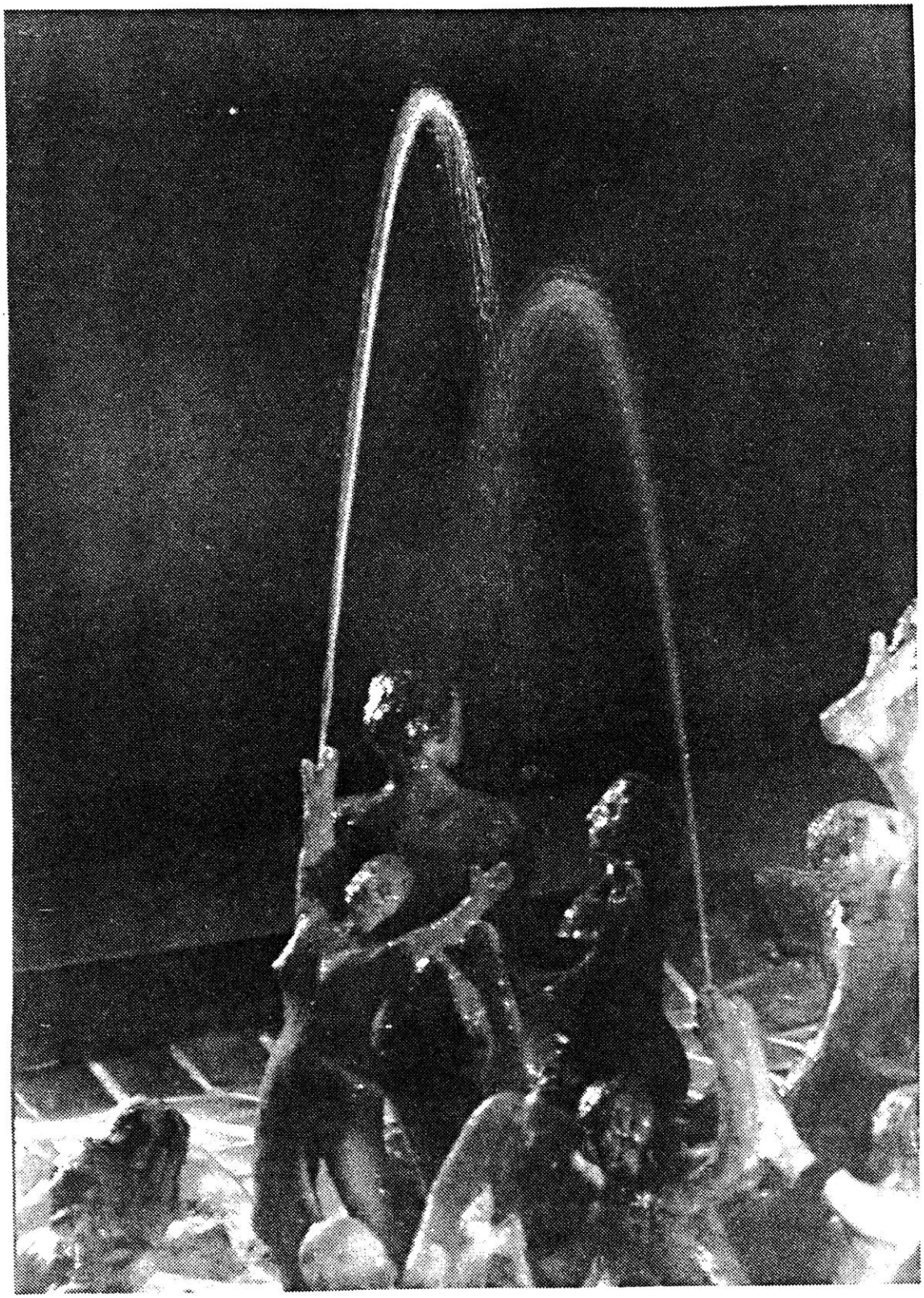
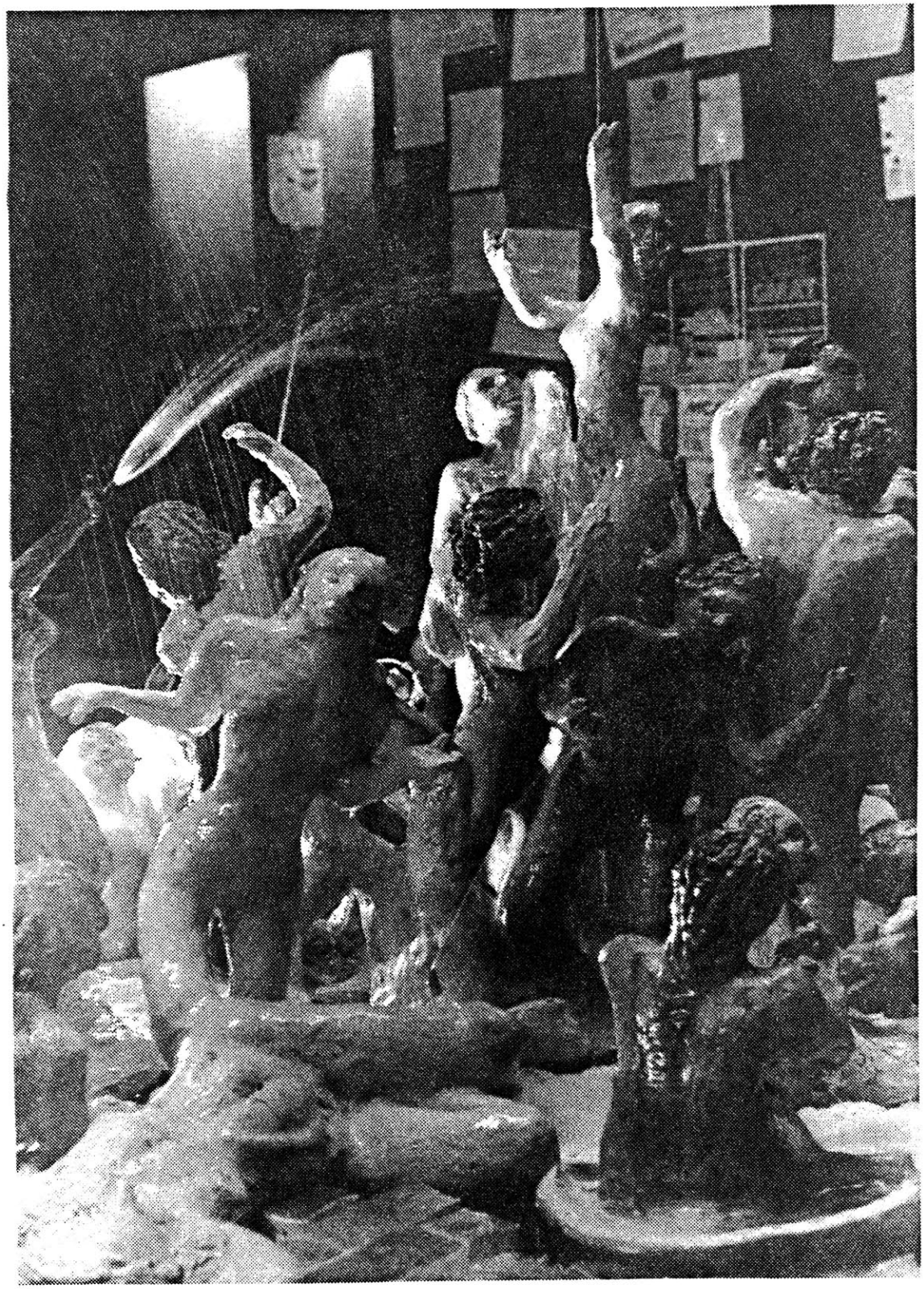
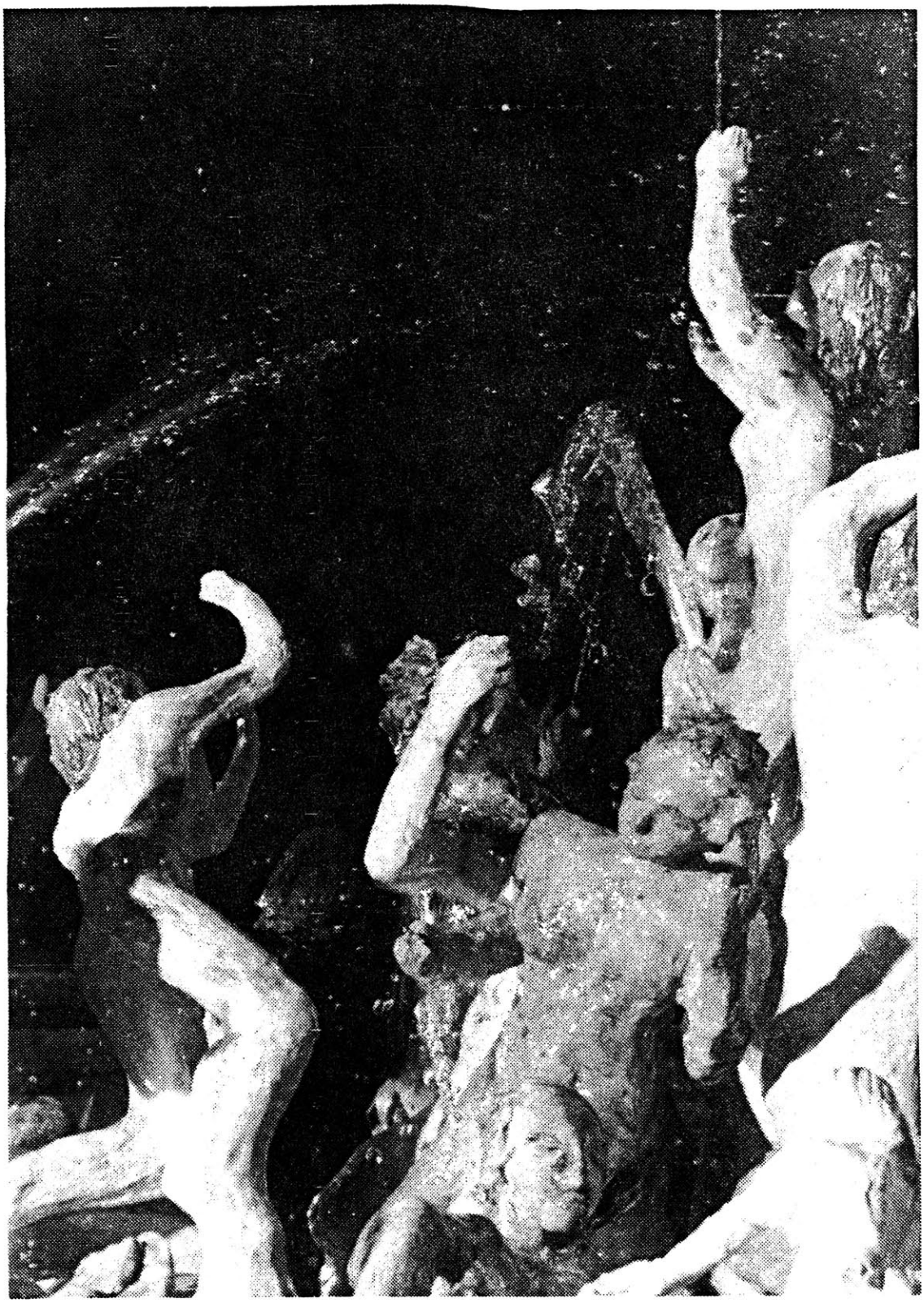
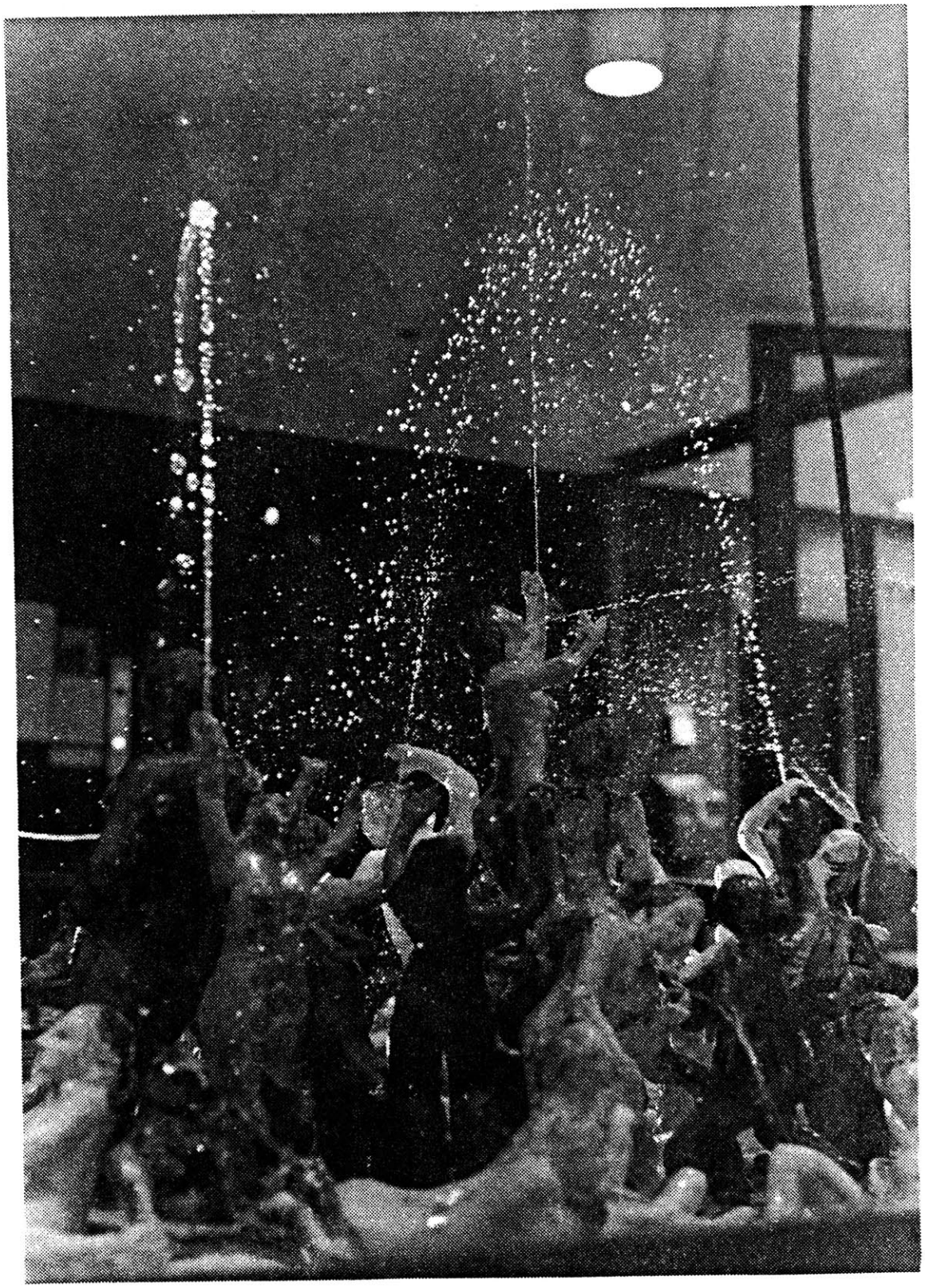


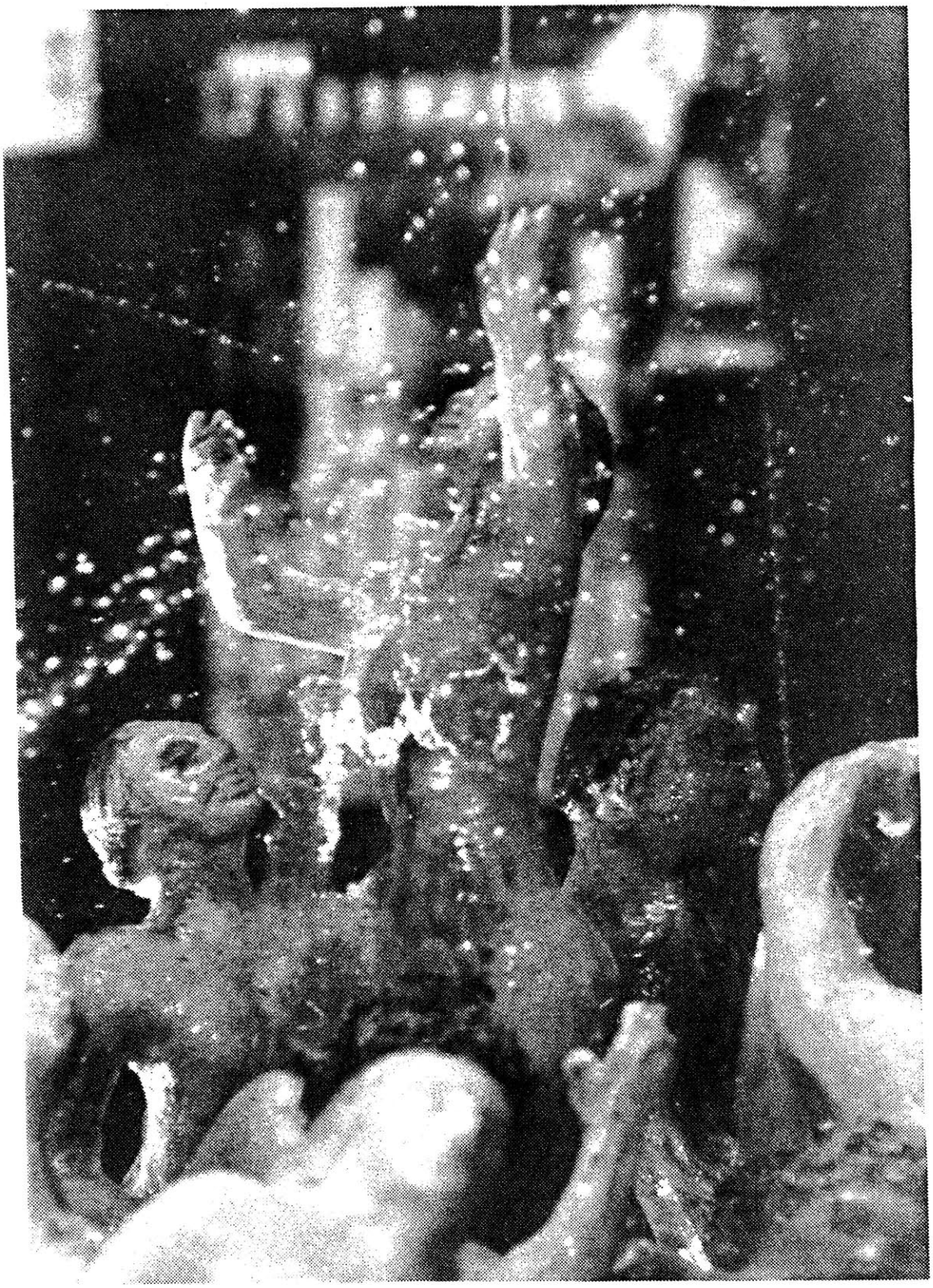












Structure and Environment

The design of the structural support, arranging a site location, and the installation of this fountain sculpture demanded an almost disproportionate share of time and energy. The structure was built to be sturdy and lasting, the work was carefully and often tediously done to result in a single functionally sound structure. The uncertainty of political manuevers delayed and interrupted the completion process, although the fountain itself, after many readjustments, ran smoothly. My husband, Alva Couch, was a constant and patient advisor in the design, construction, and installation of the fountain sculpture. The actual mechanism and frame for the fountain evolved through our discussions and labor together. The fountain was our continuing concern and activity that we sought to sustain day after day in spite of difficulties. Both of my brothers, Dick and Tom, were available on a moment's notice, to calm me and help in the countless crises. The preceding section grew from my work with clay and water, as materials of artistic and sculptural expression. This section reflects my interaction with other people, it is as dependent on their generousity, tireless energy, and interest as the sculpture is upon forming the image of people.

I had attempted to frame the sculpture with large flat slabs of clay, slightly bowed as basins to catch water. Shrinkage and cracking of the wide slabs in drying and firing

prevented the pieces from fitting about the roughly oval circumference of the sculpture. It was then suggested that square clay tiles, cemented together in a grid, would provide a more suitable ceramic basin to offset the drama of the figures and collect water spray. Russell Mills offered to instruct me in the procedure of making clay tiles by hand. The process was slow and exhausting: wedging grog into a white stoneware, cutting the clay into 2.5 by 2.5 inch bricks and slicing each tile from the brick with a wire separately at roughly 3/8 inch thicknesses. A wooden box with sawcuts in it guided the wire as it sliced through the clay. I made 452 clay tiles, a number of which I halved and quartered in varied ways so the pieces might fit around the sculpture. Once the tiles, laid on trays to dry, were leather hard, I stacked them in piles of approximatedly 12, with a brick on top to retard warpage. The edges and surface of the tiles are uneven and asymmetric, not perfect, smooth squares. Although making the tiles by hand was primitive and fatiquing, I preferred to attempt another way of working with clay, rather than adhere evenly cut commercial tiles to the sculpture base.

> The Pharaoh said to the people of Israel "You are idle, you are idle; therefore you say, "Let us go and sacrifice to the Lord." Go now, and work; for no straw shall be given you, yet you shall deliver the same number of bricks."
> (Ex.5.17-18)

It was decided that the clay tiles be glazed. Since I had only used the transparent glaze in the sculpture, I chose not to use other glazes on the tiles. For coloring, I tried

in a separate test firing the various pigments--iron oxide, burnt umber, yellow ochre, already used on the figures, with the transparent crackle glaze coating over the color. I selected the iron oxide, slightly modified with yellow ochre, as the tile color. The pigment was applied to the tiles with a sprayer, for consistency. The glaze was then painted thinly over the tiles. Glaze had to be sponged off each tile where it had dripped over the sides and on the bottom of the tiles, so the glaze would not run onto the kilnshelf. If the tiles were not glazed, they could be stacked one on another in towers in the glaze firing. This method cannot be used for glazed tiles, because the glaze would fuse one level to another. Instead they must be placed end to end flat, on successive kiln shelves in a more tedious and space consuming fashion-- for the figures, the same number of firings and stacking procedure applied whether or not they were glazed. I was fortunate to be able to include most of the tiles in one glaze firing in the large MIT Student Art Association kiln. The tiles came out a red brown, paler where the glaze was thicker, and seeming only surface glazed.

The problem of a structural base for the fountain sculpture was a continuing concern. An early dra wing proposed that the figure sculpture rest on a stiff wire mesh supported by cinderblocks. A pan would slide underneath, pooling the water and thin wooden panneling would conceal the apparatus from view. In another sketch, reinforced plywood

held the sculpture, with legs of steel pipe ending in phlanges. Later I recalled the images of a bed frame, bearing the weight of the sculpture with its wire mesh pulled taut as a plane for the figures, with holes within the mesh so plastic tubing could enter the figures from beneath. Water would drain between the figures, through the mesh, to a plastic basin. Again, a wooden siding would conceal the structure and fountain mechanism. I had read a description of a trick Roman fountain, where water, bubbling and shooting in the air, fell to the ground and mysteriously drained between paving stones to an underground pool. The effect in this ceramic fountain would not be as dramatic, but the notion of a concealed drainage and collecting pool seemed appealing. This seemed both a sturdy and straightforward solution for the requirements of a fountain support and drainage.

The bedframe I came upon was 6.5 feet by 3 feet, however the sculpture, with its side water-catching pieces, had expanded to about 6 feet by five feet. The strongest, most reliable suggestion for widening the frame to accomodate the entire sculpture, was to divide it in half and insert lengths of angle iron. The bedframe, relieved of its spring netting, was carried to the Physics Junior Lab, where Harry Lundquist, with a combination of hacksaw, bandsaw, and other cutting mechanisms, severed the frame and its two braces. Tony Zona in the Materials Science Metallurgy Lab welded the additional lengths of angle iron into the frame and braces. The inserted

pieces of angle iron were without holes for hooks to support the mesh, so we had to drill the extra holes.

In place of the springy wire mesh originally in the frame, I decided upon a chain length fence, pulled taut by turnbuckles. Tension bars, such as weave through and hold fences rigid would bind the ends. Turnbuckles would hook onto the tension bars and the holes in the bedframe at the two short ends. The long edges of the fence overlapped the frame. Even with the turnbuckles stretched all the way, the fence still sagged in the middle when the weight of the figures was added. Six additional lengths of angle iron were inserted into the structure to support the fence, by drilling holes in both iron and frame, and bolting the lengths into place. With these struts, the frame was significantly strenghtened and there was no noticeable sagging.

I bolted plywood sides with angle brackets around the metal frame so the tub and structure would not be visible. At the end where the pump was, the board was attached with loose pin hinges so the board could be removed for easy access and maintenance. The boards were colored with a dark woodstain, to be less conspicuous from the dark brown carpet and black walls of the library. The lower part of the frame, which housed the pump and water basin, was to blend with the dull, often barely lit surroundings, so that the water sculpture would stand out with movement and brightness.

The sculpture base was designed so the water would drain between the figures, through the chainlink fence, to a basin below. Equipment for sealing a bag of polyethylene, to contain the water pool, was not readily available, and I was unable to obtain a pre-formed basin of the dimensions required. Vin Grabill generously agreed to make the tub from plexiglass. The tank is reinforced in both directions with plexiglass bars, and with strips at the edges. The pool was broad enough to catch all the water from the sculpture area, and some of the water dripping from the tiles. A plastic sheeting drained water from the edge of the frame into the pool, covering the gap.

The pump selected to circulate water in the fountain is a 3E-12N Little Giant Pump. The motor runs silently, and provides sufficient water pressure to supply the fountain figures with jets. The pump is submersible, so it can rest in the bottom of the tub. The water level must be at least 5 inches high for it to function optimally. The last weekend of the Christmas holidays, an intruder entered my studio in the Architecture Department and made off with the pump, photographic paper, and a tripod. I was compelled to begin again with another pump. . There was no electric outlet for the pump at the Student Center site, so an MIT electrician ran an electric line from the ceiling to the corner of the fountain that housed the pump. A ground fault interrupter was installed to prevent the pump from functioning if there was a

danger of electric shock.

The tile flooring was laid out before the sculpture was installed. In a first attempt, I cut window screening to fill the area between the sculpture and the frame edges, and covered it with layers of plaster. The plaster, however, chipped off, and I was unable to make a surface smooth enough for the tiles to adhere. I abandoned the plaster basin and next discovered that tile grout, a white light-weight cement, brushed onto the wire screen, provided a surface texture the tiles would adhere to. We glued the tiles into place and used a putty knife to fill the grid between the tiles. The grout was tinted with yellow orange so the white would not be so harsh among the rich yellows and browns of the tiles. In this fashion, four sections of screen with tiles arrayed on them were prepared. When the fountain was finally installed, many of the tiles were regrouted, and small fragment pieces were fitted about the edge of the sculpture. The outer border of tiles was caulked directly into the wooden siding. The caulking was essential to prevent the sides from leaking onto the carpet. After many difficulties with leaks in the tiles and plastic during the first weeks, the fountain finally functioned with minimal leakage, although water loss from splashing and evaporation was substantial.

The tiles, laid into place with their varying warmths of browns, border the sculpture as if it is part of a broader

piazza, a sunny walkway and basin. The tiles set the sculpture with its organic, varying forms and edges, into a frame with a scale of human dimension. The handmade tiles, with their irregularities, expand the human touch into the basin area.

The task of locating an indoor environment at MIT to place the fountain sculpture was ardous. The project's completion date was in January, which eliminated any possibility of an outdoor site. Originally, I selected the spacious lobby on the upper two floors of building 39, with its panoramic view of sky and stars, sunsets and Cambridge rooftops, brilliant sunlight from walls of windows and little interfering foot traffic. Secretaries in the building, and Campus Patrol, however, warned against it, advising that vandalism in any open public place at MIT is a serious threat. One professor, revealing the MIT community's congeniality to the arts, suggested I build a sculpture that would self-destruct. These discouraging comments left me to find an enclosed protected space whose overseeing authorities would allow the fountain to remain for a time. The Student Center Library area is controlled both by the MIT libraries and the Dean for Student Affairs with the Student Center Manager. Numerous meetings were arranged with these people as well as the safety office. No definite response was given for a couple of months. Finally early in January, the Student Center librarian and Student Center office consented to place

the fountain in the lounge outside the elevators and the Student Center Library.

The M. I. T. Student Center Library is open 24 hours a day, everyday except Christmas and New Years, and is an enlarged study room with carrols, typewriter rooms, wide tables, and lounge chairs. The library's book collection is scanty; it is an all reserve library that is supposed to, although is often does not, contain textbooks for all classes. Rumor, probably with good reason, asserts that there are "gnurds" who literally live in the Student Center Librry, departing only for classes and food, inhabiting only this discipline of study and texts. The library is also a center for international students, since it receives newspapers in many foreign languages. The library accentuates the MIT environment of a relentless demand for study, of imposed isolation and suppression, to an extreme. A fountain of joyful figures might briefly break this unending cycle with its own cycle of life.

The lounge outside the Student Center Library is in some ways an admirable site for a fountain sculpture, aside from the sense of protection afforded it by the proximity of a 24 hour library. It seemed both convenient and appropriate that the fountain would be exhibited in the same building where I had done most of the work. During a few hours a day, the skylight directly above the fountain provided some warmth and

sunlight. Most of the day and evening, however, the spot is extremely dark, so we were compelled to provide lighting. The lounge is the area of the library where students are premitted to eat and talk freely; it was intended as a place for students to relax. The dim lighting and dingy walls, however, do not foster this purpose. A glass wall separates the lounge from the library, imparting some more light and activity to it. When students in the East Campus dormitories painted a hallway and one or two rooms black, the DSA office became upset by the "morbidity" of the students. They failed to notice, however, that the Student Center Library, presumably a haven for students and controlled by their office, is itself adorned with black and dark blue walls. With occasional dusky lighting from the skylight and the ever returning elevator boxes, this lounge seems more like another "Tomb of the Unknown Tool" than an area to add brightness and relaxation to the student's lives. The elevators, and the rush between one side and the other to catch the next drop, are the primary focus of the space.

The installation of the fountain in the Student Center Library was accomplished in stages. First the metal frame and chainlink fence was brought over from my building 7 studio, then the wooden siding was attached and the plexiglass tub slid beneath the frame. We inserted plastic sheeting into the joints in the bed frame and draped it into the tank. The figures were individually carried to the Student Center, and carefully arranged on the fence frame. The center of the sculpture was set directly below the middle skylight, so what little sunlight does emerge from the clouded glass would illuminate the water and figures. We then began laying out the netting of tubing, making minute-long test runs of the fountain, adjusting jets and water levels, and designing nozzles. Political bargaining with the Student Center administration delayed the installation for a week before we could bring the tiles over and grout them into place. The four preassembled sections of tiles were transported, grouted into place, and caulked at the edges. We filled the tank with nearly 80 gallons of water, from several trips with a 55 gallon steel drum and a more powerful pump loaned by Joe Balonis of MIT Student Art Association. We began running the fountain for hours or a day at a time to check for leaks and splashing. Once all the leaks were stopped and water spray beyond the outside edge was minimized, we ran the fountain continuously, so it would seem a true fountain, an upwelling spring of life to the students working at all hours in the library. Both the students and the water proceed in perpetual

flow through the library.

The fountain basin is roughly the same height as the two tables that border it. To the students sitting and eating or reading, the figures are about at eye level, with the water rising above. To a standing student, the figures are below eye level while the water still rises somewhat higher than a human head. When the fountain began to appear in stages at the Student Center Library, the students were very encouraging and delighted. Some students, however, were more concerned with the elevators and their studies to notice any intervening changes. Once the water began, first briefly and later more continuously, the students were more drawn to the fountain, to walk around it, sit or watch, and ask questions. All were interested and most were quite charmed by the sight of a fountain in the library. Several students commented that the fountain really helped to make the place more human, to convey a joy they did not always have. No damage or vandalism was even attempted during the installation. Afterwards, one night someone dumped a bottle of detergent or soap suds in it which required a day to clean up. In general, the students respected the work and were receptive to it. The scale of the figures, with their extended fountain jets responds to the size of the room, as the water seems to reach the ceiling. The figures are not imposing monuments, but the character of the fountain is intimate in the sense that MIT is not, and the students are pleased by that. The students are impressed with

the beauty and the story of the fountain, they would come back again and again to watch. There seemed to be a wide difference of opinion about how long the fountain would remain in the Student Center Library. As a result of political maneuvers, an early deadline of two weeks existence was set for the fountain, after it had been installed, although the original understanding was that it would last for the semester. Much later, this time limit was changed to coincide with the conclusion of the thesis project. The students frequenting the Student Center Library began to consider the fountain as their friend. After a partly erroneous article appeared in the student newspaper, the students began to champion the work. The student article, and a parady of it that reflects students' views on the subject, are included (p.153). Sixty or so people signed a student-initiated petition asking that the sculpture remain there longer, while others wrote letters. All the students I spoke to expressed their interest in the fountain, and their sense that, as opposed to the officially sanctioned art on the MIT campus, they found this delightful and appealing to them as young people (although some of them think the figures are holders for coke bottle caps). Once the fountain arrived, the number of people who used that space to eat, study, or converse, perceptibly increased. It was their local "mountain stream", that they became attached to and were reluctant to let go.

The fountain sculpture was designed in pieces so it could

be assembled more easily. The structure can be moved to a new location, although it was not designed with that intention, and other choices would have been made, had I known of this requirement. On one occasion I played with grouping plants about the figures; an outdoor warm weather environment would bring the sculpture into conversation with the wind and rain. I can imagine making other fountains, small ones with just a figure or two, or larger ones mingling their spray among the trees. The work has inspired me to see things freshly, to begin other sculptures that might lift life and water through them. With the fountain completed, I am delighted in it and drawn to it, as if it is something new, that I have never yet seen or understood. It stands with its own life and suggests more.

Poems

The imagination of poets and sculptors contributes in richly fulfilling and augmenting ways to the celebration of water as a fountain. The original poetic inclusion in this thesis accompanies the fountain sculpture with a murmur of voice, not as a description or explanation. A spirit fresh in renewing excitement runs through both.

Oh Lord, let free the hillfields
Whispered in scent of wind spread
Tostled by ferneyes and spicenuts
Sunlights kiss upon phlox
Oh make in me glorious the speech
So earnest to fragrant wands
Grown of russet grass and pearpetal walls
This clay quickened with breath
Its arms sway in spelled moments
Of netting that long careens
Slender its supple dives through stars
And shelters the land by splendor
Sweet in the tendril of youth

How of the golden haired one
High song sent from a poplar tip
All with crispness of gait the meadows start
What thrills to craft words of it
Howcarve of life this ever radiance
Touch the fairy's charm
Trick the fragile pulse
Might the sacred promise beneath skies
Beauty, be uttered.

Barren are monuments huddled forlorn
Pillars worked sore by others
Hang yet dreary
Thread forth from me the brightness
Rare fire of communion come
Suprise in these eyes the flutter
Of mind try with sheer flight
Until the rush burns through us
Upwelling clear and pure
This filiment rare sculpting a vibrance
Swift whirls a fountain
Its tumult a gleam carried within
Yearned out of melody's triumph
Secret in motion of bloom.

The Spring

Orifice orbed of stone teeth
choking in a bit knotted green--
lush enough with harness moss--
the mouth spouting in message
spits up to earth its baptismal

bathes awash the sweaty crust
to lunge away in innocence

bucking loam by spirited will
pawing the ceiling soil to glory
pure as all that is ever unseen;
nothing could gush so eternal
but a grief-drawn soul
unsaddled from kiltering uncertainty
the gift of founting water

Brook

fiery with morning rites:
the dripping accent of pines,
steep corkscrews to sunpools
by sapling youths in capering hillost,
and jubilance jumps too,
uncanny in ecstasied foam.

aroam across an ambiance of arms,
ridges amorous with sleek flittering limbs--
the touch of a hope murmur or more--
between now and over hemlock rocks,
flare with wide white flounces
pleat in lace tucked flumes
gleam of sudden buttons,
a linen fluffed maid,
waist caught by butterfly bows
hair sucked into silken langour
and lovely

she gnaws, solemn and glad, at the world
till all shall be smooth as soapstone and moonstone
unbosoms a quartz-cleft basin
for her midnight bathings
that scamper toward slippery love
breast bare and knees clasped by eddies

she sculpts an odd space of spheres
around risings of form from torsos of breeze
so planets might plunge in this ample air
its pitted marble soothed by voicestrains
nothing is but within clifted leaps and hipcurves
such statues eternal from fickle dance

an artisan by though
carving being by will

she wanders sloping shoulders
collecting raindrops on eyelashes
for a single bliss into sky
endlessly

Oh might the suns speak souls
Beckoned out from within us
Glory in life, wisdom in wishing laughs
Playful and charactered, cultured while young
Ripe and fleet thoughts prance inside us

A boy climbs a tree
With a net on his knee
On hunts for oak thread
Or shoots needles instead

The girl longs for a white
And black maned pony
She spins cartwheels in glee
And tosses her braids with spite

Three wigless manicured sly worded dames
Speculate, counterstate, imprecate--
Whose is the sharpest tooth?
Bevies of lazied queens in gossip
Each with a tongue tattling different
Scatters ranks of half befuddled lies.
One, at the punch, pretending to privilege
Pours into our laps for all to agree
Her calico scraps of mistaken truths
This man steps to defend another;

The silent man sighs for a chance
Not to talk

Has the sleeper pain,
What torments his brain
To reach out of sleep
For a bending shower
Of mothering care
Breathe, then stroke; sidekick, wide breathe
Glides the swimmer in ease
Lookers and listeners twitter to watch
Those who run and leap, banter and speak

Ah how our hands meet, flushed in affection

Mother and clapping infant
Father with shywalking daughter
Flutter in delighted tenderness
Smile with a favorite hope

How beauty falls by a moment
Hoping and open and wild
Stars in the searching of stars
Gleams from a majesty of charms

Quick steps the cloud upon a sheer
Radiance of wicker moons,
Bright among brightening falls,
The wristed arm of a woman

Fishing for shells and jewel stones
She reaches past the shining
And sparkle spray of minnows
To greet, hand in hand, the nimble sky

O let not the wide winds current
Sweep me away with lost leaves
And feather flung dust, but bring
Me to where, free, I still might sing

From the god, with the god, to the god
A jump in flight renews the stars
As a necklace island shore
There the woman hides in a mist

Not sheltered from love, all and ever
Springs the double fountain
Delicate in prism sheens
Most gentle of endless caress

Days on days forget and remember
But the fountain blooms constant
Arms holding high the wonder
Eyes catching light of eyes in gaze

Night had tradition of speaking, sewn
Ever over winds; earth of a stillness
Bare and yet ripe with sighs, while a tress
Streaked above into rippled stars of bone

O Sea, the touch of thee sent lovely the air
With myth, evening turned silver by shimmer
And crimson in paler wavers--thy whisper
Lilting as delicate through fabled hair

Bel è il mare, bella la terra
High fled the way among free spun souls
First voiced with caress over shell strung shoals
Ah come dolce è nostra pace

To the land sea is ancient the singer
Light grows between both rich bloomed as mirror

Conclusion

> I stirred up one from the north, and he has come,
> from the rising of the sun, and he shall call
> on my name;
> he shall trample on rulers as on mortar,
> as the potter treads clay.
> (Is. 41.25)

This thesis adopts the organic feeling of an English landscape garden with its love of variety, profusion and colors, sometimes exotic plants; with the sense of a unity that interconnects all things, in nature and in art. It does not submit to the formal structure of a Versailles, with broad walkways, geometric patterns, and an ever present sense of the dominance of man, of his organization of natural and artistic effects. The words and images collected from history are ones which seem pertinent to me by their beauty, by something in them which sparks animation. My working with sculpture follows a similar sinuous path, as I see in an organic mannar, the many colors of blossoms and delight in them. As if from a multitude of colors and textures of threads, originally tangled and overlooked, the tapestry of the garden is worked, so the sculpture is woven from disparate and seemingly inconsistent sources.

The principle concern of this thesis is with the creation of a visual work, a fountain. In my selection of the visual arts rather than verbal, as a primary expression, I search for a forceful impact of the artistic image, striking in its presence, able to conjure other memories and histories,

rich in its interplay with both the artist and viewer. The fountain, surging from figure sculptures, possesses that dynamic being, spraying into space with a splashing sound, catching the brightness of light in air among the composition of figures whimsical in gesture. The verbal art seems to me derived from this excitement of vision and making visible experience, the fountain makes poetry possible again, newly, with a vibrant source. The artist is concerned with several modes of expression; it is only accident, or a slight preference, that elects one more than another. It would be dishonest not to say that the sensitivity the fountain evokes from me is principally poetic and that the formalism of prose is inappropriate to my actual reflections.

The fountain of Arethusa, running with the white spray of water, arrayed in a mist of light, inspires me in its completed form. The cascading splash of water over the figures and raining into the pool murmurs as the speech of the people, exclamation dotted between more silent pauses. The water sound repeats and continues as if it is almost breath, an undertone of singing. The changingness, the movement and flight of water in air seems an extension of the figures' gesture, a realization of their vibrance. One student described the water sound as "like a creek in the woods"; it give a soothing peace to the space and seems to beckon from another land. The water talk adds another subtle and intriguing communication to the work, in an unpretentious way, it enters

the viewer's sensitivity. The sound of water splashing is effective because it is not artificially contrived, but intrinsic to the fountain as fountain.

The water spray over the figures cloaks them in gleaming garments with gemmed highlights. The air about them is alive with spurts of ever rising sparkle. The water seems to pulse through, from, and about the figures, as if they are living fountains. The sculptures do not seem as rigid and fragile with their water bath for the play of light and water leads them into movement. The figures engage in a delicate dance with lithe movement of gesture and water cascades. The sculptural figures participate with each other and do not seem isolated objects. The myth is a choreography for the figures, an impulse for their dance and a secret almost uttered. Poetry springs from their motions. The water sprays and chants of loveliness.

This fountain sculpture, with its human figures formed from clay, stained with natural pigments, surrounded by a mosaic lattice of tiles, and bright with water, employs for its basic effect, two timeless and unaging materials--earth and water. It does not follow a contemporary style of abstraction, it does not openly display either in the sculptural technique or medium, the gadgetry of modern technology. Fountains are old, they are insewn into our human history as the introductory history suggested. The image conveyed is of humanity, with features as changing and changeless as we are. This thesis, then may seem not to

address the artistic concerns of this century. It is however, a statement made in an awareness, not in ignorance, of the possibilities of contemporary technology and imagemaking for art. It asserts, with confidence rather than from uncertainty and suspicion, that these ancient substances, clay and water, have magic residing within them, and are always powerful material for sculpture. The human figure, the focus for this sculpture, is explored as the most beautiful and difficult image and subject in this age which frequently forgets the very premise of life, of the sublime beauty and value of humanity. The fountain is a celebration of this realization of the goodness of sculpture, of human activity, of the essential materials, earth and water. Arethusa is brought to life in the modern world, a ripe resurrection of clay and water in human form.

The fountain for me, lives in a world independently with singing and brightness, speaking a personality. I can leave it and return to it again; it is as Heraclitus perceived the sun, new every day. Each gesture of the figures and flare of the dropleted water announces freshly a kingdom of clay, water, and air, inhabited by dancing friends. To see the fountain is to see art live on it own; it does not shine from the artist, but from an internal strength as James Joyce described: "The artist, like the God of the creation, remains within or behind or beyond or above his handiwork, invisible, refined out of existence, indifferent, paring his

fingernails."(78) One of my closest friends, Alanna, and I have always imagined the artist Joyce pictures as sitting among the rafters, in the very highest and dustiest of balconies, looking down on a miniscule spotlight below, where the play is being performed. The fountain figures are finally the actors of their own drama, after all the sculpting, composition, construction, and adjustments, they play the flutes.

The scale of this fountain matches the space in the Student Center Library with an intimate humor, as described in an earlier section. For other spaces I can imagine the scale of the figures and project changing. Indoor fountains on a scale larger than this would require a more generous area, with abundant sunlight and skylights in order to remain friendly and congenial, rather than dominating. I have thought about small household fountains composed of one or two figures, operated by a battery-operated pump, or "classical wall" fountains with water spewing out of a mouth or figure on the wall to a cup below. Only in an outdoor environment could the scale substantially change, and the figures be closer to life size. In a park or garden, the human sculptures would truly rise from the pool and earth. Wind, rain, and shifting sunlight would seem to participate with the sculpture almost as with another element in nature. If the pool were large enough, real children could play in the water among the fountain figures. We obtain our first sense of scale from the human body itself, so the play of scale with figure sculptures in different environments could become an engaging and personal pursuit.

From my grandfather, I have learned the delicate love of planting and growing gardens, of flowers, trees, and vegetables combined in an ever blooming landscape. I can contemplate including fountain sculptures among the plants raised in a garden; figures among waterlily pools, with hanging vines, sleepy dragonflies, and springtime petals. The garden and the fountain sculpture would be crafted to grow together over time into a total e er changing environment. This would require a different attitude to the nature of the sculpture and process from this case, where the external environment was fixed, and could not be interferred with. Alva and I have also thought of fountains of seawater at the shore, powered by the tide; rising and falling with it in a fluctuating cycle. Fountains run by the tides, wind, water or the sun would result in a return to closeness between our fountain creations and the nature they celebrate, a metaphor again for the deity spring that forces itself through the earth into the glowing air.

This thesis fountain is a suggestion for how I might grow with sculpture and artistic ideas, less than a model for what I might do. The nature of the sculpture would change with each new setting and with the enhancement of my experience in both technique and imagination. The fountain presents a promise that I would learn from and grow further, expanding in possibilities and dream. I intend to continue this exploration, this encompassing education of myself in expression, and create new senses of freedom. All the people who have shared with me now or at other moments of my education, or have seen

this fountain, become part of it, and their friendship is honored. This thesis at M. I. T. is part of a search for speech, to make visible brilliances and find strange wonders. It is a human endeavor and hope.

> I the Lord will answer them, . . .
> I will open rivers on the bare heights,
> and fountains in the midst of the valleys;
> I will make the wilderness a pool of water,
> and the dry land springs of water.
>
> (Is. 41.18)

Sculpture must be moved

By Laura Farhie

The water sculpture installed this month in the lobby of the Student Center Library will be removed this Tuesday because the artist, Elizabeth Cavicchi G, has refused to sign a "memo of understanding" written by Associate Dean for Student Affairs Robert Holden.

The memo, which Cavicchi calls "Dean Holden's concoction," makes the artist responsible for any damage the fountain does to the building, as with a water leak. Cavicchi says the form also states that the water sculpture can be removed at any time for any reason and that MIT is not responsible for any vandalism done to the fountain.

Although the sculpture was supposed to have stood in the Student Center until May 1, Cavicchi said that when Holden found out she was unwilling to sign the form, he asked that she remove the sculpture as soon as possible. "Everyone was happy I'd do a fountain," she noted. "Now nobody wants it."

In the meeting to decide how long the sculpture could remain in the Student Center, it was agreed that Cavicchi had two weeks to remove the sculpture, the deadline being this Tuesday. Neither Holden nor Cavicchi was present at the meeting.

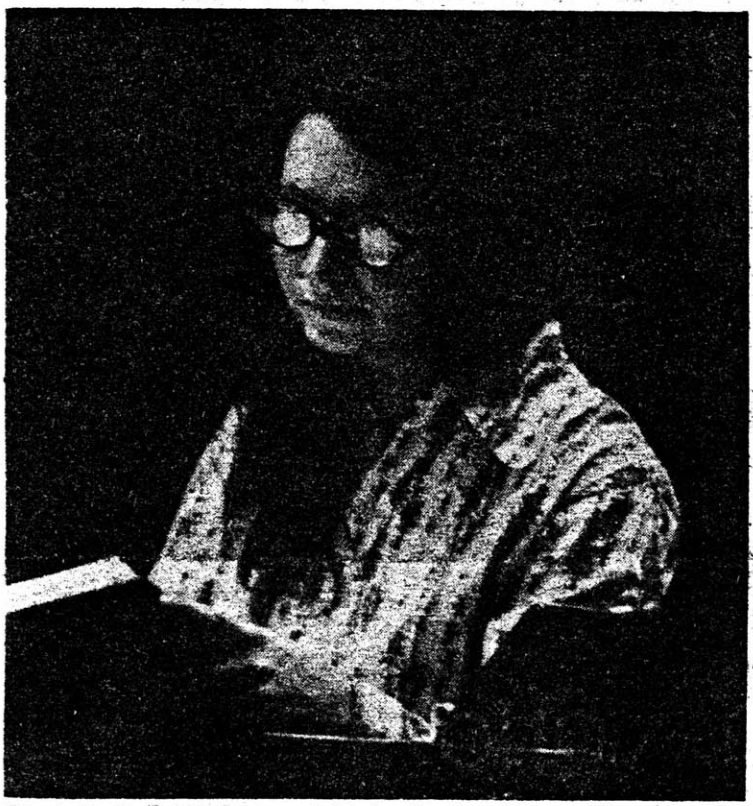
Holden recalled: "Elizabeth came to me in October asking if her proposed thesis sculpture might be displayed in the Student Center. I explained to her that this would be a joint decision depending on what it was and where it would be sited; and that I could not predict the result, nor the community response. This was the first request of an individual for this purpose that I can recall."

Cavicchi, with the advice of her thesis advisor, Professor Otto Piene, refused to sign the memo because the Department of Visual Arts did not have enough money to pay for insurance for the fountain.

Cavicchi is "unhappy" about having to to take down the fountain, which is part of her environmental art thesis, because the large amount of time it is taking to disassemble the structure is interfering with her work on the rest of the thesis. She complained, "I'm losing time and still paying tuition." However, Dean Holden stated, "There have been no complaints to me by her."

The artist of the fountain is also worried about finding a permanent home for it. She says Piene thinks the sculpture can be assembled in the Center for Visual Studies for one or two months, which Cavicchi feels is just enough time to complete her thesis. However, after that time period, the sculpture must again be disassembled and Cavicchi must look for a permanent home.

"There should be a place for visual arts; the burden of them shouldn't be on the student," said Cavicchi.



Elizabeth Cavicchi G at work in the Student Center. (Photo by Eric Shrader.)

The Tech Feb 29 1980

Lost horizons→ → → → → → → → → → →

By Francis Ford Crappola

"Transparent Horizons," the sheet metal sculpture installed several years ago between the East Campus parallels, will have to be removed within two weeks according to Vice-President Constantine Simonides.

The artist, Louise Nevillson, has refused to sign a "memo of liability" covering the damage to East Campus and the psyches of the students living there.

The memo, which Nevillson called "ridiculous," makes the Chemical Engineering department and her liable for all damages caused by the sculpture.

"It's really grotesque, I know. I made it that way to show M.I.T. what is happening to its students. Some poor innocent pieces of metal, bent and warped under intense heat and pressure, symbolize the poor M.I.T. tool. It is especially appropriate for a dormitory like East Campus," explained Ms. Nevillson.

Norm Magnusson, East Campus house manager, applauded the memo. "Now we can get even with them for the Green Building!" he exclaimed.

East Campus residents had mixed responses ranging from unprintable to disappointed. "What will we do on weekends without Transparent Horizons' to hack?" asked one student.

Nevillson responded to this attitude by saying, "Students should interact with their environment. Who knows, they might improve it!"

Plans for "Transparent Horizons" are still unclear. Bexley still is on record as wanting it, citing the need for it during R/O week. Alternatively, it may be converted into a thermite powered torch for the Olympics to be held in Boston.

Artist Louise Nevillson, whose sculpture "Transparent Horizons," subtitled "A Self-portrait in Iron," must be moved within 2 weeks

The Focus! Mar 13, 1980

Footnotes

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2
Ibid., p. 189-202

3
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4
Terrot Glover, Springs of Hellas, (Cambridge, England: Cambridge University Press, 1945), p. 5.

5
Strabo, 10.1.13. quote translated as: "Thessalian horse, Lacedemonian women, and men who drink the water of sacred Arethusa."

6
Homer, Odyssey, bk 13, ln.407-10. trans., Robert Fitzgerald, (Garden City, N. Y.: Doubleday & Co., 1963):

"He will be found near Raven's Rock and the well
of Arethousa, where the swine are pastured,
rooting for acorns to their hearts' content,
drinking the dark still water."

7
Lyra Graeca, trans., J. M. Edmonds, (Cambridge, Ma.: Harvard University Press, 1952).

"Here Artemis, O maidens,
fleeing from Alpheus."

8
Pindar, 'Nemea 1', lns. 1-7, trans. from Pindar's Odes, trans., Roy Swanson, (New York, N. Y.: Bobbs Merril Co. Inc., 1974):

"Solemn sanctuary of Alpheus
offshoot of famous Syracuse; Ortygia
bed of Artemis and
sister of Delos, from you a honeyed
hymn proceeds to place
great praise on thundering horses,
honoring Zeus of Aetna;
Chromius' chariot and Nemea lead me to yoke his victory-feats
to panegyrics."

9
The Greek Anthology, trans., W. R. Paton, vol. III, (Cambridge, MA.: Harvard University Press, 1948), p. 380: "Alpheus is a male water, Arethusa a female; and Love accomplished their marriage by mixing the waters."

10
Ibid., p. 194-7: "Delightful Alpheus. . . now made a bridegroom conducting the current of his love in a self-made channel, thou dost hie to Sicilian Arethusa to be her watery bedfellow. . . And the lovely Arethysa, looking on thee surging with tears from the Pelorian rock, would pity thee and beat her breasts, and melt like the dew on roses, the Sicilian font responding to the lament of the river of Pisa."

11
Virgil, Aeneid, bk.3, ln. 695.

12
Ovid, Metamorphoses, trans., Rolfe Humphries, (Bloomingdale, In.: Indiana University Press, 1957), p. 125-7.

13
Dante Alighieri, Inferno, XXV, ln. 97, trans., John Ciardi, (New York, N.Y.: New American Library, 1954):
"Of Cadmus and Arethusa be Ovid silent
I have no need to envy him those verses
where he makes one a fountain, and one a serpent"

14
John Milton, "Arcades", ln.29-32.

15
G. S. Kirk and J. E. Raven, The Presocratic Philosophers, (Cambridge, England: Cambridge University Press, 1971), p. 87-94, quote from p.103: "from whic come into being all the heavens and the worlds in them."

16
Ibid., p. 105-41.

17
Ibid., p. 148-50.

18
Ibid., p. 205. "for souls it is death to become earth; from earth water comes to be, and from water, soul."

19
Ibid., p. 196. "Upon those who step into the same rivers different and different waters flow. . . It scatters and. . . gathers. . . it comes together and flows away. . . approaches and departs."

20
Pindar, 'Olympia 1', lns. 1-7, trans. from Swanson:
"Best of elements is water, and heroic wealth
most eminent, like fire shining upon the night, is gold,
and if, my soul, you'd hear conceits of contests,
don't search beyond the sun,
blazing in day upon the deserted air, for any brighter star;
and we shall sing no games above the Olympics,
as they inspire the choral singing wrapped in the fabrics of poets."

21
Naomi Miller, French Renaissance Fountains, (New York, N. Y.: Garland Publishing, Inc., 1977), p. 280-1.

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Ibid., p. 17.

23
William Shakespeare, "A Midsummer Night's Dream", II.1,ln.29.

24
Shakespeare, "As You Like It", IV, 1, ln. 155.

25
Shakespeare, "Titon Andronicus", III, 1, ln.127.

26
Shakespeare, "Julius Ceaser", II, 2, ln. 77.

27
Edmond Spenser, Faerie Queen, bk. II, XII, LIX-LXIV.

28
John Milton, 'Samson Agonsites', lns .581-3.

29
William Wordsworth, 'Intimations of Immortality', ln. 151-4.

30
William. B. Yeats, 'The Stolen Child'.

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H. V. Morton, The Fountains of Rome, (New York, N. Y.: Macimillan Co.,1966), p. 18.

32
Norman Neuerberg, L'Architettura delle Fontane e dei Ninfei Nell'Italia Antica, (Napoli: Gaetano Macchiavoli Editone), p. 21=34.

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Ibid., p. 91-7.

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35
Morton, p. 46-7.

36
Bertha H. Wiles, The Fountains of Florentine Sculptors, (Cambridge, Ma.: Harvard University Press, 1932), p. 39.

37
Bruno Brizzi, Roma: Le Fontana, (Rome: Casa editrice Colombo, 1912), p. 46-7.

38
Morton, p. 63.

39
Cesare d'Onofrio, Le Fontane di Roma, (Rome: Staderini Editore, 1957), p. 29. "il Facchino a smetterla di rovisciare acqua fresca, giacche i Romani proprio non se la meritano in quanto osano ancora preferire il vino."

40
Wiles, p. 17-9.

41
Ibid., p. 33.

42
Ibid., p. 22-9.

43
Morton, p. 100.

44
d'Onofrio, p. 182. "La macchina da guerra dei papi non spande fiamme, ma soltanto la dolce acqua, con la quale si spegne il fuoco della guerra."

45
Ibid., p. 191-5.

46
Morton, p. 79.

47
Morton, p. 186.

48
d'Onofrio, p. 276-7.

49
Ibid., p. 273. "La fontana, tanto artisticament, quanto moralmente è stata condannata." "Non è il nudo, in arte, che offenda, ma le pose, le espressioni." "Si credono proporio che quella sia arte educativa. . . Quale ideale si formerà la gioventù delle donna?"

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Fredrick Klemm, History of Western Technology, trans., Dorothea Singer, (Cambridge, Ma.: M. I. T. Press, 1964), p. 35-6.

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Andre Perate, Versailles, (Paris: Librairie Renouard, 1927), p.55.

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Guillou, p. 62-4. fable by La Fontaine:
"Les grenouilles se lassant
De l'État démocratique,
Par leurs clameur firent tant
Que Jupin les soumit au pouvoir monarchique
Il leur tomba du ciel un roi tout pacifique".

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Ibid., p. 299.

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Euripides, Bacchae, ed., E. R. Dodds, (Oxford: Clarendon Press, 1977), ln. 862-5.

ἆρ' ἐν παννυχίοις χοροῖς
θήσω ποτὲ λευκὸν
πόδ' ἀναβακχεύουσα, δέραν
εἰς αἰθέρα δροσερὸν ῥίπτουσ',

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James Joyce, A Portrait of the Artist as a Young Man, in Portable James Joyce, (Viking Press, 1970), p. 483.