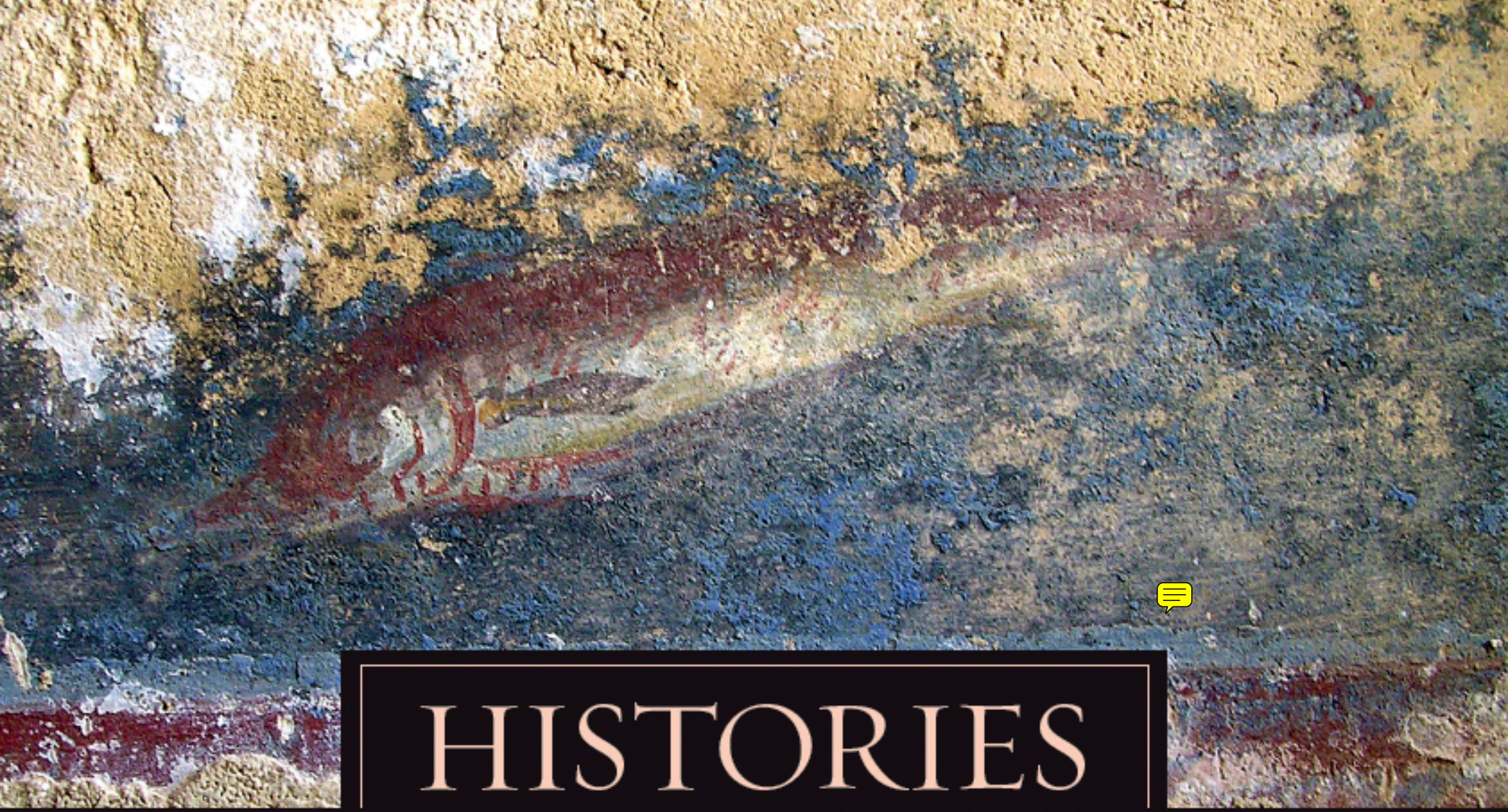
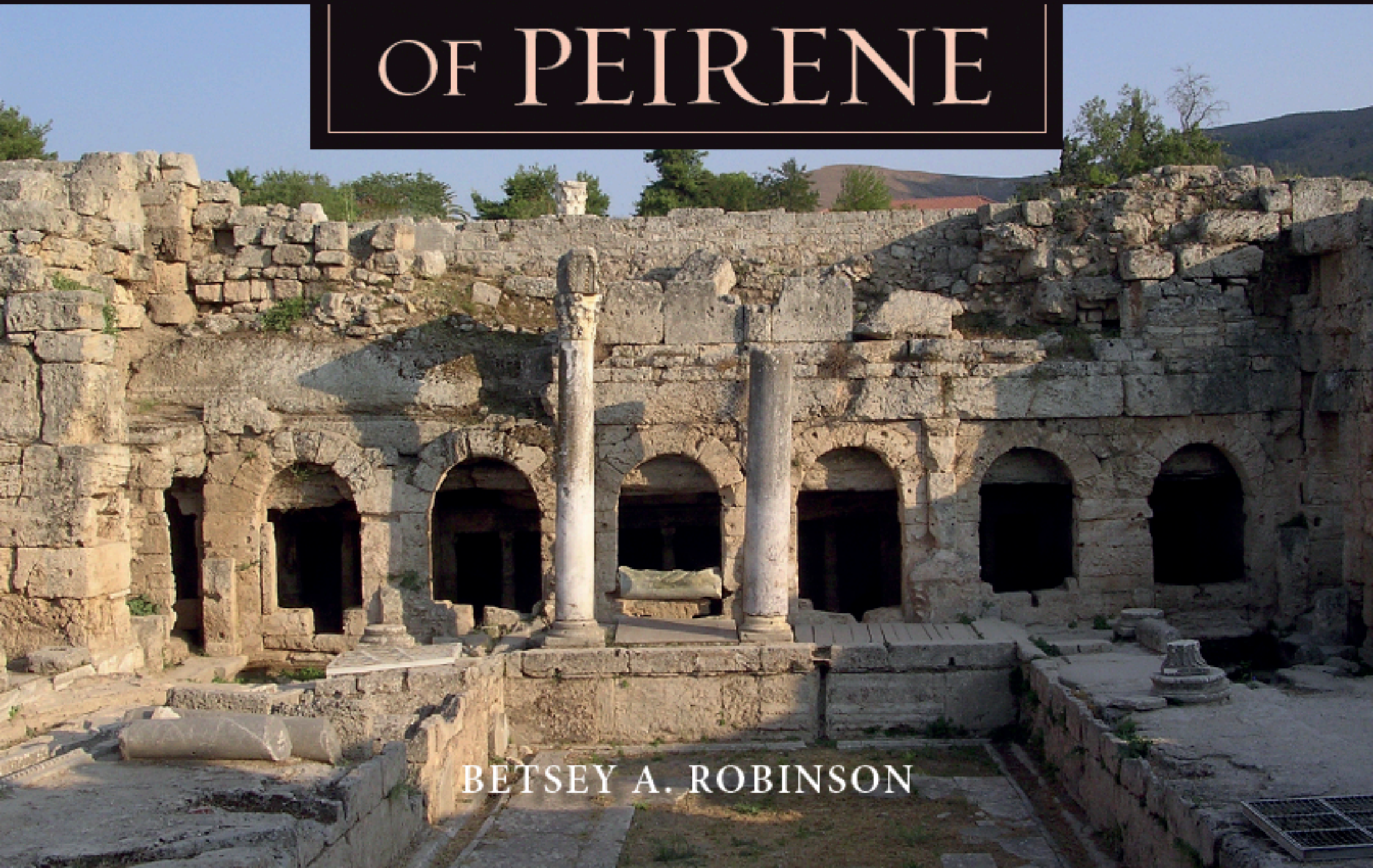


HISTORIES OF PEIRENE

A CORINTHIAN FOUNTAIN IN THREE MILLENNIA



BETSEY A. ROBINSON

HISTORIES OF PEIRENE

ANCIENT ART AND ARCHITECTURE IN CONTEXT

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— ANCIENT ART AND ARCHITECTURE IN CONTEXT 2 —

HISTORIES OF PEIRENE

A CORINTHIAN FOUNTAIN IN THREE MILLENNIA

BY

BETSEY A. ROBINSON

THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS
Princeton

To my mother,
Barbara Anne Robinson,
and to the memory of my father,
E. Arthur Robinson.
I love you dearly.

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Introduction

This is a memoir of a wellspring of Western civilization, the Fountain of Peirene in Corinth. This "most famous fountain in Greece," in the words of its first excavator, Rufus B. Richardson,[1] is distinguished by its long history, its service to a great ancient city, and its early identification as the site where the flying horse Pegasus landed and was tamed by the hero Bellerophon. The book will trace the development of Peirene from a nameless spring to a renowned source of inspiration, from a busy landmark in Classical Corinth to a quiet churchyard and cemetery in the Byzantine era, and finally from free-flowing Ottoman fountains back to the streams of the source within a living ruin. This history spans three millennia and touches a fourth, from the first human interventions in the Geometric period through ages of monumentality, desertion, obscurity, and excavation. Indeed, alongside the long life-history of Peirene, we shall revisit the modern *Nachleben.* Rediscovered by American archaeologists in 1898 and laid bare by 1901, Peirene once again became the heart of Corinth as the ancient city became a center of excavation and tourism (Fig. 1; Pls. A, 1, 2).

The aboriginal spring was a cave-sheltered source on the edge of a valley where water seeped out of the bedrock and ran in a rivulet down toward the sea. The stream was channeled early in the 1st millennium B.C., and the first stone-built and rock-cut features at the spring likely date to the 8th and 7th centuries B.C. An early springhouse was built in the 6th or 5th century B.C., slightly northeast of the later, larger Peirene fountain. Made of massive chunks of bedrock corbelled into a crude vault, this early springhouse imitated a natural grotto, with a hexagonal basin serving up the water of Peirene. It will be argued here that this was the sacred nymphaeum of Peirene, a fitting pendant to Corinth's Archaic Temple and the Sacred Spring nearby. The structure undisputedly identified as Peirene in later centuries lies some meters away, and it too seems only to have begun to take shape in the 6th or 5th century B.C. This second fountainhouse eventually monopolized the water of the Peirene spring. Its earliest phases have been erased by later constructions, but by the 5th century B.C. it was already a large fountain, probably the city's primary water depot and a natural gathering place. By the Hellenistic period, Peirene consisted of six well-built access chambers, nearly a kilometer of tunnels, and integrated systems for providing water to remote destinations. The pre-Roman, or Greek, phases are laid out in Plate 3.

Corinth's Roman renaissance forever transformed the role of water in the city. Fountains sprang up across central Corinth, but constancy, centrality, and venerability ensured Peirene's continued preeminence in this new city of fountains. As artists and poets of the Early Empire celebrated the spring's mythic Greek past in their own media, architects at Corinth gave the fountain a distinctly Roman appearance in the late 1st century B.C., transforming the old structure with an arcaded facade. Periodic

Figure 1. Peirene: View of the triconch court and spring facade from a point near the head of the Lechaion Road

improvements kept pace with the evolution of the city from its early days as a provincial model of the Italian capital into a metropolis embodying the complex cultural and visual koine of the Mediterranean Empire. In fact, Peirene was always on the leading edge of architectural design in Roman Corinth (Pl. 4).

The grandest incarnation of the fountainhouse was the high-walled court with three apses that still surrounds the spring (Pl. 5). As early as 1899, Rufus B. Richardson credited this "marble magnificence" to the favorite Greek son of the second century A.D., Herodes Atticus.[2] My research, however, indicates that the triconch court of Peirene should in fact be assigned to the 4th century A.D. Such a late date for such a grand monument revolutionizes our understanding of Corinth's urban history. Peirene's last renovation in a traditional spirit was the erection of a columnar screen in front of the spring facade, probably in the second half of the 5th century A.D. A substantial sculpture collection, including both portraits and mythological statues, also continued to grow through this era, in which Peirene and its environs may have become a sort of public museum.

The evidence of Peirene's later development is highly fragmentary, but it can be pieced together from diverse sources (Pl. 6). After the middle of the 6th century A.D., the court seems to have been stripped of its statuary, and, as the ground level rose within, it became a burial ground. A church was built beside the spring facade in the 10th century. Perhaps throughout the 13th century, the source remained directly accessible through the ancient arches, but a succession of water channels carried the water away to several destinations to the north. The Ottoman fountains at the ends of these channels, though they have never been considered, are themselves of great interest.

Organization

This book is organized as a series of "histories" of the Peirene fountain and the social and physical contexts in which it has existed through time. Of the eleven chapters, the first four are devoted to physical, cultural, and historical orientation, and the remaining seven are predominantly archaeological and art historical. Each offers new revelations and fresh interpretations. This introduction offers discussion of the structure, goals, conventions, and limitations of the study and reviews related scholarship. Chapters 1 and 2 provide a physical and conceptual orientation. Chapter 1, "Peirene Today and Yesterday: Anatomy and Physiology," offers a tour of the fountain and its spring in their current states. Emphasizing that Peirene is more than an architectural monument or a place for the display of ancient art, this chapter introduces the monumental triconch court and spring facade preserved today, but also looks behind the architectural surfaces, enumerating manmade features from built walls through deeply bored tunnels to what appears to have been a little shrine, hundreds of meters underground.[3] Turning to Acrocorinth, Corinth's high acropolis, the tour also includes Upper Peirene, nominally and conceptually—if not actually—connected to the lower system. This first chapter also introduces relevant hydrological and geological principles, actual and hypothetical, responsible for the functioning and malfunctioning of the fountain, for these are crucial factors for understanding the history of water management at Corinth. Now and again, I shall make use of Anthony Snodgrass's distinction between "Greece today" and "Greece yesterday," emphasizing that the ancient Greek landscape was, in many important aspects, much like that of modern Greece, "or at least, of Greece yesterday," a time before unchecked urban development and the abandonment of traditional lifestyles and technologies transformed the Greek countryside into its contemporary state.[4] The history of Peirene's use life is that of Greece yesterday, and pre-1941 tests of chemistry, microbiology, and flow rate offer a better approximation of Peirene's ancient state than do 21st-century analyses.

A review of the ancient pictorial and literary representation of Peirene is likewise indispensable for understanding the fountain's cultural prominence and its architectural and ornamental development. Thus, Chapter 2, "The Storied Spring: Peirene in Pictures and Poetry," surveys the various visual and literary representations of Peirene. Corinth built its reputation on its relation to water: the arms of the Ionian and Aegean Seas that both delimited the Corinthia and linked it to a wide world, and the precious groundwater underlying the superficially dry landscape. Because of this strategic setting, Corinth and its Isthmus were among the most contested places in Greece well into the 20th century of our era. Through most of its history, Corinth was a center of trade, its masters controlling those east–west seaways as well as terrestrial highways between the Greek mainland and the Peloponnese. The command of water, both salt and sweet, became a dominant and recurring theme in Corinth's self-representation as early as the Archaic period. Springs and fountains, seas and harbors were imagined and imaged on multiple interconnected levels. Peirene was especially dear to the Corinthians, and captured the imagination of a wider world. It seems that no other Corinthian spring is mentioned before Pausanias's 2nd-century A.D. travelogue, although the lyric poet Simonides's epithet "well-watered Corinth" likely celebrates the city's full circuit—the emerald necklace of cliffside springs shown in Plate A.[5] Already in Pindar's thirteenth *Olympian Ode* we find the story that the local hero Bellerophon tamed Pegasus at Peirene, an association that stuck throughout antiquity.

Ancient science and geography offered rational explanations of how the spring of Peirene worked. Other accounts overlaid heroic traditions, imbued the spring with preternatural power, or recast its etiology in mythological terms. Coins celebrated the ancient heritage with impressions of Pegasus and Bellerophon, Peirene personified as a nymph, and other associated figures. Peirene's fame and broad appeal are demonstrated by depictions in Hellenistic and Roman Imperial poetry and in wall paintings and reliefs, decorative objects, and funerary art dating from the Early Imperial period through late antiquity. Previous studies have collated this source material, but a rereading across media and over time reveals a surprisingly high profile for Peirene, especially in Hellenistic and Imperial culture.

In Chapters 3 and 4, I turn to the history of modern study and stewardship of Peirene, presenting a critical case study in the history of classical archaeology. Extending from 1896 to 1941, with occasional postscripts in the late 20th century, the primary narrative chronicles the progress of American research on and maintenance of Peirene, revealing much about the methods and values of the excavators, and often following the twists and turns of a spellbinding novel. Chapter 3, "Great and Fearful Days: The Rediscovery of Peirene," describes how American excavators and Greek workmen dug, blasted, and spelunked their way to the Peirene we see today (Pls. B–D; cf. Fig. 2). The discovery of Peirene in 1898 was one of the first momentous events in the excavations of ancient Corinth by the American School of Classical Studies at Athens. Lying about six meters underground, Peirene was entirely cleared of post-antique remains by 1901, and the site was described in annual reports and letters to *The Nation* by Richardson, then the director of the American School. It provided the key datum that the excavators needed to locate the center of the ancient city, and it foreshadowed years of impressive discoveries.

Figure 2. Peirene: West entrance (left) in 1898; and (right) approximately a century later

Moreover, the discovery anchored fundraising efforts, ensuring the long-term survival of the Corinth excavations.

The plot thickens in Chapter 4, "A Corinthian Hydra: The Labors of Bert Hodge Hill." The third director of the Corinth excavations (1906–1926), Hill remains the exemplary "nursling of Peirene."[6] He struggled for decades to produce an authoritative publication despite village politics, outbreaks of waterborne disease, academic battles, and two world wars. For Hill it was not enough to be a great archaeologist and architectural historian; he was forced also to become a master plumber, at great detriment to his publication record. Under strong pressure from the School's Managing Committee, Hill sent his work on Peirene to press in the mid-1930s. Haunted by lingering doubts, however, he never approved his page proofs but pressed on with his research into May 1941. His unpublished papers paint a vivid picture of the 67-year-old archaeologist digging for stratigraphic control even as German warplanes circled overhead and bombed nearby targets. That was the last of Hill's work on Peirene. He died in 1958, and his monograph finally appeared in 1964, little changed from the original manuscript.[7] In an early review, W. H. C. Frend commented on the delay: "Even allowing for Hill's perfectionist spirit and difficulties caused by the outbreak of [World War II], it seems to this reviewer at least, a fantastic state of affairs that it has only now seen the light of day almost sixty years from the original discovery."[8]

A fantastic state of affairs it was indeed. For better or worse, Peirene was a living laboratory of ancient hydraulic technology. The trials, successes, and failures of Hill and his many assistants proved Peirene to be a marvel of engineering but revealed also that its management must always have been a balancing act between function and malfunction, sanitation and contamination, life and death.

The modern history of Peirene provides not only a route to the ancient past but a truthful mirror of America's first century in classical archaeology. While Hill published little, his teaching and field methods are unanimously praised. It was left to his students, many of them trained in Peirene, to make more lasting reputations as the leaders of American archaeology and architectural history—first among them William Bell Dinsmoor and Carl W. Blegen, and later Richard Stillwell and Oscar Broneer. Although their contributions ushered in a new age of archaeology, their accomplishments are nothing less than the compounded returns on Hill's investments. In Louis E. Lord's grudging grandiloquence, "to him these men owed their conception of what an archaeological investigation should be and of what scientific thoroughness and accuracy meant when applied to dowel holes and potsherds."[9]

The monumental history of Peirene unfolds in the second part of the book, Chapters 5 through 11. These chapters are intended to supplement *Corinth* I.6: *The Springs,* still the authoritative publication of record. In that volume, Hill describes the spring and fountainhouse of Peirene in terrific detail. He furthermore fleshes out several phases from what he calls "very early times" through the second half of the 4th century B.C., seven Roman "periods," and a number of medieval through modern modifications, grouped together under one heading and briefly considered.[10] Hill's chronology provides a strong foundation for understanding the complicated phases of the fountain, but it leaves room for further refinement, and some revisions are prompted by more recently excavated evidence. In fact, much of Corinth's forum still lay below unexcavated fields when Hill

completed the manuscript. Moreover, the work is primarily descriptive, generally stopping short of programmatic and contextual analysis. Although his every observation is informed by his vast experience with ancient architecture, Hill rarely enters comparative material as evidence. My emphasis on context, in contrast, brings a number of phases into sharper focus.

Chapter 5, "Beginnings: Hellenic and Hellenistic Peirene," summarizes the structural history of Peirene from the Geometric period down to the destruction of Corinth in 146 B.C., serving to supplement Hill's account, which here needs only minor revisions in light of new evidence. With the present emphasis on context, however, certain interventions stand out, particularly those of the Late Archaic and Hellenistic periods.

The Archaic is the age of the Bacchiads, whose control of Corinth traditionally dated from about 750 to 657 B.C., and of the Cypselids who followed: Cypselus himself, whose reign is placed between 657 and 627, and his sage but bellicose son Periander, who ruled until 587.[11] Readers well schooled in history may be surprised at the relatively low profiles of such figures in this book, but there are few clear correlations between their reputations and Peirene's archaeological record. While it would be difficult to believe that Cypselus and Periander, in particular, were not somehow involved in Peirene's development from the later 7th century through the first quarter of the 6th century B.C., only the Cyclopean Fountain may be early enough to have been theirs. In contrast, Peirene's Hellenic floruit may have come, not while Corinth was an autonomous oligarchy, but in a period of Macedonian hegemony and, probably, patronage.

In Chapter 6, "Corinthian Grotesque: The Cyclopean Fountain," I embrace the original, Renaissance connotation of *grotteschi,* or grotesques, as art works appropriate to grottoes, or *grotte,* the cavelike spaces of ancient ruins that were then being probed across Rome.[12] Indeed, the poorly understood Cyclopean Fountain is named for the impression it gives of a "sort of artificial grotto made of great stones of conglomerate laid with each stone overhanging that beneath, in a manner which has its closest analogy in the store-chambers and corridors underneath the walls of Tiryns."[13] Although a prehistoric date was soon ruled out, the name has remained, as has its prehistoric associations. It is astounding that this artificial grotto has not been explored more fully, but the inattention is largely due to the difficulty of estimating its construction date and sequence of phases. With the evidence from four long-lost books of Hill's notes and the later excavations of Charles K. Williams II, the time has come for rigorous engagement with the Cyclopean Fountain. In this chapter, I attempt to situate that megalithic monument in the Archaic landscape of Corinth, arguing that it was, in a sense, a large-scale votive model commemorating the original cave source of Peirene—that it was the sacred nymphaeum of Corinth. While questions do remain, this unique monument promises to be an important entry in the annals of architecture and art, both within ancient Corinth and much farther afield.

Chapter 7, "The Genius of Place and Master: Romanizing Peirene," introduces the arcaded facade of the Early Roman period. Focusing on architectural details, this chapter is a case study in the colonial reinterpretation of indigenous traditions, addressing, in particular, the use of architecture to negotiate a relationship between the local past and an Imperial present. The conception and articulation of Peirene as a sacred cave are themes that arise here, as they will again, with each generation celebrating the natural bearings of the spring even as its monumental architectural overlays gradually denatured it. Chapter

8, "High Roman Style: The Marble Court," considers the transformation of Peirene into a luxurious marble-revetted court in the late 1st or early 2nd century A.D., particularly focusing on its artistic adornment with statuary and paintings. Finally, in Chapter 9, "A Pendant for Peirene: The Scylla of Corinth," archaeological evidence, numismatic iconography, and comparative studies are deployed in the reconstruction of a spectacular centerpiece in the marble court: Scylla, scourge of the seas.

In Chapter 10, "Palace for the People: The Triconch Court," that "marble magnificence" is considered in its proper chronological and social framework in the 4th century A.D. (not in the 2nd century, where it was long misfiled).[14] This revision is based on stratigraphic evidence, but its argumentation depends on an analysis of art and architectural history that uses comparanda to understand the structure and the references embodied within. The court's monumentality and sheer pretension challenge earlier assumptions about the senescence of Late Antique Corinth. Moreover, the progressive design demonstrates Corinth's continued place in the architectural mainstream. Similar structures served as dining pavilions within contemporary villas and palaces, from Sicily to Syria. At Corinth this architecture of private *convivium* was turned to public benefit. An earnest, but suspiciously shabby, redecoration of the fountain in the second half of the 5th century represents the last renovation of Peirene in the classical tradition, and heralds what is to come. Although the unknown patron's *paideia* and pride are reflected in the grandiose composition and a painted dedicatory inscription, the mismatched architectural elements provening from multiple—presumably destroyed—building complexes reflect straitened circumstances.

Chapter 11, "The Ruin of a Beautiful Thing," supplements Hill's brief chapter on post-antique Peirene, with several subjects finally receiving their due. For example, Peirene's numerous tombs and their structural details deserve to be entered into the record, and much is revealed about the church that once graced the southwest corner of the courtyard. Finally, our attention turns to the medieval pipelines that carried the water of Peirene into the village as late as the 20th century. From the evidence of maps and other documents of the Venetian and Ottoman eras, several "Turkish fountains" of Peirene can be identified, including two beautiful examples—with free-flowing water and inscribed poetic verses—in a public square by the palace of the 18th-century governors. To the early travelers who came to Corinth in search of antiquities, these were Oriental curiosities, and they were never imagined to be delivering the hallowed source. Although these monuments were destroyed in the course of the 19th century and now exist only in pictures, vestiges of their conduits still functioned when the American excavations began in 1896; it was through a manhole into one such line that the ancient springhouse was rediscovered.

As befits an eternal spring, there is no conclusion.

Inspirations and Emphases

The stated premise of the series to which this book belongs, *Ancient Art and Architecture in Context,* is that aesthetic and contextual studies are complementary and indivisible tools for understanding the material culture of the Greek world. The contexts for understanding a monument as complex and long-lived as Peirene are extraordinarily diverse: artistic and architectural, political and religious, geographical, geological, and biological. While Peirene began as a natural feature of the landscape, each successive overlay—from the very naming of the source and the earliest human interventions, through its ascendancy

in literature and the visual arts, and through continuous practical and decorative improvements—added to a rich complex of traditions that not only reflected human beliefs, identity, and mores, but further contributed to their formation.[15]

My background as a researcher in evolutionary biology and the history of science, and particularly the example of Stephen Jay Gould, my onetime employer and abiding mentor, instilled in me two values that have strongly shaped this work. The first is a sense of dual purpose: to respect both the primacy of fieldwork and description and the nearly equal importance of analysis and contextualization, even if preliminary or provisional. While I do not skimp on basic archaeological and architectural documentation, I believe that such work is a beginning, rather than an end in itself, and that a scholar who has learned every block in a monument has the right and the responsibility to make the first comments on context and meaning. In each chapter, therefore, the reader will find a combination of the indicative and the interpretive. The second value is a belief that the study of disciplinary history often holds the keys to new discoveries.[16] Looking over the shoulders of giants, we may follow their gaze, but we bring new eyes to the evidence and introduce new questions to its analysis.

Trained as an art historian and archaeologist in graduate school and, since then, appointed in departments of the Classics and of History of Art, I have found that my earlier scientific upbringing gave me the outlook and tools to thrive in largely disparate fields. My colleagues in Classics are predominantly philologists, dedicated to the editing and criticism of texts, and historians constructing narratives from the diverse fragments of ancient and medieval literature, inscriptions, and material culture. By contrast, in the History of Art, my colleagues' methodological, thematic, and theoretical approaches are as expansive as the temporal and spatial ranges of the objects they study. Perhaps the one commonality in the subfields is their dedication to the interpretation of the visual and tectonic arts. From these diverse interests and influences come the four "corner posts" of my study: documentation, commentary, interpretation, and contextualization.

My intent is not to rehash previous contributions nor to provide another stone-by-stone study, but selectively to reconsider the evidence from Peirene, to articulate its history in a narrative combining firsthand observations and published reports, and to reflect on its place in broader physical and cultural contexts across human history. My focus is on architectural development above all, and where possible, I consider the artistic ornamentation in greater detail than ever before. The evolution of the monument is framed against the underlying landscape and its ancient, medieval, and early modern settlement, and viewed from the perspective of Corinthian culture and across Corinth's spheres of interaction. This synthetic, diachronic outlook sets my work apart from previous studies of ancient Greek fountains, yet locates it in the mainstream of current research in the history of civic art, human landscapes, and archaeology. While I hope that the book will interest and appeal to a wide audience, it includes enough primary archaeological interpretation to warrant endnotes with a weighty reference apparatus more typical of *Hesperia* and *Corinth* reports than of university-press publications.

The time is ripe for a new, multidisciplinary inquiry into Peirene. Hill's published and unpublished studies are foundational. His volume, *Corinth* I.6: *The Springs,* provides an objective, detailed description of the monument, fulfilling the basic purpose of a *Corinth* volume as a primary publication and stable foundation for further work. I am fortunate to

be able to build upon the experience of a man who not only studied Peirene but even made it work almost like new, and who left behind an extraordinary record of his investigations. Many of Hill's conclusions are unassailable.

Hill's work now can be supplemented by the results of Williams's methodical excavations in adjacent complexes. Several other recent or ongoing studies also have direct bearing on Peirene. In piecing together the geology and geomorphology of the Corinthia, Chris Hayward and Ruth Siddall have made it possible to understand the physical underpinnings that made Corinth famously well watered, and at least to sketch out Peirene's earliest human history. Mark Landon has documented the plethora of Corinthian springs and fountains beyond Peirene. Robin Rhodes and Christopher Pfaff are systematically publishing Archaic Corinthian architecture. Urban surveys, excavations, and pottery analyses by Guy Sanders and Kathleen Slane have paved the way for a new understanding of the Late Antique and Byzantine city. Recent studies by Mary Sturgeon, Catherine Vanderpool, and Mary Walbank have provided crucial updates and interpretations of Corinthian sculpture, its contexts, and related numismatic imagery.

Peirene has been featured in numerous dissertations and compilations. Monographs on Greek fountains have tended either to survey developments before the Roman Imperial period or to focus on specific cases from the 2nd century A.D., among which "Peirene in the Age of Herodes Atticus" is often found.[17] A very few studies have focused on Early Roman works, generally less spectacular than what came before or after, among which Peirene also stands out.[18] On Corinthian springs and fountains, on local practices in water management, and in practical infrastructure, Landon frequently breaks new ground.[19] The only significant overlap between our efforts comes with the analysis of the literary sources on Peirene, in which Landon takes a decidedly topographical approach, while mine owes more to the history of art, landscape, and cultural poetics. The present volume derives from several chapters of my dissertation, "Fountains and the Culture of Water in Roman Corinth," a study of the art and imagery of water displays, large and small, in Roman Corinth, equally grounded in the careful evaluation of standing remains and published and unpublished excavation records.[20]

In studies of fountains, Arthur Parsons's long article on the Clepsydra fountainhouse on the north slope of the Athenian acropolis is a model diachronic study, giving as much attention to the changes of medieval and modern centuries as to the Graeco-Roman period, an especially remarkable feat for its time.[21] The work that has most piqued my interest in the *longue durée* of a monument, however, is John Pinto's study of the Trevi Fountain in Rome, closely followed by his collaboration with William L. MacDonald on Hadrian's Villa—a place of many fountains, among other things—and its *Nachleben*.[22] Although the Trevi is today far more famous (and better preserved) than Peirene, there are many parallels in its long history, one that started millennia before Nicola Salvi's climactic work of 1762. As Pinto wrote in his introduction to *The Trevi Fountain,* "while I have chosen to write a monograph on a single building, I have tried to avoid what might be termed monument fixation, a form of myopia that causes so many scholars to disassociate a work of art from its context."[23] Indeed, the evolving contexts of Peirene are as central to this book as the rendering of the fountain itself.

While this book is grounded in the materiality of archaeology, art history, and historical topography, I also apply methods from human geography and cultural poetics to realize the

symbolic resonance and range of Peirene. The term "landscape" has already appeared more than once, and it deserves some comment. In trying to understand the meaning of Peirene for the ancient inhabitants of Corinth, I have found the approaches of landscape studies and cultural geography more productive than classical topography. For the social history of ancient waterscapes, Denis Cosgrove's works, together with those of Nicholas Purcell and Simon Schama, have been especially instructive.[24] These scholars have helped me to recognize landscape, not merely as the physical setting for human action, but, to quote Cosgrove, as a phenomenon in which "people have signified themselves and their world through their imagined relationship with nature, and through which they have underlined and communicated their own social role and that of others with respect to external nature."[25] Interdisciplinary landscape studies are unified by an insistence on landscape as a sociocultural construct, never purely natural, and always changing to accommodate and perpetuate human orders.[26] Even ancient landscape representations—from vase paintings and reliefs to wall paintings and villa and garden installations—reflect cultural values, differences, and important chronological trends.[27] Still more revealing, however, are the tensions between the natural and the manmade at interfaces like Peirene, tensions that impact human history just as surely as they channel the development of the landmark.

The histories of Peirene as a spring and as a fountain, and of its watery imagery—whether pictorial or literary, realist or fictive—are the intertwined threads of a rich cultural tapestry whose interrelations and meanings are best appreciated when studied together. The lessons of different periods and diverse media not only illuminate one another, but they give insight into the ways in which Corinthians of all ages and backgrounds legitimized their claim on the land, identified and promoted themselves, and came to be recognized in the world around them. Alas, such intricately woven traditions and such a varied evidence base defy easy narration.

Limits and Conventions

I am fortunate to have been granted complete access to the excavated monuments, finds, and archives of the American School excavations in Ancient Corinth. Although it has not been practical to excavate around Peirene, I have cleaned crucial features with the help of excavation staff, and I have personally examined every practically accessible component, from the highest walls of the triconch court to the tunnel system under the South Stoa. Detailed records on the history of excavation at Corinth are maintained by the American School, both in the facilities at Ancient Corinth and in the School's Archives in Athens. Sources range from excavation notes and notebooks to administrative papers and private correspondence. The collected papers of Bert Hodge Hill and Ida Thallon Hill, as well as those of T. W. Heermance, William Bell Dinsmoor, and Carl W. Blegen, are an extraordinarily rich repository.

The present Architect of the Corinth Excavations, James Herbst, has contributed a number of beautiful folios, plates, and figures, and a few drawings are my own. For many measured drawings, however, we have merely updated drawings by Dinsmoor, Stillwell, Joseph M. Shelley, Gorham P. Stevens, and Williams. A better team there never was.[28] Breaking from earlier practice, however, we have avoided falsely confident pictorial renderings of poorly preserved phases. The sketchiness of many new reconstruction drawings is intentional, reflecting their speculative nature.

As for the quality of the archaeological record, much more will be said in subsequent chapters; however, it is important to emphasize its variability in advance. The notebooks describing early excavations can be maddening, but despite certain difficulties, significant advances are possible. Physical and documentary gaps can often be filled in with structural analysis of preserved structures and by cross-referencing photographs, field drawings, artifact indexes, and the results of more recent, controlled excavations of adjacent areas. These variable sources of information determine the limits of what can be done, but they generally offer an inroad or two into the apparent disarray. Contrary to popular belief, methods and record keeping have not always improved with the passage of time. Their quality has much to do with the training and interests of the excavator, and thus, some of the records from the first decades of the 20th century turn out to be superior to others that followed thirty years later. Perhaps the greatest advantage to working at a site like Corinth, however, is that so much material is present. The monuments, the excavation records, and indeed, much of the contextual evidence are held in trust. My conclusions can be tested, as I have tested Hill's, although, as he once said, "I want you to believe me, at least until I have gone."[29]

Peirene is a great riddle, a labyrinth of walls, voids, channels, high-water lines, and rock tumbles. Indeed, it would be difficult to name a monument more thoroughly embedded in its natural and manmade setting. The impressive court and facade that greet visitors today are just a fraction of the whole. One of Peirene's rock-cut tunnels brought fresh water to almost every unit of the Hellenistic South Stoa, across the Forum Hollow, and two thousand years later, another channel would feed the fountains of the Ottoman governors on the northern edge of town. Certainly no monument in Corinth has had such a long use life, and many of the phases of the springhouse and court belonged to large-scale building projects that also impacted adjacent structures. To trace the repercussions of every modification would be impossible; therefore, some boundaries must be established. Thus, when ranging beyond Peirene, I adhere to the published status quo wherever possible.

A related issue is one of received dates, that is, the use of dating evidence from published studies of diverse materials, methods, and assumptions. To make any progress on the topic at hand, clearly one must rely on other scholars' estimates, which range greatly in reliability and currency. Well aware of inherent problems, I have been vigilant in citing relevant sources, in the hope that my observations will remain valid even if new evidence obliges the future revision of dates and contexts.

For the sake of consistency, and for the convenience of nonspecialist readers, Appendix 1, the "Summary Chronological Table," lists traditional periods and crucial events in the history of Corinth.[30] The supplementary Appendix 2 provides a detailed breakdown of the "Early Corinthian Pottery Sequence," the basis for dating the earliest archaeologically attested phases in the development of Peirene and Corinth.[31] Appendix 3, the "Summary of Phases of Peirene," outlines the building phases of Peirene and associated structures from the Archaic period through late antiquity.

The Archaic period is dominated in historical accounts by the Bacchiad clan and the Cypselid tyrants. To be sure, each of these regimes must have made a strong mark on Corinth. As noted above, however, there is little to associate either with interventions at Peirene, and most Archaic work at the site appears to have postdated the tyranny. The Classical period opens and closes with important events that largely transpired elsewhere,

the Persian Wars and the rise of Macedonia, under kings Philip II and Alexander III, "the Great." The Hellenistic and Roman Republican worlds often intersect, and in this age, the once-powerful Corinth was reduced to an epicenter of Macedonian hegemony. Freedom, of sorts, would come again, together with renewed membership in the Achaean League, but on the terms of the Roman generals who increasingly determined the course of history for Greece. All would be lost when Corinth was vanquished by Lucius Mummius's Roman army in 146 B.C.

"Greek" and "Roman" can be loaded terms in a book dealing in large part with the romanization of Greece. "Greek" is best reserved for the ethnic, the language, and the material culture in books on Greek art and architecture; following convention, however, it is used in the scheme of Iron Age through Hellenistic construction phases at Peirene. Where it is necessary to refer more generally to the period before Corinth's destruction in 146 B.C., "Hellenic" and "pre-Roman" are alternative, and often better, descriptors.

For the century that passed between the destruction of Hellenistic Corinth and the foundation of *Colonia Laus Iulia Corinthiensis* I prefer "interim period" to the old-school "century of desolation." For Corinth thereafter, I use (Roman) Colonial, changing to Imperial after the Battle of Actium in 31 B.C. Reborn as a Roman colony, Corinth grew slowly at first but thrived from the later years of the reign of Augustus (27 B.C.–A.D. 14), probably becoming the capital of Roman Achaea by about A.D. 50 or earlier, and an increasingly cosmopolitan Graeco-Roman city.[32]

Received dates are particularly problematic when one is dealing with the Late Antique period. Earlier generations imagined the city to have reached maturity in the 2nd and early 3rd centuries A.D., and then to have headed into twilight, assaulted first by the Heruls in 267, then by one or two 4th-century earthquakes, and finally by Alaric's Goths in 395.[33] More recent studies, however, are offering more nuanced views over a much longer duration.[34] The urban history of Corinth is fast changing, decompressing as it were, and while published dating schemes often lag behind current understanding, we are forging ahead. Traditional scholarly distinctions between Late Roman, Late Antique, and Early Byzantine periods are largely artificial.[35] I try to avoid the overly determined "early Christian," preferring "Late Antique" (or "Late Roman") for the few centuries from the political and religious transformations of emperors Diocletian (r. 284–305) and Constantine (r. 306–337) down to the accession of the emperor Justinian (r. 527–565), and saving "Christian" for adherents to that faith.

At Corinth, I have come to believe that the passing of the classical city finally came within the long reign of the emperor Justinian, for reasons that will be discussed at length in Chapter 11. I date the beginning of medieval or Early Byzantine Corinth accordingly, while acknowledging that such a designation is biased by my current understanding of Corinthian urban history. In contrast, survey and ceramics scholarship tend to favor a late-7th- to early-8th-century end to what may be called Late Roman material culture, a suitable reminder of the complexity of material cultural evolution.[36] The Middle Byzantine, Frankish, Ottoman, and Venetian periods are fairly well defined by conquests and conventions.[37] For the modern period, the Hellenic Republic was established in 1829 and, at Corinth, the age of archaeology was ushered in by Wilhelm Dörpfeld and Andreas N. Skias between 1886 and 1892.[38]

The transcription and spelling of Greek proper nouns is also fraught, and extremely complicated in a book dealing in large part with Roman Imperial Greece. I have therefore elected to adopt two orthographic standards. For Corinthian place names, I generally follow current common usage, as reflected in *Corinth* XX, though this too intermixes Greek and Latin forms and introduces occasional inconsistencies.[39] I follow the *Oxford Classical Dictionary* in using Latinate spellings of most other place names and personal names, as well as ancient source abbreviations. Modern bibliographic shorthand adheres to the guidelines of the *American Journal of Archaeology;* abbreviations not listed there appear in the bibliography. Abbreviations relating to objects and records from the Corinth Excavations are given in the back matter. Benchmarks and levels, where relevant, are marked with a "+"; these readings are expressed in meters above sea level (abbreviated here as "m").[40] Translations are mine unless otherwise noted.

> We shall not cease from exploration
> And the end of all our exploring
> Will be to arrive where we started
> And know the place for the first time.
> Through the unknown, unremembered gate
> When the last of earth left to discover
> Is that which was the beginning;
> At the source of the longest river
> The voice of the hidden waterfall
> And the children in the apple-tree
> Not known, because not looked for
> But heard, half-heard, in the stillness
> Between two waves of the sea.
>
> T. S. Eliot, *Four Quartets,* "Little Gidding" (1942), 5.239–251.[41]

PART I

The Spring and Its Legacy

CHAPTER ONE

Peirene Today and Yesterday: Anatomy and Physiology

Ancient Corinth sprawls across two natural terraces between a fertile coastal plain to the north and the rugged cliffs of Acrocorinth to the south. Most of the springs that made Ancient Corinth famously well watered cluster along the edges of these terraces, forming a double-strand emerald necklace in the semiarid landscape (Pl. A). The upper terrace, where the American School excavations have exposed a wide swath of ancient terrain, commands a view north over the lower terrace, the plain beyond, and across the Corinthian Gulf to the mountain ranges of Helicon and Parnassus.

A broad, shallow valley runs roughly east–west across this upper terrace. Bordered by the south edge of Temple Hill, a westward rise crowned by the Corinth Museum, and slightly higher ground stretching from southeast to southwest, this "Forum Hollow" is occupied by the remains of the Roman forum and earlier sanctuaries, domestic and civic structures, and footrace tracks (Pls. 1, 2).[1] Opening downhill to the north is the Peirene Valley.[2]

Like the hollow above, the Peirene Valley is an erosion feature, shaped by rainwater runoff from the higher ground to the south, and further by the streams of water from two natural springs—Peirene and the so-called Sacred Spring. Long before human habitation in the area, these sources already flowed from the base of a cliff between the Forum Hollow and the lower ground to the north. In fact, they are probably the very things that drew the earliest inhabitants to settle in their proximity by the Neolithic period.[3] Standing five to seven meters high at Peirene, the cliff dips between the two springs, offering a natural route between the Peirene Valley and the Forum Hollow. Well trafficked even before human building and quarrying activities transformed the landscape, this remained an important artery throughout Corinth's history. In the Imperial period, there stood here a great arch (remains of which are still prominent), monumentalizing the arrival of Lechaion Road in the forum after its gentle rise through the Peirene Valley (Pl. 2). In its aboriginal state, the Peirene Valley was probably much narrower, but beginning already in the late 7th century B.C., its south, east, and west sides were gradually cut back to form the broad embayment that existed by the Imperial period, and today the valley extends from the well-quarried east face of Temple Hill to the east edge of the excavations where a high scarp of undug strata supports a modern road.[4]

To understand the nature of the springs of Ancient Corinth, it is important to have a sense not only of the topography but of the underlying geomorphology. Part of a flight of terraces rising upward from the modern seashore, the stepped landscape of Ancient Corinth is the result of the combined effects of sea-level changes and regional uplift.[5] Each terrace consists of transgressive sedimentary sequences of Pleistocene marine and coastal deposits (conglomerate, sandstone, limestone) overlying a white Pliocene marl (lime-rich silica mud). Formed at times of higher sea stands, these profiles were then cut back into scarped shorelines when exposed in periods of marine regression. Episodes of tectonic uplift pushed the resulting headlands into a series of terraces rising high above the Corinthian Gulf. Corinth's upper terrace today crests approximately 75 meters above sea level near Peirene.[6]

Because the upper strata are porous and the marl impervious, rainwater seeps down only as far as the marl's upper surface, filling the interstices in the overlying rock to create a zone of saturation, an aquifer that is "just as much a reservoir as any surface lake or

pond,"[7] though the simile of a wet sponge is perhaps more intuitive. The water table is the subterranean equivalent of the surface of a superficial body of water. The aquifer may issue water spontaneously where exposed at terrace margins and can be tapped (or augmented) by tunneling. The location of the spring of Peirene, for example, is determined by the contours of the underlying marl bed below, which gently rise from south to north and to the east and west of the Peirene Valley. Essentially the lowest point of marl under the terrace's northern edge gave the water a way out of its underground reservoir. Thus Peirene first spilled over at about 73 meters above sea level (+73 m).[8] The ground level from which it was accessed through much of antiquity would be somewhat lower, about +70.5–71.8 m.

The Peirene aquifer is just below the ancient ground level in the Forum Hollow and the flow from the spring closely corresponds to seasonal rainfall. In the early 20th century, Peirene's total output ranged from 7 to 12 m^3/hour (168–288 m^3/day), while in the rainy year of 1919, the flow was measured at 20 m^3/hour (480 m^3/day).[9] In the 1930s, after medieval strata were excavated from the Forum Hollow, a more direct correlation between rainfall and flow was noted, and excavators feared that torrential rains would catastrophically damage the monument.[10] Unfortunately, the early-20th-century figures probably are as close as we shall ever come to estimating the ancient productivity of the spring. Indeed, "Peirene today" is a very different system from "Peirene yesterday," and even the spring of the recent past—the early 20th century—reveals more than the present state about bygone eras.[11] In recent years, private wells and power-operated pumps in the modern neighborhoods east and south of the archaeological zone and effectively upstream of Peirene have lowered the local water table and reduced the volume reaching the ancient fountainhouse. It is worth noting that an expansion of the Peirene system may have similarly contributed to the demise of the Sacred Spring in the last quarter of the 4th century B.C.[12] That the aquifer lies relatively close to the surface of the Forum Hollow has another major consequence: as we shall see below, the water is very prone to surface contamination, and in fact, for several decades it has been considered unfit for human consumption.

Throughout antiquity, the natural spring that came to be known as Peirene was repeatedly refashioned, its water-catchment system enlarged, and its springhouse monumentalized (Fig. 3). The earliest stages of human interventions are somewhat murky, but as changes built upon changes, the spring became an important landmark with an elaborate decorative program, culminating in the great Late Antique triconch court that still dominates the scene. Though less monumental, subsequent post-antique phases are no less interesting; however, these are among the poorest-preserved remains of Peirene.

The following overview focuses on what remains to be seen today. Important chronological issues are briefly noted, and features that are no longer preserved are introduced, to prepare the way for detailed consideration in subsequent chapters. I hope that even readers familiar with the fountain will find useful a brief but wide-ranging treatment of the monument. For newcomers, this will introduce the basic anatomy and physiology, providing crucial background for the chapters that follow. We shall pass from the springhouse into the subterranean network of tunnels that tapped the aquifer and transported its water. We shall also consider the physical properties of the water to better contextualize ancient reports of Peirene's pleasing taste.

Figure 3. Peirene: General view of the spring facade, with Acrocorinth in the background

Figure 4. Peirene: View through eastern entrance into the triconch court

Inscriptions of the Roman Imperial period and late antiquity, as well as a lengthy description by Pausanias, securely identify the fountain near the southeast end of the Peirene Valley as Peirene itself. Earlier sources are much less specific, but if there should be any question that this spring was already named Peirene before the Roman destruction of Corinth in 146 B.C., Euripidean references, fragments preserved by Athenaeus, and one Corinthian inscription provide strong evidence that Peirene was a busy locale near the center of the Greek polis.[13] Peirene's appearance in the wordplay of Plautus and Cicero indicates that its renown had reached Italian shores by the beginning of the 3rd century B.C., and that its reputation as a prodigious source continued in Roman circles even after autonomous Corinth fell.[14]

From the 1st century B.C., however, another Peirene captured the attention of ancient authors, and here we shall follow them to Acrocorinth (Fig. 3, background), and the site of the Upper Peirene fountain, not overlooking the city at the highest point of the acropolis, but in a meadow below it to the south. Prompted by the conviction of Strabo (8.6.21) and Pausanias (2.5.1–2) that the two springs were connected, not only nominally but physically, we shall explore this possibility and the logic behind it. While it is a fact that Upper Peirene is well above and far beyond the longest vein of Lower Peirene, many visitors, even to this day, have understood it as the ultimate source of the lower spring. This may seem a quaint misconception; however, its derivation is quite logical, and its hold on ancient imaginations was very real.

The Springhouse and Its Court

An encounter with Peirene begins when a visitor passes through one of two narrow, stepped passages leading in from the precinct known as the Peribolos of Apollo into the triconch court (Fig. 4; Pl. B).[15] While subsequent discussions will treat the monument as if it is oriented exactly north–south, its principal axis is actually oriented about eighteen degrees west of north.[16] The north-facing spring facade (Pls. 7, 8) has been stripped of most later accretions to reveal its Early Roman framework (Roman Phase 2; late 1st century B.C.), with its arches offering access to six drawbasins or chambers (labeled I–VI on Pl. C), of which more will be said shortly. But it is later work that dominates the scene today: the triconch court (Late Antique Phase 1; 4th century A.D.), about 15 m on a side, with three great apses, each about 7.5 m wide, facing inward and projecting outward from the north, east, and west sides of the court (Pls. 5, 9–14). The floor of each apse is a single step above the floor of the court. The walls are massive, built of reused poros blocks bonded with mortar; they stand between 3 m and nearly 6 m high.[17] The inner faces of each apse are pierced by three arched statuary niches, about 1.40 m above the floors. Visible on plans, but not from the triconch court itself, are several chambers to the east and west, and the apse at the south side of the Peribolos of Apollo; these belong to earlier phases of work. Some of these spaces were destroyed, while others underwent substantial changes when the triconch court was built.[18]

Traces of revetment and numerous cramp holes indicate that this structure was once entirely revetted in marble, though whether the court or apses were ever roofed remains an open question, to be discussed below. Vestiges of still-later phases are visible in the two marble columns and their projecting entablatures, conventionally called outlookers, in front of the spring facade (Pl. 8; Figs. 3, 4). The mismatched columns, on mismatched

bases, support reworked lintels projecting *en ressaut.* Once bearing an inscribed dedication to Peirene, this so-called outlooker screen was the last restoration of the fountain in the classical spirit, probably in the second half of the 5th century A.D. (Late Antique Phase 3). Visible in Plate B and just off-center in Figure 4, the marble channel, of recycled marble columns and entablature blocks, and the brick channel, of terracotta tiles and mortar, are all that remain of the aqueducts that delivered the water of Peirene to the area of the modern plateia and beyond between the 6th and 20th centuries A.D. Long gone are the successors to the brick channel, the Frankish tented tile channel, and the Ottoman aqueduct known to excavators as the Widow's Channel. Of many other medieval accretions—numerous graves and built tombs, a chapel, and sundry walls—only scattered traces are left.

At the center of the court is a sunken quadrangle (Roman Phase 3B) measuring approximately 6 × 13 m and accessed by a broad stairway at its north end (Pls. B, C, 8, 10–14). It still bears traces of marble siding and flooring, a limestone gutter, and holes marking the former placement of water spouts in its walls; several generations of each are attested. The feature has been convincingly identified as the *hypaithros krene*, the open-air fountain noted by Pausanias (κρήνη ὕπαιθρος, 2.3.3). What one must look carefully to see is that the lower-level area is surrounded by a large, stone-built water channel, Π-shaped in plan, its cover slabs flush with the general floor level of the court; sections of it are visible in Plates 7, 11, and 13. The *krene* channel received its water from inconspicuous openings pierced in the front parapets of two drawbasins (II and V), and the water then flowed out through as many as fourteen spouts around the perimeter. This unusual hydraulic installation was invented to provide visitors with running water despite the natural constraints of the site, first among them the low level of the source. Within the sunken space, a large round pool, 6.15 m in diameter and 1.25 m deep, was created in late antiquity (Late Antique Phase 2) and removed in 1901.

Shown in Plates 7 and 8, the spring facade consists of an arcade, all that remains of the two-storied wall that has stood since the Early Roman period.[19] The wall is of local poros limestone, which was originally stuccoed and whitewashed. It is a simple screen, built up against the Peirene scarp, undercut to leave a pebbly conglomerate shelf about 2.10 m high and the components of the preexisting springhouse in the space below it. The six evenly spaced arches of the lower story are framed by Doric half-columns, partly applied and partly engaged, and still partially preserved though largely effaced. The second story was a wall articulated with Ionic half-columns; the vestiges of two columns and their bases, as well as the intervening orthostates, are visible above the two middle arches. Careful inspection of structures east and west of the facade reveals that before the existence of the triconch court, high walls adorned with superimposed Doric and Ionic half-columns were added, creating a rectangular court in front of the spring facade. Chapters 7 and 8 are devoted to this poros court (Roman Phase 3A) and its conversion into a glittering marble court (Roman Phase 4), when the faces of the half-columns were roughly hacked back to accommodate marble revetment. Much of the work belonging to these intermediate construction phases was destroyed in the building of the triconch court, if not before.

Before entering Peirene's subterranean earthworks, I draw the reader's attention to an area east and northeast of the triconch court. Here, the standing remains include the walls of a series of Early Imperial rooms nestled against the eastward extension of the Peirene scarp and, to their north, the Peribolos apse. Next, the east–west foundations

preserve the lines of the southern pteron of the Peribolos of Apollo, and of the building that preceded it. Deep under these foundations are the so-called Cyclopean Fountain and the two monumental stone walls, between which it was once approached down a ramped corridor (Pls. 15–17). Associated with the Cyclopean Fountain are two reservoirs and a stone-built water channel preserved under the Peribolos apse. In the later 5th century B.C., these ceased to function when an impressive Hexastyle Stoa was raised over them, and water was thereafter brought through a hidden channel from Peirene. Although the Cyclopean Fountain lies about 25 m north of Peirene's spring facade, outside the Late Antique triconch court, it has shared the same source waters for its entire history.

Figure 5. Peirene: View of spring facade, showing arches of Chambers I–III and remains of columns

Now, as in antiquity, a glance through the arches of the springhouse reveals a shadowy, subterranean world. Six side-by-side compartments match Pausanias's description of "chambers like caves" (2.3.3), and beyond them the yawning mouths of reservoirs and water-collection galleries fade southward into darkness (Figs. 5–7). This is the springhouse proper, a complex of rock-cut voids and masonry walls, the moisture and darkness within in stark contrast with the dry clarity of ordered architecture without. In fact, the whole springhouse is an elaborated cave, created by quarrying away many cubic meters of hard clay, or marl, from under the more durable conglomerate and sandstone strata above.

Figure 6 (left). Peirene: View of Chamber I, showing Early Roman arch, conglomerate ledge, Hellenistic screen, and mouth of Reservoir 1

Figure 7 (right). Peirene: Interior view of Chamber I

Figure 8. Peirene: Interior view of Chamber IV

The six square chambers or drawbasins behind the facade (I–VI in Pls. B, C), are defined by fine poros masonry walls supporting the massive slab of conglomerate bedrock that serves as the ceiling of the fountain. They began, in the second half of the 4th century B.C., as open-fronted antechambers giving access to a series of basins further within (Pl. C:A–C). The closed drawbasins that are seen today were created when the Roman screen wall was raised in front of the fountainhouse, with low parapets closing off the chambers, in the late first century B.C. The chambers, and even the bedrock ceilings, were stuccoed and painted in several phases. Yellow painted panels, as preserved in Chamber I (Fig. 7), were replaced in Chambers II–VI by bright paintings of fish frolicking in a rich blue sea, probably in the 2nd century A.D., now best seen in Chambers IV(Fig. 8), V, and VI. At the back of each chamber is an engaged Ionic column ornamenting a central pillar, flanked by two antae, and supporting an epistyle, frieze, and dentilated cornice of the first half of the 2nd century B.C. East of the six drawbasins, a little vestibule (Chamber VII) provides access to subterranean structures southeast and east of the springhouse (see Pl. C). At the west end of the spring facade a door leads into the so-called Paraskenion, a long narrow room that sometimes served as a stairway (Pls. B and C; W1 on Pls. 4 and 5); also from there one can pass into the western underground.

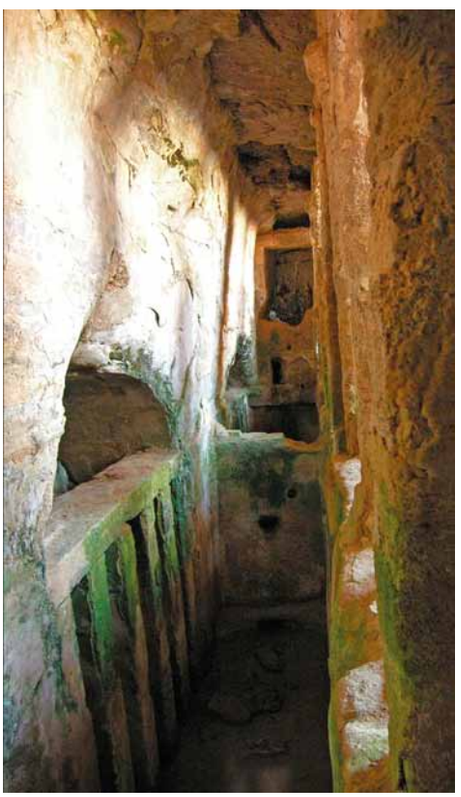

Figure 9. Peirene: View west from Basin C across Basins A and B. The chambers with drawbasins are to the right, and the mouths of Reservoirs 1 and 2 are visible on the left.

About 2.5 m back from the conglomerate face, the chambers end at a parapet wall defining the three early, deep Basins A, B, and C, cut into the marl and finished with watertight stucco; they and the space overhead are visible in Figure 9. The three drawbasins began as two, A/B (later divided by a poros wall) and C; to the west is a smaller settling tank, marked D on Plate C. Each basin floor slopes down to a little oval bowl at a central point to allow complete bailing for cleaning and repairs, but none had an outlet in its primary state.[20] The original parapet fronting the basins runs in a continuous line, and its earliest state predates the walls defining the six chambers. For a time thereafter, the view beyond the parapets was occluded by plaques inserted between the columns and antae, but it was a temporary arrangement, and even before the onset of clearly Imperial-period renovations, the plaques were removed, the slots into which they had been inserted were filled, and the

screens were refinished. It was probably then that the parapets developed the characteristic wear marks left by the water vessels hauled over them, to either side of the central pier (best seen in Fig. 7).

Originally, Basins A/B and C were the farthest-underground components of the Peirene springhouse, with a solid marl wall backing them up. They received water directly from a collection gallery that angled in from the southwest, the west supply tunnel.[21] Another subterranean gallery, the east supply tunnel, was cut under the high ground to the southeast, and in its earliest state, its water was channeled beyond the fountainhouse proper to the north and northeast. The northern ends of these two supply tunnels are visible in Plate C, while their full extent is shown on Plate D.

Figure 10. Peirene: View south into Reservoir 3, showing hydraulic mortar and lime encrustation

The four reservoirs are cut into the marl behind the basins and lined with waterproof stucco (Pl. C:1–4). Their mouths are clearly visible behind the drawbasins in Figures 7 and 8, as well as in Figure 9, where an original grille still defines the north end of Reservoir 2 (see also Pl. C:S-T, a drawing of the Reservoir 3 grille, which has now partially collapsed). The south end of Reservoir 3 is shown in Figure 10. The reservoirs average about 2.0 m wide, and their maximum height, at the north, is approximately 2.5 m. The ceilings, elliptical in section, are relatively level from front to back, but the floors slope downward toward the north. They were cut in two phases: the earlier, eastern two are 19.80 m long (Pl. C: 3 and 4), and the later, western two are 25.40 and 25.70 m long (Pl. C: 2 and 1, respectively). Water from the east supply tunnel flowed to the reservoirs through the forward cross-tunnel (just visible on Pl. C) and through funnel-shaped openings high in their back walls. It is interesting to note that Reservoirs 1 and 2 extended farther south than originally planned, actually cutting through the tunnel. It, in turn, was detoured around their southern ends, which also were pierced with funnel-shaped openings. The total volume of the four reservoirs has been estimated at 100,000 to 120,000 gallons, approximately 378,541 to 454,249 liters (378–454 m^3).[22] At the flow rates measured in rainy 1919 (albeit from both east and west supply tunnels), these could have been filled in a day or overnight.

Water Catchment and Delivery

Well behind the facade, the two supply tunnels stretch out to the southeast and southwest, branching into a network that extends beyond the farthest southeast and southwest corners of the forum. Approaching a kilometer in overall length, their courses are charted on Plate D. All but three branches have been followed to their ends.[23] Our tour continues south against the flow, following the path of the ancient Greek water miners, the modern Greeks and Americans who cleared the system between 1898 and 1933, and the occasional visitor to this day.[24] As I limit my treatment to major features, the reader is encouraged to consult Hill's detailed descriptions of the tunnels and his deductions about the stages of their creation.[25]

These great rock-cut channels and their subsidiaries make Peirene the extraordinary resource that it is. Most of the mileage is through aquiferous bedrock. Water seems to

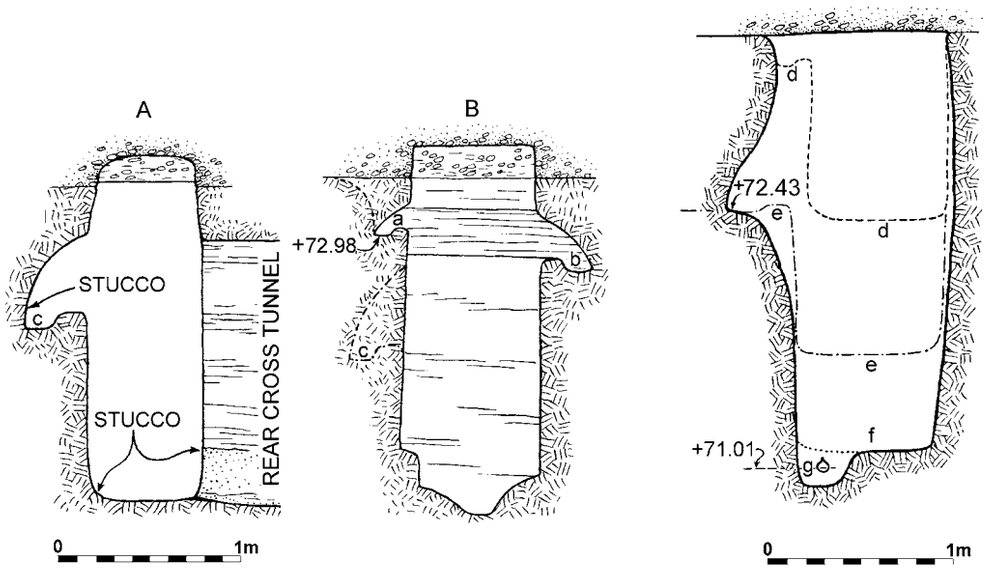

Figure 11 (left). Peirene: East supply tunnel, east–west sections, looking south, with Shelf Channels a–c labeled. (A) Section 13 m from facade (somewhat restored); (B) section 24 m from facade. After Corinth *I.6, p. 25, fig. 10*

Figure 12 (right). Peirene: West supply tunnel, east–west section, looking south, about 10 m from facade. After Corinth *I.6, p. 55, fig. 31*

sweat from long stretches of the rock walls and occasionally rains down, while elsewhere short tunnels, hereafter termed "taproots," penetrate particularly rich veins in the aquifer. The earliest segments of the tunnels, begun before the creation of the reservoirs, had conduits carved in the sidewalls, recessed "shelf channels" that bore the water out to an early basin or fountain near the cliff face (Figs. 11 and 12), while in later segments, lacking shelf channels, water was apparently allowed to run along the floor. The photographs in Figure 13 show a well-preserved portion of the east supply tunnel, tall enough for a person to walk through, with straight walls and a slightly rounded ceiling. For 13 m south of Manhole A, the tunnel is a very tall 2.05 to 2.40 m high. Its return to the normal height of 1.60 m can be seen at the back of the left image. Visible in the upper left corner of each image is a lamp hole—a little notch made in the wall to hold a terracotta lamp.

Figure 13. Peirene: East supply tunnel, photographs showing view south from modern dam at Manhole A, with two lighting schemes highlighting conglomerate ceiling, sandstone walls, and change in ceiling height (at back of left image)

Two cross-tunnels, one of which has been mentioned already, run between the supply tunnels (see Pl. D for the following discussion). Dug westward from an intersection with the east supply tunnel, the forward cross-tunnel (Fig. 14) was designed to feed the four reservoirs. It originally had no connection to the west supply tunnel, but this changed, perhaps in the Roman period, with the addition of a cramped and winding western extension. The longer rear cross-tunnel was cut from both supply tunnels, sloping down slightly from east to west, with a short dogleg compensating for what appears to have been a miscalculation on the part of those working from the east. With its construction, water from the east supply tunnel could be shunted around the reservoirs to the west supply tunnel, directly to the basins and beyond.

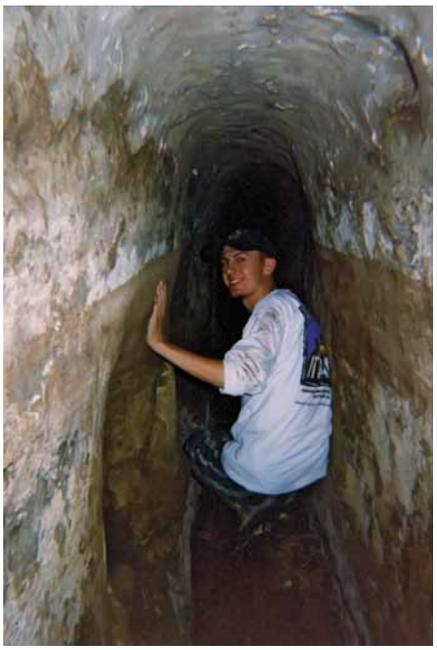

Figure 14. Peirene: Forward cross-tunnel, view east showing funnel-shaped opening into a reservoir, with Eric Maxeiner for scale

The west supply tunnel extends straight south for about 20 m, then meanders westward before reestablishing a straight course to the southwest. Where it passes under the forum, the tunnel becomes much broader than anywhere else. This is due to its nearly continuous use as a reservoir since the Roman period, during which time the water within has softened and eroded the walls. Eighty meters from the facade, the tunnel splits into two major subsidiaries, which I shall henceforth call the southwest supply tunnel and the south-central supply tunnel (Fig. 15; the intersection can be seen under the bema in the forum on Pl. D).

In the course of their construction, the supply tunnels were accessed through a series of manholes placed at intervals along the way. The majority of these are elliptical shafts with footholds cut in the sides (Fig. 16). Two, however, are more elaborate access ways with rock-cut stairways (Manhole G, shown in Fig. 17, and Manhole W, in a field south of the excavation). We shall come to the South Stoa aqueduct and its 31 connected wells

Figure 15 (left). Peirene: View south to fork between south-central supply tunnel (left) and the silted-up southwest supply tunnel (right). The bottom of Manhole F can be seen in the conglomerate ceiling at the very top of the image

Figure 16 (right). Peirene: View of Manhole A from below, showing concrete plug poured in 1919, still preserving the pattern of its wood form, and ancient toeholds in south wall (right)

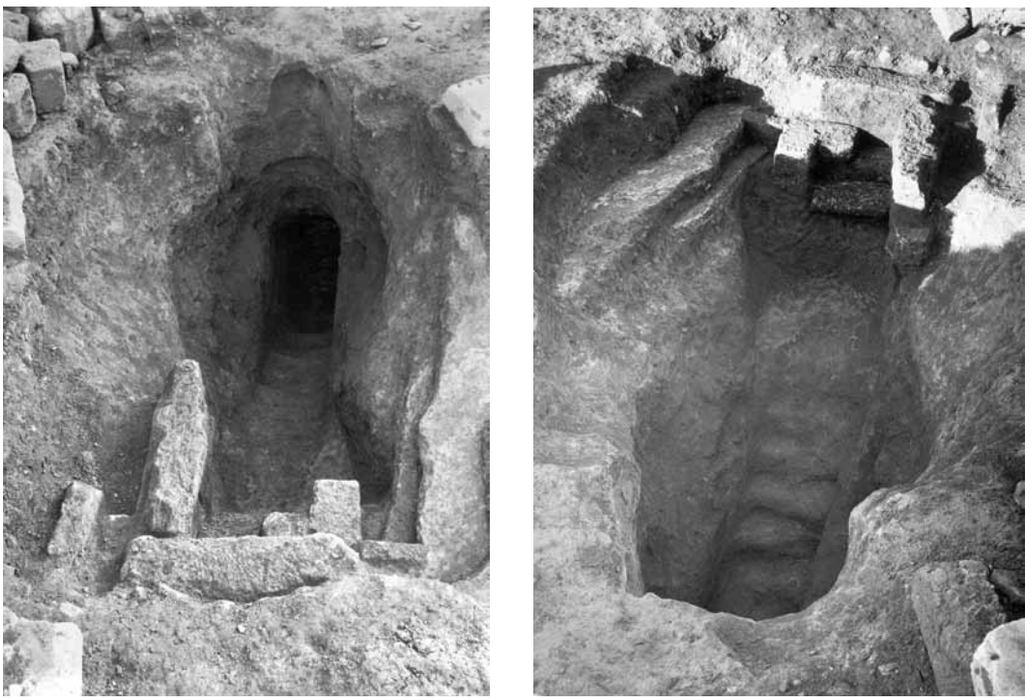

Figure 17. Peirene: Views of Manhole G from north (left) and south (right), as excavated in 1937, showing ancient stairway into tunnel system and damage from medieval pitting

Figure 18 (left). Peirene: View north in south-central supply tunnel under the forum, with Paul Scotton for scale. Visible on the left is the unexplored channel between Manholes H and J.

Figure 19 (right). Peirene: Unexplored subsidiary tunnel south of Manhole H. Roots have found their way through cracks in the bedrock into the moist, silty fill and into the water itself, as visible in Figure 18.

in due time, but, beside those, only a handful of ancient shafts into the supply tunnels (F1, F3, M, and Q) have the circular sections typical of wells that were dedicated to the drawing of water rather than to entering the system. Another shaft, L1 in the South Stoa, was added in medieval or modern times. Several manholes also served as wells, some in antiquity, and some in later eras. Few of these are visible on the surface today.

Although the south-central supply tunnel now offers the shortest path to the South Stoa aqueduct, its connection does not appear to have been part of the original plan. About 20 m beyond its deviation from the main channel, there is a manhole (H) and a

western branch that terminates after 7 m, just short of the so-called Underground Shrine, a rock-cut chamber nestled into a low rise on the south side of the Forum Hollow. From Manhole H, the channel, well preserved, continues along in a straight line for another 30 m (Fig. 18). About 17 m past H is another channel now clogged with earth. The stringy roots that run through the uncleared fill here, many meters below a living tree above, say much about what it takes to thrive in the dry Corinthian landscape (Fig. 19).

The south-central supply tunnel eventually reaches Well J12 (or South Stoa Well 21), the shaft centered in South Stoa Shop XXI that was still used by a local family when Peirene was rediscovered in 1898 and, accordingly, has long been known as the Giambouranis well. The tunnel's connection is not direct, but is made through a short right-angle jog southeast to the well. A branch just 1.50 m earlier seems to have sought, but missed, the same target. Thus the extension of the south-central supply tunnel to the South Stoa and its connection to the South Stoa system seem to have been contemporary with, or later than, the creation of that system. At least the northern portion of the channel, however, must have been considerably earlier. It appears that the tunnelers were afraid of damaging or defiling the Underground Shrine, which dates their passage between the consecration of that sacred place as early as the 6th century B.C., and before it was buried and forgotten in the second half of the 4th century B.C.[26]

The southwest supply tunnel follows a virtually straight, unbroken line for nearly 140 m from the springhouse; however, it has never been fully excavated, and today it remains almost completely occluded between Manhole F and Well M. Two north-running branches are known. The first terminates at oval Manhole F2, located just outside Classical Buildings I and II. Perhaps this shaft allowed access for maintenance and cleaning after two other shafts (F1 and F3) were covered in the construction of these buildings. The second branch, departing from Manhole M (located under the west wall of the South Stoa), is a longer tunnel running northwest. Although the softness of the bedrock has prevented the clearing of this tunnel, its course has been interpolated between two excavated manholes (Y and Z). Hill noted that water flowed into the main channel from this northwest branch, but further studies have revealed that the floor of the tunnel angles slightly down away from the main channel; at Manhole Z, about 38 m from the main tunnel, it turns north, as if intended to bring water to one or more structures on the western end of the Forum Hollow.[27]

About 13 m beyond Well M in the main tunnel, a major subsidiary veers off to the south and itself divides shortly thereafter. The western spur terminates in a well, probably of the Late Roman or early medieval period (Q), while the other runs on, first intersecting the western end of the long South Stoa aqueduct (to which I shall return shortly), then doglegging east to another manhole (N) and finally wending its way southeast, punctuated by a series of short water-catching taproots and two manholes (P and O). At the end of one taproot, the rear wall is adorned with a little rock-cut niche, perhaps a shrine cut by the original water-miners (Fig. 20; labeled "Niche shrine" on Pl. D). A similar feature (perhaps the beginning of another shrine) marks the end of a neighboring taproot ("Niche" on Pl. D).

Back in the main southwest supply tunnel, three short branches, two pierced with manholes (S and R), sprout from the last stretch of the original tunnel. A zigzag to Manhole T marks the departure of a second-phase segment reaching still further upstream. The

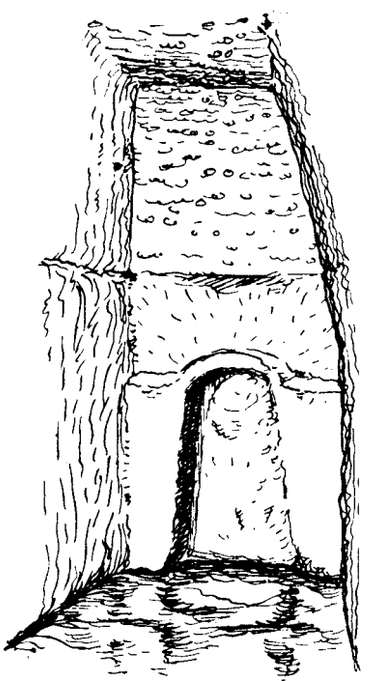

Figure 20. Peirene: Niche, perhaps a shrine, in the southwest supply tunnel, south of the South Stoa. After Corinth *I.6, p. 55, fig. 31:d*

Figure 21 (left). Peirene: South Stoa aqueduct, looking west from tunnel at Manhole J (under South Stoa Shop XXI)

Figure 22 (right). Peirene: South Stoa aqueduct, looking east from tunnel at Manhole J (under South Stoa Shop XXI)

remaining stretch, about 50 m long, is fed by several taproots and accessed through five manholes (T–X), one of which, Manhole W, includes a peculiar spiral stairway. Though far from the Peirene fountain, these channels are largely responsible for the unceasing productivity of the spring. Extending well beyond excavated ground (as of 2008), these tunnels mainly underlie the Pietris farm and its buildings, now owned by the American School and used for work, study, and storage.

The tunnel underlying the South Stoa is not a catchment channel but an aqueduct, cut entirely in the marl underlying the aquiferous conglomerate and limestone (Figs. 21, 22). Relatively roomy, 0.60 m wide and 1.75 m high, with a roughly elliptical ceiling, this South Stoa aqueduct consists of two sections, cut inward from the ends of the stoa and meeting 37 m east of Manhole-Well J12, between South Stoa Shops XIII and XIV. The alignment is nearly perfect, and a hole less than 0.30 m squared was used to join them. Originally too small for a person to crawl through, this opening was enlarged in 1933.

Slightly north of the tunnel are 31 wells, spaced approximately 5 m apart and each serving one of the South Stoa shops (Pl. D). Most of the wells connected to the South Stoa tunnel through small holes sliced through the clay, their bottoms level with the well floors and slightly above the floor of the tunnel. A lamp hole was cut in the wall of the tunnel opposite each well. Several wells probably served as manholes during the construction process, communicating with the main tunnel through much larger openings that were blocked with squared-stone masonry walls when the shafts were adapted into wells as the building went into use.[28] The majority of the wells are circular shafts, 0.80 m in diameter and about 12 m deep, driven through sandstone and conglomerate into the marl. Where they cut through dirt fill above bedrock, the shafts are lined with masonry and were probably originally topped with poros puteals (though pithos necks seem also to have been used as wellheads). Cuttings in puteal fragments and the absence of rope marks around the mouths indicate that a suspended pulley system was used to draw vessels out of the wells. A number of disks of terracotta and stone have been identified as covers.

The floor level of the aqueduct is approximately 0.60 m below that of the segment of the southwest supply tunnel from which it branches. This detail and a similar rise between Manhole-Well J12 and the south-central supply tunnel ensure that water passes into the south-central supply tunnel and proceeds on to the springhouse only after it reaches a meter's depth in each well. That is, in its prime, the South Stoa took priority in the distribution of Peirene water. Previously unpublished details of the excavation of the South Stoa aqueduct and its associated wells will be discussed in Chapter 4, and although published interpretations by Broneer and G. Roger Edwards are likely to be thoroughly revised by current studies, I shall discuss the stoa's purposes and the importance of water in Chapter 5.[29]

Canalization and Drainage

Some comments are in order about the drainage systems serving Peirene and the higher ground of the Forum Hollow to the south. The drains should not be conflated with the channels of many eras that transported the fresh water of Peirene to remote points downhill to the north. The aqueducts that delivered Peirene's water to several destinations in the area of the modern village center into the 20th century will be explored in Chapter 11. It is important to note, however, that they were only the latest and best known of the many generations of fresh-water channels that have taken Peirene's water to outlets as near as the Peribolos of Apollo and as far as the northernmost promontory of Corinth's lower terrace.[30]

A vast network of subsurface channels drained the Forum Hollow throughout antiquity; the members converged near the head of the Lechaion Road, and there merged under the monumental Roman paved platform and steps. A single large stone-built drain, termed here the Peirene bypass drain, emerges from beneath the platform, snakes around the northwest corner of the Peirene court, then runs northeast toward the center of the Peribolos of Apollo (labeled on Pls. B and C). The present incarnation is Roman with medieval modifications, but vestiges of earlier drains can be seen in the area as well. Running north from Peirene, the so-called Peirene drain carries overflow from the fountain. It originates in a small channel leaving Basin B, runs north under the *hypaithros krene*, and turns east under the threshold of the north apse. Under the east entrance to Peirene, the drain turns north again. After a short segment lacking any superstructure, it continues through well-built walls supporting a high ceiling, much reconstructed from Roman times to the present, under the Peribolos of Apollo.

From the intersection of the Peirene drain and Peirene bypass drain (Pl. D, and just out of bounds on Pls. B and C), the overflow from Peirene was mixed with surface runoff from the Forum Hollow and from other structures along the way, in what is generally called the Great Drain, Corinth's Cloaca Maxima. Wending its way east of north to rejoin the line of the Lechaion Road, the drain would have become increasingly polluted during its use life—from the waste of Hellenic and Roman industrial establishments in the Peribolos area, from the sewage of a Late Antique latrine, and from the input of numerous other channels of varying date and origin. In the early 20th century, the Peirene drain and Great Drain were outfitted with pipes to carry clean water from Peirene to the village fountains, thus avoiding the ancient structures aboveground. When Peirene was declared unfit for human consumption in the late 20th century, the pipes were detached, and water

now runs freely from the fountainhouse into the tunnel. Today the Great Drain ends abruptly at a point approximately 285 m from the triconch court, where a pipe shunts overflow into the modern Lechaion Road. Flowing in an open gutter, the water eventually reaches the fields in the plain below.[31]

Water Chemistry and Microbiology

Much of the ancient author Athenaeus's knowledge about water is reflected wisdom, but when it comes to Peirene, he seems to offer a firsthand observation.[32] Shifting to the first person, he claims that when he "weighed" Peirene's water, he found it to be the lightest in all of Greece: σταθμήσας τὸ ἀπὸ τῆς ἐν Κορίνθῳ Πειρήνης καλουμένης ὕδωρ κουφότερον πάντων εὗρον τῶν κατὰ τὴν Ἑλλάδα (2.43b). Pausanias (2.3.3) praises Peirene's taste, also recording a popular belief that the water figured in the recipe for Corinthian bronze. These references suggest that Peirene was somehow distinctive, prompting us to ask what is in that water. Is it indeed among the "lightest," or softest, waters of Greece? Does it have unusual powers?

In 1932, Hill commissioned chemical and microbiological analyses of major Corinthian springs, and several tests were repeated in 2006 (Table 1). The total hardness, that is, the aggregate calcium and magnesium concentration (expressed as mg/l $CaCO_3$) of Upper and Lower Peirene can be compared to that of other local waters, like Hadji Mustafa (Pl. A:6). While Hadji Mustafa is merely "hard," and therefore remarkably light, or soft, for Greek spring water, and comparable to the water of Arcadian Lake Stymphalus (the source of Corinth's Hadrianic aqueduct, of which more will be said later), the Peirenes range from very hard to extremely hard, and the springs issuing from the lower terrace are still harder.[33]

Before 1941, Earle R. Caley also subjected Peirene to a complete mineral analysis and discovered high concentrations of "salts," bicarbonates, chlorides, and sulfates—not only of the calcium and magnesium responsible for Peirene's hardness, but also of iron, potassium, and sodium (Table 2).[34] Caley drew particular attention to the unusually high chloride content of the water, linking it to sea salt (predominantly NaCl) and attributing it to sea spray blown off the Corinthian Gulf, deposited across the landscape, and gradually washed by rain into the shallow aquifer.[35] While further testing would be necessary to prove that marine aerosols are the main cause of Peirene's salinity, Caley's analysis establishes it as a long-lived condition, invalidating the common belief that Peirene's salination is a recent development. Only well after 1941 did power pumping of fresh groundwater become rampant in the Corinthia, overtaxing subterranean aquifers and resulting in their contamination by the rising saltwater table.[36] If Peirene has been affected at all, it is merely a drop in the bucket.

Caley's figures therefore characterize not the current state of the spring but, once again, that of "Peirene yesterday," which may be applied toward the understanding of Peirene in the distant past, particularly when supplemented by physical evidence. For example, thick concretions, known as sinter or limescale, on the interior walls of the springhouse and adjacent structures such as the Cyclopean Fountain indicate that Peirene was highly mineralized in its highstands of Late Antique, medieval, and early modern times. Earlier deposits are found within the ancient basins and on the walls of the Classical-Hellenistic channel leading into the Cyclopean Fountain, where they can have been left only by

TABLE 1. HARDNESS OF WATER SAMPLED FROM CORINTHIAN SPRINGS AND LAKE STYMPHALUS

Source Spring	*1932**	*2006**	*Location*
Hadji Mustafa	129	170	Pl. A:6
Upper Peirene	209	280	Pl. A:3
Peirene	474	540–640	Pl. A:1
Baths of Aphrodite	560	—	Pl. A:15
Lerna/Asklepieion	553	—	Pl. A:17
Cf. Lake Stymphalus	—	175	—

* *Total hardness (mg/l $CaCO_3$)*

TABLE 2. CONCENTRATIONS OF MINERALS PRESENT IN PEIRENE WATER*

Ion or Compound	*Amount Present (mg/l)*
Calcium (Ca^{+2})	62
Magnesium (Mg^{+2})	57
Iron (Fe^{+2})	0.2
Potassium (K^{+})	48
Sodium (Na^{+})	94
Bicarbonate (HCO_3^{-})	550
Chloride (Cl^{-})	106
Sulfate (SO_4^{-2})	48
Dissolved or colloidal silica (SiO_2)	63
Nitrogen compounds & organic matter	Present but not estimated
Total dissolved matter	1,030

* *After Caley 1941*

moving water in the channel's use life. Peirene's hardness, then, is another constant. There is, however, nothing in the water to substantiate chrysopoeic claims. The distinctive qualities of Corinthian bronze came from its metallic components, but the rumor of Peirene's agency may well have been behind the construction of bronze foundries in the area of the Peribolos of Apollo, early and late in the Roman Imperial period.[37]

While Peirene's composition is harder and saltier than most of the Greek and American bottled waters available today, it is well within the range of typical European mineral waters. An advertisement for the water of Alsatian Wattwiller could as easily be applied to Peirene: "So fabled is this delicacy, it is believed to have a soul. A look at [the] chemistry confirms anecdotal reverence. If you don't mind its faint salty aftertaste, this elite water delivers. . . ."[38]

Peirene, however, has a dirty little secret. The results of microbial analyses commissioned by Hill in 1932 are not preserved, but the fact that they provoked the analyst's suspicion of "periodical epidemics of typhoid" points to serious biological contamination.[39] Even today, high levels of enteric bacteria characterize samples taken from Manhole R, also known as the Pietris well, from which water is still pumped for

pottery washing during the excavation season. *Escherichia coli* and *Enterococcus spp.* (intestinal *Streptococcus*) counts are some hundreds of times higher than European Union drinking-water allowances.[40] This unsavory state persists despite massive cleanup efforts through the first half of the 20th century, two generations after the properties overlying the western supply tunnels—that is, Peirene's immediate watershed—were last occupied.[41] Bats (who inhabit Peirene in the winter and spring) and other warm-blooded denizens are potential contaminators; however, as Manhole R is far upstream and close to Peirene's western sources in an area of free-flowing water and minimal sedimentation, significant penetration is unlikely.[42]

The contamination probably comes from the land above. Because Peirene's aquifer is very shallow and lacks protective layers of marl or other impermeable materials above it, it is easily tainted. Recent studies of comparable systems have documented microbial infiltration from ground level down, not only through fissures, but through the porous structure of the limestone itself, much like Caley's aerosol sea-salt trickle-down scenario.[43] Typical sources are unlined cesspools, livestock grazing, and manure fertilizers. Again, at Ancient Corinth further tests would be necessary to recognize the nature of the contamination. The point now is moot, however, for Peirene is no longer used for human consumption, but shunted underground through the village and eventually to the plain below.

What should be clear from this discussion of water science is that Peirene is an extremely delicate system. Even with Corinth reduced to a village, with the area of the aquifer unpopulated and all wells and manholes sealed, the purity of the source still cannot be guaranteed. In subsequent chapters, we shall see that Peirene's sanitization became an all-consuming concern for its modern inheritors, and this prompts one question that will not be answered here: How was Peirene's water quality ensured in antiquity if there was significant habitation above the fountainhouse and upstream of its aquifer, long before waterborne-disease vectors were understood?

Acrocorinthian Peirene: Impressions and Connections

Peirene has been thought by many to emanate from the very rock of Acrocorinth, and moreover, to be connected to another source up on the acropolis.[44] This natural spring is identified as Peirene by Strabo (8.6.21) and the elder Pliny (*HN* 4.11) and is now generally known as Upper Peirene (Pl. A:3; Fig. 23). About 80 m south of the highest point of Acrocorinth and about 70 m below, the spring rises from the bedrock of a terrace that overlooks the routes into the Peloponnesian interior rather than Corinth to the north. In its pristine state, Upper Peirene was probably a pool of clear water filling a natural cleft in the bedrock, and its usage likely dates back to the earliest occupation of the citadel. Polygonal walls are the earliest ancient remains visible at the site and indicate a substantial early—probably Archaic—investment. In the 4th or 3rd century B.C., the springhouse was further monumentalized with the insertion of ashlar walls and a decorative screen.

Today the ancient springhouse is reached by descending a metal stairway between late walls from the west. The interior consists of two chambers, each about 2.5 m wide, oriented roughly north–south. The southern room is about 6 m long, with a landing stretching across its southern end. Vaulted since the Roman period, this chamber was originally open to the sky. From the landing, a stairway fills the chamber, descending north between its polygonal masonry walls and through a pillared portal into the second,

Figure 23. Upper Peirene: View north under screen of reused elements into crystal-clear water. The opening to one of the water-catchment tunnels is visible underwater to the left.

lower chamber. Extending about 7.5 m north, its vertical descent about 6 m, the stair allows access to water even when its level is low.

The portal between the chambers consists of two antae and a central pillar supporting an epistyle and pediment of reused blocks. Behind the screen, the polygonal walls of the lower, northern chamber are faced with ashlar masonry supporting a concrete vault.[45] Stillwell cites numismatic evidence in assigning the vault to the period of Antigonus Gonatas's control of Corinth (272–243 B.C.), while the ashlar walls appear to belong to a previous phase when a roof of wood and tiles covered the northern chamber.[46] Three ashlar-lined tunnels conduct water into the fountainhouse from unlined cuttings that tap aquiferous strata to the west, north, and east. The fountain continued to be used through the Roman period with some changes, including the extension of the vault to the south over the upper steps in the outer chamber.[47] Eventually the spring water was drawn only through wells, but its use continued through the Byzantine, Venetian, and Ottoman occupations of Acrocorinth; after the abandonment of the citadel in the 19th century, the springhouse became almost completely occluded with stones and other debris.

The sanctity of this spring is attested by Imperial-era Greek and Latin graffiti—thought to be prayers offered for friends, in absentia—on the interior walls and the pillars of the screen. And it is easy to imagine that the steady supply and limpid waters of this mountaintop spring, even in its pristine state, inspired wonder and reverence, although archaeology has produced no evidence of cult activity.[48] The physical explanation of this spring remains elusive, despite the numerous hypotheses put forth in modern scholarship.[49]

Likewise, in antiquity, this marvelous source gave rise to a bounty of explanations and imaginings, and so a brief consideration of ancient wisdom is warranted here. Strabo probably visited Corinth in 29 B.C., about 15 years after Corinth's Roman colonization.[50] His reference is not only the earliest of the Imperial age to name Peirene, but the first to use that name for the spring on Acrocorinth and to assert its connection to the copious fount below (8.6.21):

> ἡ μὲν οὖν κορυφὴ ναΐδιον ἔχει Ἀφροδίτης, ὑπὸ δὲ τῇ κορυφῇ τὴν Πειρήνην εἶναι συμβαίνει κρήνην, ἔκρυσιν μὲν οὐκ ἔχουσαν μεστὴν δ' ἀεὶ διαυγοῦς καὶ ποτίμου ὕδατος. φασὶ δὲ καὶ ἐνθένδε καὶ ἐξ ἄλλων ὑπονόμων τινῶν φλεβίων συνθλίβεσθαι τὴν πρὸς τῇ ῥίζῃ τοῦ ὄρους κρήνην ἐκρέουσαν εἰς τὴν πόλιν ὥσθ' ἱκανῶς ἀπ' αὐτῆς ὑδρεύεσθαι. ἔστι δὲ καὶ φρεάτων εὐπορία κατὰ τὴν πόλιν, λέγουσι δὲ καὶ κατὰ τὸν Ἀκροκόρινθον· οὐ μὴν ἡμεῖς γε εἴδομεν. τοῦ δ' οὖν Εὐριπίδου φήσαντος οὕτως "ἥκω περίκλυστον προλιποῦσ' Ἀκροκόρινθον, ἱερὸν ὄχθον, πόλιν Ἀφροδίτας," τὸ περίκλυστον ἤτοι κατὰ βάθους δεκτέον, ἐπεὶ καὶ . . . φρέατα καὶ ὑπόνομοι λιβάδες διήκουσι δι' αὐτοῦ, ἢ τὸ παλαιὸν ὑποληπτέον τὴν Πειρήνην ἐπιπολάζειν καὶ κατάρρυτον ποιεῖν τὸ ὄρος.
>
> The summit has a small temple of Aphrodite, and below the summit is the spring Peirene, which, although it has no overflow, is always full of transparent, potable water. And they say that the spring at the base of the mountain is the joint result of pressure from this and other subterranean veins of water—a spring [κρήνην] which flows out into the city in such quantity that it affords a fairly large supply of water.
>
> There is a good supply of wells [φρεάτων] throughout the city, as also, they say, on Acrocorinth, but I myself did not see the latter wells. At any rate when Euripides says, "I am come, having left Acrocorinth that is washed on all sides [περίκλυστον], the sacred hill-city of Aphrodite," one should take "washed on all sides" as meaning in the depths of the mountain, since wells [φρέατα] and subterranean pools [λιβάδες] extend through it. Alternatively one could assume that in early times Peirene used to rise over the surface and flow down the sides of the mountain.[51]

After discussing the nature of connection between the springs at some length, Strabo proceeds to mention the taming of Pegasus in passing (a topic to which we shall return in the next chapter), and moves on to the last of the monuments he seems to think worthy of note on the acropolis, the otherwise unattested Sisypheion. Though unnamed by Strabo, the copious spring below—the one monument he mentions within the polis—can have been none other than Lower Peirene.[52] Since it was certainly known as Peirene throughout antiquity, Strabo's failure to name it seems to be merely the omission of what would have been an obvious point to a contemporary audience. Pausanias (2.5.1–2) leaves no doubt: ἤκουσα δὲ ἤδη τὴν Πειρήνην φαμένων εἶναι ταύτην καὶ τὸ ὕδωρ αὐτόθεν ὑπορρεῖν τὸ ἐν τῇ πόλει ("I have heard people say that this [Acrocorinthian] spring and Peirene are the same, the water in the city flowing hence underground").[53]

While Strabo's *Geography* is the first preserved source to propose the physical connection between the Peirenes, it is very likely that it was imagined long before his time. In a part of Greece characterized by karstic phenomena such as sinkholes, tunnels, and semi-subterranean rivers, the assumption of a connection is understandable, though it is now known to be incorrect. True or not, the connectedness of such sources by veins (λιβάδες = Lat. *venae*) was a reasonable working hypothesis stemming from observation and conventional wisdom. Raoul Baladié has noted that even if Strabo's veins were apocryphal, the concept of a prolific Peirene aquifer underlying the city was very real, and one successfully exploited on a practical level from the earliest human

improvements to the lower spring, the cutting of tunnels to capture water—literally to mine water from rock.[54] This understanding was also the foundation for the grafting of a cultural complex—literature (whether poetic or rationalist), representational arts, and architecture—onto the springs. Then as now, ciceroni probably encouraged visitors to contemplate the veins linking the two sources as they regarded the reservoirs and galleries behind the facade of Lower Peirene. It remains an effective and dramatic ploy. As late as the early 20th century, furthermore, there remained a tradition that the spring of Kyras Vrisi, near the Isthmian sanctuary, ultimately originated in Acrocorinth and Upper Peirene in a similar fashion.[55]

The Saturated Landscape: Ancient Hydrology

Preserved in works of philosophy, natural history, geography, and medicine, ancient inquiries into the nature of seas, rivers, and springs give us the context to appreciate Strabo's view of Peirene. As Baladié has made clear, Strabo is more interested in hydrology than in any other aspect of physical geography.[56] For Strabo, the world is riddled with underground pools and channels, some actual and others imagined. One passage (9.2.16–18—within a discussion of Boeotian physical geography) provides a distillation of the author's geological reality—a perforated underland in which "some of the streams flow through underground channels, whereas others flow on the surface of the earth, thus forming lakes and rivers" (συμβαίνει δὴ καὶ τοῖς ὕδασι τοῖς μὲν δι' ὑπονόμων φέρεσθαι τῶν ῥείθρων τοῖς δ' ἐπιπολῆς,τοῖς τε λιμναίοις καὶ τοῖς ποταμίοις).[57] As his books progress from region to region, Strabo considers the stories of subterranean and subaqueous rivers on a case-by-case basis. His conclusions reflect personal observation, careful evaluations of the available evidence, and a healthy measure of skepticism. He clearly takes his watercourses seriously, presenting and evaluating popular lore with insights sharpened by his own learning.

Modern hydrologists recognize that water is recycled between the atmosphere and earth in a closed loop that conserves the total amount of water distributed through the atmosphere, biosphere, and geosphere.[58] In this, the so-called pluvial model of the hydrological cycle, the sun's warmth causes waters on the earth's surface to evaporate, forming vapor in the atmosphere, which condenses and returns to the earth as rain or snow, falling into the oceans or onto the earth. Some of what falls to earth is shed off the surface as runoff and some is absorbed, becoming groundwater, like the aquifers that feed Peirene and the other Corinthian springs. Bedrock composition is the crucial determinant of the behavior of groundwater, and the limestone landscapes of Greece are remarkably well suited to maximize the returns of rainfall, a happy circumstance in a land generally characterized by limited precipitation concentrated in torrential winter downpours.[59] Although the volume of rain, when it comes, often exceeds the absorptive potential of the land, limestone strata sandwiched between impermeable layers of marl are often permeable and porous enough to capture and recycle a remarkable amount of water. As seen at Corinth, groundwater emerges where aquiferous strata of bedrock are exposed or tapped, by natural or human processes.

Ancient hydrological theories were influenced by the very nature of the Graeco-Roman landscape, which is widely characterized by such conditions. In antiquity, some observers of nature—for instance, Hippocrates, Aristotle, and Vitruvius—posited

prototypical versions of the pluvial model for the origin of groundwater.[60] Others, such as Pliny and Seneca, advocated ocean-fed models, holding that seawater passed through the earth in subterranean arteries that eventually surfaced as springs and the headwaters of rivers.[61] Still others, such as Lucretius, embraced models reflecting the influence of both major schools.[62] The concept of mass conservation—that the total amount of water in the environment was constant—was implicit in all.

While the precise understanding of groundwater circulation varied, there was general consensus that water moved through the voids and veins within the earth.[63] To some, these water channels were cavernous tunnels that perforated the earth; to others, they included pores in permeable stone or sand that was likened to a sponge—interstitial passages.[64] Indeed, in many regions of the Graeco-Roman world, groundwater not only saturates permeable bedrock as at Corinth, but as frequently moves through macroscopic voids. In the most extreme, karstic conditions, groundwater has opened extensive networks of channels through the bedrock by slowly dissolving the limestone over geological time to create impressive caverns, often sheltering underground pools. Ancient models of the *mundus subterraneus* reflect reasonable extrapolations from the observation of such features near the earth's surface.

Plato, for example, imagines that water pooled deep in the earth but resurfaced through subterranean channels, ranging from small streams to veritable rivers. Of the different regions of the earth, he holds (*Phd.* 111d2–8):

> τούτους δὲ πάντας ὑπὸ γῆν εἰς ἀλλήλους συντετρῆσθαί τε πολλαχῇ καὶ κατὰ στενότερα καὶ εὐρύτερα καὶ διεξόδους ἔχειν, ᾗ πολὺ μὲν ὕδωρ ῥεῖν ἐξ ἀλλήλων εἰς ἀλλήλους ὥσπερ εἰς κρατῆρας, καὶ ἀενάων ποταμῶν ἀμήχανα μεγέθη ὑπὸ τὴν γῆν καὶ θερμῶν ὑδάτων καὶ ψυχρῶν. . . .
>
> Now all these are connected with one another by many subterranean channels, some larger and some smaller, which are bored in all of them, and there are passages through which much water flows from one to another as into mixing bowls; and there are everlasting rivers of huge size under the earth, flowing with hot and cold water. . . .[65]

Still, because Plato's hydrological observations are embedded in works with greater purposes than mere hydrology (like *Phaedo*), they are of limited value in what they tell us about contemporary theory.

More straightforward are the models of Plato's student Aristotle. He rejects the idea that all rivers flow out of one or more such cavities or subterranean lakes (κοιλίας or λίμνας). He points out that there is simply not the room within the earth to accommodate such bodies of water (*Mete.* 349b16–19, 350b22–27, and cf. 356a15–34) and proposes instead that mountains and other high ground behave like a "thick sponge," pushing down on the earth and causing water to condense from the rock itself and to collect in ever-growing streams: οἱ γὰρ ὀρεινοὶ καὶ ὑψηλοὶ τόποι, οἷον σπόγγος πυκνὸς ἐπικρεμάμενοι, κατὰ μικρὰ μὲν πολλαχῇ δὲ διαπιδῶσι καὶ συλλείβουσι τὸ ὕδωρ (*Mete.* 350a7–9). In support of this theory, he calls on the experience of his audience: δηλοῖ δ' αὐτὸ τὸ ἔργον· οἱ γὰρ τὰς ὑδραγωγίας ποιοῦντες ὑπονόμοις καὶ διώρυξι συνάγουσιν, ὥσπερ ἂν ἰδιούσης τῆς γῆς ἀπὸ τῶν ὑψηλῶν ("a practical proof of this is that when men make irrigation works they collect the water in pipes and channels, as though the higher parts of the earth were

sweating it out," *Mete*. 349b35–350a1–2).[66] This reasoning will appeal to anybody who has ever visited a misty cave, or water-collection galleries like those of Peirene, where water perspires from the walls and, in places, rains down from the ceiling. Yet, despite his rejection of the hypothesis that all rivers must flow out of one or more subterranean hollows, Aristotle allows that some surface waterways were proven to disappear into swallow holes and fissures (φάραγγες καὶ διαστάσεις), only to reappear far away as springs and rivers, while other sources miraculously well up in the sea (*Mete*. 350b36–351a19).[67]

Vitruvius epitomizes the pluvial perspective in his practical guide for architects, explaining how water from rain and melted snow filters through veins within the earth down to the foot of mountains from which flowing springs burst forth (*ex quibus profluentes fontium erumpunt fructis, De arch.* 8.1.7). Seneca also attests to subterranean voids, through which water flows downward, emerging at certain points of opportunity (*Q Nat.* 3.26.3):

> sub terra vacat locus; omnis autem natura umor ad inferius et ad inane defertur. illo itaque recepta flumina cursus egere secreto, sed, cum primum aliquid solidi quod obstaret occurrit, perrupta parte quae minus ad exitum repugnavit repetiere cursum suum.
>
> There is vacant space underground; moreover, all liquid by its nature is carried to a lower and empty region. And so the rivers received into that empty region continue their course out of sight, but as soon as anything solid meets them so as to obstruct them they burst through the section that offers the least resistance to their exit and recover their course on the surface.[68]

Here he could very well be describing the geology of Corinth, where the impervious marl underlying the aquiferous strata in the Forum Hollow dips toward the place where Lower Peirene emerges, effectively funneling water to the spring.

Two more concepts, though peripheral, are worthy of at least a passing word. Some hydrological issues were never satisfactorily resolved in antiquity, in particular, the paradox of the connectedness of salty seas and sweet springs. To the pluvialists, the question was why the sea was salty if its major sources were fresh, while ocean-fed partisans had to explain how salty seawater could become sweet within subterranean aquifers (a transmutation paralleling the sweetening of Peirene's tears in another cosmology).[69] We have already seen that Peirene is relatively hard and salty, probably from airborne sea salt being carried into the aquifer with rain. It is remarkable that these characteristics seem to have gone unnoticed by ancient authors, though it is tempting to read as visual commentaries the Roman Imperial paintings of saltwater fish in Peirene and the putative installation of the sea monster Scylla in Peirene's court.[70]

Both oceanic and pluvial partisans, furthermore, realized the need to explain why and how springs and rivers often occur at altitudes far above sea level. The internal heat of the earth or, alternatively, the weight of overburden upon interstitial waters was often cited.[71] Either model depended upon an oft-unspoken assumption that the mechanisms of fluid motion within the earth parallel that of blood coursing through a living body, and that some force pushes water upward from sea level, offsetting the regular passage of water back down to the seas.[72] Explanations of high-altitude springs are important data for our analysis of ancient understandings of Upper Peirene, a spring that had enough head to

ensure a steady level of crystal-clear water, never running dry nor overflowing. If the land were a body with veins of living water, the streams could be tapped high or low.

Strabo's adduction of such a water body in Peirene is that of an individual confident enough in his geological outlook to propose a further layer of interpretation, in this case, a rationalization of Euripides's statement that Acrocorinth is περίκλυστον, that is, washed on all sides or throughout (8.6.21).[73] Following Baladié, I emphasize that Strabo saw a mountaintop spring whose potable water maintained a fairly steady-state level, a paradoxical condition implying that there was somewhere an exit for surplus water.[74] The most logical direction of escape was down, presumably through a passage in the mountain. Strabo's interpretation of Euripides's claim is odd, but his allowance for the water to have overflowed and run down the sides of Acrocorinth is consistent with his geological knowledge and, as well, with ancient experience with hydraulic prodigies.[75] It provides a key to what Strabo accepted as given and felt free to embellish.

Although Strabo's single-source conclusion makes perfect sense in light of ancient hydrological thought, most modern authors have written it off as confusion, to be blamed on the misunderstanding of Corinthian mythology by foreign poets and the introduction of corrupted traditions after the Mummian rupture.[76] In Broneer's view, for example, only then did the explanation arise that the two springs were effectively one and become established through Strabo's dissemination.[77] Given what we know of ancient hydrological thought, a more likely scenario is that the belief in the connection of the springs, and probably the shared name, though first signaled by Strabo, were old traditions and the stuff of common knowledge. I therefore consider them integral features of the landscape in which other traditions flourished, as I turn to the cultural complex of Peirene as reflected in art and literature.

One of the great wonders of Peirene is that behind the impressive, ruined architecture, another world exists largely unchanged since antiquity, in which water still perspires through the porous walls, collects in streams, and pours through great hand-cut veins through the bedrock, giving meaning to the geological expression "living rock." Indeed, much like a live organism, Peirene responds to the world around it, and through careful human stewardship, it has functioned as the heart and lifeblood of Ancient Corinth nearly to the present day. Given its practical importance and its seemingly infinite reaches, it is no surprise that Peirene came to inspire creativity on many fronts, from monumental architectural elaboration to poetic and pictorial imaginings. In the next chapter, we shall turn to the imaginative history of Peirene, from the myth that made it famous to its long legacy as a witness of agonistic excellence and a source of poetic inspiration and philosophical wisdom. Then we shall dive back into the spring itself to explore the history of its excavation, and finally to understand its architectural evolution and artistic elaboration over three millennia, from the standpoint of a fourth.

CHAPTER THREE

Great and Fearful Days: The Rediscovery of Peirene

> Of all the famous fountains of Greece the most famous was Pirene. Pindar (choosing, no doubt, as always, an appellation of which his patrons would be proud) calls Corinth "the city of Pirene." That this fountain was a centre of the city's life is as certain as it was natural.
>
> R. B. Richardson

With the introduction above, Peirene debuted in American intellectual society, presented by Rufus B. Richardson in a letter to *The Nation* in the spring of 1898.[1] It says much about the subscribers to the weekly journal—a brainchild of American School founder Charles Eliot Norton—that Richardson could rely upon readers to be as familiar with Corinth as with the poet Pindar and above all to share in the magnitude of his discovery. This preeminent source, this fountain of poetry, long lost to humanity, was once again found.[2]

The ancient springhouse of Peirene had been lost to sight perhaps in the 14th century. Its water, however, never ceased to reach the Corinthian people and their land, and its reputation was preserved (if tenuously) in the literature, art, and scholarship of elite circles of Europe and, eventually, America. Separated for centuries, these local and universal histories of Peirene would converge again at the rediscovery of the ancient fountainhouse, the heart of ancient Corinth, near the center of the modern village in 1898.

Upper Peirene was one target for early-modern visitors to Corinth, and, for those who were allowed access to Acrocorinth, it was not hard to find.[3] Lower Peirene was by far the more challenging quest, for those who looked. In his *Travel Journal* of 1668 Evliya Çelebi described Corinth as a prosperous town full of stone-built houses with thriving gardens, vineyards, and orchards fed by fountains of running water.[4] One or more of these flowed from Peirene, but Evliya had no interest in rediscovering ancient monuments as he passed through the Morea on his way to the siege of Candia. Members of the Venetian-led Christian coalition, pausing in Corinth before the siege of Athens in 1687, likewise cared little about ancient Corinthian landmarks beyond strategically important features such as Nero's unfinished canal across the Isthmus and unavoidable ruins such as the Archaic Temple and the Great Bath in town.[5] Although visitors of the 17th and 18th centuries increasingly came to Corinth in search of ancient landmarks, Lower Peirene was not to be found among the standing ruins.

An outlet of Peirene in the area of the modern plateia is visible on maps as early as 1687,[6] however, and as we shall see in Chapter 10, several other fountains fed by Peirene would exist by the 18th century. But the architectural idiom of the 16th- through 18th-century fountains of Ottoman-occupied Corinth made them the stuff of Orientalist "Turkish Tales" rather than objects of antiquarian appreciation. William Haygarth recorded in the journal of his Greek travels in 1810–1811 that the fountain he saw in Corinth's bazaar was probably Peirene, but he published this observation so deep in the notes to his underappreciated *Greece: A Poem, in Three Parts* that no notice was taken.[7] The next early traveler's sure (but unwitting) notice of Peirene is that of Peter Edmund Laurent. Amidst busy kafeneia in the village square, he wrote of a fountain, which, "rais[ing] its waters with considerable force through the hollowed shaft of an ancient column, and throwing them over its capital, fills a wide basin."[8] Despite the water's quality

and informants' affirmations of an Acrocorinthian origin, echoing ancient explanations of Peirene's sourcing, Laurent never imagined that this was the water of Peirene. It was probably the same fountain, a pastiche evoking contemporary architectural works by Piranesi or Sir John Soane, that Edward Dodwell called "extremely curious, on account of the fantastic ornaments with which it has been enriched by the singular combinations of Turkish taste."[9] Half a century later, Ernst Beulé was charmed by elements "de jolis details d'ordre corinthien, en marbre, encastrés dans une fontaine torque au-dessus du *bazaar*"—if not the same fountain, then one nearby.[10] A somewhat less picturesque descendant of the bazaar fountain was built into the corner of a shop on the south side of the plateia in 1877; called Paloukóvrysi, or the "Stump Spring," it functioned until 1932.[11]

Indeed, although they had to look no further than their coffee cups for the real thing, most of the bookish visitors of the 17th through the 19th century sought Lower Peirene elsewhere in the village. Laurent pointed to a series of dry caverns on the northern slope of Acrocorinth, probably the ones still visible just above the Early Ottoman fountainhouse of Hadji Mustafa, built in 1515.[12] With its fine water, this fountain itself was one of the early visitors' main candidates for Peirene. The other favorite flowed from a bower at the foot of Corinth's lower terrace, a spring known as the "Baths of Aphrodite" from the 19th century, if not earlier.[13] While today "Hadji" is considered the only source of potable water in the village, in Leake's time it was given to washerwomen, while Aphrodite's waters were apparently the drink of choice.[14]

The village was decimated by an earthquake in 1858, thereafter largely abandoned for seaside "New" Corinth, and only partially repopulated by the end of the century. Then the archaeologists came. In 1886 Wilhelm Dörpfeld dug around the Archaic Temple, and in 1892 Andreas N. Skias of the Greek Archaeological Society searched unsuccessfully for the ancient agora east of the village, where he mistakenly identified yet another spring, Mourat Aga, as Peirene.[15] Granted exclusive rights to further excavation, the American School of Classical Studies at Athens commenced work in 1896, its members not at all sure of their prospects. In the first season, 21 long trenches were excavated in the hopes of uncovering recognizable landmarks, clear traces of an ancient agora, or anything resembling a building mentioned by Pausanias. The most significant discovery of the year was a broad pedestrian avenue paved with a hard, light-colored limestone, later to be recognized as the Lechaion Road. Excavators realized that this must lie within, or very near, the heart of the ancient city, but the year offered no fixed points and few means to reconcile the nascent archaeological plan with the ancient narrative map of Pausanias.

This chapter surveys the excavation of the ancient springhouse and the early exploration of the spring, taking Peirene as a case study of American excavation methods, standards of recordkeeping, and modes of thinking. It occasionally strays from the area of the spring to further flesh out the archaeological landscape. As in any scientific pursuit, methods strongly shape results; therefore, the objective description of early excavators' methods is not only appropriate for understanding their work and thought, but it is utterly essential in a monograph such as this, which depends to a great extent on the interpretation of the results—published and unpublished—of those early excavations. My purpose here is historical rather than critical; I do not generally commend earlier archaeological practices, nor do I condemn them. To be sure, late-19th-century and early-20th-century methods and results leave much to be desired by early-21st-century

standards. The removal of earth was rapid, the documentation uneven, and principles such as stratigraphy were only beginning to be considered; it is easy to look back and wish that the monuments sacrificed to progress still existed to explore and describe again. Too much is made, however, of the shortcomings of the earliest excavations, and archaeologists have been too quick to dismiss the old notes without giving them adequate attention. For all their limitations, Corinth's early excavation journals, notebooks, drawings, and photographs are a treasury of forgotten walls, valuable contexts, and, indeed, human enterprise. More constructive is the study of how our predecessors worked; how incipient probes underground led to remarkable deductions, many of which were correct and became fundamental principles, even if other theories have been overturned; and how they gradually raised standards.[16] Corinth was one of the major training grounds and test cases in the formation of Classical archaeology as a discipline. The days of hundreds of men, horses, and railroad cars are past; but even as we regret our predecessors' haste and some of their tactics, we remain indebted to them for opening up entire cities and thereby creating our database, the modern archaeological landscape.

Mundus Subterraneus

In the course of the 1896 season, the excavators encountered a number of old wells bottoming out in dried-up subterranean water channels. Their curiosity piqued, they decided to explore functioning wells, some of which still were supposed to receive their water from similar features. Among them was a shaft in the garden of Giorgios Tsellios, and the excavation foreman, Friedrich Lenz, descended many meters to its bottom.[17] According to the account published by then-director Richardson, Lenz "returned covered with mud, bringing back a story of rooms with architectural decoration along a water channel which fed the well. At the time the story seemed somewhat fabulous."[18]

With the following season limited to just one week by the 1897 Greco-Turkish War, the excavators would have to wait until 1898 to explore the well again and, indeed, to ascertain that they had found the source of Peirene. On April 10, 1898, a team of Americans penetrated the well, as described by student-excavator Sherwood O. Dickerman:

> Mr. Emerson, Brown, Gardner and I went down the well in Tsellios' yard under the guidance of Lenz to see the water passages wh[ich] he has explored. At a depth of 7.50 m the bottom is reached [and] the entry made into a passage. On one side of it is a series of four similar chambers: on the other side of the entrance is a fifth. At the extremity of the passage a reservoir. Each chamber has an anta on either side [and] a support in the center wh[ich] has an Ionic half column on the inner side. The work is of poros stone [and] very badly worn.[19]

The next fortnight saw massive operations on two fronts: the exploration of the subterranean system and the exhumation of the spring facade, the former undertaken as much by necessity as curiosity, for with their appropriation of the fountain came the responsibility of managing its waters. A color sketch plan of the system was produced to illustrate the basic components as discovered that year; its Greek labels suggest that the archaeologists were informing a local audience of what lay below them (Fig. 43).

Figure 43. Peirene: 1898 sketch plan of subterranean components, showing Tsellios's well surrounded by unexcavated earth, the chambers or drawbasins, the east and west supply tunnels, and the Giambouranis well (South Stoa Well 21). The Tsellios property, including the house used by the excavators, is indicated in yellow.

Tsellios's well was several meters from the eastern end of the ancient springhouse, directly in front of ancient Chamber V, through which the excavators first entered the spring. Passing over the Roman drawbasin, the men followed a terracotta pipeline back into an east–west corridor (the mud-filled basins below went unnoticed), from which they could see into all six Roman chambers, or drawbasins. At either end of the corridor, they discovered rock-cut galleries leading farther underground, and for days they pressed on, exploring about 250 m of tunnels and noting blocked channels, closed wells, and active seeps, like little springs, along the way. The western tunnel was traced more than 100 m upstream to a well belonging to the house where some of the excavators stayed. This, the Giambouranis well, was an ancient shaft (extended upward in modern times) at the intersection between Peirene's west supply tunnel and the South Stoa supply tunnel; it once served South Stoa Shop XXI (Fig. 43, labeled Π. ΓΙΑΜΠΟΥΡΑΝΗ; Pl. D:J12).[20] To go farther would have required ducking underwater, and the men turned back. The full South Stoa system and another more westerly branch would not be discovered until the 1930s. The residents of Ancient Corinth marveled at the source of water in their wells. All of the open shafts seem to have predated the 1858 earthquake and the arrival of the present inhabitants, who had merely appropriated them when they found them. Some shafts were very early indeed.[21]

Turning north, the excavators also soon familiarized themselves with the medieval–modern channels downstream. They explored the two channels connecting the ancient fountainhouse to three modern fountains in the village: Paloukóvrysi in the main plateia, or Plane Tree Square, Tsibouri, and Kachrou (the Kachros fountain). The last two were due south and north, respectively, of the remains of the Great Bath on the Lechaion Road, which were still visible among the modern dwellings. It is important to understand that there was no overflow drain from Peirene in this period. The deep Peirene drain, which functioned in antiquity and again carries off all of the spring water today, had long been choked off. Thus, except for that drawn through wells, all of Peirene's water was delivered to the fountains in the village, with their surplus shunted to the fields beyond.

The western conduit would come to be known as the "Widow's Channel," for the widow Euphrosyne Skleris, owner of the beanfield under which it ran and of the building that incorporated its modern outlet. From a dam in the west supply tunnel water passed through a terracotta pipe as far as Tsellios's well. There it flowed out between dry-rubble walls deep under the modern surface through the Peirene court, the Peribolos of Apollo, and beyond, to the village square and Paloukóvrysi. An extension continued to the Tsibouri fountain, some 70 m farther northeast.[22]

The water from the east supply tunnel entered the so-called Kachros channel just east of the ancient fountainhouse, partly cut into the clay bedrock as it passed through a narrow subterranean space defined by an ancient retaining wall and the cut-back cliff, then entering a stone-walled tunnel that crossed one of the Romano-Byzantine chambers east of Peirene (labeled on Pl. C), before turning and meandering northward outside the eastern excavation boundary. Dickerman followed the tunnel until he reached the small pipe that fed the Kachros fountain, another work of ca. 1870, located just beyond the ruins of the Great Bath on the Lechaion Road.[23] Of course, he had little idea where he was underground, and within the tunnel he was blind to the ancient structures through which he passed, including walls of the bath itself. Still, despite his lack of bearings, Dickerman was careful to measure the lengths of the aqueduct in paces and, where necessary, "paces on the knees."[24] Rumor has it that where the tunnel became too tight for knee paces, belly paces sufficed.[25]

It was only after noticing that their work in the tunnels muddied the water at the Kachros fountain, where the village women washed laundry, that the excavators realized the connection of the eastern tunnel to that fountain, and by dripping candle wax into the western Widow's Channel they verified that it was the source of the Paloukóvrysi fountain in the plateia.[26] While the course of the Widow's Channel is not indicated on the 1898 sketch plan (Fig. 43), the Kachros channel is shown as a blue line snaking off to the north and east. The difficult work of accurately surveying the two conduits would fall to a later generation, as discussed in the next chapter.

The Excavation

Mobilizing his students and a team of workmen often numbering a hundred or more, Richardson now began the quest for Peirene in earnest. Period photographs attest to the size of the workforce and the scale of their undertaking (Figs. 44, 45). On Tuesday, May 10, 1898, Richardson proclaimed, "the entrance to Peirene was accomplished toward evening," and once sure of its location, he purchased a portion of the garden overlying

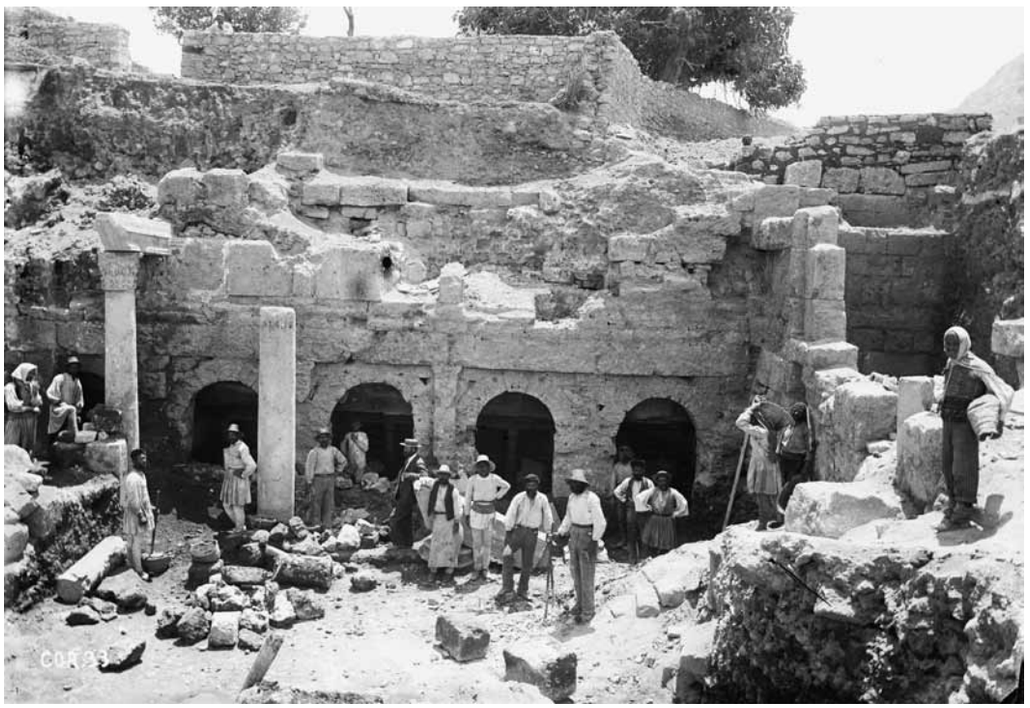

Figure 44. Peirene: Spring facade and court on or about June 4, 1898

Figure 45. Peirene: North apse on or about May 30, 1898, with Early Byzantine tombs just right and left of center, and later medieval walls to right and left

Peirene from its owner. The plot, 13 m on a side, cost 475 drachmas, or about 70 dollars—considered a very high price by Richardson, who also had to replace Tsellios's well with a new well and hand pump, concessions to the seller that aroused the envy of his neighbors.[27]

The 1898 excavation team aimed to reveal Peirene's spring facade, spurred on by Dörpfeld's encouragement that "that alone would be a brilliant success."[28] In those early days, Richardson and his team dug with enthusiasm, if not precision or detailed description, "tackling" pumps, "attacking" walls, passing days in the "agony of defeat," and suffering through the complaints of consultants, workmen, and villagers.[29]

That the excavators regularly resorted to German to describe new finds further underscores the novelty of their experience: *Brüstung, Ergänzung, Kaiserzeit, Totenmahl, Troffenleistenplatte, Wasserleitung.* Whether adopted from German publications, from foreman Lenz, or from eminent visitors such as Dörpfeld and Furtwängler, these terms sufficed when the Americans' mother tongue fell short. Greek terms, often introduced by workmen, also found their way into the excavation jargon. Some were one-offs, but others became ubiquitous in the notes (see Fig. 43): *vrachos* was bedrock, particularly the hard conglomerate that abounds around Peirene; a *hydragogeion* (or *hydragog* in the lingo) referred to a water channel; a *martyra* was a tower of earth left behind by excavators to preserve a benchmark and underlying stratigraphy; *migma* was concrete; a *semadi* was a survey point; *stereo* was Corinth's soft yellowish-red bedrock; and a *strosis* was a floor level.

The remaining ground around Tsellios's well, and the well itself, were soon removed, but first the excavators had to install Tsellios's new pump. This was no mean task, as Dinsmoor would later tell:

> Now a pump was an article hitherto unknown at Corinth; the [locals] were skeptical, and visited the Director with gun in hand, threatening dire calamity if it did not work. The pump was installed, but it did not work; some vital parts had been forgotten at Athens. And so the student who had discovered the fountain was compelled to undertake a night ride by bicycle, over the road traversed with such labors by Theseus,—New Corinth, Megara, Eleusis, Athens, an early morning visit to the hardware shop, and back again, Eleusis, Megara, and Corinth, where the Director was found perspiring profusely and energetically marking time with the pump handle, surrounded by a firing squad. . . . That was in the heroic age, twenty-five years ago; we have since given Tsellios a better pump in a better place, but still he laments his old well.[30]

On that "great and fearful day" and the following night, the American archaeologists were initiated into the millennial ranks of Peirene's human stewards.[31] Henceforth, they would know firsthand the challenges of maintaining Peirene—above all, the difficulties of managing such a prolific spring and complex supply system at the heart of a living community. The continued importance of Peirene for village drinking water and irrigation would cause innumerable complications for the archaeologists, whose interests became hopelessly entangled with private and public water rights. Indeed, water became the currency of public relations at Ancient Corinth, and the resolution of problems was crucial for the success and survival of the American excavations. Already Richardson could see that Peirene was going to be "difficult and anxious work,"[32] and indeed, in the decades that followed, the archaeologists were often in over their heads.

The state of Peirene at the end of the season is recorded in Arthur S. Cooley's 1:200 excavation plan, part of which is reproduced as Plate 18.[33] Contemporary photographs show two-thirds of the spring facade, part of the fountain court, and the northern apse (Figs. 46, 47). The ground level lay about where it had in late antiquity, and the east and west apses remained to be found in the following season. Tsellios's well was gone, but the stone-walled village aqueduct was preserved and still functioned. The preliminary report on the 1898 excavations appeared in the August issue of the *American Journal of Archaeology.*

Figure 46. Peirene: Court and spring facade from the north, at the end of the 1898 season, ca. June 12, 1898

Figure 47. Peirene: North apse from the south, at the end of 1898 season, ca. June 7, 1898

In four pages of text and three photographs, Richardson offered a summary of the season's returns. Sculpture, vases, bronzes, inscriptions, and terracottas were inventoried in half a page. A listing of architectural miscellanea followed, and finally Richardson revealed the year's two most important discoveries: a stretch of paved avenue that could be none other than Pausanias's "straight road to Lechaion" (2.3.4) and the fountain of Peirene, complete with "chambers like grottoes" (Paus. 2.3.3) and an inscription removing any doubt.[34] As Landon has noted elsewhere, Peirene was the find that Richardson needed in order to

Figure 48. Peirene: Spring facade, court, and round pool from the north, probably April 10, 1899. At far right, Rufus B. Richardson stands with one foot on a fallen epistyle-frieze block, or outlooker, and Wilhelm Dörpfeld sits beside him. On the higher ground to the south are the garden wall and pump house built for Giorgios Tsellios in 1898, with Tsellios's house in the background.

justify the expenses of excavations at Ancient Corinth and to give the Corinth excavations some stature.[35] The American excavations had turned a corner:

> Pirene as now uncovered is important as a capital example of the elaborate fountain facades which appear so often on Greek vases; it is still more important in that in it is given back to us the most famous fountain of Greece; but it is of supreme moment for the enterprise of excavating Corinth, since it gives the key to the topography of the city. From the description of Pausanias (II,3,2), we know that Pirene was a little distance north of the agora on the road to Lechaeum. . . . The period of groping in the work at Corinth is past. It is now a question of time and patience and money.[36]

The 1899 season began with new purpose, and "as far as Pirene was concerned, had for its object to make a finished piece of work, such as is always a delight to the eyes."[37] The daily details are lost in the broad strokes of documentation. Richardson's notebook entries are all too typical of the records of the early years at Corinth, when days and days might pass with "no finds." Such was March 30, 1899: "Worked at the approach to Peirene. . . . Between 50 and 60 men. No finds of importance."[38]

About a week into the season, on another day that began with "no other finds of importance," Richardson's men revealed a "big circle" in front of the spring facade, just as Dörpfeld arrived with his entourage of scholars, students, and other adjuncts (Fig. 48).[39] This was the so-called round pool, consisting of a ring of poros blocks about six meters across, set within a sunken rectangular space at the center of the court (soon recognized as the *hypaithros krene* mentioned by Pausanias, 2.3.3), with more blocks and mortar filling the intervening space. By the end of the season, the entire triconch court, including the north apse and the newly discovered apses to east and west, had been cleared down to the floor level surrounding the basin (Fig. 49). Arriving at a point where he perceived an organic unity, Richardson ended his 1899 labors there.

Archaeological Method

The end-of-century excavations at Corinth were utterly goal-oriented, that goal being to lay bare the whole ancient city, monument by monument, yet excavation notebooks remind us of the controlling interests of art history and classics in the pursuit of archaeology. Notes focus on objects, particularly ancient art, inscriptions, and coins, for the benefit of the scholars who would publish them, medium by medium. Such treasures were carefully sketched, or traced, with loving attention, but relatively little hard contextual evidence was recorded beyond proximity to some landmark (a tree, a building, or a property line, only sometimes recognizable) and depth below surface level (arbitrary and often impossible to reconstruct). Ground levels were in constant flux, and although relative elevations—measured from the stylobate of the Archaic Temple—appear already on Cooley's 1898

Figure 49. Peirene: Spring facade and round pool, ca. May 10, 1899

plan of Peirene (Pl. 18), they are the product of a postseason survey and did not benefit excavation-notebook keepers or their audience. Cross-checks between notebooks, drawings, and photographs are often illuminating, but even together these sources tend to fall short of providing satisfying contextual data. A case in point is the 1899 discovery of a Roman *togatus* "west of steps on the road to the agora"—probably meaning the Lechaion Road, given the date of discovery. Richardson's description is confounding: "2.50 [m] below the top of the biggest stones of the wall to the west, and directly east of the south end of the southernmost of two stones forming what is at present left of the third course above the euthynteria." It is possible, however, to reconstruct the provenance in a relatively late context near one of the retaining walls west of the entry of the Lechaion Road into the forum.[40]

It is not fair to single out Richardson, for the director's attentions were divided between operations at Corinth and in Athens, supervising excavations, writing popular and scholarly accounts, and fundraising; his field notes were bound to be brief. The notebooks of the students and fellows are truer chronicles of day-to-day operations and better reflect changes in attitudes and practices. It is instructive, then, to compare specimens of these early records.

Of work done between May 27 and May 30, 1898, Richardson wrote, "clearing away in front of Peirene and in the exedra," and left it at that.[41] Dickerman's notebook fills in the details. He located the work in the northern exedra of Peirene, and offered 105 words and a tiny sketch of a vault to document a cluster of seven medieval graves, giving slightly more ink to the description of a *Petit Herculanaise* statue found nearby. Figure 45 captures the scene on May 30, 1898, or slightly earlier:

> *Thurs. May 26th*. Work continues in the exedra. A number of bones & Byzantine graves have appeared. Left Korinth at noon for Athens.

> *Fri. May 27th*. Returned to the excavation this afternoon to find the exedra & its neighborhood excavated to a considerable depth. Within or near the enclosure were seven graves built of stones & tiles joined with mortar. The roofs are generally arched. In one case where this arch is under the w. wall the tiles are run vertically so as to form the arch. . . .
>
> One of the graves seems to have been coated with stucco. They all run in a direction generally from east to west & in all but two cases wh. were in different graves the head was turned toward the west. In these cases steps at the e. end lead into the grave. As many as eight skeletons were found in one. To the e. of the exedra is a passage, limited by another wall and a flight of steps. Here were found two female statues lying, but not mortared into the wall like the other two. One statue is draped & is considerably more than life size. The form is slender & completely swathed in the garments. The head was set in and is missing. The l. arm hangs at the side, bent at the elbow: here too the hand was set in & is lacking: the hole appears where it was set in. The r. arm confined the mantle & a peculiar piece across the front with the arm & the drapery was set in & is lacking. The weight on the l. leg wh. is advanced. A long undergarment appearing at the neck & sweeping the ground below: & a mantle covering the whole form.
>
> *Sun. June 5th*. Mon. May 30th. & Tues. the Byzantine graves in & near the exedra were broken up in order to clear the floor. . . . [42]

Thus a few words on process give way to a hasty documentation of structures—late in date, never to be drawn, and soon to be dismantled—and a prolonged description of a Roman statue. In the absence of a sketch plan, a later reader is left to glean locational data from the broader narrative, contemporary photographs, and the end-of-year plan. As no measurements are given, the reader wishing to better place the graves must estimate elevations and other figures from the photograph, which is difficult but possible.

The removal of graves and surrounding soil was accomplished within a week, revealing two ancient floor levels, a Late Roman marble floor laid upon fill overlying the earlier Roman poros limestone.[43] The next to go was a "Byzantine wall," described as a continuation of the west wall of the exedra, so presumably extending south across the triconch court. Mentioned only in passing as it came down on June 1, it is probably the structure on which the men stand at the left-hand side of Figure 45, but it is not differentiated on Cooley's plan (Pl. 18).[44] Visible on that plan and the photographs is a high wall oriented somewhat east of north, probably the wall interpreted by Richardson as a buttress supporting one of the so-called outlookers.[45] These walls probably marked the final approach to the arches of Chambers III and IV of the Peirene springhouse before the fountain was completely swallowed up by the rising ground.[46] They will be discussed with other late features in more detail in Chapter 11. Indeed, it is telling that more than a millennium can be covered in a single chapter. Peirene's medieval-to-modern history was punctuated by destructions, from the 6th-century rejection of ancient statuary to the repeated ravages of wars and their aftermaths. We may regret perceived shortcomings of Richardson's excavation and recordkeeping skills, but in his time they were the state of the art. To make sense of the record would challenge the most experienced archaeologist even today.

Figure 50. Peirene: Byzantine chapel in the course of destruction, June 1898. The high scarp in the foreground indicates how little of the court had been excavated at the time.

While the center of the court remained unexcavated, the archaeologists turned their attention to a Byzantine chapel that abutted the ancient spring facade. Just a dotted line on Plate 18 (where it is labeled "Byzantine Church"), it is pictured in only one photograph, now preserved only among an early set of page proofs for what would become *Corinth* I.6 (Fig. 50).[47] It shows the condition of the chapel on or about Friday, June 3, 1898, the day when Dickerman wrote: "The Byzantine chapel at the mouth of Peirene was attacked but the walls are not yet down." By the following Tuesday, June 7, the job was done.[48] The dismantling of the church brought to light a number of ancient architectural fragments. In the photograph it is just possible to see a large marble block that served as one of the outlookers of the Late Antique court (cf. Fig. 48; it is the block on which Dörpfeld sits). Of the fragments within the church walls, perhaps the most important was the small piece of white marble revetment inscribed with the Latin *Piren[----],* which secured the identification of the fountain.[49] As the church came apart, the first of the four early rock-cut reservoirs was also discovered.[50]

Medieval remains were the main victims in the early quest for ancient Corinth. As noted above, some of these structures were taken down with hands and picks. Others received still harsher treatment. Eventually the round pool at center court would also be sacrificed:

> we proceeded to draw out all the filling between the walls of the square basin and the round basin, a process by which, of course, the latter disappeared. It was a most laborious process; the filling was composed of architectural pieces, among which were many fragments of Doric columns, bonded by a cement much harder and tougher than the blocks of stone. The mass gave way only under the constant application of dynamite.[51]

Archaeologists of every generation have been faced with the problem of which remains to preserve and which to destroy. In this case, the demolition of the round pool revealed the *hypaithros krene,* more or less as Pausanias recorded it (2.3.3). Its walls alone preserve important evidence of several stages of work, each important for understanding the history of Peirene's functional and decorative histories.

From Excavation to Interpretation

Although he considered Peirene's most important role to be as a topographical anchor, Richardson also found interest in its three clear Graeco-Roman phases, and hints of even earlier elements on the site. Their details and interpretation are preserved in regular

contributions to the *American Journal of Archaeology,* which, although largely supplanted by Hill's later monograph, preserve important details of excavation and architecture as they reflect Richardson's methods of making sense of the history that his excavations exposed, block by block.[52] Grasping for chronological control, Richardson bent his schedule of archaeological phases to fit historical expectations. Already in his first report to *The Nation,* he asserted that "the very moment that my eyes fell upon the chambers, I said, 'These chambers are the Pirene of Pausanias.'"[53] His assertion was further supported by the discovery of the Latin *Piren[----]* inscription on a fragment of marble built into a wall of the church. Indeed, the identification of the fountain seems certain today, but many issues of date and associations remain debatable, as will become apparent later.

Similar extrapolations followed, and some held, though not all were as well substantiated. For example, on Dickerman's discovery of one of the four early rock-cut reservoirs, Richardson wrote "probably as old as Periander" in his notebook.[54] He enlarged upon this in his major paper on Peirene:

> This channel . . . while not exactly a Cloaca Maxima in proportions, is certainly something that inspires respect, and, considering the much lower level at which it delivered water, we seem compelled . . . to ascribe this to a very remote time, perhaps to think of it as a work of Periander. In that case, Pisistratus, in constructing his Enneacrunus system, was following in the footsteps of another tyrant, who recognized, as well as he, how much a people values good and abundant water. This, then, was the Pirene of Pindar and Simonides, as well as of Herodotus and Euripides. Shall we ever know more of the chronology of these water works? Would that they had been left as dry as those of Pisistratus. Yet with all the difficulties and expense entailed by the fact that we are working on the line of the water supply of an existing village, which we can almost wish had not outlived the earthquake of 1859 [1858], we still hope to make the excavation of Pirene complete in the next campaign.[55]

The connection to Periander would stick in virtually all notebook references, but it was not upheld in the final publication, where Hill generally offered relative dating with very few suggestions of absolute date or patrons. For Richardson, the Fountain of Glauke was the natural pendant to Periander's Peirene, with its simplicity, rough-quarried appearance, and apparent consonance with the Archaic temple pointing again to a very early date. Furthermore, he proclaimed that "tyrants generally, recognizing that an abundant supply of water was the one thing that pleased the people, laid out great water-works, so the clever Periander may be supposed to have thought to strengthen his hold on Corinth by furnishing Glauce at a crowded part of the city."[56] The temptation to connect Corinth's monuments and their phases to historical expectations and luminaries was indeed great, especially where chronological primacy was concerned.

For Roman Imperial Peirene, another elite association soon suggested itself. On May 11, 1899, the excavators found a marble statue base inscribed with the name Regilla, identified as Appia Annia Atilia Regilla Caucidia Tertulla, the Roman bride of the 2nd-century A.D. Greek magnate Herodes Atticus (Fig. 51). The base rested on a late pavement about halfway between the front of the east apse and the round pool that replaced the

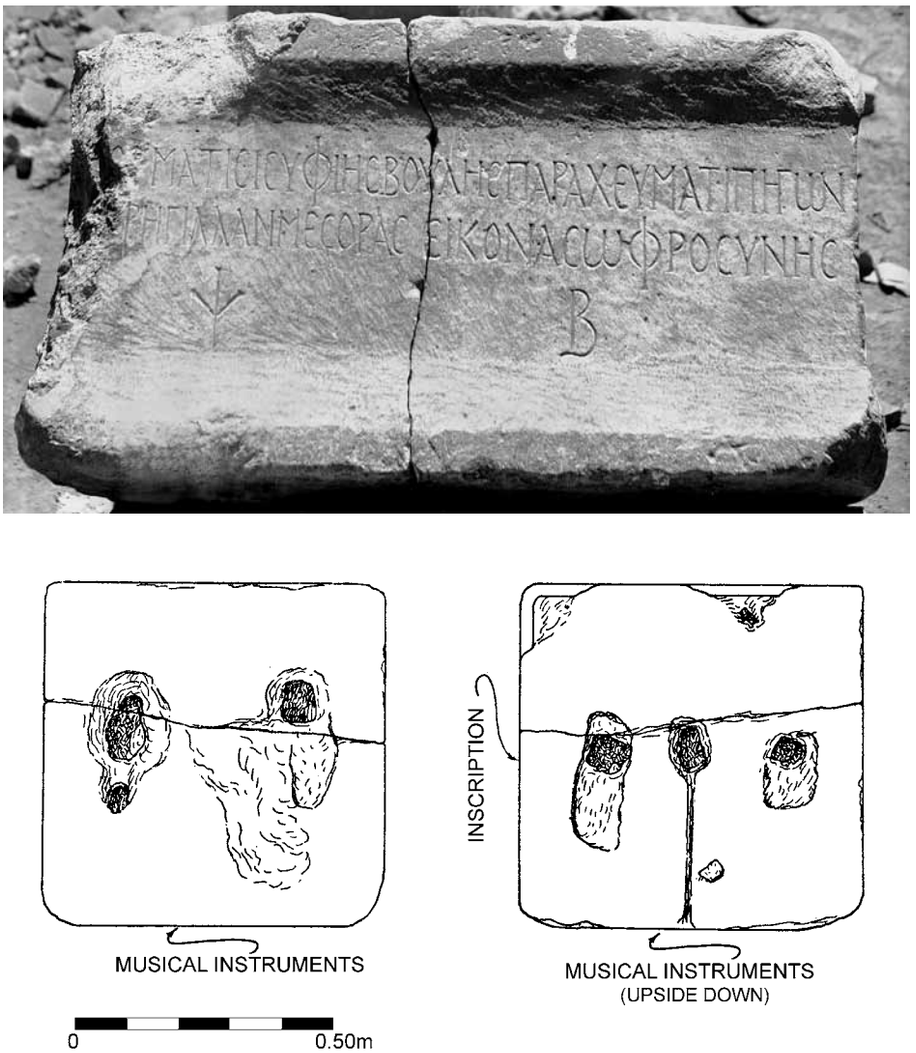

Figure 51. I-62, statue base naming Regilla, found in Peirene in 1899: (top) photograph; (bottom) drawings of base, showing "footprints" on two surfaces, Corinth *I.6, p. 102, fig. 59*

hypaithros krene.[57] Indeed, the statue base seems to have been custom-made for a place by the fountain, its inscription reading:

> [N]εύματι Σισυφίης βουλῆς παρὰ χεύματι πηγῶν
> Ρηγίλλαν μ'ἐσοπᾶ(ι)ς, εἰκόνα σωφροσύνης
> ψ(ηφίσματι) β(ουλῆς)
>
> By the command of the Sisyphian Boule, beside the streams of the source
> You see me, Regilla, an image of moderation.
> By decree of the city council.

On the authority of this statue base, Richardson proposed that Herodes was responsible for the marble revetment of the spring facade and the three newly discovered apses of Peirene, the triconch court. His primary publication reveals the importance of another datum to his interpretation: the recently discovered exedra-nymphaeum at Olympia, built by Herodes Atticus or Regilla, and published as a magnificent semidomed apse by Franz Adler in 1892.[58] After a brief flirtation with the evidence of the statue base

and similarities between Peirene and the Olympian showpiece, Richardson attributed the marble revetment of the spring facade to Herodes in 1900, and finally the whole triconch court.[59]

Despite the lack of additional evidence, Richardson's hypothesis soon solidified into dogma, winning unanimous acceptance until 1965, when John Harvey Kent proposed an alternative donor.[60] In Chapter 10, the details of Kent's challenge and ensuing discussions will preface my explanation of a chronological revision that places the construction of the triconch court in the 4th century A.D. While Herodes Atticus and Regilla must be divorced from that phase, the possibility still exists that one was, or both were, responsible for a benefaction to Peirene. Such a prospect is explored in Chapter 8. While Richardson's proclamations—the Peirene of Periander, of Pausanias, of Herodes Atticus—may seem naive today, we should remember that these were fair guesses, and not so far off, made at a time when archaeologists had hardly scratched the surface.[61] Now, as then, they invite further discussion.

Patronage proved as important in the modern reappearance of Corinth as it had been to the city's emergence in antiquity. In some "Notes" to *The Nation* in 1900, Richardson again relied on the authority of "great foreigners," now Saloman Reinach and Ulrich von Wilamowitz-Moellendorff, whom he quoted at length, to "bring home to some rich American the importance of our work" at Corinth.[62] The redoubtable Wilamowitz echoed Dörpfeld's earlier proclamations that the discovery of Peirene was no less than the cornerstone of Corinthian topography and wished for the American School's continued success. Reinach lamented the Americans' tight budget and limited excavation funds and appealed to readers that "certainly archaeological achievements like the recovery of the topography of Corinth ought to suffice to recommend the young and valiant school to the liberality of American Croesuses." Indeed, elite Americans heeded this call. Of the estimated cost of $35,000 for the 1896–1916 excavations, the $10,607 provided by the Archaeological Institute of America and the Carnegie Institution is outshone by the $11,500 given by Mr. and Mrs. J. Montgomery Sears, while Phoebe Hearst, Elliot C. Lee, Benjamin T. Frothingham, Charles Peabody, John Hay, and James Loeb likewise offered substantial aid.[63]

The Evolving Archaeological Landscape

Already in the first decade of excavations at Corinth, working standards changed dramatically. A new approach to excavation and recordkeeping is evident as early as 1902, reflected not in annals of work at Peirene, but across the valley along the eastern and southern flanks of Temple Hill. The notebook of record is that of the young Hill, a Fellow of the School from 1900 to 1903, finally placed in the field after a season spent cataloguing and studying inscriptions.[64] Like previous excavation scribes, Bert Hodge Hill often digressed on relations with the villagers and laborers, injuries, visitors, and other sundries. The pace of work was still brisk—the removal of up to 500 railroad carloads of earth each day was not unusual—but Hill focused on the progress of excavation, while his colleague Samuel Eliot Bassett catalogued finds. Both took notes in the field as they worked (against Richardson's better judgment), and their composite record is considerably more detailed than anything before.[65] It was not only in quantity but in quality that their notes show

improvement, for it was in that season that Hill also began including sectional sketches in his notebooks, a practice that he would continue throughout his career and expect from his students. Relatively little of this new awareness of strata seems to have been applied to stratigraphic analysis, but the new attention to recordkeeping sharpened eyes and improved field notes. Written history and the assumptions it engendered still weighed heaviest in interpretations for decades (and in fact, they are still difficult to escape), but the archival record became robust enough to support new questions and answers.[66]

A School member from 1894 until 1896, Theodor Woolsey Heermance, returned to Greece to serve as School Secretary for the 1902–1903 academic year and then to succeed Richardson as director in 1903. Beginning that summer, Heermance supervised the work at Corinth, and already that year he began to make a mark on the excavations. Heermance's great skill seems to have been organization, and his most lasting legacy at the American School is the classification system of its library in Athens.[67] He initiated the first truly methodical indexing of finds at Corinth, and he also arranged a museum of Greek and Roman capitals in the west apse of Peirene. He worked well with others, pursued unfinished projects, and generated some of his own. Cooley's 1:200 plans were soon supplanted by a grand 1:100 stone-by-stone drawing of the site that became the basis for generations of plans. Hill began the new plan and worked on it throughout the summer and fall of 1902, already making significant progress.[68] Heermance assisted Hill when the two overlapped that year, and he continued to enlarge it in subsequent years, so that even Hill later knew it as the "Heermance Plan."

In Peirene, Heermance supervised minor excavations and cleaning jobs as he turned toward analysis. In 1903 he reported to the Managing Committee that he and his team had made important strides in understanding the orders of the Roman poros court, both its lower Doric order and the upper Ionic, of which a capital had been found (unfortunately now lost). Ongoing work in Peirene, moreover, had led to a spectacular discovery:

> Omitting other facts concerning Peirene, as more suited for presentation elsewhere, mention should be made of a discovery, the credit for which is due to Mr. Alvanakes, the government's representative at the excavations and the curator of the museum at Corinth. In freeing a considerable surface of the painted stucco in the chambers of Peirene from the calcareous deposit of the water in the latest period, he came upon quite well preserved paintings of fish and sea creatures of various kinds.[69]

Over centuries, standing water had gradually coated the walls of the chambers with a thick coating of limescale, or sinter. At its highest stands between the Frankish period and Peirene's rediscovery in 1898, water had partially covered the scenes of fish painted above the high-water lines of the Roman Imperial period. The paintings already seem to have been in a state of disrepair when submerged, but the encrustation protected and preserved their remains. That season, Alvanakes partially cleared the lime deposits from the sidewalls and parapets, front and rear, and in the fall of 1925, a Fellow of Architecture at the School, Prentice Duell, carefully continued the job, emphasizing that "again only enough incrustation was removed to reveal the sort of decoration."[70]

Ominous Signs

Already looking forward to the tenth anniversary of the Corinth Excavations, Heermance and Hill began working on a descriptive "Bulletin" on Ancient Corinth and its monuments. A manuscript preserved among Heermance's papers shows that they had produced a substantial text by the summer of 1905, but the project seems to have foundered upon Heermance's untimely death.[71] Heermance was perhaps the first American archaeologist to contract typhoid at Corinth, but he would not be the last. He fell ill late in the season, and although he was a young man in excellent health, the disease killed him on September 29, 1905. Whether contaminated water from Peirene caused his illness, we cannot now be sure, but it is the most likely offender.[72] The major causes of contamination, however, would have been established with the resettlement of the village after the 1858 earthquake and probably existed even earlier.

Even in Richardson's era, it was already becoming clear that Corinth's spring of life and literature, Peirene, was about as manageable as the Lernean Hydra. Yet, what was to be done? Peirene remained one of the most important sources of water for Ancient Corinth in the 20th century. Not only did it feed Paloukóvrysi in the village square and other fountains and fields to the east and north, but the water remained accessible through several wells—most of them ancient manholes—on properties uphill to the southeast and southwest. Still dependent on the system that had contributed most to Corinth's well-watered reputation, however, the village of Ancient Corinth was by modern times suffering from the system's senility.

Early modern travelers to Corinth had generally blamed bad air for seasonal bouts of malaria and other fevers or wondered how a place with such "complete ventilation" was so unhealthy in summer and autumn.[73] Airborne indeed, malaria is caused by the *Plasmodium* parasite, spread by the *Anopheles* mosquito, recognized as the disease vector only at the turn of the 20th century. Mosquitoes abound in Ancient Corinth, and they would have become especially problematic when the runoff of Peirene and other terrace-side springs went unmanaged, leading to marshy areas on the terraces and on the plain below. In the first decade of the 20th century, the recurring fevers of malaria still struck up to 70% of the population in some parts of the Corinthia, with incidence varying from season to season and from district to district.[74] Frequent references indicate that disease was endemic in the archaeological community too.

Malaria was not the only hazard for the Corinthians and the young Americans who boarded with local families, eating home-cooked meals and drinking house water (sometimes Peirene) until the first excavation hostel opened in the spring of 1928.[75] Inadequate sanitation was a real problem, and fevers, particularly typhoid, struck archaeologists and villagers with alarming regularity. Like malaria, typhoid was blamed on unhealthy miasmas through the 19th century; however, it is primarily waterborne, caused by drinking water tainted with *Salmonella typhi*-infected human waste.[76] While the etiology of typhoid was understood and the first vaccine had been developed by the turn of the 20th century, its eradication awaited systematic sanitary improvements, and these would be slow in coming. At Corinth, their pursuance fell largely to the excavators.

For Heermance's successor, Hill, Peirene and its problems would become the occupation of a lifetime. His own battles with both malaria and typhoid sensitized him to

the danger of Peirene's water, long before microscopic studies confirmed his suspicions in 1932:

> Though the American excavators never wittingly drink the water of Peirene, three cases of typhoid fever among them (one fatal) seem traceable to it. The three fountains supplied from the Peirene reservoir are in or near the village square and furnish, consequently, the drinking water offered visitors with coffee or other refreshment at the local cafes. I know, however, of no actual case of illness from this cause among foreigners and it is fair to say that the villagers seem to suffer little direct harm from the water, though it may contribute (in a minor way compared with malaria) to the general unhealthiness of the village.[77]

Along with Hill's responsibility for the monument's study and publication came many unanticipated challenges, first and most persistently the imperative of sanitizing Peirene and securing safe drinking water for the village of Ancient Corinth. While these seemingly modest goals eventually proved impossible, the efforts of Hill, the School, and hundreds of Greek and American assistants have provided an unparalleled view into the workings of an ancient springhouse and catchment system—no less, of the most famous fountain in Greece.