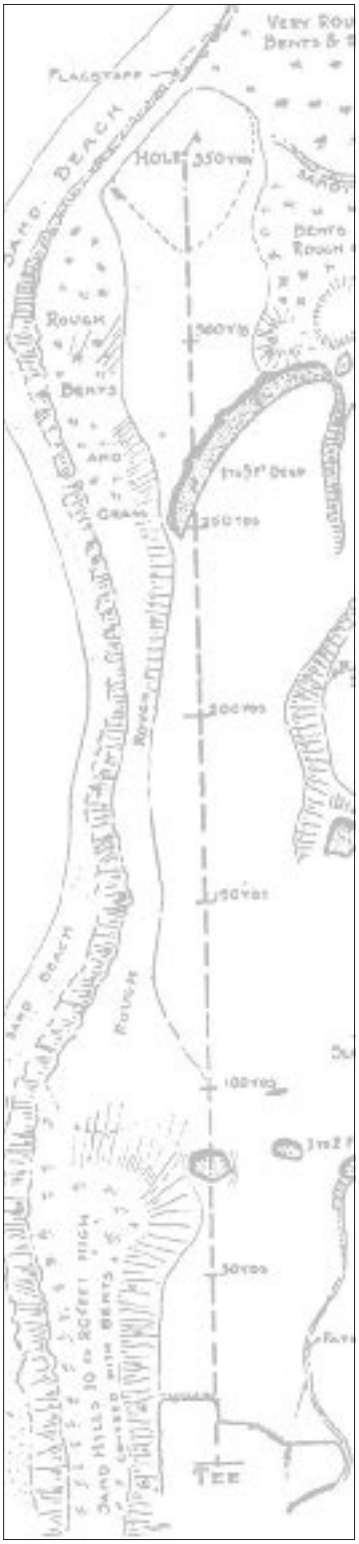
CLASSIC GOLF HOLE DESIGN

USING THE GREATEST HOLES AS INSPIRATION FOR MODERN COURSES

Robert Muir Graves

Geoffrey Cornish



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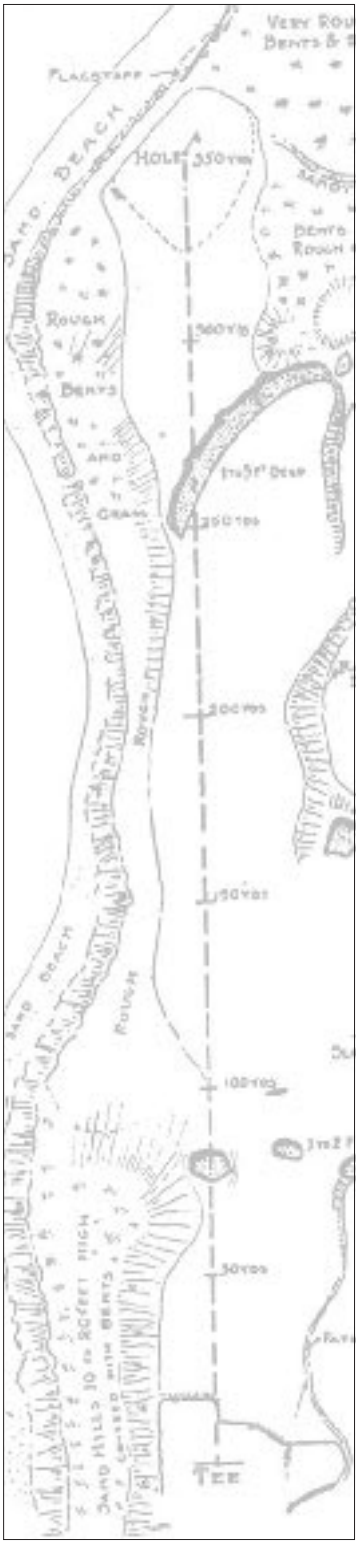

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FOREWORD

There are few subjects debated more hotly by golfers than the merits of their favorite golf course. Each of us is firm in our convictions that several holes on our favorite track possess characteristics that make it great. We will argue with our friends, playing partners, and even strangers about these special golf holes.

The reality among golf course architects is that we've all copied, or been heavily influenced in some fashion by, the work of our predecessors. Something we've seen or played strikes a chord in us and inspires us to incorporate it into one of our new projects. What makes this process interesting is how the golf course architect adapts the characteristics of the original golf hole within the context of the new project site. How faithful is the copy to the original? What personal touches has the new architect added? Is the new hole even distinguishable as one influenced by a famous hole? Perhaps there is even a more basic question: Are there great holes on the earliest golf courses that cannot be translated into the modern world of golf?

A colleague of mine has said that there are no new design ideas, only variations of a theme. So that raises an interesting question: Are there certain golf holes that have such strong character or contain strategic elements so fundamental to the enjoyment of the game that they have been copied all over the world? Is there a group of holes that can be considered classics? The *Redan*, the *Cape,* the *Island Green* are a few of the golf holes that have been adapted to courses all over the world. What are the true features of these holes that have challenged generations of golfers and inspired so many golf course architects? These famous holes, along with many others, are covered inside this book.

The task of identifying golf holes that could be considered classic is a daunting one. The fact that Geoff Cornish and Robert Muir Graves

took on this job doesn't surprise me. Bob and Geoff are two of the grand old men of the design fraternity. Both are past presidents of the American Society of Golf Course Architects and have been speaking and teaching together for years. They first began team teaching at a five-day seminar on golf course design sponsored by the Northern California Golf Association and the Golf Course Superintendents Association of California. This was followed by a series of nationwide seminars on golf course design for the Golf Course Superintendents Association of America and the Professional Golfers Association. Later, the Harvard Graduate School of Design asked them to join the faculty of its summer program.

On several occasions, I have watched from the back row of the classroom at Harvard as Bob and Geoff have patiently delved into the fundamentals of golf course architecture. Their students—who range from young to old—come from a variety of backgrounds. Some are seasoned land planners or landscape architects; others have a background in the golf business. Cornish, the elder of the duo, is more the historian. With a faint resemblance to Alistair Cooke and his dignified New England manner, he recounts the origins of the profession to the class.

Graves is a great counterpoint to Cornish. Relaxed, with a down-home attitude that reflects his midwestern roots, he takes the students through the technical aspects of golf course design. Neither man assumes an attitude of superiority, or comes with the large ego that one might expect of a respected designer. The students find them to be very approachable, and Bob and Geoff are genuinely excited to share their knowledge of the art and science of golf course architecture.

The two have never been reticent about sharing their collective knowledge with anyone, and that brings us back to this book. After several years of research and the evaluation of thousands of golf holes, they have put before us their findings. It is my belief that their purpose was not to write the absolute, definitive book on classic holes, but to instigate interest, debate, and discussion among even casual golfers. After reading this book, we'll all wonder if our favorite holes fit one of the classic models. For many, reading this book will be the beginning of a wonderful journey of discovery.

Enjoy the trip.

Damian Pascuzzo
Past President, American Society of Golf Course Architects
El Dorado Hills, California

PREFACE

Golf was not forged by a single incident; a long process over generations, centuries and revolutions was needed. When civilization was on the march, golf was too; it only required a certain space. After several abortive efforts it found that space in Scotland.

—**F. W. HAWTREE**
British Golf Course Architect and Writer

The wildly undulating, sparsely vegetated, sandy fields of Scotland, between high tide and higher land, are known as the links or as linksland. Here a game involving a club, a ball, and a distant hole developed. The unpredictable, undulating terrain added excitement, while the dramatic surroundings awed players and probably contributed to their sense of well-being. Together, terrain and surroundings helped shape the magical game of golf, the game that mirrors life itself.

Much has been written documenting the history of golf. Likewise, many books describe the evolution of golf equipment, rules, attire, tournaments, and even golf courses. The final category—golf courses—has drawn increasing attention over recent years, as writers, architects, and others have charted the history of the game's playing fields. Surprisingly, very little research has been devoted to the development of individual golf holes. Often, the design and evolution of specific holes have been overshadowed by discussions of courses in general. Important as that is, the parts that make up the whole must not be overlooked.

In graphic form and text, this book will examine golf holes, the literal building blocks of golf, and introduce how they are linked together to form a course. The first were created by nature and discovered by golfers. Whether sand or water, hazard or heroic carry, hill or

depression, the natural topography of the Scottish links held all the components of a golf hole. As generation after generation played game after game, the most exciting routes for the hole eventually became established.

Though the mystical linksland is plentiful in Scotland—it also encircles Great Britain and Ireland—golf spread to many distant shores, each with its own characteristics. Golfers in these new lands also looked for striking sites, and if none was found, they created their own impressive golfing grounds. In doing so, the early pioneers of course design heightened the drama of the game by enhancing the charm of its playing fields. In this way, hole by hole, golf architecture was born. At the same time, the architects also adapted "classic" holes from the hallowed links, and even holes with no obvious connections to the "classics" include principles adapted from them. It has been said that, despite the infinite variety of holes on the world's golf courses, each hole is truly a new version of an ancient hole adapted to new terrain and environment by creative minds.

The playing fields of golf have evolved into magnificent and sophisticated landscapes often supplemented by elaborate structures for social events. Today, golf courses truly rank among the most beautiful landscapes created by our species. A handful of golf courses, hundreds of golf holes, and countless features found on the links have, in fact, withstood the test of time and continue to serve as models of lasting significance and value. They are an intrinsic part of the game and its traditions.

Our book describes these classics, near classics, and adaptations. In doing so, we never forget that golf holes are magic, but they are basic compositions for a game that mirrors life itself, a game forged over centuries, first on the wild links of Scotland and then on countless landforms around the globe.

Your attention is directed to the end of this book, where you will discover an accurate and beautiful aerial photo of the St. Andrews golf complex in Scotland. The collective wisdom of the golf industry acknowledges that there, on the Old Course, resides the origin of golf as we know it. It can be said that every golf hole in existence had its origin there. As you follow the spread of golf's prima donnas throughout the world, that one photo will continually stimulate your interest and help you trace the flow of ideas as our golf courses evolved.

Robert Muir Graves

Geoffrey S. Cornish

ACKNOWLEDGMENTS

No one could ask for more than what our associates, colleagues, and friends have provided us in preparing this work. Their aid includes, but is by no means limited to, encouragement, concepts, text and illustrations.

Yet we credit two young people of this new and dynamic generation, namely Susan Richardson of Amherst, Massachusetts, who took time from an immensely busy schedule to assist in producing our work, and Patrick White of Notown Communications in Montpelier, Vermont, an eloquent writer who added many touches to our mundane passages.

We thank Patrick White's employer, the acclaimed golf editor and writer Bob Labbance, for his encouragement and also our editor at John Wiley & Sons, Margaret Cummins, who never lost her enthusiasm for the project during periods of high hopes and heavy-heartedness that are common in the preparation of works such as this. Margaret took time to meet us in distant outposts such as at an annual meeting of the ASGCA in Columbus, Ohio, and in a crowded diner one Sunday afternoon in Stamford, Connecticut. Later, with one of the authors recovering from an injury, Margaret gave up a beautiful sunny weekend, traveled to California, and put in two and a half solid days of work on illustrations.

Many of our colleagues in golf course architecture assisted us with suggestions and criticism and provided examples of the golf holes we sought. Ever helpful Paul Fullmer, executive secretary of the association, gave us assistance whenever required, as did his assistant, Chad Ritterbusch.

Our own business associates were very helpful. These included Brian Silva and Mark Mungeam, partners of Cornish, together with two of their brilliant assistants, namely Timothy Gerrish and Brian

Johnson. Indeed, the latter, following a playing and photographic tour of the homeland of golf, made his slides available to us.

Similarly, the firm of Graves and Pascuzzo was involved throughout the whole laborious process. Anna and Damian Pascuzzo, Tracy Lewis, Andy Staples, John Bush, and Randy De Valle all helped tremendously in locating and developing illustrations and historical data. Damian encouraged the crew to help us out at the expense of time for their regular chores and project development.

In addition to our fellow golf course designers, we were helped tremendously by many golf course superintendents, golf professionals, club and course owners, and staff. Where we were able to use material, we have strived to give appropriate credit. However, the material reflects only a small portion of the excellent drawings and photos that were so graciously submitted.

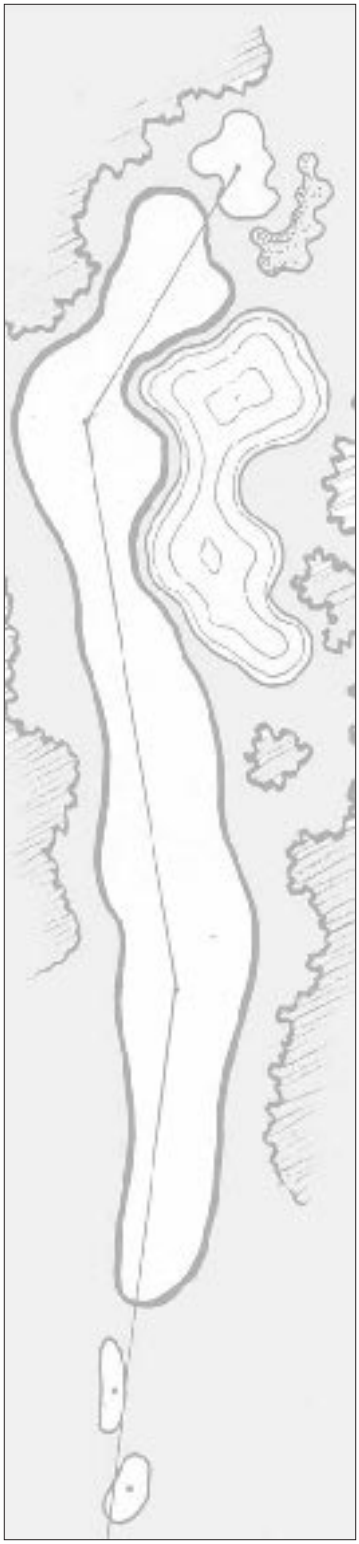
During our extensive research, we contacted many companies that produce the popular golf course play/yardage booklets. Among them, there were several companies that were particularly helpful. Alistair Mackinnon and David Duckering at Strokesaver in Paisley, Scotland, Don Gamer at Holeview in Bloomfield, Connecticut, and Joe Nemeth of Course Manager International in Fair Oaks, California, were most prominent among them. They not only provided access to dozens of their excellent diagrams, but helped in the research effort as well. We are deeply grateful to Strokesaver, Holeview, and Course Manager International for their gracious assistance.

Last and most important, we acknowledge our wives and families. In addition to the usual encouragement, they worked as hard as or harder than we did to accomplish our goals.

1

ARCHITECTURE AND ART

THE NATURE OF GOLF COURSE DESIGN



"Architecture is life, or at least it is life itself taking form and therefore it is the truest record of life as it was lived in the world yesterday, as it is lived today or ever will be lived," declared Frank Lloyd Wright, among the most renowned of all 20th-century architects. Wright, in his 1932 autobiography, described his residential design work as "organic architecture," explaining that his style "proceeds, persists, and creates, according to the nature of man and his circumstances as they both change."

The Case for Architecture

It requires only a small leap to translate Wright's views on architecture to the profession of golf course design. Viewing its history over the years, we see a record of life as it was and as how it and the circumstances surrounding golf (such as the move from Scottish linksland to North American terrain) have changed. Finally, we get a glimpse of life as it may be, most notably by guarding against the ever-greater impact of technology on the game.

Wright designed more than 1000 structures during his career, though only about 400 were ever built. His ideas were controversial, often meeting with resistance and skepticism, but there was no questioning his status as an architect. Those who design the playing fields

of golf are not as easily granted that title; in fact, there is controversy about how to classify the profession. Eminent course designer Robert Trent Jones, perhaps golf's answer to Frank Lloyd Wright, once decreed that his profession "provides the cornerstone of the game." Despite the undisputed importance of the profession, it is not universally accepted that course design necessarily and neatly fits the technical definition of architecture.

Webster's defines *architecture* as "the art, profession or science of designing and constructing buildings," including any framework, system, and so forth. Perhaps more applicable is the definition of *landscape architecture* as "the art or profession of planning or changing the natural scenery of a place for a desired effect, for human use and enjoyment." From these definitions, one can conclude that golf course design is an art form *and* a branch of landscape architecture. Further, it must rank among the purest forms of landscape architecture because it involves both modifying the existing terrain and vegetating it.

The American Society of Golf Course Architects (ASGCA) doesn't hesitate to define its members as architects: "by virtue of their knowledge of the game, training, experience, vision and inherent ability, they are in all ways qualified to design and prepare specifications for a golf course of functional and aesthetic excellence and to oversee their implementation on the ground to create an enjoyable layout that challenges golfers of all abilities."

Mead and Ackerman state, somewhat controversially, that architecture is the application of art to engineering construction, but it is no less a branch of engineering. To those who design the playing fields of golf, Frank Lloyd Wright's somewhat more romantic vision of architecture may seem more appropriate to their profession. "No house should ever be on a hill or *on* anything. It should be of the hill. Belonging to it. Hill and house should live together each the happier for the other," concluded Wright. And surely the same spirit applies to course design.

Semantics aside, this book is not intended to be a broad text exploring the field of golf architecture. Two recent books by course architects (one by Dr. Michael Hurdzan and the other by Robert Muir Graves and Geoffrey S. Cornish) have covered that subject. We emphasize that the design of a golf course involves three basic considerations: *aesthetics, maintainability,* and *the game itself*. Supporting these factors is the environment, with that word used in its broadest meaning to include natural surroundings and the socioeconomics of

the community in which the course is located. These three basic considerations, and the environment in which they are developed, are depicted as an equilateral triangle, with each consideration providing one side and the environment occupying the interior (Figure 1-1).

Landscape architect Kenneth L. Helphand concludes that "The evolution of the golf course is the prototypical example of a set of universal processes in the history of design. Distinctive forms evolve in the history of design. Distinctive forms evolve in particular circumstances. In this case a landscape from the Scottish linksland serves as a model or prototype which then goes through a process of formal evolution as it is brought to other environments."

It was this type of evolution that propelled Frank Lloyd Wright's vision. He designed houses that served many of the same warmth and shelter functions performed by traditional structures, but gone were the colonial ties to symmetry, the Roman columns, the Palladian windows—any sense of tradition. In their place were modern lines and a greater sense of harmony with the surrounding environment. Wright built his houses not on flat parcels of open land, but on rocky, heavily treed, severely sloping sites which before would have been thought unfit for residential construction. Still, these sites fit his style of architecture and vice versa. Similarly, as the game of golf moved from traditional linksland sites in Scotland, course architects evolved their designs to fit less traditional American sites, while always using the first courses as prototypes.

The renowned landscape architect Hideo Sasaki once said that "The thing basic to solving all the problems is the critical thought process." Course designers have certainly lived out these words as they sought to bring a Scottish game to alien shores. Along with "the critical thought process," they have, in fact, demonstrated creativity and vision in executing the basic considerations of course design on sites unlike any the game had ever previously seen.

That is not to say course designers ignored the elements of classic golf course design. In fact, they often labored to adapt them in North America. Charles Blair Macdonald, the father of American golf course architecture and the person who coined the title of the profession, believed strongly in "revering anything in life which has the testimony of the ages of being unexcelled, whether it be literature, painting, poetry, tombs—even a golf hole." To reinforce his statement, he cited a quote from landscape architect "Prince Puckler," who held that "Time is not able to bring forth new truths, but only an unfolding of timely truths."

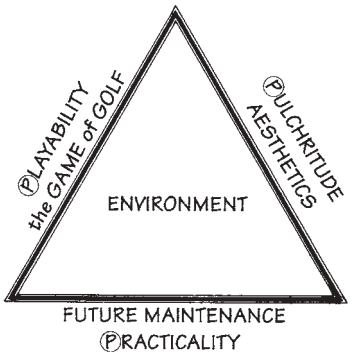


FIGURE 1-1

The objective of this book is to demonstrate how design concepts have been carried forward through time. Here is the triangle of basic considerations, with the interior occupied by the environment. The three Ps were suggested as a way to remember the considerations. Although research failed to discover an earlier version of this triangle, it is probable that the same considerations were basic to course design from its inception.

In 1901, Macdonald set out to build a truly great American golf course—one comparable to the best in the United Kingdom as an incentive for improving the game here in this country. Called the National Golf Links of America, the course opened in 1911 and impressed golfers and writers alike, even to this day. Cornish and Whitten say, "It was a course without peer. Its excellence would cause the rebuilding of many an American course." The National was truly the classic golf course in America (see Figure 4-7).

Although golf architects Walter Travis and Devereux Emmet had dabbled in adapting classic British holes to America, and Scottish professionals, including the Dunns ("Old" Willie, Tom, "Young" Willie, John Duncan, and Seymour), had been influenced by the classics—and on occasion had tried to emulate them on American landscapes—it was Macdonald who successfully adapted and, some say, improved them. At the National, five of Macdonald's holes were inspired by the British classics, while the remaining holes were influenced by those Macdonald and his friend Emmet had studied in Britain. (Emmet purchased hunting dogs in the South in the spring, trained them on Long Island throughout the summer, and then sold them in Ireland in the autumn. He would then spend the winter golfing in Britain. One such winter he spent measuring and sketching British and Irish holes for Macdonald's use in planning the National Golf Links.) Their partnership and careful study helped bring classic golf design concepts to America—and with them a sense of legitimacy for the game in its new home.

The Principles of Art

The principles of art (arrangement) are embodied in golf course design and increasingly so as more landscape architects enter the profession. Though wildly undulating linksland does not lend itself to artistic arrangement, these principles are truly part of inland design. Indeed, by employing the principles of art, contemporary golf architects work to create the most impressive layouts since golf spread around the world from Scotland.

The principles of art include harmony, proportion, balance, rhythm, and emphasis. Each of these is described exceedingly well in Harriet and Vetta Goldstein's *Art in Everyday Life*. Nowhere in that wonderful work do the Goldsteins discuss golf courses, but their explorations of the principles of art are both eminently understandable by, and applicable to, golf course designers. Following is a brief look at these principles.

Harmony, according to the Goldsteins, is "the art principle which produces an impression of unity through the selection and arrangement of content." The Goldsteins maintain that harmony has five aspects (Figure 1-2):

- Line and shape
- Size
- Texture
- Idea
- Color

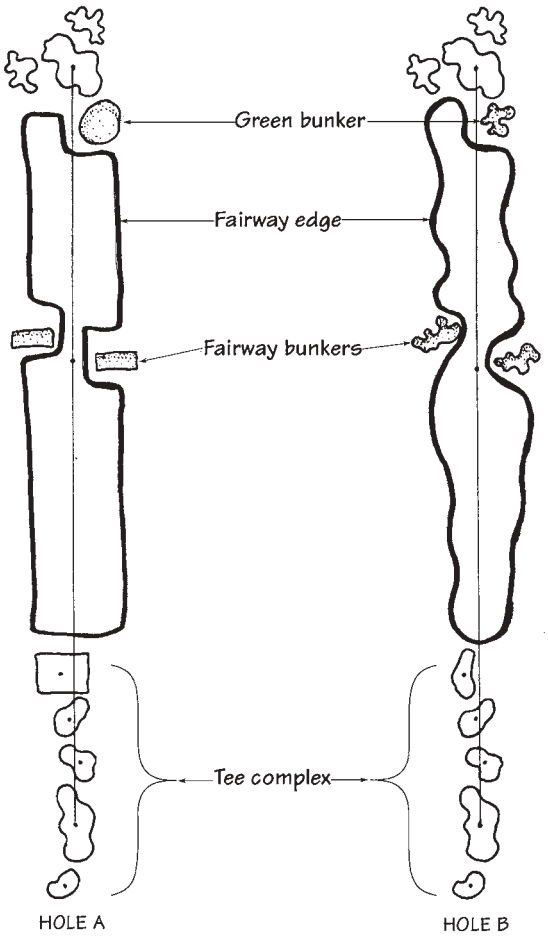


FIGURE 1-2

Harmony is achieved by texture (grass, trees, sand) and color (usually natural). However, line, shape, and size can vary and augment or destroy harmony among golf course elements. The mix of geometric and natural shapes in hole A is anything but harmonious, while hole B uses similarity in shapes or their style to blend the elements into a harmonious picture.

Proportion is referred to by the Goldsteins as the "law of relationship." It involves (Figure 1-3):

- Arrangements that hold interest
- Sizes and shapes (scale)
- The grouping of sizes (scale)

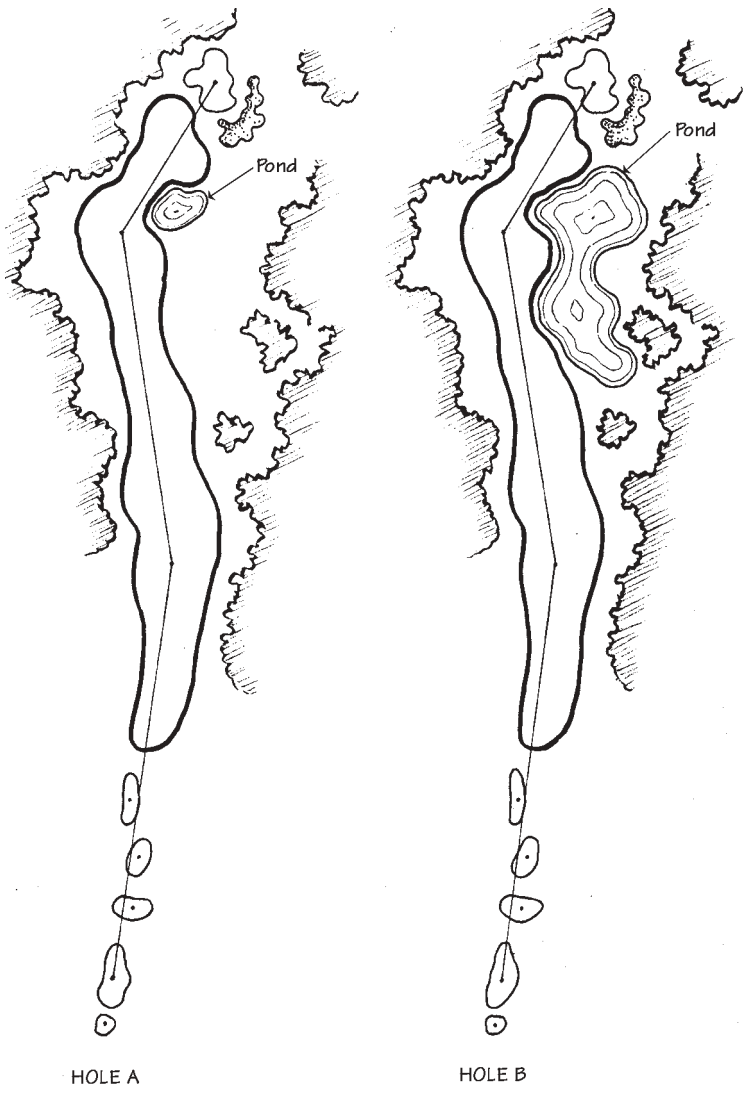


FIGURE 1-3

Elements of a golf hole can vary in size and shape, making grouping and space relationships all-important. The overriding scale of the arrangement—or proportion—is what the golfer sees or senses. The small pond in hole A is out of scale and not in proportion to the mass of the golf hole and its surroundings. Hole B with a larger pond keeps all elements in comfortable scale with one another.

Balance, the Goldsteins explain in terms of "balance in rest or repose." They add that "The restful effect is obtained by grouping shapes and colors around a center to achieve equal attraction on each side of the center." Balance is *formal* if the objects on each side of the center are identical, whereas balance is *informal* if it is not achieved by identical objects but by two sides attracting equal attention (Figure 1-4).

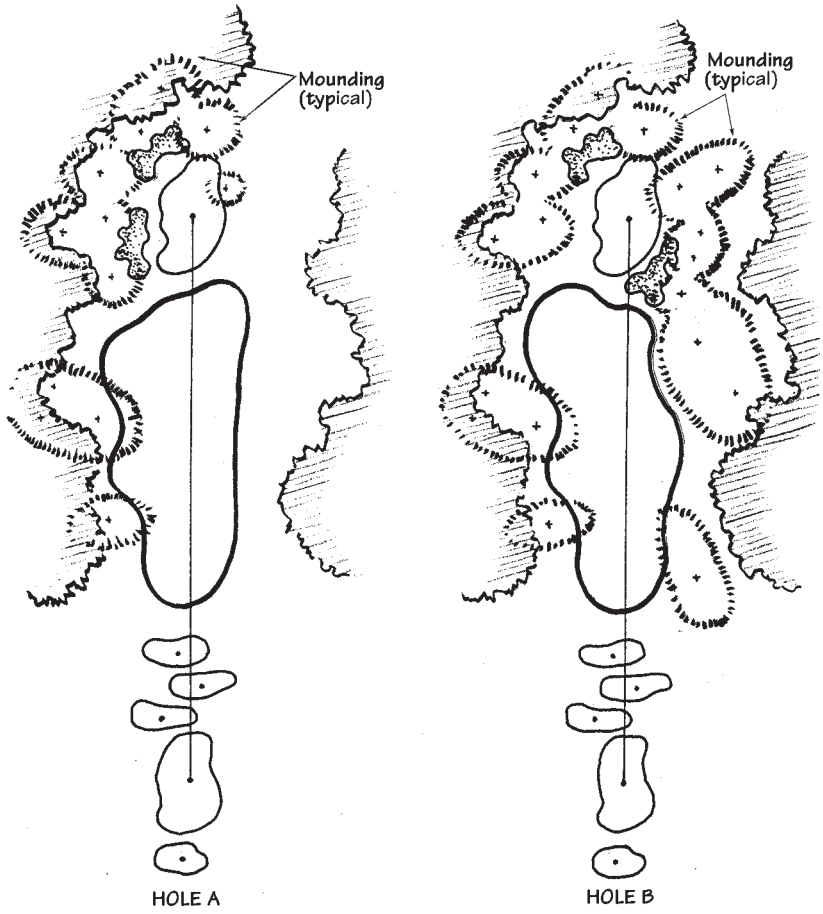


FIGURE 1-4

With the exception of strong winds, the elements of a golf hole are in a state of repose. They don't move. Therefore, their size or mass must be balanced, often around the centerline. That may be bisymmetrical, that is, even-sided or formal; asymmetrical with varied sizes or masses but at appropriately varying distances from the centerline; or informal. In hole A, the interesting features are overloaded on the left side, leaving the right side without interest. Hole B balances the topography and bunkers asymmetrically for a pleasing scene.

Rhythm is "related to movement" and can be achieved by repetition of shapes, progression of sizes, and continuous line movement. The Goldsteins introduce the concept of radiation in relation to rhythm, describing it as a method to attain organized movement because movement grows out of a central point or axis (Figure 1-5).

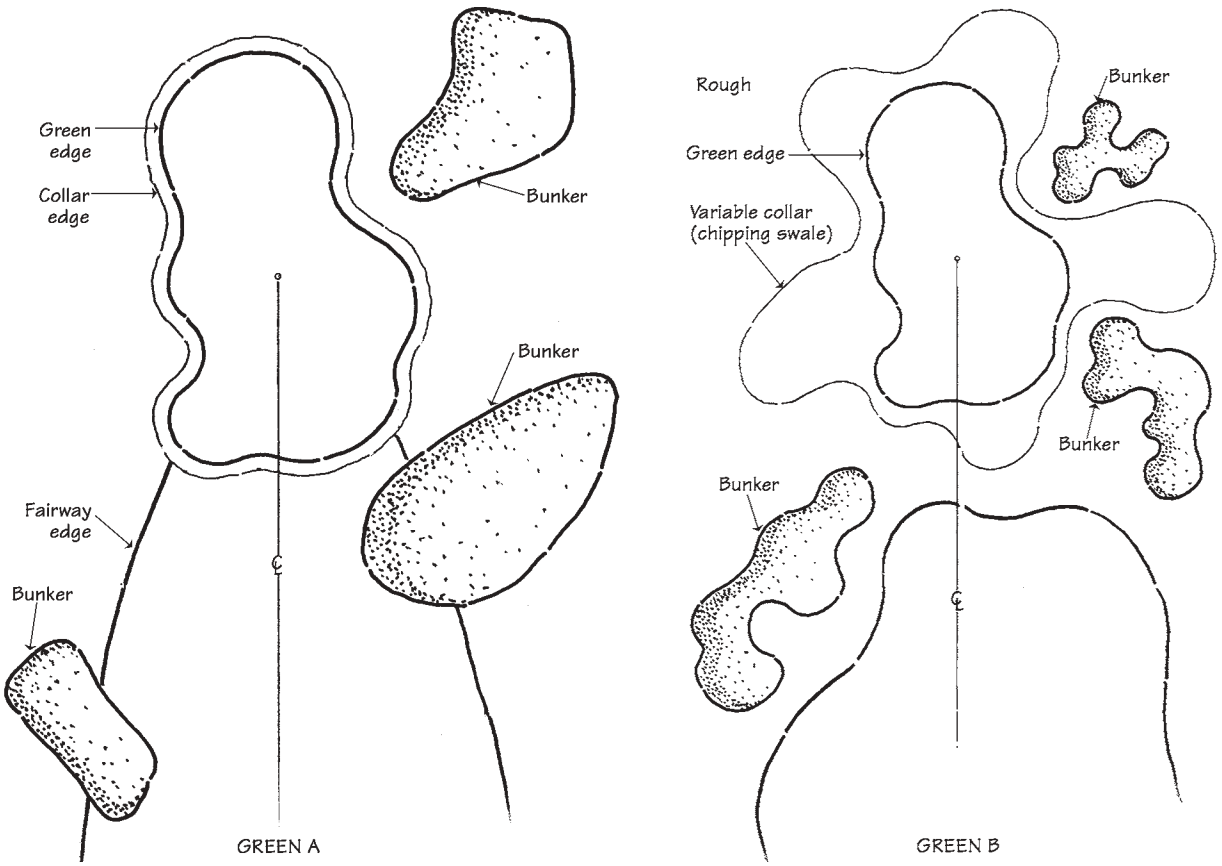


FIGURE 1-5

Rhythm is related to movement and limited to the connected path the golfer's eye ideally follows. This rhythmic relationship may be self-contained or part of the experience of leading the eye to the main focal point of the golf hole: usually the green. We also use a general repetition of shapes or shape styles along with progressions of sizes. Mowing patterns incorporating various turf heights create a pleasing continuous line movement that leads to a comfortable rhythm and a sense of contentment.

In green A, lack of similarity in shapes or progression in size of the bunkers negates any rhythm in this green setting. In green B, the shapes are used to create a compatible juxtaposition of curving forms. The combination of green, collar, and rough turf in mildly contrasting heights sets up a pattern that flows in and around the green area in a rhythmic manner.

Emphasis, according to the Goldsteins, is the principle of art in which the eye is first carried to the most important aspect of the composition (Figure 1-6).

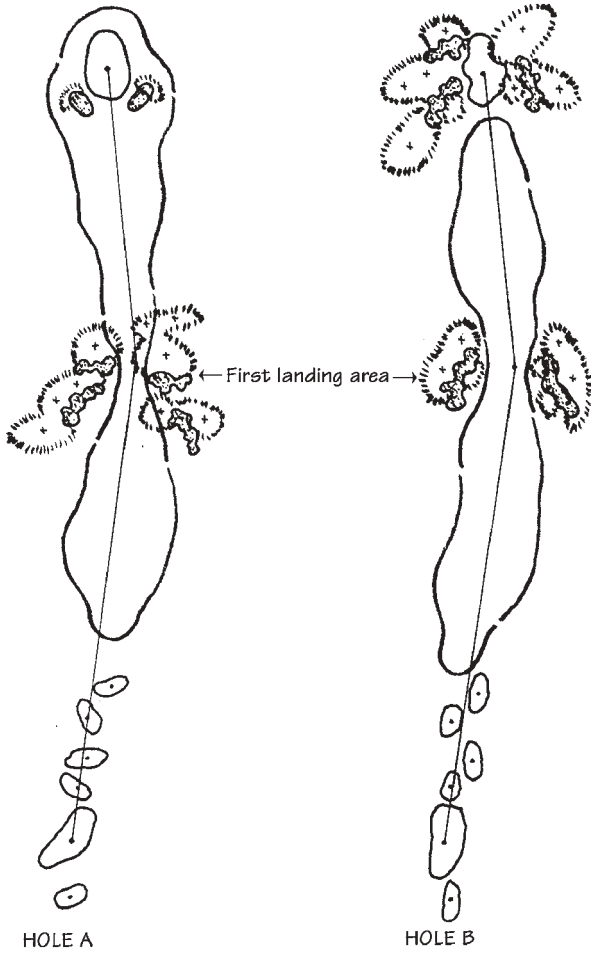


FIGURE 1-6

Simplicity is the "most important factor in emphasis." The placement or groupings of typical golf hole elements are used to create the desired emphasis, focused on the green, which is the most important feature in the composition. Too simple a background for a green causes it to melt into the landscape, while an appropriate grouping of shapes and sizes can create subtle but effective directions to tell the eye the path to follow. Tree color and texture often help to emphasize the green area, making it the most important element in a hole.

In hole A, the emphasis is directed to the first landing area. This is an acceptable start. However, emphasis is not reestablished by the green area. That is left undeveloped or treated as an afterthought. In hole B, emphasis is easily transferred from the first landing area to the green.

THE BIOLOGICAL APPEAL OF GOLF LANDSCAPES

Applying the principles of art to golf course design obviously contributes a sense of well-being to those golfers who are playing with the objectives of relaxing and enjoying themselves. On the other hand, touring professionals out to win concentrate on getting the ball into the tiny hole and may be forced to ignore beautiful surroundings. Yet one suspects that the beauty of a course provides even them with relaxation during periods of extreme stress. This sense of well-being may be somewhat similar to the feeling of security that arises in people from having mowed lawns surrounding their dwellings. Perhaps that feeling harks back to a need to see one's prey or enemy at a distance through a focal point past trees and over short grass.

An evolutionary biologist has told the authors that most golfers play the game in order to relax and enjoy themselves, and there may be biological reasons that the landscape design of golf courses contributes to these feelings. The human species spent most of its evolutionary history as hunter-gatherers in habitats like those of golf courses, only much larger—specifically, open savannas, grasslands with scattered trees and bushes that supply nutritious food (browsing and grazing animals, berries, seeds, buried roots), shade from the sun, refuges where we can stalk prey and hide from predators, and frequent changes in elevation that enable us to orient in space and thus find our way to remembered places that provide important resources, such as food, water, and shelter. Evolutionary biologists and psychologists, such as Orians and Heerwargen, have found a preference for such savanna-like landscapes across human cultures, and they suggest that it reflects an evolved learning bias that allowed us to psychologically adapt to living in this habitat. We could invent challenging golflike games in which balls are hit through habitats that are much less expensive to maintain, such as dense woods, open land that is flat and barren, or a desert, which would be one continuous sand trap! But we don't, and part of the reason for not doing so is that such landscapes are just not appealing to the majority of our species and do not provide that sense of well-being that golf architects strive to create.

Indeed, the landscape of a golf hole presents a savanna in miniature. It's also noteworthy that artists over the centuries have recognized the appeal of such landscapes. Leonardo da Vinci, for one, painted a partially open landscape as the background for his Mona Lisa.

It is worth repeating that the principles of art have little or no connection to the original links of Scotland, although the latter resemble savannas whose wildly undulating terrain represents the opposite of arrangement. In fact, the first classic holes did not arise naturally from the land—but came about when greenkeepers and professionals modified it. Through logical thinking and good taste, these pioneering designers employed principles of art they had probably never heard of.

The Arrangement of Holes

Among the venerable links of Scotland, Bruntsfield had 6 holes; North Berwick, 7; Gullane, 13 and later 15; Musselburgh, 5 then 6 and then 7; Montrose, 25; and the Old Course at St. Andrews, 24. There was no standard. After the first four holes were converted to two in 1764, the routing at St. Andrews resulted in a nine-holes-out, nine-holes-home format. Shortly thereafter, this method of routing became standard practice, as did designing courses to consist of 18 holes. This was probably due to the preeminence of St. Andrews, though more romantic explanations exist. (The most common is that a bottle of whisky equaled 18 jiggers, and drinking a jigger was mandatory on each hole.)

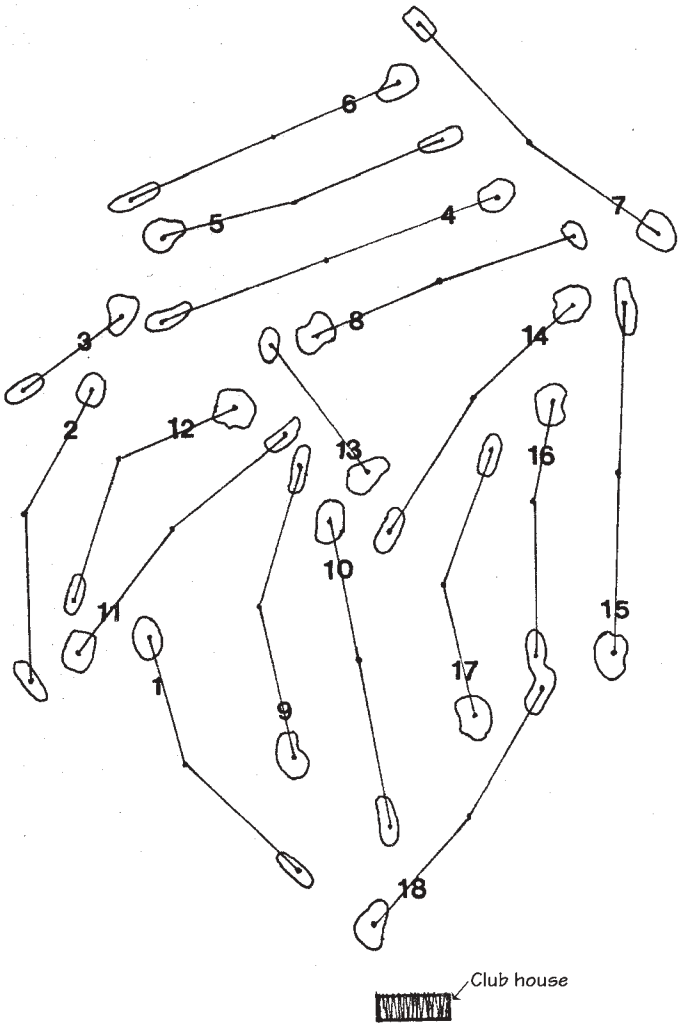
Late in the 19th century, Old Tom Morris, who was then ranked as the top course designer, and others decided that two separate nine-hole circuits, each returning to the clubhouse, was the most convenient routing for golfers. In reaching that decision, they may have heard that the Royal Calcutta in India already had this arrangement (Figure 1-7). With many exceptions, this became—and still is—the standard routing. Still, many renowned architects, including Donald Ross and Stanley Thompson, continued the nine-holes-out, nine-holes-home arrangement on many of their masterpieces well into and after the Golden Age of Golf Course Design of the Roaring Twenties.

By the time of Robert Trent Jones, whose fame did not peak until after World War II, it was apparent that a par of 72, divided 36–36 between the two nines, was the preferred arrangement for contemporary golf. This arrangement included two par-3s, two par-5s, and five par-4s of varying length on each nine. For variety, each grouping of holes is typically designed to vary according to length, challenge, and orientation to the wind. Other aspects of hole arrangement, with numerous exceptions, include:

1. No par-3 before the third hole.
2. The three finishing holes include a par-3, par-4, and par-5, but the par-3 seldom serves as the 18th.
3. It is uncommon for two par-3s or two par-5s to be placed back to back, although the renowned Dr. Alister Mackenzie did not hesitate to do so at Cypress Point when existing terrain favored such a sequence.
4. It is desirable, but not often possible, to have the first four or five starting holes oriented into the wind in four different directions.

FIGURE 1-7

Perhaps to accommodate nine-hole-only play, the Royal Calcutta Golf Club, founded in 1829, was among the first to incorporate two returning nine-hole loops in its routing. Although tees and greens are not so closely clustered around the clubhouse as we normally see, the arrangement permitted a visit to the clubhouse between nines.



5. Routings with every sixth and even every third hole returning to the clubhouse have been attempted with modest success.
6. To enhance variety, architects have tried to arrange their routings so that similar pars, even 4s, do not follow each other, for example, 4–5–4–3–4–3–4–5–4. Almost inevitably, this seems artificial. Par rotation, dictated by terrain and other existing conditions, has created more exciting courses than has following rules of thumb. For example, architect Albert W. Tillinghast provided two par-5s for finishing holes at famed Baltusrol; Alister Mackenzie, at Cypress Point, had two par-5s (holes 10 and 11) and two par-3s (holes 15 and 16) (Figure 1-8), while Robert Foulis long ago provided three

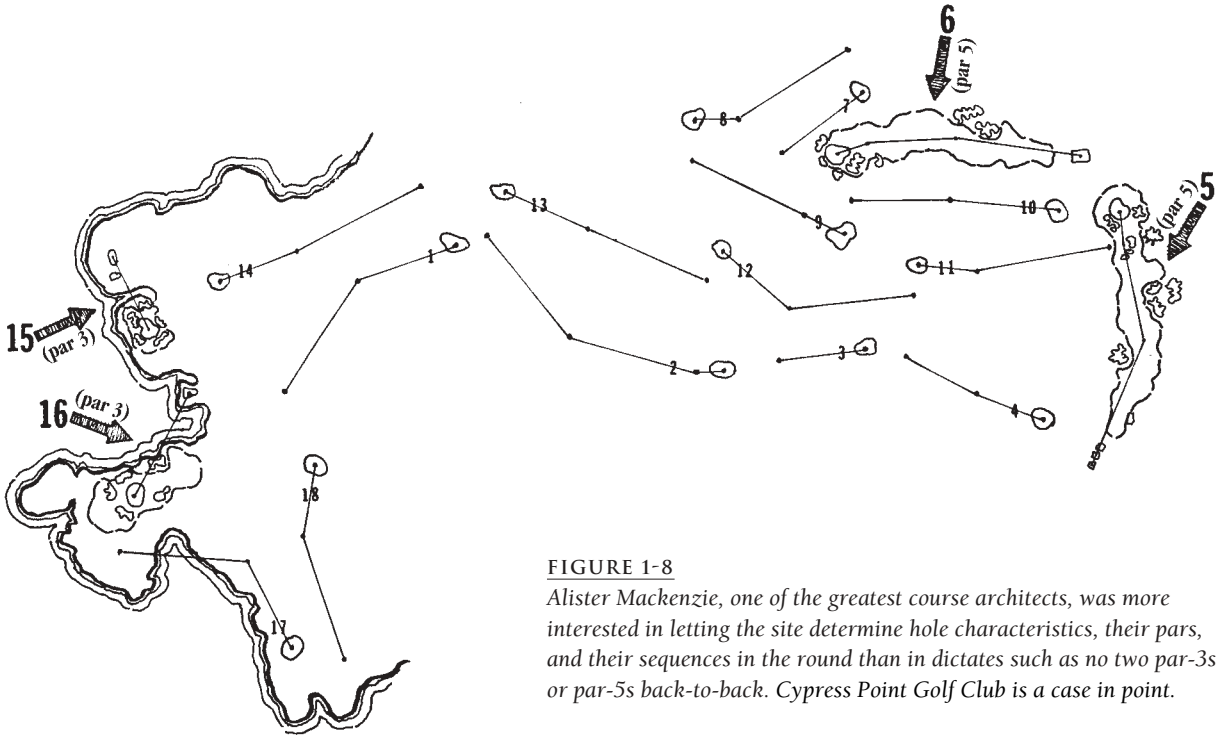


FIGURE 1-8
Alister Mackenzie, one of the greatest course architects, was more interested in letting the site determine hole characteristics, their pars, and their sequences in the round than in dictates such as no two par-3s or par-5s back-to-back. Cypress Point Golf Club is a case in point.

par-5s, namely holes 15, 16, and 17, back-to-back that have withstood the test of a century at the prestigious Town and Country Club in St. Paul, Minnesota.

7. Orientation of holes in relation to prevailing wind is of importance. Old Tom Morris advocated an arrangement where the player faced the wind in all four directions during the first few holes. All architects try to orient their holes into the wind in as many directions as possible.
8. Routing arrangements are legion. Indeed, writer Mark Leslie describes courses that include 19 holes, with the extra hole provided to settle bets or because there is a long distance between the 18th green and the clubhouse. It also provides a hole to use if a regular hole is out of play.

While the foregoing design practices are followed, they are never considered to be ironclad. They are guidelines at best, and golf architects rightly take immense liberties in the manner in which they choose to arrange and sequence holes depending on terrain, the players who will play the course, and other factors. Their objectives are the most exciting holes. As a sign of how critical these decisions are,

COURSES WITH 19 HOLES

Writer Mark Leslie lists eight courses with 19 holes:

- Olde Farms GC, Bristol, Virginia, architect Bobby Weed
- Kinloch GC, Richmond, Virginia, architect Lester George
- Wykagyl GC, New Rochelle, New York, architect Lawrence Van Etten
- Knollwood GC, Elmsford, New York, architect Lawrence Van Etten, revised by A. W. Tillinghast
- Double Eagle GC, Columbus, Ohio, architects Jay Morrish and Tom Weiskopf
- Loch Lomond GC, Scotland, architects Jay Morrish and Tom Weiskopf
- Stone Canyon GC, Tucson, Arizona, architect Jay Morrish
- Tradition GC, La Quinta, California, architects Arnold Palmer and Ed Seay

golf architect Forrest Richardson (ASGCA) has recently completed a book devoted entirely to routing a course.

Characteristics of a Successful Golf Course Architect

Golf is a game that has endured for a millennium or longer. Today, golfers enjoy more than a half million individual holes around the world. Each is a composition unique and beautiful, with some ranking among the most beautiful landscapes ever created and each a miniature savanna manifesting characteristics that contributed to the evolution of our species.

What personal characteristics have contributed most to a golf architect's ability to create (other than the opportunity to practice)? Formal education and experience have helped greatly when coupled with talent and organizing ability. Yet we feel that hard work and dedication are the factors that have contributed most to the creation of a half million magical compositions. And we think Mead and Ackerman's statement that "Architecture is the application of art to engineering" could be reversed; indeed, engineering makes architectural concepts feasible, including those that are mundane and those that are brilliant.

Writer and historian James W. Finegan listed, and eloquently so, the characteristics of a successful golf course architect when describing Perry Duke Maxwell as having "all the traits of a classic golf course architect; intelligence, a taste for the arts, an understanding of nature and an appreciation for thrift."

2

THE HISTORY OF GOLF COURSE ARCHITECTURE

In the beginning, playing fields were needed for golf, and more space was required than for the somewhat similar games that had preceded it. Early sites took the form of city streets, frozen lakes, and then entrancing seashores. These were crafted by nature and by society, but they were *discovered* by golfers. As the popularity of golf grew, however, so too did people's desire to shape their playing fields.

In today's game, where professional architects carefully plot and plan every detail of a new layout, it's nearly impossible to comprehend the prospect of "discovering" a ready-made golf course. And today's golfers might not recognize the earliest natural playing fields as being in any way related to today's manicured courses. Nor did the games themselves always resemble golf. There were a variety of forebears to the game we know today. Some passed in and out of existence; others evolved; others migrated across international borders. Over hundreds of years, those games rattled around like balls in a lottery drawing until, from all of these, came golf.

Based on material from a number of different sources, Table 2-1 summarizes the rudimentary stick-and-ball games that influenced, in one way or another, the game of golf as we know it. Beginning with *paganica* in ancient Rome, golf has had many ancestors in many distant lands, all similar in one way or another to the game we know today. These now long-lost pastimes included *chole* (*soule* in Belgium), with similarities to both hockey and golf; *kolven* in the Nether-

A FEW EXCEPTIONS: READY-MADE GOLF COURSES

In the last decade, golf architects Coore and Crenshaw discovered a site that was almost a ready-made course near Mullens, Nebraska. It is now Sand Hills Golf Course. Likewise, golf architect David Kidd and later Tom Doak produced Bandon Dunes and Pacific Dunes, respectively, on the Oregon coast near Bandon on ready-made sites they and the owners had discovered. Preceding them, golf architect Bill Robinson had laid out Pacific Dunes on similar land nearby at Florence, where he followed contours nature had provided.

TABLE 2-1

Stick-and-Ball Games That Influenced Golf

Ancient Game	Other Names	Country of Origin	Ball Used	Club Used
Paganica	Cambuca	Ancient Rome; later played in England as cambuca	Leather stuffed with flock in Rome; a wooden ball in England	Not known
Pall-mall[a]	Jeu de mail; mail; pele mele	Italy, moving to France and then England		Eventually a club similar to an iron
Chole[b]	Soule	Flanders and northern France	Beechwood	Rigid shafts and iron heads
Kolven[c]	Kolf; Het Kolven	The Netherlands	Beechwood	Hazel shafts

[a]First played in a court with bounds and a prepared surface; the ball was lofted through a hoop. Later, it was moved to the countryside, where it was played along streets and roadways. Pall-mall preceded golf but was played long after golf became a game.

[b]One team hit a ball toward a target, sometimes miles away. After three shots, the opposing team had one turn to hit it in the opposite direction.

[c]Played in city streets and churchyards, sometimes on ice.

lands, sometimes played on ice and a game whose name may have evolved into the word "golf"; and *pall-mall* (also called *mail, pele mele*, *jeu de mail*), a game played first in the streets of Italy before spreading across Europe and finally arriving in Scotland. The impact of these games on the modern architecture of golf is remote, if it exists at all; yet they made golf possible.

An informative account of these pregolf games is presented by Robert Browning in his *History of Golf: The Royal and Ancient Game*. He states that "It was the Scots who devised the essential features of golf, the combination of hitting for distance with the final nicety of approach to an exiguous mark, and the independent progress of each player with his own ball free from interference by his adversary."

In compiling his history of the game, Browning made abundant use of Robert Clark's earlier work, *Golf: A Royal and Ancient Game*. The similarity in titles is unmistakable, with each paying homage to the honorable name given golf in its homeland. "The Royal and Ancient game of golf has ample justification for its historic title," wrote Browning. "During nearly 200 years from the peace of Glasgow