PLACE-SPECIFIC GOLF COURSE ARCHITECTURE: GUIDELINES FOR GOLF COURSE DEVELOPMENT IN EMERGING MARKETS

by

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(Under the Direction of MARIANNE CRAMER)

ABSTRACT

During a period of close to zero golf course construction domestically in the US, this thesis takes the opportunity to question the contemporary approach to golf course architecture and development. The standardization of golf course design has contributed to the social, ecological and economic unsustainability of modern golf course development. With an increasingly globalized marketplace, this thesis challenges the prevailing homogenization of golf course development with concern to the long-term sustainability of golf in emerging markets. The author turns to the architects and courses of the 'Golden Age' for precedent in architectural innovation and its role in establishing the game upon unfamiliar cultures. The thesis concludes with 'Thirteen Principles for Contemporary Golf Course Development' in which the author proposes an architect led paradigm shift towards place-specific golf course development.

INDEX WORDS: Golf Course Architecture; Globalization of the Golf Marketplace; Place Theory; Social, Ecological and Economic Sustainability.

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M/Eng Structural Engineering and Architecture, University of Sheffield, England 2010

A Thesis Submitted to the Graduate Faculty of The University of Georgia in Partial Fulfillment of the Requirements for the Degree

MASTER OF LANDSCAPE ARCHITECTURE

ATHENS, GEORGIA

2013

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DEDICATION

To my parents who have encouraged and supported me in this most unconventional of career choices.

ACKNOWLEDGEMENTS

I would like to thank my major professor, Marianne Cramer, who has been patient in learning the nuances of an unfamiliar game and design practice. Thanks also to the members of my committee, especially Tom Doak who has been generous in passing on his knowledge and giving me the opportunity to learn from him and his talented associates in the field. I would like to express my gratitude to the golf course architects, writers and other industry members who have taken the time to discuss their views on golf development today and in the future. Finally, to the superintendents and golf professionals who have allowed me to visit their courses in the name of research.

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INTRODUCTION

'Golf architects ought to be leaders in promoting progress of golf. They are not... Except for a few notable exceptions in the profession, the term architect can hardly be used at present as relating to golf architects...Every architect owes it both to himself and to the golfing world to strive towards perfection. We believe it will be more profitable to him to build fewer and better courses. There is progress for the betterment of golf architecture, but it is very slow. It will continue to be slow as long as the artistic sense is sacrificed to immediate commercial gain.'

(USGA Bulletin, 1925; "The Progress...")

Problem

The growth of golf, at least domestically in The United States, has reached an impasse. According to the National Golf Foundation only 13.5 courses opened in 2012 compared 154.5 closures ("Summary of...", 2013). With a significant drop in participation, and realization that many golf course operations are economically unsustainable, the golf course architecture industry has stagnated. With this decline, it would seem reasonable to apportion the blame on the global economy's 2008 downturn; after all the industry's success and character has seemingly always fluctuated with financial prosperity. The problem, however, is more endemic – rooted in the attitudes and trends of modern golf.

The last fifty or so years has seen a worrying and unsustainable shift towards a 'one-size-fits-all' type of golf course. Such courses deviated far away from the

architectural style, and more importantly golf's very founding principles, as still found in the game's home, Scotland. That the golf business and developers failed to regulate against 7000-plus-yard, par-72 courses supposedly aimed to challenge the best players, as the market norm, seems incomprehensible. With this resource consuming and unnecessarily costly architecture damaging to both the consumer and environment, the business of golf finds itself fighting to justify further course development.

With the increasingly globalized nature of the game, and current decline in course development, the future of golf course architecture is unclear. As many within the industry still mourn the passing of golf's recent boom era, it appears that golf course architecture must accept a large proportion of the blame. Yet, golf course development patterns in emerging markets continue to follow a standardized model. The author believes that countries new to the game must be encouraged to engender their own golfing culture.

The establishment of golf in developing regions is at a relatively immature stage. It is argued that emerging markets are approaching a breakpoint beyond which it will be difficult to direct the philosophy of golf course development towards a typology that responds to localized needs. This thesis contends that the golf industry should be responsible for guiding a type of golf course development that is sensitive to *place-specific* social, environmental and economic demands. The current design approach is risking the long-term sustainability of the game in emerging markets. The recommendations in the concluding chapter of the thesis suggest an alternative model for golf course development that offers potential to better establish and grow the game in new regions.

Research Question and Purpose

This thesis asks the question: *How can the game of golf establish and sustain itself in emerging markets through place-specific golf course development?*

The purpose of this research is to understand the failings of contemporary golf course development and identify the potential role of golf course architecture in directing a sustainable future for the game in emerging markets. Ultimately, the issue in new golfing cultures revolves around broadening the game's appeal, breaking down existing preferences for exclusive communities by promoting accessible golf to a wider society.

Significance

It is easy to suggest the future of golf, and golf course building, will be much like the past. But, the rapidly changing nature of the world in which we live is unrecognizable from the beginnings of the game of golf. As golf globalizes, golf course architects are confronted with not only new opportunities but also cultural, economic and ecological constraints. Yet, it appears from the author's perspective that many stakeholders within the golf industry have failed to recognize the implications, with many new golf courses following the same placeless design style that golf's emphasis on growth has encouraged. The question of the global long-term health of the game revolves around the issues of place-specific design and the designer's responsibilities.

This thesis contends that interesting, if not innovative, architecture is fundamental in establishing the long-term success of the game in immature golfing cultures. However, there must be a realignment of the misplaced perceptions of what

constitutes 'good' golf course architecture by addressing the inefficiencies of design, construction and management.

Today's diverse, international working environment and the realities of a more restrained economic attitude, brings the opportunity for the sensible integration of many of the essential elements of both golf course architecture and responsible environmental design. There is an opportunity to protect and enhance sensitive ecological landscapes, and to promote environmental planning and sustainability in areas that may otherwise, suffer irreversible decay at the hands of man. The golf course can be at the forefront of ecological experimentation, providing the opportunity to efficiently manage water resources, promote indigenous flora and fauna, rehabilitate degraded landscapes and promote physical and mental well-being amongst others ("Golf Sustaining..."). Even where the game is inaccessible, the golf course can function as an asset for the population. The challenge for golf course architecture is to adopt and extol such practices that are adaptive to the place-specific characteristics of *new* golfing lands and cultures.

Methodology/Synopsis of Chapters

A range of enquiry is required to frame and answer the overall research question. Sub-questions investigate the golf industry's role in regulating the game's growth and surmise the characteristics of golf course architecture and development in emerging markets. An approach to golf course development inspired by golf's first international pioneers is subsequently questioned for its value in promoting a sustainable game. Finally, the role of golf course architects, and the golf industry as a

whole, in guiding a movement towards place-specific design development is questioned.

Chapter Two opens with a critique of modern golf course architecture. Descriptive strategies are used alongside discourse analysis of architectural theory of the time are used to explain and evaluate the quality of post-war development of golf in The United States. While it is suggested that the golf industry continues to encourage growth, the possible consequences of following current development models are investigated through a broad range of established figures within the industry. Given the described failings of contemporary golf course architecture, the potential of the golf course in the health of our environments and communities is suggested from further descriptive analysis.

Chapter Three directs the focus of the research towards emerging markets. Contemporary sources cite China (and more recently South-East Asia), where a wave of entrepreneurial architectural practices were shrewd enough to predict the rise of golf course communities during the 1990's, as a source for future golf course construction. China is used as the case study with additional observations from other emerging markets. With the author unable to directly observe the development of golf in such areas, the case study places a heavy reliance on secondary description. Descriptive questioning provides balance, but even those with first-hand experience recognize the difficulty of fully understanding the complexities of operating in China. Analysis indicates that golf course development in emerging countries must address place-specific challenges.

Chapter Four employs a content analysis, inspired by the author's own analysis of early golf course architecture, to highlight how the work of golf's early pioneers can

resolve many of the problems facing present-day development. As the game of golf expanded beyond its traditional British seaside settings to inland locations, and to new continents, the 1920s witnessed the beginnings of literature dedicated wholly to the theory of golf course architecture and construction. Key themes specifically emphasize a design style native to place in the use of topography and a natural aesthetic undistinguishable from a course's beautiful surrounds. The relevance of such theory is confirmed by the reverence that the golf courses of this revolutionary era hold – common examples of their continual high standing include magazine ratings, many compiled by an array of industry 'experts.' Descriptive strategy is used to recognize a contemporary 'renaissance' inspired by the great architects. The appropriateness of encouraging such a tactic in emerging markets is examined through descriptive questioning.

Chapter Five, based on what has been interpreted from the previous chapters, offer's the author's own *'Thirteen principles for golf course development'*, accompanied by brief suggestions for their application. A new, ideal role for the stakeholders of the golf industry is proposed to initiate the governance of a place-specific movement in golf course architecture. The thesis concludes with the author's reflection and a reiterating of his hope for immediate change in the practices of golf course development.

Limitations

Providing a mandate for the future of any design field is problematic. Discussions about the future of golf course architecture almost inevitably evolve into dialogue surrounding the future of the golf industry as a whole. Given the scope of the

subject and the extensive breadth of analysis required to confidently answer such a research question, the limitations of the thesis seem clear. The concerns of the problem are global in range and imminent in importance. Many of the sub-questions may, in fact, be worthy of research as single entities and as such the coverage of these are prioritized relative to the author's own assumptions.

The thesis relies largely on descriptive strategies. First-hand observations in the thesis are limited by the scope of the author's experience – the golf culture and golf course development in the British Isles and the United States. Hands-on experience in the construction process, gained while interning for Renaissance Golf Design, and wide reading on the subject have allowed the author to understand the workings of the golf industry, but also to form preconceptions. Secondary description and descriptive questioning from a broad range of interested parties complement and balance the author's observations and conclusions. It must be noted that the respondents that chose to participate were naturally more inclined to be sympathetic to the author's arguments and as such there are some imbalances. Although developers are largely criticized for their role in promoting standardized golf course development, no data was collated that directly questions their reasons for adopting such an approach.

Research initially attempted to discount the economic factors with a focus on the social and mental well-being benefits of golf. The history of golf course architecture and development is complex however, and it became clear that social, environmental and economic elements were intrinsically linked to the failings of contemporary golf in emerging markets. Without expertise in economics, and criticisms of the inefficiencies of contemporary golf course development, the author

followed the basic premise that more affordable construction and maintenance practices would equate to a more accessible and thus beneficial game.

Delimitations

The critique of golf course architecture and development in both established and emerging regions is focused on courses that represent *typical* methods of and attitudes towards design, construction and management. The 'minimalist' movement provides an example of an atypical approach to contemporary golf course architecture. Unfortunately, the global scope of the research question meant it was not possible to provide in-depth coverage of the wide range of alternative design tactics and styles.

Definitions

It is useful to provided a glossary of the following terms to aid those readers unfamiliar with the game of golf:

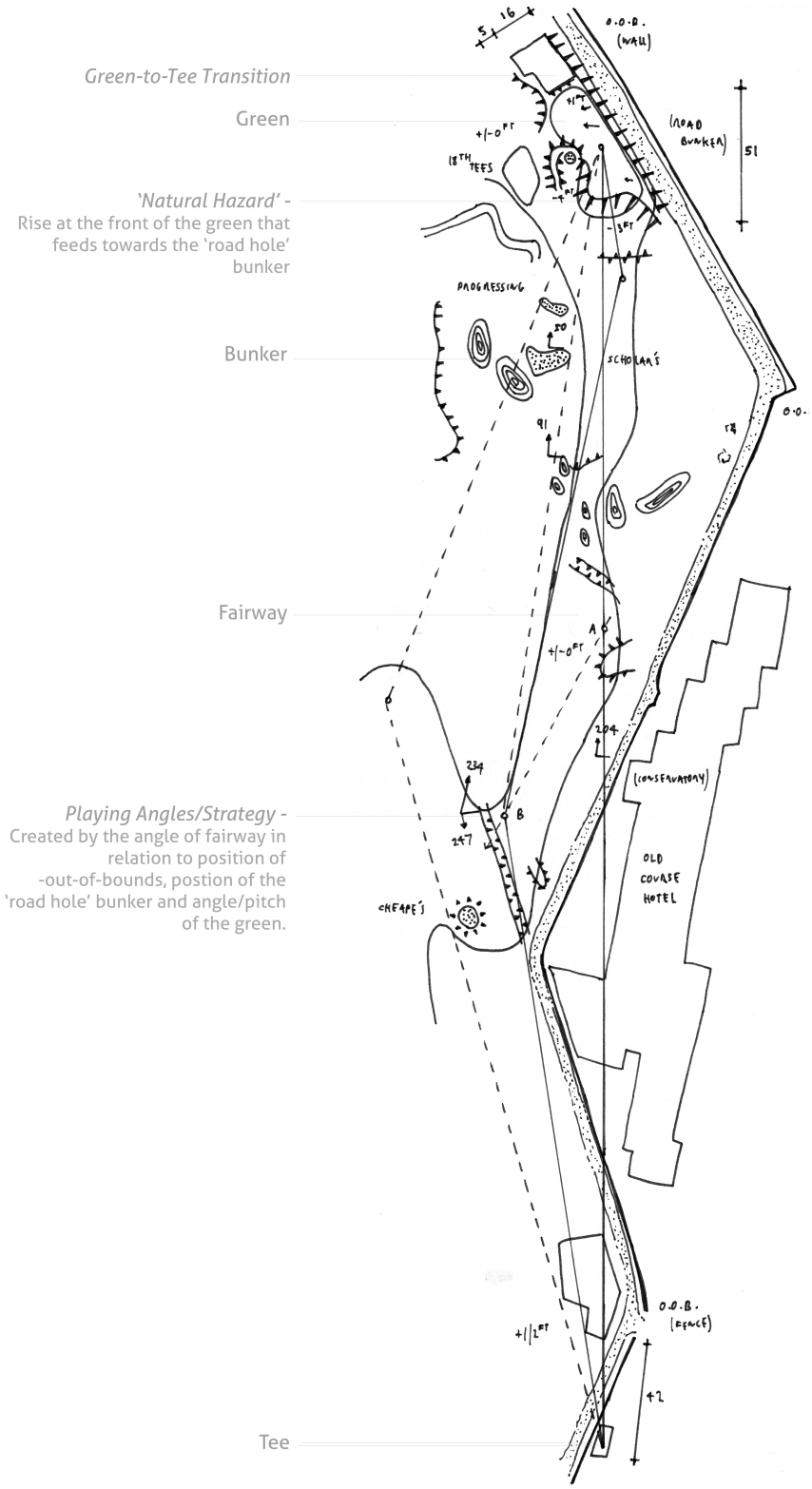
The Golf Industry – Refers to the stakeholders that influence the game of golf and the design of courses. Developers, for the purpose of the thesis, are regarded as separate from the golf industry. (See *Fig. 2.13.* for an explanation of how the 'golf industry' influences the design and development of courses.)

Golf's Governing Bodies – The "United States Golf Association" and "The R &A", world golf's ruling authority on outside of the US and Mexico, are recognized by the author (in *Fig. 2.13.*) as the most influential stakeholders in the 'golf industry.' Both bodies govern the rules of golf and each organizes one of the games four 'major' professional tournaments. The R & A also 'seeks to engage in and support activities undertaken for the benefit of the game of golf. '

Conditioning – Today lush, green, perfectly manicured grass and high-speed greens are a generally perceived a measure of quality. So called 'standards' have evolved with technological advancement in maintenance equipment and a scientific approach to turfgrass management. The early generations of golfers accepted nature's imperfections and revered fast and firm playing conditions.

Routing – The layout and arrangement of golf holes in the landscape. Continuity, sequence and flow must be considered by the architect in an attempt to maximize variety and harmony with nature.

Hole Types – The golf course is made-up of a number of holes that differ in length and character. Hole types may be labeled by their 'par' or strategy in relation to the terrain.



[**Fig 1.1.** Features of a typical golf hole – Par-4 17th 'Road' hole at *The Old Course; St. Andrews, Scotland.]*

CHAPTER 2

THE GROWTH OF GOLF - A MODERN *PROBLEM* IN GOLF COURSE ARCHITECTURE?

Originating from Scotland's ancient links land, golf and its playing fields have evolved throughout history, particularly as the game was exported inland and overseas. The United States has been at the center of three significant periods of growth (Hueber, 2012; 12). Golf's first great expansion occurred during a period of class struggle in which the game, played predominantly at private clubs, became emblematic of the wealthy elite. Now revered as the 'Golden Age' (1910-1937), this era of creative collaboration has arguably been unsurpassed for the quality of its golf course architecture. Regrettably, the great depression and World War II ended the first boom period that emphasized place-specific design.

Golf would have to wait until the 1960's before enjoying a second period of significant growth, fueled by the increased leisure time and affluence of an emerging middle class. At this time, the game evolved from a largely upper class pastime, in America, to a predominantly middle class recreation that generated demand for public courses. Thinking in golf course architecture followed a rationalized and international style not that dissimilar to the prevailing 'modern' art movement of the time. Lasting approximately until the mid 1970s, this second boom cycle would signify a paradigm shift in golf course design and the game's consumption.

Robert Trent Jones Sr. may be regarded as the forefather of the modern movement, defining a 'Heroic' school of golf course architecture that sits as an intermediary to the earlier established 'Penal' and 'Strategic' styles of design covered at the beginning of Chapter Three. Jones' innovation extended to the operation of his

business, moving away from the amateurism of the early course architects towards a model of profitability. Described by golf writer Brad Klein as 'The Mass Production Effect', courses were churned out in 'assembly-line fashion' in an effort to improve efficiency and reduce unit cost (Shackelford, 1997). This approach, characterized by a lack of sensitivity or adaptation to the unique qualities of a site, required minimal design time and could easily be directed, with the use of detailed plans, from an office. With the focus on brand promotion came a weakening of golf course architecture as a practice; design in the field, and the vital nuances this brings, was sacrificed. Although Jones Sr. was able to produce some unique holes (see *Fig. 2.1.*), his vast body of work exceeding 350 courses is in the author's experience largely uninspiring. A formulaic methodology, as with the majority of architecture from the modern era, resulted in ubiquitous courses that failed to innovate.

[**Fig. 2.1.** *The Dunes Club*; Myrtle Beach, SC – Par 5 13th hole. The famed three (or two, for some) shot hole characterizes Jones Sr. 'Heroic' school of design.]

Robert Trent Jones Sr. partially attributes his own revolution in golf course architecture to the inspiration of Pine Valley Golf Club[1] that resulted in courses 'over cluttered with traps' and 'greens extremely small as target areas' that were not suitable for the daily play by the average golfer (Sutton, 1950; 26). Golfer 'Bobby'

[1] Pine Valley, New Jersey (1919) - design attributed largely to George Crump and Harry Colt.

Jones' 'modification' of architect Alister MacKenzie's belief(s) that courses *'must give the average golfer a fair chance and at the same time require the upmost from the expert player who tries to break par'* is also a cited factor (Sutton, 1950; 27). While Jones Sr.'s observations were sound, his reinterpretation of what constituted suitable golf architecture, in aesthetics and playability, appears flawed when compared to the courses of the 'Golden Age.'

Jones Sr. was not alone. Dick Wilson was particularly influential in popularizing the 'Florida style', in which vast lakes were created to generate fill from which a landscape devoid of preexisting natural features could be transformed. These lakes although often 'heroic' in their design strategy, were 'penal' in their finality. The water hazard became a strictly American invention. Bob Cupp's Settindown Creek Course (see *Fig. 2.2.*), built in the late 1980's, demonstrates how transferable this prolific type of construction became during the modern era. Built in a floodplain, artificial lakes were created to assist drainage and generate fill for feature shaping. Preexisting berms, resulting from dredging of the adjoining river, had inhibited natural drainage.

[**Fig. 2.2.** *Settindown Creek*; Roswell, GA – Par 5 1st hole. The first and tenth hole play as parallel long holes; the penal lake borders the green and approach on opposite sides.]

As trends in golf course design moved beyond the 'heroic' school, a preference for the pseudo links emerged. These courses aimed to replicate the Scottish seaside landscape. However, rather than replicating the subtle, gentle curves of the links-land, the American 'imitation' was characterized by railroad ties, pot bunkers and vast mounds flanking the individual holes first introduced by Pete Dye at Harbor Town in 1969 (see *Fig. 2.3*.).

[**Fig. 2.3.** *Harbor Town;* Hilton Head Island, SC – Par-4 13th hole. Inspired by wife Alice, the 'T' shaped green and bulkhead edged bunker, characterizes Pete Dye's revolutionary early style.]

American golf writer Herbert Warren Wind succinctly evaluates this modern decline in golf course architecture:

> *'One of the ironies of the prosperous post-Second World War era, when so many clubs wanted to build superlatively good courses and damn the expense, is that only a handful of admirable courses emerged. The architects had so many scattered projects on their agenda that they could not find the time to stay put at any one course during the crucial weeks, and sometimes months, when rough ideas are translated into holes that really play.'* (MacKenzie, 1920; Foreword).

Despite this diminishing quality of design, many course architects, attracted by extravagant design fees and the prospect of global recognition failed (or chose not) to recognize the dangers of pursuing the business model spearheaded by Jones Senior.

Klein refers to this newfound extravagantly theatrical style, in which minimal time was spent designing in the field, as the 'Show Biz Effect' (Shackelford, 1997). As implied by Shackelford, the quality of course architecture from the post-war generation of superstar architects failed to match the over-exuberant costs of their services.

This transition, from art to commerce, failed to recognize the importance of human use. But with the demand for golf from an increasingly socially affluent population high, a standardized approach was allowed to prevail. Only Pete Dye's radical interpretation of the British Links, in a sort of post-modern style, offered a return to early design theory and practice. Although, often highly innovative, and sometimes controversial, the popularity of Dye's work encouraged a period of imitation during the 1980's that failed to understand and replicate the strategic subtleties of his unique originals. Most famously, many designers would replicate Pete Dye's renowned 'Island' green at TPC Sawgrass in the following two decades (see *Fig. 2.4.*).

[**Fig. 2.4.** *TPC Sawgrass (Players);* Ponte Vedra, FL – Par 3 17th hole.]

Golf's third boom period from the early 1990's, peaking in 2000, is especially recognizable for the approach to design in which short-term profit is favored over the long-term sustainability of the game. Anticipated demand from the "baby boomer" generation reaching retirement age, and the golf industry's call for building "a course a day" resulted in unprecedented levels of growth in golf course construction. According to the National Golf Foundation four-hundred new courses per year opened during the 1990s. With forty percent of courses constructed during the decade associated with real estate development, the golf course was viewed as a tool to command premium lot value as in master plan communities. While Jones Sr., and his contemporaries at least offered some revolutionary architectural philosophy, the *'bigger is better'* attitude

that ensued during the third boom only drove the race for increasingly costly, difficult, and thus unsuitable courses:

Standardized Ideal for Golf and Golf Course Architecture:

A standardized golf course encourages a game of reputation, devaluing the games mental challenges and emphasis on adaptation. The American 'ideal' for tournament courses that prevailed during this most recent era, has, according to author Geoff Shackelford, *'taught (golfers) to demand predictability and a sameness to their golf, which stifles their long-term interest in the game'* (Miller, Shackelford, 2001; 130). The notion of 'fair' and 'just' would be unrecognizable to golf's early proponents who endorsed a "play it as it lies" approach. In the modern course architect's efforts to reward skill and eliminate luck, the purpose of the game and its courses has become distorted.

The modern concept in golf course design of formula and balance seemingly contradicts many course designers who claim to follow the natural landscape of a site. As developers and architects follow contemporary preconceptions of what a golf course should be the inherent social, mental and physical qualities that make the game so appealing to all generations are diluted.

Built as part of Alabama's 'Robert Trent Jones Trail' at 8191 yards long, with over eight miles of cart path, characterized by containment mounding and an unimaginable cubic yardage of earth moved, Ross Bridge portrays the ills of modern, 'championship' golf course design (see *Fig. 2.5*). An in-depth critique of the standardized courses of the late-20th and early 21st century follows.

[**Fig. 2.5.** *Ross Bridge*; Hoover, AL – Par 5 13th hole. This downhill three-shot hole measures a staggering 698 yards from the back tees.]

Increased Course Footprint:

Advances relating to the golf ball have arguably been the most influential dynamic in shaping *design* over the history of golf course architecture. The beginnings of golf course 'design', and the expansion of the game, can be traced to the introduction of the cheaper Gutta Ball in the 1860's that made golf attractive to the masses. Recognized by architects as early as the twentieth century, the 'distance debate' is hardly a modern phenomenon. But progression in ball and club technology over the past decade has been particularly contentious with leading players in particular able to carry the golf ball increasing distances. Strains have been placed on many historic golf courses that have felt obliged to make design changes in the search

for length. The early architecture greats such as Alister MacKenzie, who believed *'a well-designed golf course should suit any golf ball or any class of player'* would no doubt be enraged (Doak et. al., 2001; 187).

Geoff Shackelford offers the most thorough contemporary analysis of the golf industry's failure to limit the distance that the golf ball carries (Shackelford, 2005). Quite simply, a mistaken need to create longer, bigger courses has exacerbated the inefficiencies and unnecessarily high costs that limit golf's accessibility today. As the debate continues golf's governing bodies remain, in the author's opinion, egotistical in their reluctance to 'reign-in' the effects of playing technology. Increased resource use and playing time that results from longer courses cannot be viewed as sustainable for the long-term future of the game.

Irresponsible Management Expectations and Practice:

Contemporary trends in the maintenance of courses are particularly concerning. The evolution of green speeds, much higher in comparison to the origins of the game, is not only unsustainable in its demands on turfgrass, but also detrimental to the interest of the game. As Pete Dye suggests: *'at some point we are going to have to figure out what we really want from our golf courses'* (Shackelford, 1997). It can be argued that slower greens, with *more* contour, that create greater interest and challenge for all players are of benefit to the game in attracting and retaining play. The modern preference for narrow fairways and punitive rough is equally frustrating, stifling creative play and enjoyment for all players. Paradoxically, the set-up of courses has been prohibiting potential players from taking up and growing the game that the golf industry was so willing to encourage.

For those seeking a transformation towards more sensible management goals and objectives the challenge is highlighted by the author's conversation with Mark Esoda (Superintendent, Atlanta Country Club; Georgia.) Aided by a $1.7m yearly budget, which allows for 24 maintenance staff, a set management program successfully delivers what the members demand – near perfect conditions. The downhill one-shot 12th hole, flanked by a cascading waterfall and manicured rock garden to the left, demonstrates the excessive levels of maintenance that can be achieved where resources are of no object (see *Fig. 2.6.1*). Although maintaining turfgrass in the warm-cold season transition zone is far from easy, the author having grown-up on Britain's courses that are often maintained at a tenth of the cost, albeit it in a favorable climate, finds such extravagancies difficult to justify. While the membership are willing to pay for high-end conditioning, Esoda is understandably not interested in changing towards more ecologically and economically sustainable management practices.

[**Fig. 2.6.1.** *Atlanta Country Club*; Marietta, GA – Par 3 12th hole.]

In contrast, David Stone (Superintendent, The Honors Course; Tennessee) has adopted a more flexible approach to the management of the golfing landscape. Beginning during the 'grow-in' phase of construction (1983), the local landscape provides inspiration in the presentation and management of the golf course as he looked at neighboring farms to study their successful plant habitats. Stone has continually experimented over the past 20 years, and his attention to detail has seen the introduction of more durable cultivars of Zoysia grass to areas of high-play. The stylistically varied approach to grassing the bunker surrounds and faces not only matches the remarkably diverse style of shaping employed by Pete Dye, but more

importantly, succinctly ties the features and thus the course into the wider, local landscape.

[**Fig. 2.6.2.** *The Honors Course*; Chattanooga, TN – Par 4 15th hole. Greenside bunker.]

Inefficient Construction and Maintenance Practices:

The golf industry has gone to great lengths to dispel negative perceptions of the game. The use of pesticides and fertilizers has arguably been the most high profile concern. The *Golf Course Superintendents Association of America*, for example, cites independent research that supports the notion that correctly *managed* golf courses do not pose significant risks to ecological or human health ("Environmental Benefits…"). Although a legitimate claim, the inefficiencies of golf course maintenance – blanket

turfgrass coverage, wasteful irrigation systems and superfluous technologies, such as sub-air aeration systems, all in the name of 'conditioning' – are largely ignored.

Superintendent and construction expert Don Mahaffey argues that the golf industry has been self-serving, highlighting the over-specification of irrigation systems that increase architect and building contractor mark-ups. Such an approach unnecessarily drives up the cost of construction. The effects of over-irrigation, in addition, place increased strains on agronomic management, requiring greater fertilizer inputs. Agronomist Jim Arthur, who believed that 'greenkeeping is not an exact science,' best sums-up: "*The function of water on a golf course is merely to keep the grass alive, not green, or even growing and certainly never to make surfaces more receptive and holding!*" (Arthur, 1997; 140). Soft playing conditions, that result, negate subtle architecture and reduce variety in the game.

With water consumption an increasing global concern, existing golf courses are unlikely to be able afford wastefulness. In an era of increasing costs for potable water and the potential increase in severe drought frequency, new course development cannot ignore the water issue either. Future developments may well have to be very selective, located where an effluent water source is available and in regions that are conducive to the low-input maintenance of native turfgrasses.

Obviously, the construction process itself can be extremely disturbing to existing ecosystems – removal of natural vegetation and forest, destruction and disruption of local habitats, transformation of the soil profile, topography and hydrological systems. The vast number and rapid pace of courses built in the modern era inevitably resulted in the development of unsuitable sites. Poor routing that failed

to sensitively adapt to such severe terrain exacerbated the deleterious effects of construction.

The layout of the golf course also has architectural implications on play. Nicklaus' course at Dismal River (in The Sand Hills of Nebraska) opted to follow the property's most spectacular, yet severe terrain. The largely contrived green complexes that compete with nature's curves, have resulted in what the author deems to be a largely one-dimensional test of golf (see *Fig. 2.7.*).

[**Fig. 2.7.** *Dismal River (White)*; Mullen, NE – Par 3 10th hole.]

With excessive budgets allowing liberal earth movement, the introduction of the golf cart as an integral part of golf course development models and a need to accommodate housing lots as part of an overall masterplan, courses were no longer

required to be laid-out in a compact, 'walkable' arrangement as they were in the 'Golden Age' of golf's early growth. The culture of standardization, in which the bulldozer prevails, increased ecological damage while diminishing the subtleties of golf borne out of a relationship with the natural landscape. A preference, from the architects of the modern age, for the generic, "cookie-cutter" aesthetic only moved course construction further away from its natural beginnings. The modern aesthetic is typified by Bob Cupp's finishing three-shot hole at Hawks Ridge that plays across and then alongside a dammed lake (see *Fig. 2.8.*)

[**Fig. 2.8.** *Hawks Ridge*; Cherokee, GA – Par 5 18th hole.]

Mahaffey notes that an over reliance on science in the architecture and maintenance of courses has helped to paralyze the use of intuition (Mahaffey, "Our

reliance…"). Architects, for the most, are unwilling to take design risks through the fear of litigation and loss of reputation from public acceptance. Golf and its playing fields risk becoming stale if creativity, through adaptation to local individualities, is not encouraged.

Declining Design Quality:

For the basis of the thesis it is appropriate to clarify what is meant by quality golf course architecture. Given the historical evolution of golf course architecture, and disparities between courses of the 'Golden Age' and present-day, this notion is clearly very subjective. Sophistication in design comes from the architect's interpretation and varied use of nature. Of primary importance is the course's lay-out: variety of hole types and challenge, their sequencing and flow, use of topography, influence of wind on play and the use of vistas.

Dissecting a course into its eighteen individual holes we can start to look at use of angles, hazards, natural topography and green complexes to create a strategic game of interest. A golf course should provide an intellectual encounter, posing a variety of questions, that vary with conditions and demand different shot types from the player. Maintenance conditioning is of secondary concern. Linked to all of the factors above, good golf should combine difficulty and challenge with excitement, enjoyment and reward for all. The author's playing experience suggests that the common mistake in golf course architecture and maintenance is to assume difficulty equates to quality. Designing difficult golf courses is easy; the test, in the author's opinion, lies in producing a course that while challenging is enjoyable for all players.

Ironically, many of the issues facing the golf industry today result from its own, largely cumulative, failings. The standardization of golf course design stemming from the post-war era can be argued to have directed a cultural shift in golf, our expectations for courses and the way the game is played. As golf architect, Tom Doak, humorously highlights: *'modern American golf design is modeled on the same principles as our ailing criminal justice system - we build more water hazards [prisons], but they only house the disadvantaged, while the elite receive suspended sentences'*(Shackelford, 1997). The modern golf course has lost its charm, and the opportunity to test both '*mental agility'* and '*physical effort'* - so admired by golf's early architectural proponents such as Tom Simpson - has been severely compromised (Sutton, 1932; 2).

In attempting to counter the prevailing trends in modern golf course design, it can be argued that architects such as Mike Stranz wrongly favored style over substance. Like his aesthetics, Stranz' green complexes although fun in places, were often excessive – unplayable and difficult to maintain (see *Fig. 2.9.*). The question to consider is: do gimmicks in golf course architecture, although appealing to one-off play lead to long-term interest?

[**Fig. 2.9.** *Tot Hill Farm*; Asheboro, NC – Par 3 13th hole.]

Irresponsible Development Models:

The bust in development, at the end of the past decade, which followed the third construction boom, is largely explained by the oversupply of new golf courses. A 1999 NGF-McKinsey report warned that an annual 2% growth in new golfers, and increased play, was required to match the irresponsible oversupply of new developments (Berkley, 2010). A more in-depth evaluation of the 'supply-and-demand' crisis facing the golf industry is offered by David Huber in his PhD thesis, "The changing face of the game and golf's built environment" (2010). While hindsight allows us to cite 'fundamental changes' in society and culture such as restricted time demands and the evolution of competing activities as contributing factors, it is difficult not to blame the golf industry and our golf courses for failing to adapt

(Berkley, 2010). To suggest that the modern approach to golf course design failed to sufficiently attract a population of repeat-play golfers would not be implausible.

It is apparent that developers are largely accountable for the failure of real estate-led courses. According to golf course architect, Ian Andrew, developers made the mistake of *not* 'worrying about the quality of golf course, whether it was too expensive to maintain or whether it was a good economic model.' Paying inflated fees for a marketable golf course architect to sell lots at a premium before quickly selling the golf course facility to members or a management company, developers failed to realize the flaws of such business models. Built as 'high-end' facilities, such courses were, according to Andrew, developed for 'way too much money' and with 'too little thought to the end-user.' Failing to attract new golfers and turning away existing golfers was a fatal combination.

Developed alongside a housing component, Pete Dye's Long Cove course offers an example of how a core golf course can co-exist with real estate (see *Fig. 2.10.*). Although construction costs were wasteful, importantly Dye designed an interesting golf course, in a beautiful low-country setting that was largely user-friendly. Tom Fazio has also been hugely successful in this market, delivering a successful if, as the author believes, largely unimaginative golf course product.

[**Fig. 2.10.** *Long Cove*; Hilton Head Island, SC – Par4 5th hole.]

Architect David McLay Kidd similarly shifts the blame away from the golf industry – architects and the game's governing bodies – to the developers who decided to build the courses and to master-planners who were responsible for squeezing the golf course onto unsuitable tracts of land. Kidd suggests that 'if the golf industry failed it was because the pickings were too easy for too long, and that golf course architects were building too many courses.'

The combination of exorbitant growth levels and poor golf course design during the third boom period turned out to be economically unsustainable. Quite simply, the burdening cost of course construction and maintenance made golf too expensive, overly difficult, and prohibitively time consuming to play. This trend was

not only confined to private real-estate development. The "country club for a day model", a publically accessible product that tried to replicate costly and difficult private courses, was even more unsustainable from a financial perspective (Hueber, 2012; 12).

Golf Course Architecture's Failure to Self-Regulate:

The failures of modern golf course designers are more indicative of the commercialized nature of contemporary architectural practices. Unlike the early master architects, the past generation of designers have arguably had very little concern for the health of the game. There was a failure from those within the golf industry to adapt to golfer needs and to pay attention to detail in design. This cannot alone be attributed to the constraints of real estate driven course architecture. When golf course architectural practices such as the Nicklaus organization had 50 courses in construction at one time, it was inevitable that quality suffered.

The golf industry's current sufferings are 'a result of compounding errors' according to Bruce Glasco, Managing Director of International Operations for Troon Golf (Management). He proportions the majority of the blame on architects who generally 'don't take direction well and would build what was perceived as "the best course"' with the resources available. The mistakes typically spiral from here. With the developers expectations raised to unrealistic levels, and the architect obviously happy to reciprocate, the course gets longer with more bunkers. Subsequently the cost of construction rises, so the owner must raise more funds by adding more houses – usually creating smaller lots that encroach onto the golf course. Playability inevitably suffers because of tighter playing corridors. The management company is left with

courses that take over five hours to play unless golfers can be encouraged from the back tees to play a shorter course from the forward tees. For golf course operation managers this is where, according to Glasco, 'all the fun begins in trying to make the cash flow.' Such an egotistical culture of excess is unsustainable. The question becomes: can architects show restraint? The push from developers for 'bigger *is* better' does not need any assistance.

Placing the blame with developers would appear logical, but the benefactors of this period of careless growth were widespread, including travel operators, the media, course management companies, equipment manufactures and the professional tour. Golf course architects held a shared interest in creating longer more difficult courses that would raise their profile and fees. As such, architects failed in, what the author believes is, their responsibility for the long-term future of the game. Left with the unsavory legacy of a large inventory of unsustainable courses, the golf industry may finally be recognizing the dangers of inappropriate business models and over development.

The courses that emerged from the modern era's most prolific period of development in the 1990's are characteristic of the golf industry's willingness to allow the unregulated development of golf courses. The fall-out has seen an oversupply of 'high-end' courses that are wasteful in their maintenance practices and use of land resources. That many of the developments failed should hardly be surprising, not solely because of irresponsible business models, but also given the failure of course architects to provide a product suitable to golfer demand.

But, while the golf industry continues to look towards growth, what are the consequences of continuing to adopt the current model of golf course development and golf course architectural practice?

The stakeholders that control the direction of golf today are numerous and diverse; pinpointing those exactly responsible is only beneficial if it can facilitate responsible development for the future. While the financial interests of golf course developers and golf equipment manufactures are obviously influential, existing organizations concerned with the game's general health (*United States Golf Association, The R & A*), and golf architecture itself (*American Society of Golf Course Architects, European Institute of Golf Course Architects*), should have been placed to guide a responsible recovery that focuses on the industry's long-term health. A strong golf industry is beneficial to all interests within the game, and it may well be that golf course architects must look to themselves to innovate in order to expand the active golf population and thus reinvigorate a declining trade.

The R&A according to Phillip Russell, Manager of Golf Course Affairs, is at least aware of the dangers from high input development approaches:

- 'Reduced accessibility to the game due to the costs involved with playing.
- Declining public perception of golf amongst non-players due to an image of intensive resource use.
- Potential opposition from governments and environmental organizations stemming from perceived ecological consequences of high input development and management approaches.'

Such critiques clearly place golf's future under further scrutiny. The question becomes: can there be an industry wide realignment of what is deemed 'quality golf course design'?

Although this thesis does not intend to analyze the economics of golf development, its implications on golf course architecture and the health of the game cannot be ignored. While those involved in the industry are understandably keen to see increased participation, either for financial benefit or love of the game, Darius Oliver questions that building more courses is the most sustainable way forward. The development of golf courses in China, for example, has seen rapid growth, yet the numbers of people taking up the game have failed to follow. A balance in supply and demand will be a vital part of ensuring the long-term sustenance of the game.

Commentary within the golf industry identifies the need for economic self-sufficiency, in which golf courses can survive independently of real estate support (Lawrence, 2011). But, the primary requirement for the financial-autonomy of golf course operations is increased play. Assuming that *growth* (i.e. more course development) is the key to golf's future sustenance is a blinkered approach. Many within the domestic US golf industry, where golf is firmly established, believe that the industry needs to contract in a 'survival-of-the-fittest' mode. In theory, as failing golf courses close, those in a stronger financial position, or those able to 'hang-on' at least, will probably be able to attract more golfers, and more revenue, thus improving efficiency. 2012 predictions that up to 1500 golf courses may close offers hope. While banks continue to sell off bankrupt golf course cheaply, many golf course businesses will inevitably continue to struggle. Tom Doak ironically highlights those that suggest a contraction in the present-day number of courses were promoting irresponsible

growth 20 years or so ago. The challenge should be about *sustaining* the game, not growing it.

It is true that the golf industry itself has encouraged, if not promoted growth, but there is legitimacy in architect Ian Andrew's suggestion they actually '*depend(ed)* on growth to support their existing infrastructure.' With that growth now at a standstill, Andrew advises that the golf industry has failed to address the 'real problem' of 'retention.' Although we must wait to see how the golf industry responds to its current crisis, there is very little to suggest otherwise that the future of the game, and golf course construction, will continue like the past era of over-development. "(Course) difficulty, time and cost" are cited across the golf industry as limiting factors in attracting new golfers (Lawrence, *Mona,* 2009). Simply, land and maintenance costs have increased while revenue has decreased significantly. Andrew envisages 'zero growth for this entire decade' as a result of current economic realties, and this may actually be advantageous, allowing the time that the golf industry needs to address its currently unsustainable approach to course development.

President of the American Society of Golf Course Architects, Bob Cupp, is rightfully skeptical about the motivations of those advocates for the growth of golf, implying that their primary interest is 'in returning to the positions of superiority they enjoyed prior to the decline in 2008-9 with its attendant profits and status.' Cupp's proposition that golf, in order to grow, must embrace 'entire new segments of society – propelled by a cheaper version of the game – would sit uneasily with such a financially motivated culture. Cupp suggests a bifurcation in terms of how the game is consumed, with a more accessible version requiring 'entirely new infrastructure' separated from the elitist courses that generally prevail within golf today. Improved affordability in

the game is obviously desirable, but with contemporary golf far removed from its original informal nature. There is the concern that a dual standard would not be embraced.

Given the clear need for a more affordable, easier, and swifter game it could be expected that the golf industry would have pushed a more flexible approach to the courses on which our golfing experience is shaped. Yet, according to golf writer, Adam Lawrence, golf course architects are stifled by a perceived market demand for 'standardization' (Lawrence, 2011). The determination to grow the number of golfers, or at least maintain the status quo, has also seen limited experimentation in the way that golf is consumed by designing six, nine, twelve hole operations.

Although such courses may have value, it is questionable that the real issues facing golf are being addressed. With alternative courses viewed by golfers in established golfing cultures as inferior, eighteen hole courses are likely to prevail. It will continue to be argued throughout the thesis that golf architects should have taken greater responsibility for preventing a 'one-size-fits-all' mentality, but it is also clear that course developers have limited the scope from which designers have operated.

The Role of Golf Courses in Environmental and Community Health:

The issues of sustainability are broad and the author believes intrinsically linked to the future of golf. It will be the role of this thesis to question the *role* of our golf courses and their architects in directing a version of the game that is sustainable over the long-term and across an increasingly globalized landscape.

This thesis does not attempt to list the merits of the game itself, but simply encourage those unfamiliar with golf to see its qualities for themselves. Of more interest to this thesis are the settings for this unique sport that can provide a wide range of services. Primarily as a place of recreation, *indirect* benefits *can* include environmental regulation, carbon sequestration, climate modification, tranquility, aesthetic enhancement and protection of biodiversity and wildlife in this managed use of the landscape and natural resources (Swanwick, 2009).

Contemporary golf course architects, at least in voice and print, seek to develop 'golf courses built around a vision of social, environmental and economic sustainability' ("Sustainable Golf Development"). Overused by a golf industry looking to appease those who critique the excesses of modern golf development, the concept of sustainability is not new since it harkens back to ideas of the game's origins. This thesis posits that reinterpreting the age-old idea of sustainability – the role that golf should play in communities – is appropriate to today's climate of global expansion and can provide a framework from which golf can ensure its long-term success.

Sustainability encompasses *ecological, economic,* and *social* factors. In its most liberal form *'it is intended to be a means of configuring civilization and human activity so that society and its members are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals indefinitely'* ("Your View…", 2011). But, how exactly does sustainability apply to golf?

Ecologically responsible golf course design should be: '*about maximizing the ecological function of the golf course,* (while) *taking into account the essential parameters of playability, safety and maintenance'* (Smith, 2005). It would seem that

the impact of a golf course could be evaluated during the construction phase, and in the management practices implemented for long-term sustainability. The construction process, although forming a relatively short part of the golf course life span, has the potential for rapid and immediate environmental change, including lasting damage to water and soil resources. Maintenance practices are at least adaptable, and may evolve over time to respond sensitively to unique characteristics of a development. But, the relationship between *construction* and *maintenance* is not independent. Golf courses should be designed for management, and this begins before the construction phase. The actual design: the routing, tee, fairway and green positioning, bunker placement and detailing style, and turfgrass selection and coverage all seem obvious factors in ensuring a golf course is sensitive to *site*. Importantly, golf course design, and thus the architect, influences both modes.

It has been suggested that 'golf courses hold a real potential to be designed and managed to promote critical *ecosystem services*, like pollination and natural pest control, providing an opportunity for joint collaboration among conservation, restoration and recreational interests' (Colding, Folke). The resources and processes that are supplied by ecosystems can benefit the human populations at the macro scale. For example, the value of golf courses 'significantly increases' when compared to land that has high levels of human interference, like agricultural and urban zones (Colding, Folke). Golf courses provide the opportunity to improve and preserve the landscape – hydrology, land use, landscape character and ecological systems – beyond the course area itself. In areas of intense development, such as those driven by golf tourism or zones of dense urbanization, where impacts are cumulative, the need to think at a regional level is particularly important.

Economically sustainable design considers the long-term performance of any landscape including the golf course. Yet, creating courses that are sound environmentally and financially should be a founding principle of golf course design and development. Introducing *place* theory allows us to view the golf course beyond its role as a physical setting for the game, but as a place of ecological, social and cultural function. Landscapes such as golf courses have evolved over time, through both natural and human intervention, and as such natural and cultural components must be viewed as a 'whole', not separately (Swanwick, 2009). But the standardization of modern golf course architecture has largely taken away this relationship.

Socio-cultural aspects of golf, and its courses, can influence the social well-being of a community, preserve and protect environmentally sensitive green spaces and provide recreational activities beyond the game (Hueber, 2012). Taking a broad landscape perspective, it is even argued that exposure to green spaces can promote 'social cohesion', and help both adults and children, especially in difficult socio-economic circumstances, in 'managing major life issues, cope with poverty and perform better in cognitive tasks' (Swanwick, 2009). Applying a generalized view of society, there has been a cultural divorce from the landscape. The golf course, as experienced by the author in Scotland, allows people and communities to reconnect and interact with the land. Although difficult to quantify, golf is proven to have positive effects on mental and physical health and well-being. If *'natural'* landscapes can offer a means of 'escaping daily life', 'a release' and 'a sense of freedom', should golf courses not be more natural in character (Swanwick, 2009).

Interestingly the R&A – 'Golf's Governing Body' – in its aims for golf, offers an interpretation of 'social' responsibility ("Social Responsibility"). As significant land

and resource users, the obligation, and value of our courses as integral parts of the local community, extends beyond the needs of golfers. The R&A go as far as to suggest that parts of the golf course may be made safely accessible for other recreational activities. As part of this it is even suggested that the community be consulted as part of the wider planning process. The R&A's suggestions have rarely been implemented. Thus, the economic, environmental and social value of golf courses continues to be questioned by those outside the golf industry. It is undeniable that with environmental quality, and arguably community cohesion, generally in decline, throughout the world, that golf must look to raise standards in 'sustainable' golf course design and maintenance now. However, the social benefits of golf are truly only realized when measures are taken to ensure that the game and its playing fields are accessible to the entire community.

Many of the golf courses in the British Isles exemplify **sustainability – balanced ecological, economic, and social function that benefits the wider community**. Silloth-on-Solway golf *club* provides an important recreational and social asset to the adjoining small, isolated town (see *Fig. 2.11.*). Draped over the seaside links terrain, the course provides the opportunity for golfers and non-golfers to interact with the landscape.

[**Fig. 2.11.** Silloth-on-Solway; Cumbria, England – Par 4 4th hole.]

The three already identified aspects of sustainability cannot exist independently. By adopting a *place-sensitive* approach to design and management sustainable goals can be incorporated. But, achieving such an ideal is far from straightforward. It requires a project-by-project approach. As a minimum, golf must address the resource intensive and environmentally damaging aspects of course development at a *site-specific* level.

In the 21st Century, there is seemingly a need to go beyond the fundamentals of sound golf course design, to address '*social inequity*' ("What Does…", 2009). The golf course, especially in regions unfamiliar with the game, must be appropriate, yet sustainable, to the demands of its local culture. Such a *place-specific* approach requires cooperation from all parties – architect, developer and legislator – if the golf industry

is to enjoy sensible growth, and golf courses are to demonstrate their potential as communal assets.

Summary:

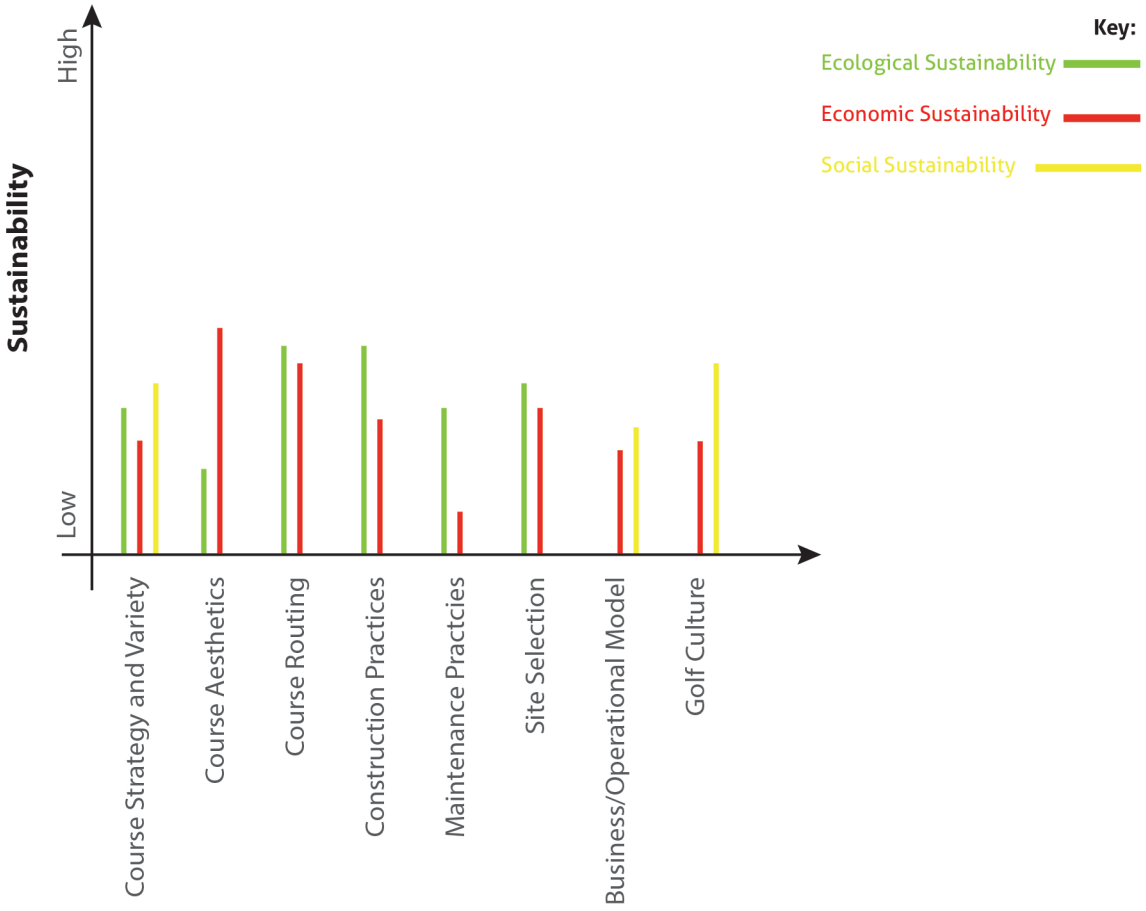
It is the author's belief that golf course architecture must bring the game, and its potential social, health, and environmental benefits to a wider population in order to reverse the inefficiencies of modern construction and maintenance practices, and to build more dynamic and resilient courses that are adaptive to both changes in the game and cultural trends. Because of its complexity, a combined effort from throughout the golf industry is necessary to address the following concerns interpreted from the previous critique:

a. The failure of the golf industry – as guardians of the game – to self-regulate. Driven by profit – a self-serving desire for growth *over* the health of the game – has prevented golf from reaching its potential as a socio-cultural asset.

b. The rapid and extensive nature of development that devalued the artistic and adaptive fundamentals of golf course design. This paradigm change in the architecture of golf courses has standardized golf's culture and the way that the game is played.

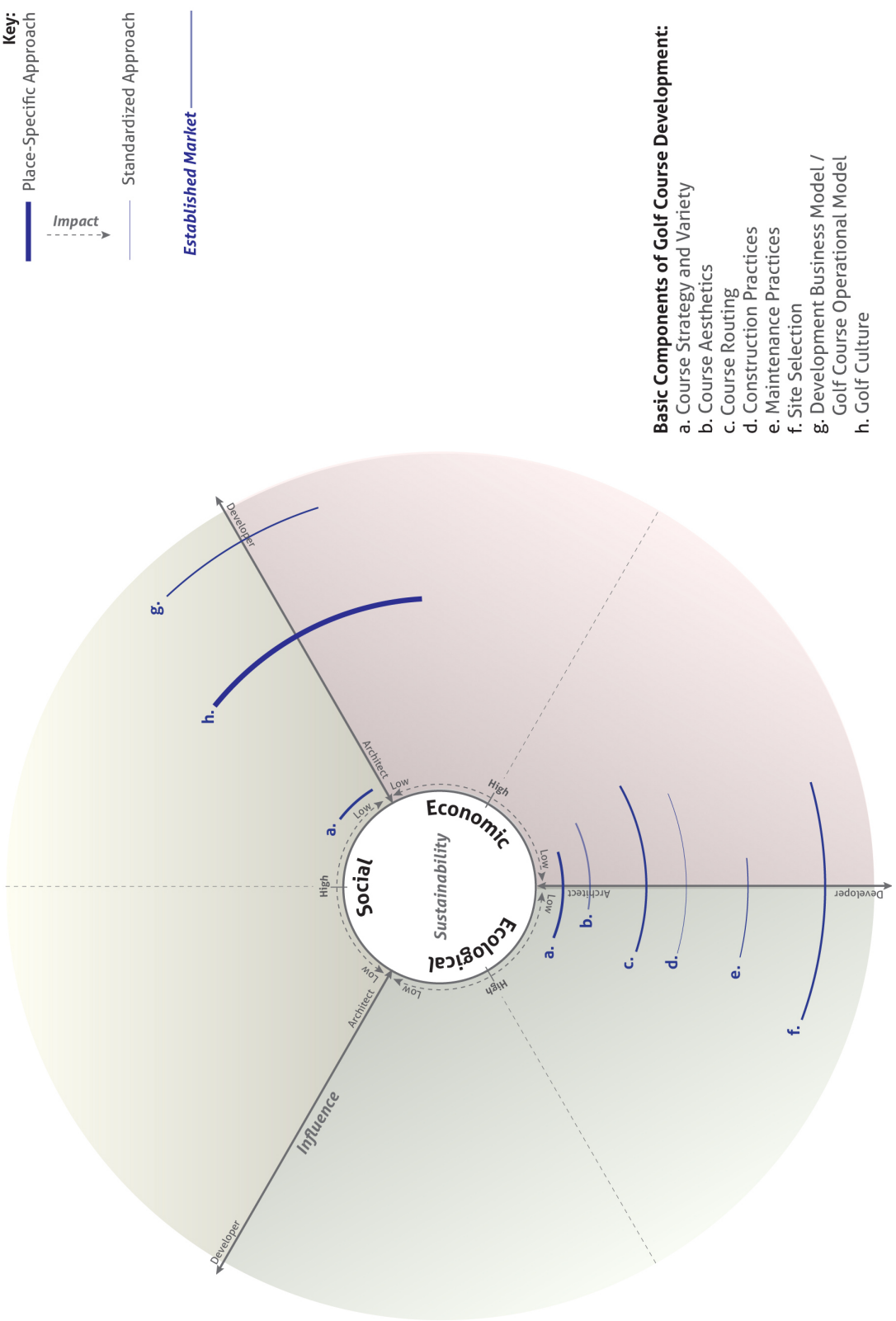
c. The realignment of project ideals and standards in which every project has to be 'world class', or at least better than its neighbor. Architects have contradictorily been paid more for moving more earth and increasing cost than less. Such a culture has resulted in the promotion of excessive maintenance regimes that have placed unnecessary stress on the resources of golf operations and the local environment.

A simplified interpretation of the components of golf course development versus sustainability is offered below (see *Fig. 2.12.*) A further diagram (see *Fig. 2.13.*) attempts to interpret this chapter's critique of the standardized approach to golf course development in established markets, such as the United States. Eight basic factors of golf course design and development are analyzed for their impact on the three recognized components of sustainable design. The relative influence of architect versus developer is also compared along each axis.



Basic Components of Golf Course Development

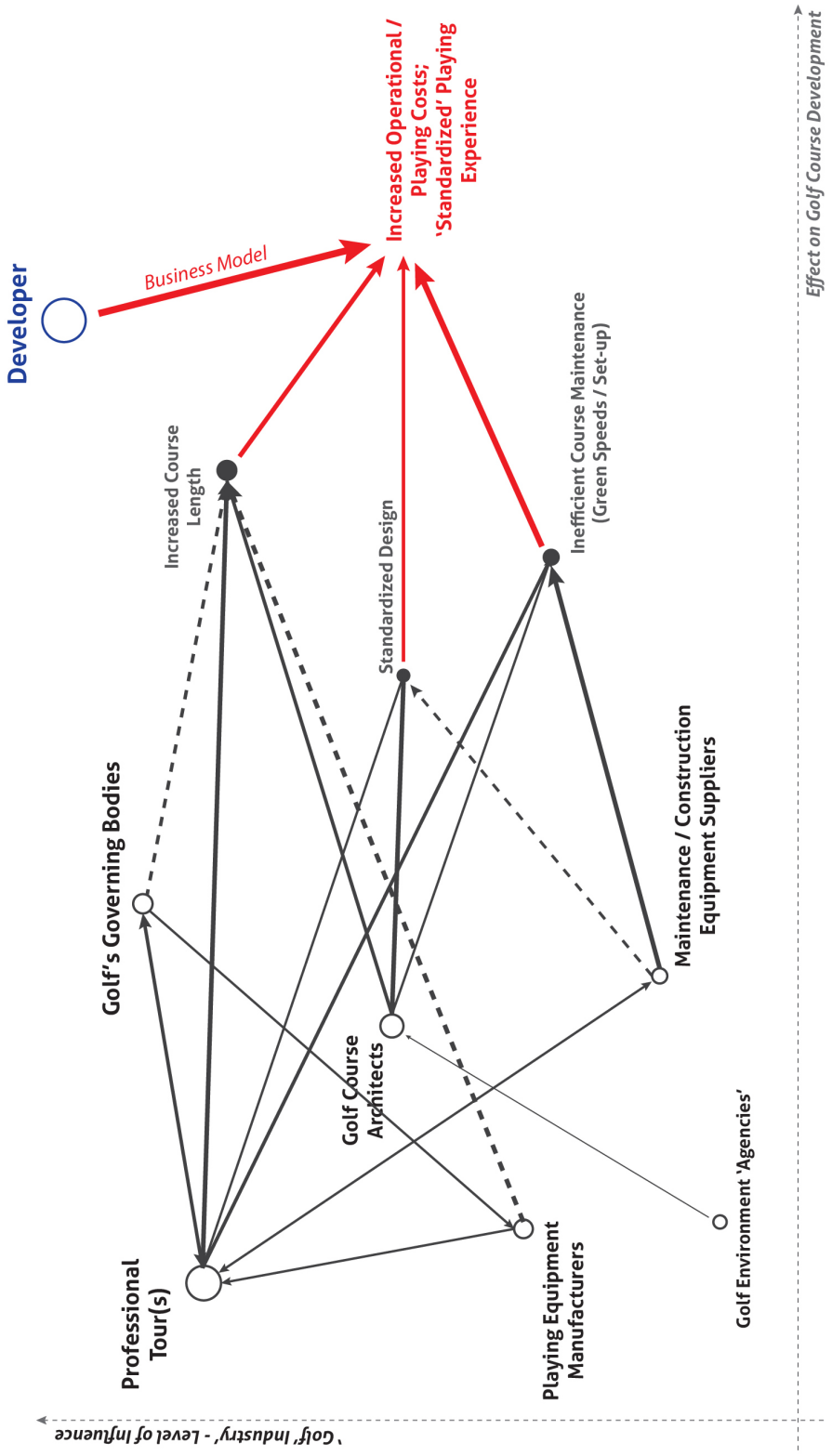
[**Fig. 2.12.** Interpretive Chart: Sustainable *Components* Of Golf Course Development In *Established* Markets.]



[**Fig. 2.13.** Interpretive Diagram: *Positive* Affects On The *Sustainability* Of Golf Course Development In *Established* Markets.]

In summary, contemporary golf course development in established market has failed to adequately balance the social, ecological and economical factors of sustainability. As shown in *Figure 2.13.* the majority of design aspects have been influenced by economic considerations, the standardized yet inefficient approach, combined with an unsuitable business model. A lack of consideration for the social elements of golf course development is especially noticeable in the homogenized approach to design that fails to mentally stimulate and truly interest players of all abilities. The strong culture of golf in established markets does however provide a platform from which golf can be viewed as a recreational asset for a significant proportion of the population. The most restrictive aspect of golf's long-term future, establishing a balance between ecological and economic performance in the adoption of maintenance and construction practices has been hindered by unrealistic expectations for perfection have placed an unsustainable burden on. (See *Fig. 4.4.* for a comparison of these failures verses themes from the 'Golden Age of architecture.)

Without being completely objective, it may be argued that the developer has had too much influence on the creation of golf courses in the modern era of golf course design (see *Fig. 2.14.*). Of most concern is the selection of unsuitable sites and approach to land planning as part of the initial development process. Although it is both the architect and developer that are ultimately responsible for what is built in the ground, it is clear that the wider 'golf industry' imposes a great influence on what the consumer and developer perceive to be 'good' golf course design.



[**Fig. 2.14.** Interpretive Diagram: The 'Golf Industry's' Influence On Golf Course Development.]

Many of the factors are interlinked with limited outside input, explaining the self-serving nature of the golf industry. Given the complex, but profitable relationships it is unsurprising that there is little motivation from golf's stakeholders to change. Based on the diagram, the responsibility for directing a paradigm shift in the approach to golf course architecture and models of development is uncertain.

The scope of the challenge is also complicated by the difference in constraints and opportunities between golf course development in *established* golfing culture versus *emerging* (or developing) regions. There should already be enough architects (most of them currently out of work), and the necessary infrastructure in place to deal with the current failings of the game in recognized golfing countries. Emerging golfing regions are characterized by very little history of the game and related golf infrastructure. With the game in these developing regions at a relatively immature stage this thesis is concerned with ensuring that the mistakes of insensitive, standardized golf development being realized elsewhere, are not repeated again in new golf countries.

CHAPTER 3

GOLF ARCHITECTURE GOES GLOBAL: THE *OPPORTUNITY*?

It is clear that an over-saturated golf market will continue to limit opportunities for those associated with new golf course design and construction domestically. On the other hand an increasingly *global* market has opened up during the modern era. While those operating in oversupplied markets must concentrate on reclaiming 'lost' golfers, for the many who have invested their hope in emerging golfing countries, the 'problem' is in 'creating golfers from scratch' (Lawrence, 2011). Yet this so called problem, in fact, presents an *opportunity*: to forge a design style native to place, both in its ecological structure and recreational function and that builds community within the wider social realm.

The present-day expansion of golf into unfamiliar territories is not without precedent. Golf's contemporary expansion into emerging markets follows a 'top down' trend in which the sport has begun as a preserve for the wealthy before, in most instances, becoming accessible to the wider population. Early pioneers, such as Charles Blair MacDonald in The United States and Dr. Alistair MacKenzie in Australia, were vital in implementing the fundamental principal of the game and course architecture on the golf ignorant. That golf was at first a pastime of the elite did not matter. A foundation, to be discussed in Chapter Four, was in place from which the game was able to spread to the masses. This chapter directs attention to sustainable, and thus accessible, forms of growth for the game in developing regions by evaluating China's emerging golf culture as a case study.

China: *Golf's great hope?*

The development of golf across emerging regions is inconsistent. Evaluation and prediction of such diverse markets is understandably far from straightforward. Factors such as economics, politics and, quite simply, time means that the level of golf's development is at varied stages across its perceived growth areas. China, where golf was banned until 1984, presents the most pertinent case study for modern day golf course development. Embraced by golf course architects during the 1990s as a region that could power the games' continued growth, China has since become golf's most important developing nation. Many view the Chinese golf market as 'propping up the entire golf course industry', but like established golfing markets, emerging markets are not immune to financial collapse (Washburn, 15 Sep. 2010). This is a cause for concern. Around twenty years in existence, and continually evolving, the Chinese market is mature enough that trends can be evaluated.

Golf development in China appears to be at a stage where it's courses and golfing culture may still be directed towards a sustainable future. Chinese Golf Association Vice President, Wang Liwei, believes that a foundation is already in place for the long-term success of golf: '*The existing 500 courses are enough for the basic development of golf*' (Mulvenney, 2010). With golf's inclusion in the 2016 Olympics expected to hasten progression the desire for growth appears to be strong, , and more importantly furnish government 'legitimacy' (Washburn, 1 Jan. 2010). While the sentiment of encouraging golf for its sporting value is valid, the rate of growth will continue to be driven by '*large-scale new wealth and a political environment that allows developers to get access to large chunks of land at a relatively low cost*' (Lawrence, 2010). The equation for golf's expansion is apparently simple, requiring

'*economic growth'* that is driven by a shift in lifestyle that becomes *'centered on business and recreation'.*

The growth of golf in China has, understandably, been embraced by a golf industry struggling with the downturn in established markets. But, golf courses offer '*a way for developers to hitch a ride on China's booming housing industry,' a* mostly speculative phenomenon based on potential ("Feature: Asian…", 2009). But, while the primary function of the golf course involves the propping-up of real estate sales, the rapid pace of development is creating a volatile golf market. This evaluation is backed up by Ye Bi, CEO of China Golf Group, who claims that 40% of memberships are sold for social status or investment, and that 90% of China's courses operate as membership models ("Will China's…"). According to a KPMG report – Golf Benchmark: Survey in China 2008 – the cost, where joining a club totals on average $53,000, is clearly a limiting factor to the growth of the game and the establishment of a sustainable golfing culture (Mulvenney, 2010). Questions, accordingly, remain over the source of new golfers, and the numbers and characteristics of players entering the market.

In spite of the government moratorium the construction of golf course and associated developments continues with little regulation. There is apprehension that current levels of growth cannot be supported by local ecosystems and infrastructure (Sheringham, *Templeton* 2010). Jonathan Smith, CEO of the Golf Environment Organization, notes the value of preserving 'cultural heritage' (Sheringham, 2010). Smith also calls for more government 'transparency' and the establishment of a 'threshold' on the total number of courses to reduce the pressure of uncontrolled development. It is unclear how forthcoming such controls may be, but it seems

imperative that the golf industry applies some form of self-regulation to protect its own long-term future.

Thus, for the moment at least, there is a clear, but delicate, balance between a golf industry desperate for survival and the many political, economic, social and environmental constraints already highlighted. Despite this rather pessimistic introduction to the complexity of golf course development in China, there is a massive opportunity to '*realize something golf has thus far failed to secure: unequivocal recognition as a social, economic and environmental asset, driving lifestyles and livelihoods that are profitable and sustainable'* ("Feature: Asian…", 2009). This sentiment may seem fanciful, but there is undoubted merit in a belief that golf, and its playing fields, can be 'recast as social, economic and environmental assets' ("Feature: Asian…", 2009). However, for golf in China to be sustainable the following issues must first be addressed:

Complex Process of Development – Golf Pushed to the Fringes:

Golf course development, when placed against the strains of a burgeoning nation is far from straightforward. China's dwindling agricultural land, currently totaling 470,000 square-miles, edging close to its sustainable limit, set at 463,323 square-miles by the government. (Washburn, 9 Mar. 2010). Golf courses are viewed as a threat to food security by the government despite the current number of total golf courses appearing small in contrast to the scale of a landmass like China (Watts, 2010). However, if predictions of rapid growth – 2,700 estimated courses by 2015 (Qian, 2009) – sustainable use of the land becomes an issue of concern.

The complex process of land acquisition for development is explained by Patrick Burton, design associate for Schmidt-Curley, architects for the record-breaking Missions Hills resort(s) in China. The government owns all of the land and typically the developer must enquire about the possibilities of claiming rights to the land. It is then up to the local government to determine whether it is 'worth the fight' for approval in order to allow the developer to continue with the project. In many cases the issue is complicated by workers of the land, who have squatter rights, having to be displaced. In the past five years the location of courses has shifted towards increasingly topographically severe land that does not support agriculture.

That China should serve as the only active boom area for golf is contradicted by a 2004 national *moratorium* that prevents golf course development on the mainland. With growth described as "excessive" and "blind" the embargo hoped to immediately stop course development (Washburn, 15 Sep. 2010). However, loopholes have allowed developers to get around this ban through creative planning in which courses are referred to as "green space" or as an "exercise field" (Washburn, 1 Jan. 2010). Although fraught with uncertainty and complication, operating in a 'thriving yet legally nebulous industry', certainly has its benefits for course developers (Washburn, 18 Aug. 2011). Likened to the western Industrial Revolution, rapid progress has established an attitude of 'give and take', in which it is assumed that social and ecological ethics can continue to be lax (Washburn, 15 Sep. 2010). Yet despite a lack of regulation, golf course architects and developers, as in the American modern era, have, for the most, failed to push the boundaries of course design, and the game itself, beyond a standardized approach.

Even with the moratorium, developers are able to cheaply lease large quantities of land from the government, provided that jobs and a tax base are generated. It was expected that golf's newly acquired Olympic status would legitimize course construction, yet a 'recent crackdown' and 'renewed scrutiny' seem to suggest otherwise (Washburn, 18 Aug. 2011). Many within the golf design and construction business, would welcome a 'clear set of requirements' that would validate projects (Washburn, 18 Aug. 2011). However, the Chinese government's hesitancy to regulate and embrace golf is 'ironically' creating "chaos" in which local governments are approving golf developments *without* the legal authority (Lie, Ma., 16 Aug. 2011). It is hoped that those in power will retroactively approve golf courses, recognizing their economic value in creating jobs and providing 'green spaces' in urban environments ("Only one…", 2010).

Suitability of the land on which golf courses being built in China is a primary concern. Classified as "wasteland" due to a lack of human activity, ecological value is not considered (Washburn, 1 Jan. 2010). Such land is often ill-suited for golf course design and construction. The inefficient nature of course building is highlighted by the Mission Hills development on Hainan Island where topsoil was generated by the removal of a "mountain" several kilometers from the construction site (Washburn, 1 Jan. 2010). While financial resources appear plentiful and the market buoyant, and thus able to sustain high construction costs, it appears that developers are content to promote such development models. Yet, as architect Kyle Phillips reaffirms golf course development economics are "delicate" and, as such, the financial viability of projects are susceptible to construction problems on less than ideal sites – namely unexpectedly escalating costs (Phillips, 2005).

Ecological Damage on a Macro-Scale:

The list of environmental consequences associated with the unsustainable growth of golf, according to an anonymous industry source, is long: 'loss of habitat, reduction of biodiversity, rapid ecosystem deterioration, increase in non-native species, over consumption of resources (water, energy, fertilizers, pesticides etc. and their associated 'embodied' energy), and increased pollution risks.' In 21st century China water use and its subsequent contamination remain as particularly critical issues.

Changing the hydrological structure of an ecological system through the vast earth movement accompanying the use of unsuitable sites (and modern architecture's penchant for standardization), can be devastating to plant, animal and human function. While the use of plastic under the disturbed soil is sometimes used to mitigate the risks of water supply contamination, ground water patterns may be adversely altered if storm water run-off is not carefully managed to integrate with the larger system (Watts, 2010). Water use is a global concern, especially in China, parts of which are already drought-prone. There is concern that golf courses, such as Desert Lutaosha Golf Club (Yulin, Shaanxi Province) that require five million tons of water per annum, are further straining the already inadequate supply for agriculture (Lie, 2011).

Contamination of drinking water sources is another pressing problem. Although it is argued by golf's supporters that pesticide use on golf courses is low compared to Chinese agriculture, this is no argument for ecological damage.

It is arguable that such problems are insignificant when compared to the other widely reported tribulations of an industrialized and growing China, and the debate is complicated by golf's sensitive political position. Dan Washburn, an American

journalist covering the development of golf in China, sums up the sentiment: *'It's an elitist, Western activity that is emblematic of many of China's current challenges: government corruption, environmental concerns, land rights issues, the gap between rich and poor'* (Washburn, 18 Aug. 2011).

Golf for Speculation and the 'Wealthy Elite':

According to Patrick Burton, funding for golf course development in China typically comes from 'crazy wealthy clients' inside the country. Developers have very little interest in growing the game, and many don't even play or care about the golf course. A nuance of Chinese culture, the wealthy display their social status with what they wear, and how they live. According to Darius Oliver, with developers influenced by what they see elsewhere – the Chinese, for example, particularly love the ambiance and exclusivity of golf's premier private clubs.' The idea of the golf course community is relatively new and is seen by the Chinese as a way to improve social standing. Very few developments target people that actually play the game.

As it has been in the US, widespread growth of the game in China depends on developing a market in the emerging middle-class. This is not a market of speculation but one of slow growth that reaches out to the average Chinese family. For those with ambitions of golf as a mass participation exercise, golf course development seems to be fueling a golfing culture of privacy and exclusivity.

Lack of Cultural Understanding in Golf Course Design:

The Chinese golf course operates more as a gambling venue, a place to network and do business, than an outdoor recreation space for the masses. With the golf

industry and the design of courses directed by the established golf countries there is inevitable bias towards a westernized golf culture. Nicklaus Design's course for the Mission Hills resort demonstrates how early modern (1994) golf course architecture in China replicated the standardized approach of established markets (see *Fig.3.1.*). It is difficult to imagine that such a global 'one-size-fits-all' approach can sustain golf in the long-term. Going forward, Chinese preference for long and difficult courses, maintained to unsustainable expectations, is a worry given the potential size of the market.

[**Fig. 3.1.** *Mission Hills (World Cup)*; Shenzen, China.]

That cultural and social factors are only cursorily related to the design of contemporary golf course developments globally is disappointing. Golf course architecture can accommodate the various forms in which the game is *consumed*, an oft over-looked specificity that varies greatly across the established golfing world. An

American penchant for the "*strokeplay*"[1] format of the game in comparison to the British preference for "*matchplay*"[2] is one of the subtleties that influence the design and function of our courses. Designing with matchplay in mind allows architects to be more experimental, producing courses that are exciting to play. Should golf courses, and their architects, not establish a model for the Chinese game that suits them best?

As Bob Cupp suggests, there is a pattern of 'emulation' over 'innovation'. Cupp likens what we are seeing today in emerging countries to the establishment of golf in America at the turn of the twentieth century, where designers from the game's homeland in Scotland expatriated the game abroad. But, such a comparison ignores the vastly different cultural characteristics, and the more complex quantification in relation to the timeline of China's social and economic development. As Cupp describes, the adaptation to place-specific challenges today in China, is only 'superficial.' Owners are leaving their cultural mark in the form of buildings and a large workforce that encourages labor-intensive maintenance practices.

Determining what exactly the Chinese want, or how golf can provide them with maximum environmental, social and individual well-being is far from straightforward. However, for westerners operating in China, as Tom Doak intimates, the picture appears 'hopelessly complex' ("Shaquin Bay…", 2011). He suggests that we must use caution in imposing an assumed model for courses and the game. James Duncan, project lead on Coore and Crenshaw's recently completed Shaquin Bay course, offers his interpretation of the 'evolving' Chinese market in which he identifies a need to 'play to your audience while recognizing why you have been hired in the first place'

[1] Strokeplay: Each competitor plays as an individual, totaling his or her score over the course of a round - popularized by the professional game.
[2] Matchplay: A match in which one player plays against another player on a hole by hole basis; the dominant form of game during golf's beginnings until the middle of the twentieth century.

("Shaquin Bay…", 2011). If golf courses in developing regions fail to meet the cultural needs required to generate an avid community of followers, then it becomes susceptible to the outlying factors that have hurt the industry in so called established markets.

The Golf Course as "Garden":

The visual appearance of the golf course has a significant influence on what developers in China perceive to be 'good' course design. The golf course is perceived as a garden, and what golf's purists may recognize as 'bad' is what they want. Courses typically aspire to "Augusta National" perfect maintenance (see *Fig.3.2.*), and pursue a striking and bold style that for most designers requires substantial earth moving. This is an unquestionably high-impact, and unnecessary, approach. Since the sole-interest of the majority of developers is selling real estate, there is little motivation to divert from the status quo of standardized, but photogenic courses.

The Chinese have a thousand year history of reverence for nature, however it is currently unknown how the Communist Revolution interrupted this tradition. Also unknown is the level of Buddhist and Taoist influence on culture today. Yifan Sun's thesis "Principles for Contemporary Chinese Landscape Design Practice" (2013) begins to study the present-day cultural landscape in China.

[**Fig. 3.2.** *Augusta National*; Augusta, GA – Par 5 13th hole. Today's excessive levels of maintenance would be unrecognizable to Alister MacKenzie and 'Bobby' Jones, the original designers.]

Turfgrass scientist Dr. Micah Woods notes that expectation levels and actual practices are most influenced by historical precedent, stemming from the period of most rapid course development. The *present* demand from Asian markets for 'moderate to expensive golf' is thus likely to prevail in the long-term. This is exacerbated by architects, that according to Woods, are 'particularly egregious in making errors (either directly or with their advisors) in grass selection. Trade publications magnify these errors by writing stories (praising) projects that are sure to have problems very soon with the grasses.' At least, Woods anticipates an evolution towards more efficient course maintenance in which 'the most successful courses, as

businesses, will be those that produce the best playing surfaces with the fewest inputs.'

According to Burton, the Chinese do 'not understand the game fully.' it is questionable how willing the emerging population of Chinese golfers are to accept 'traditional' golf course architecture. The new minimalist direction in golf course architecture is reintroducing a traditional aesthetic. Coore and Crenshaw's Shaquin Bay is the country's first 'minimalist' golf course (see *Fig. 3.3.*), but since membership is strictly by invitation only, and reputed to be around $1m, it's potential to be a 'game changer' is doubtful.

[**Fig. 3.3.** *Shaquin Bay*; Hainan Island, China – Par 4 17th Hole. (Oliver, "Shaquin Bay...")]

Superfluous Construction and Maintenance Technologies:

Sand-capping, overly specified irrigation systems, supplemental 'sub-air' devices and 'fertigation' practices, to name but a few, are viewed by developers in China as a necessity. Tom Doak notes that the developer for Simapo on Hainan Island, currently in construction, went against his advice in specifying such costly and usually unnecessary technologies.

The process of 'sand-capping' in which an imported layer of soil is placed on top of the native soil is characteristic of the excesses in golf course development in the last twenty years, particularly in emerging markets. Patrick Burton describes Schmidt-Curley's Stone Forest course(s) (see *Fig.3.4.*) as 'lay as the land as you like.' Yet in a clear contradiction, typical of many within the golf industry, the course was cleared and 'capped'. Not only is such a process expensive, but can over time result in softer, undesirable playing conditions as a layer or organic material forms at the top of the sand layer (Woods, 2012). Creating an artificial root zone the sand layer reduces the required retention for appropriate quantities of water and nutrients. The procedure of sand capping thus requires inefficient, input intensive maintenance over a courses life. In contrast, planting onto the native soil offers improvements in maintenance efficiency, as the soil is naturally suited to plant growth, and firmer playing conditions that reduce from lower artificial additives.

[**Fig. 3.4.** *Stone Forest*; Yunnan Province, China. Routed through a site of natural beauty and cultural significance, Schmidt-Curley's course demonstrates the potential created by emerging markets to create unique golf courses. (Farrow, 2011)]

Commercialized Approach to Golf Course Architecture:

A lack of innovation can also be attributed to the prevalence of large 'signature' design practices in the Chinese market. Signature firms are typically fronted by professional 'tour' players. The 'pros' often have very little influence on the actual course design. They are hired to increase marketability. A production line mentality towards course design, in the author's opinion, favors profitability over a detailed, site-sensitive approach that is more sustainable for the future of the game.

As a conversation with David McLay Kidd suggests, 'there is too much money involved,' and as a result innovation, or at least place-appropriate design, has been stifled. According to Darius Oliver such design firms have 'dumbed down' the art of golf course architecture. The hands-off operation of these practices is such that not enough time and expertise, especially on-site, is afforded to ensure a high quality and unique creation. As a result, the output from such practices rarely deviates from design

formulas and templates. But, as the great golf courses of the 'Golden Age' prove time and time again, it is the adaption and variety of strategy in unique landscapes that arouse the golfer. Repetition allows golf courses to be churned out at an unimaginable rate in emerging market such as China where demand exists.

Where golf continues to grow in emerging countries, this expansion is healthy for the long-term vitality of the game, providing this rate is controlled at a sustainable level and that the quality of courses is sufficient to establish a golf-devoted population. If the current model of development continues, as Oliver indicates 'the game risks becoming stale and uninteresting.'

The problems of golf course development in China, to varying extents, relate to the ecological, economic and social factors of sustainability. It is apparent that golf course architects are stifled by developer influence and undefined, almost clandestine, operating constraints. The failings are exacerbated by a lack of cultural understanding and reliance on a standardized approach that ignores the place-specific dynamics of the Chinese market.

Directing a *Place-Specific* Movement in Emerging Markets:

To understand how the previous issues and problems in emerging markets like China might be addressed the following section looks at the difficulties through the lens of golf development's influencing parties:

Player:

Place-specific design must begin by addressing the needs of the local golfing population. In emerging countries such as China, there is apprehension that golf will materialize as a 'service' industry in which the barrier of wealth and class prevent the sport from performing as a recreational activity that is valuable to at least the middle-class masses.

If golf is to 'realize its potential growth' then Bob Cupp suggests that we may even see a 'completely new dynamic' in the make-up of golf course architecture. He romantically envisages a return to the games origins in which 'people discover the fun of hitting a little ball with a stick', but this requires golf to 'extricate itself from the ego and money.' In such a scenario, there will need to be an evolution in the role of architect and form of architecture taking place.

Unfortunately there has been little assistance from maintenance equipment and irrigation systems suppliers to encourage the construction and operation of low-cost courses. Phillip Russell (of The R&A) recognizes that 'the focus should be very much on accessibility and affordability' by making use of *suitable land.* Newcomers can be introduced to the game by 'converting a basic waste landscape into a very simple nine-hole layout with an adjacent practice green and chipping area.' The benefits of such schemes are not limited to golfers since 'such facilities can offer employment opportunities for local people and can be aligned with education programs for children.' There is also an opportunity to 'grow the ecological diversity of the landscape' where basic cultural management practices that require minimal artificial inputs are employed. The development of more informal golf courses provides an interest level from which a more conventional version of the game can establish.

Given the political and social conditions in most emerging regions, where issues of resource and land use are particularly contentious, promoting a strong local golfing culture can only enhance the likelihood and success of further golf course development. Even if access to the game is limited to a very small proportion of the population, as Mike Clayton suggests, golf courses 'can best function as a good for society by being sustainable. Empty, neglected, money losing courses are no good for anybody – or the game.' But, for courses to be sustainable they must 'engage the player' by being fun; they also need to 'engage the player emotionally', a connection that often arrives from 'good conditioning and a pretty hole.'

As the R&A's Phillip Russell suggests, regardless of whether facilities are aimed at the wealthy or wider public, they must be able to accommodate new or inexperienced golfers for the benefit of 'customer development and retention.' To build 'interest at a national level' it is recommended that golfing facilities also incorporate 'basic academies or teaching programs' especially those focusing on children. Russell's notion that a standard, eighteen-hole golf course may not always provide the most suitable method of making the game accessible may be accurate. Private operations, that are exclusive islands of the rich, or tourists, should be encouraged to include alternative, potentially more primitive courses that are available for locals to learn the game. Architect Goosen even suggests a model where private developers may contribute to a 'social responsibility fund' as a percentage of the development cost that can finance and operate public courses. Enforcing such a scheme would be very difficult without strong local government initiative.

Architect:

The architect influences the life-span performance of a golf course from the design-construction phase. At the foundation of place-specific golf course development must be an efficient, yet ecologically sustainable approach to **design:**

Green Design: Greens must be able to handle wear and tear – creating medium-to-small greens with a variety of pin positions offers a compromise that keeps game interesting whilst minimizing significant damage and reducing maintenance costs. Circulation patterns, green to tee transfers and routing that makes a course 'walkable' can likewise reduce damage such as compaction.

Hazard Design and Maintenance: The maintenance of hazards can be particularly intensive with overly intricate bunker edging requiring hand mowing. Specifying a perimeter of low cost, native turf will require less frequent mowing and allows the hazards to blend back into the natural landscape. 'Waste bunkers', large expanses of exposed, natural sand that should require only minimal management are usually over maintained to preserve visual appeal. This 'sympathetic' culture of hazard maintenance, in which the player expects perfection would no doubt enrage C.B. MacDonald who suggested 'letting a heard of elephants run through them every morning' (Hanse, 1989; 158).

There are plenty of anecdotes relating to drainage in the importance of golf course architecture, and surface drainage where possible is preferred over more costly-sub surface drainage. Irrigation systems may also be more judicially specified if the golf course architect is willing to allow a less artificial transition from maintained to natural. But, if efficiency is sought in the maintenance of golf courses there must be realignment in the unrealistic attitudes of golfers, or architectural change. Contour is

the most efficient hazard, and where artificial hazards are formed these may be small, and more manageable, if well-positioned. In emerging markets where visual excess is a cultural tool for the demonstration of wealth, practicing restraint is not straightforward.

Use of Local Materials: The expectation to build costly USGA Specification greens has become ingrained, regardless of the site soil characteristics of availability of locally available alternative green material. Don Mahaffey questions why modern golf courses, unlike those of yesteryear, fail to 'represent the local area' where, for example, greens can be contoured to control drainage depending on soil conditions and water quality (Mahaffey, 2013). Tom Doak cites an inadequate level of technical knowledge and a contemporary tendency within the golf industry to follow the 'status quo' for the failure to adapt (Mahaffey, 2013). But in emerging regions there may be opportunity, and it may even be necessary to take risks. In doing so architects can bypass the inefficiencies, and environmental contradictions, of modern construction and design, creating more affordable courses that increase the accessibility of the game.

Playing Surface: Fast and firm conditions, that typically add enjoyment to the game, have not been achieved in the majority of locations, such as China, that rely on warm-season turfgrasses for their playing surfaces. To achieve links-like conditions it is imperative to choose species that *will not die* so that growth rates are kept low, thus allowing the turf to be mowed tightly (Woods, 2013; 49). The benefits are twofold: both irrigation water and fertilizer inputs can be significant reduced. Replicating the rank, wispy rough associated with seaside courses is more problematic in a foreign environment. A solution that does without rough grass, through an increase in playing

area, and/or transition of fairway grass into exposed sandy areas, is advantageous in increasing playability for newcomers.

Turfgrass Selection: Grasses must thrive with almost no inputs. The selective use of hard wearing/drought tolerant turfgrass in areas of heavy play and rough turfgrass is imperative. Converting existing turf that is already reliant on high intensive management is more problematic. It is crucial to educate golfers in immature golfing markets to the legitimacy of such alternative management practices. Imported species of grass are typically more susceptible to diseases, insect damage, and weed invasion and as such require more intensive management. Costly inputs – fertilizer, pesticides, mowing, and irrigation – can easily be reduced with the selection of native turfgrasses. Native species are inherently more competitive against invasive weeds than new varieties and can thus essentially 'grow on their own' allowing maintenance operations to focus on surface preparation: mowing, rolling, grooming, spiking (Woods, 2012; 49). Selecting native grasses can also enhance the local character of a course.

Turfgrass Conditioning: The maintenance of golf courses in today's age has become overcomplicated. Simplicity – the use of one cut of grass, and perhaps an additional cut of rough – can enhance, rather than distract from, the beauty of the landscape and architecture while reducing unnecessary resource expenditure. Over-manicured courses mask the characteristics of place and the process of nature. The golf course, and the way it plays, should evolve cyclically during the course of the year, and make the game become truly interesting as the player is asked to adapt and improve.

Prioritization of Management Tasks: Current cultural landscape preference leans towards idealized environments that are perfectly maintained and ordered. Greens are

the only component of golf courses that require intensive management, and even then compromise may be sought if looking to establish more 'pastoral' courses. The relationship between turf grass quality and the game is very close however, and design-management practices must be careful not to overly compromise the game's quality.

If golf course development aspires beyond its minimum responsibility of *site*-sensitive design it must be possible to accommodate not just golfing nuances, but also wider social needs. Where courses exist as wealthy preserves of the elite should golf course architects not look to build courses that suit their cultural preferences? If Chinese businessmen like to gamble and have fun, then should course not be designed to espouse an exciting, 'matchplay' version of the game instead of the standardized model of course that limits creativity and thrill? Such courses can be much shorter, require less earth movement and lower levels of maintenance. It would be worthless to make generalized recommendations from afar, but it is apparent that it would be valuable for architects to take time to understand the local culture. This is where golf course design becomes truly place-specific.

Architects must also become familiar with the wider, localized needs of the golfing and non-golfing populace. If golf courses are to function as social assets Russell recommends that we must look to non-golfing members of communities by designing 'multi-functional' golf course landscapes. Benefits include: providing alternative 'recreational green space', 'employment hubs', 'increased tourism and subsequently improved income for other local industries, 'nature conservation', and 'education and social development opportunities, particularly for young people.'

Interestingly a 'lack of local competition,' that golf course architects are from established golfing regions, is cited as a reason for the unsustainable development in emerging countries. The local population is at least better placed to understand regional ecological nuances. It is also implied that the absence of 'recognized national legislation', and associated 'corruption', prevents the adoption of proper planning, scoping and environmental impact assessments for golf course projects.

Those architects who wish to see a change in golf course development, are placed in a difficult position by the fragile nature of the industry. For the majority of architects, directing the client towards the most suitable model is the limit of their scope, but this should also be their minimum. Given the many, stated restrictions, Darius Oliver, suggests 'the best we can hope for is that enough start building better quality golf courses that can attract more and more people into our game.' Moving away from the 'one-size-fits-all' approach is a start, but how can a golfing public that has been force-fed the unimaginative and one-dimensional golf courses that have characterized modern development be educated? Oliver advocates 'publicly accessible benchmarks in places like Asia, (courses) that other developers and course operators aspire to replicate.' But there is a danger that the introduction of such ideal courses may lead to further imitation and thus standardization.

Developer:

Comparing the driving factors of golf's first phase of great expansion – which will be evaluated in detail in Chapter Four – with modern-day development in China can partially explain the prevailing standardized approach to design. As golf established in the US, and elsewhere, at the beginning of the twentieth century

courses and governance of the game itself was motivated by those who *played* the game, leading to a culture of member-owned clubs that still dominate the market today. In China, golf is secondary to real estate, as property *development* propels the construction of courses that are used to anchor housing schemes. As David McLay Kidd ironically suggests, 'it is like the devil in the deep blue sea; but, it is possible to still design and build good gold courses attached to real-estate.'

There is a dearth of golf-only projects in China, and those usually bypass the local market to target foreign players. According to Lawrence such a pattern of development leaves little incentive for the developer to take 'risks'. It seems that developers are undervaluing the benefits of a 'golfer-friendly' approach to course design – walkable, fun and quick to play courses that are not encroached by housing – that would increase play and reduce the need to subsidize these superficial facilities.

Blaming the adaptation of a 'one-size-fits-all' approach and resulting insensitive methods of growth, on development-led courses ignores the significance of real estate throughout golf's history. In an era of social and demographic revolution not that dissimilar to contemporary China, it was land speculation that led the way for inland golf to establish in the heathlands of London's perimeter. So, as this method of course development will continue to push golf forward in China and emerging countries, why should architects not look to embrace this opportunity for growth? Quality golf architecture, that is fun and engages the user, should be a given, and the driving factor of real estate should not be an excuse for insensitive or inappropriate courses that do not fit the local user or culture. As Adam Lawrence declares, *'the challenge for the golf industry is not to demonize the* (housing) *development course but to find ways of doing it better and more sustainably.'*

Contradictorily to a standardized approach, developers often want a unique product. Schmidt-Curley's Icon Course, to be open in 2014, is almost 'crazy golf' on a large scale (see *Fig 3.5*.). Golf courses In China are not staunch and stiff in their atmosphere and thankfully, there is a clear demand for fun. If western golf course designers reciprocate, they can provide courses that push the boundaries of tradition to accommodate a new generation of golfers.

[**Fig. 3.5.** *The Icon Course*; Hainan Island, China. (HK Golf, 2013)]

The rigid approach to the *process* of golf course development in China contrasts more flexible western attitudes. According to Burton, in China the selection of designers is dependent on the quality of site; however, selecting a less adequate architect for a poorer quality site is surely a recipe for disaster. With 'face and respect' a vital component of Chinese business culture establishing a sound client-architect relationship is important. For a new generation of architects wanting to return the

game to its more sustainable, and hopefully place-specific, roots, establishing a foothold in the Chinese market will be challenging.

As the game continues to expand into emerging countries Oakley infers that rapid urbanization will result in a reduced supply of 'economically available' land to develop golf courses within close proximity to the required critical mass of people. Golf's accessibility would be significantly limited given such a scenario. In contrast, architect Brian Costello suggests that 'if *sustained* golf development occurs in a market then all types of facilities become economically viable to develop – from high-end private courses to affordable public golf venues.' As emerging markets mature, adopting a more patient approach may be necessary as greater opportunities are presented to create socially and economically sustainable golf.

As Nick Oakley of KPMG Golf Advisory suggests 'ultimately the developer's vision and desire for maximum return on investment will be the key influencer of many projects.' Change in developer attitude will likely only occur where social and environmental benefits are accompanied by pertinent economic advantages. There is a need to eradicate the culture where course architecture is judged by numbers and standards.

National, State and Local Government:

In China – the land is legally a government resource. They should be more concerned about it. Architect Dana Fry, calls for local government to take more responsibility, to be 'clear, forthright and understandable' in their regulation of golf course development. Although, the establishment of guidelines would certainly clarify

the boundaries for golf course architects, such an attitude completely misses the point – sustainable golf development must be about more than following legislation.

'Golf Industry':

The questions regarding the appropriateness of golf course development will inevitably be amplified in over-populated and rapidly growing countries such as China. Justifying the construction of golf courses on arable land in such countries is particularly contentious, and it is difficult to argue that the present model of development is sufficiently sensitive to socio-political characteristics. James Duncan suggests that golf courses may 'foster employment and technological advancements that improve the quality of life for the agricultural workers who previously farmed the land', but cautions that 'those advancements distort a traditional way of life that is part of a cultural heritage.' There should be a moral burden for the golf industry to govern a responsible and sustainable model of the game.

Given the golf industry's willingness to encourage growth, which has been accompanied by unsustainable models of golf course development, there is a concern that future development will be top-heavy, following a model that limits the game to a small few. It could be suggested that managing the growth of golf at a national scale should be the responsibility of the greater golf industry. The golf industry currently has very little control over the desires of the developer. This is of concern to Russell since it makes it 'very difficult, if not also inappropriate and ineffective, for other industry bodies to try and influence or advise against' unsustainable projects of this nature. According to Russell 'a concerted collective industry effort to raise awareness of the business benefits that come from adhering to sustainable practices' may offer a

way of shifting developer attitudes. Although, a legitimate method for addressing the challenges facing golf, the R&A and The USGA may be best served addressing playing and ball technologies that can actually reduce the pressure on golf courses to be so land and resource consuming.

For golf in emerging markets to prosper, according to Andrew Goosen, there needs to be a 'large middle socio-economic' population. This is largely uncharacteristic of developing markets, and there will be a need for large governments subsidies (an unlikely proposition) if there is to be increased accessibility and thus growth. A paradigm change in motivations and practices would require the 'golf industry' to take more responsibility in regulating the unsustainable, high-end developments that continue to be built.

Interestingly, Ian Andrew counters the notion that the golf industry should be responsible for directing golf. The commercialization of golf, in which short-term profit is favored over long-term function, has taken the game away from its foundations as a game of the people. Instead Andrew believes it must return to 'really efficient small business,' and rely on 'grass roots people who understand who they can attract to come and play their course.' Returning to a 'modest approach' in which courses are built and maintained cheaply in areas of *demand* is a straightforward model that provides an ideal framework from which the game can establish in emerging markets.

According to Ian Andrew, golf architects must be responsible in 'revers(ing) the pyramid (of top-heavy development) so that 90% of the courses are fun and cheap places to play.' With experience in golf's development in China, Patrick Burton believes 'there is a place for public golf' but the game is currently stifled by exorbitant playing costs that equate to poorly designed and overly conditioned courses. Although

there is interest from within the golf industry to involve the middle-classes in emerging markets, the majority of China is unaware of the game of golf itself. It is clear golf is a long way off becoming a game of the people in China.

Bob Cupp visualizes a wave of amateur architects, 'with the fittest surviving and emerging into professionalism.' Although there may well be a place for cruder, but architecturally sound courses in the establishment of golf in developing countries, there is a danger that truly amateur architects may not protect the fundamentals of the game. But, based around a core of more established courses, this could be what golf needs to develop a game that accurately reflects the nuances of local culture.

Notions of public golf on a large scale are tempered by the realities of the game as an inherently expensive recreation. Outside of very temperate regions, such as Scotland, where the climate is very suited to golf the costs of building and maintaining courses quickly becomes prohibitive. This partially explains why golf has failed to takeoff in today's emerging markets, and may unfortunately continue to limit the game to all but the very rich. If we are to see a return to cheaper, modest courses then it will be vital to train locals in how to maintain and management them. Although the established golf industry would like to continue its control of golf in emerging markets, the increased costs are not very supportive of the game in the long-term.

The stimuli for new golf developments, in the immediate future anyway, exist outside of golf. The global resource industry, global availability of finance and spread of golf from neighboring established golf countries are cited as the driving factors in today's limited growth (Lawrence, 2013). In spite of the emerging middle classes, development is aimed at the upper end of the market, and is limited to the small, elite proportion of the population. Although, sheer population numbers means that the top

percentage of a populace still offers a relatively large market, this does not fit the model of sustainability for the game.

Summary:

The globalized and quickly moving nature of the golf course development market inevitably should allow architects to have a far-reaching impact. With emerging markets unlikely to rely on western golf course architects in the long-term their greatest contribution may come in the education of a new generation of course builders that understand the game and sustainable course design. There is a need for patience. Once sustainable golf courses are introduced then a sustainable golf culture that follows, and that's where the responsibility of architects lies. As Adam Lawrence suggests, it may be impossible to convince the client of the virtues of the great links courses, for example, but it is possible to give them what they want in a sustainable manner.

The current economic recession may bring about a return to the practices of golf course design, construction and maintenance – the culture of golf – as found in the game's homeland. The massively long, and overly difficult courses of the modern era that only appeal to the very best golfers are undoubtedly ill suited to golf's establishment in new markets. Criticized by Kidd as 'almost a symptom of the ego that we *all* had in the early part of the 2000s', his prediction of a return to 'playable and fun' will hopefully be realized. It is difficult, however, to gauge the timing of such an *industry-wide* paradigm shift, in which golf course architecture almost returns full circle, if it ever will.

The contemporary nature of the golf industry, for the near future at least, in which architects have less work *should* allow course designers to spend more time on projects and site. Even if the modern philosophy of golf course construction does not take a significant shift towards 'design-build' principles, architects should ensure that courses are at least a site-specific in their design detail.

Growth in China is coming relatively late. With a relatively small number of courses per capita (when contrasted to the US) there is seemingly plenty of scope for future growth, and more importantly *change*. According to Adam Lawrence golf's greatest opportunity for growth is linked to the '*emerging, aspirational middle classes* (that) *have insufficient access to secure housing stock of the sort they desire.'* Such factors will not be unique to China.

Architects from established golfing regions and the industry as a whole generally misunderstand emerging markets. Developing markets are such because of the wealthy, 'new money' few who desire 'big, bright and shiny.' Unsurprisingly, Goosen indicates that 'very few are in (golf course development) for the love of the game or the benefits of the community.' There is a conundrum, how can architects and the golf industry direct a sustainable model for golf course development against a climate that seeks short-term profit over the long-term future of the game?

If it is true that strategy and variety contributes to a great golf course and if it is true that many of the leading, brand architects fail to apply this, then the current models of golf course development will continue to persist. The repercussions of allowing peripheral elements, such as aesthetics or pre-conceived 'standards', to drive the design of golf course design are potentially damaging to the long-term success of the game.

Forgetting about golf's core principles is unhealthy for the game; the importance of such foundations in sustaining the game has already been argued in Chapter Two. Just because a certain approach was appropriate for one place or time, however, does not mean it can be transplanted to China, or any other emerging country for that matter. Ultimately, the issue in new golfing cultures revolves around broadening the game's appeal, breaking down existing preferences for exclusive communities by promoting accessible golf to a wider society. Understanding the social nuisances of a region, accommodating these and pushing these in a sustainable direction, will be vital in guiding a form of golf course development that sits in harmony with its social-ecological systems.

The nature of development in emerging markets is not static. In China, increased government involvement has seen the designation of land use as a form of regional planning, and there is a danger that this could push golf course development towards more peripheral sites. Golf development in China is at least evolving toward more organized development, with the introduction of more permitting for construction and measures relating to storm water management, clearing and erosion control.

The relationship between golf course development and the socio-economic characteristics of the local population is relatively unique in China. Despite the illegalities, local governments are generally content to promote development since it brings in money to their city that can be passed on as improved services for the citizens. Social conditions should improve for the general population, particularly to mitigate the displacement necessary to make way for the course developments. The elitist nature of recent course developments is also a concern. The utilization of

topographically severe, less farmable sites may be a compromise the golf industry is forced to accept.

It can be seen from this assessment of current trends of golf course development in China that the golf industry is failing to meet the place-specific demands of operating in such a unique, but expanding market. The place-specific demands of the golfers who occupy them and the local populations that they may serve are ignored, alongside the reasoned use of the landscape and resources. Golf course development should be about making considered decisions, and ironically the choices that make sense socially and environmentally often make sense financially.

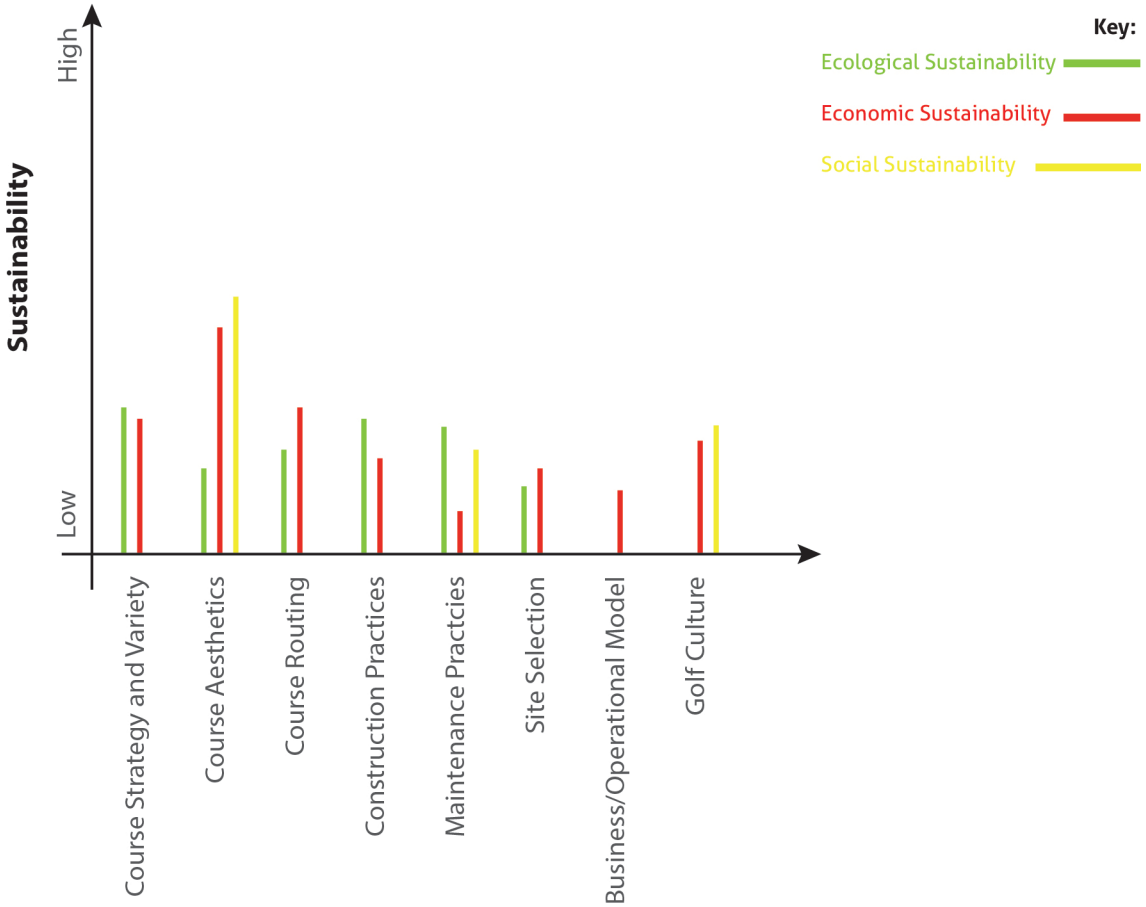
If golf is to enjoy a truly sustainable future in emerging regions, then the following non-exclusive factors must be addressed:

a. Irresponsible land use: the selection and resulting adaptation of sites, and management of resources – In the case of China, exacerbated by lack of government regulation and confusion over the legality of golf course related development.

b. A culture of standardization within the golf industry that fails to produce stimulating golf courses encourages a lack of adaptation to regional cultural characteristics that would support the long-term sustenance of the game.

c. A failure to maximize the golf courses value as a social and environmental asset within the wider community, that is arguably attributed to a reliance on real estate-led golf development that restricts access to a broader population.

The typical approach to new golf course development in the *emerging*, global market as covered in this chapter is evaluated, and compared against golf course development in the *established* market (see *Fig. 3.7.*). *Figure 3.6.* provides a simplified interpretation of the sustainability of golf course development in established markets.



[**Fig. 3.6.** Interpretive Chart: Sustainable *Components* Of Golf Course Development In *Emerging* Markets.]

[**Fig. 3.7.** Interpretive Diagram: *Positive* Affects On The *Sustainability* Of Golf Course Development In *Emerging* Markets (China) Vs. *Established* Markets (US).]

It is apparent that developers have increased influence on the type and style of golf course being constructed. As such, many of the failings and the implications on sustainability are similar, but exaggerated. The high proportion of courses built on severe, unsuitable terrain is concerning from an ecological and economic standpoint. A preference for unnatural course aesthetics and highly manicured conditioning only exacerbates the unsustainability of construction and maintenance practices. It could be argued that such a preference is at least addressing culture in creating a style somewhat and construction practices. There is an overriding lack of place-specificity in implementing a westernized approach to development. Within the architect's greatest authority is the ability to accommodate local attitudes and visions for the game's role as a recreation in the design of individual holes and the course as a whole. The homogenization of construction and maintenance practices further constraints the establishment of a unique and localized golfing culture. While developers continue to shape the direction of golf in developing regions, of greatest concern is the lack of access to the game and restriction of its social benefits to the wealthy minority.

In emerging markets, where there are no traditional versions of the game to fall back on, the urgency to shift the prevailing trend must be strong while golfing cultures are still in their infancy. As such, it seems sensible to turn to the early architects, who were responsible for exporting and establishing the game in new geographical regions and cultures, for inspiration (see *Fig. 4.4.*). The comparatively 'radical' nature of golf courses built in the early exportation of golf from the British Isles were vital in ensuing the establishment and long-term success of the game in countries such as the US and Australia. History shows us that the first period of growth in these now established markets coincided with periods of greatest architectural ingenuity (although, as Adam

Lawrence counters, this was perhaps more out of necessity, on a course-by-course basis and without predetermined 'standards.') That the place-specific demands of operating in today's emerging markets are ignored by modern golf course design's sterile philosophy is of great concern.

CHAPTER 4

LESSONS FROM THE PAST – GOLF'S FIRST INTERNATIONAL *PIONEERS*

The evolution of construction equipment and methods over the past century now means it is possible to develop almost anywhere. Constraints are overcome through modern construction equipment and a liberal budget. While such advances have been beneficial in expanding the game into new regions, real estate-led development combined with the insensitive and inefficient approach of modern architecture has damaged golf's reputation. Excessive cost has limited golf's accessibility to all but the very rich. As this thesis looks to define the possibilities for golf course architecture in emerging regions it seems logical that we might turn to the early design pioneers for inspiration. The unique evolution of golf course design offers diverse precedent, and provides the opportunity to evaluate the shortcomings of contemporary golf course development against past theory, and course design.

It is no coincidence that the establishment of golf, and specifically the 'courses' that the game was first played over, were more by *accident* than by design. While the fine, rank grasses and free-draining sandy loam of Scotland's seaside links provided the ideal playing surface, it was the adventurous landforms of Mother Nature that gave the game its unique *sporting* qualities so readily embraced by the wealthy elite of the time. By it's very nature golf began as a *place-specific* pursuit, a product of the local landscape. Technical and social advancement, which followed from the industrial revolution, allowed golf to flourish from the mid nineteenth century as the working classes began to embrace the 'ancient game'. The inevitable growth of golf that

followed was perpetuated by this same *adaptability* that makes it the unique and valuable recreation that it is today.

[**Fig. 4.1.** *The Old Course*; St. Andrews, Scotland – Par 4 17th 'Road' hole.]

The Old Course at St. Andrews provided the benchmark for early golf course design (see *Fig. 4.1.*). The principles of golf course architecture were first recognized in literature around the turn of the twentieth-century. That so many outstanding courses were created prior to this establishment of golf architecture as an educated art form is quite remarkable and attributed to *'the total acceptance of natural forms and the role these play in the enjoyment of the game'* (Hawtree, 1983; 18). The importance of variety when 'laying-out' a course – a characteristic so often overlooked by the standardized nature of modern golf course development – is first emphasized by one of golf's first

prominent professionals, Willie Park Jr., in *The Game of Golf* (1896). At a time when landscape theory, such as Edmund Burke's 'Sublime' and 'Beautiful', may have hinted otherwise, early course 'architects' such as Park offered very little prescription as to the mechanical shaping of the land. Such an approach is particularly poignant when contrasted with the artificially driven aesthetic that often prevails in today's era. Early golf course architecture, thus, remained 'purely' as a function 'of the *game* and of the *land* employed' (Hawtree, 1983; 14).

As golf spread towards the urban centers of Britain beginning around the 1890s there came the challenge of adapting to different terrain. This *inland* displacement of the game, most notably in England, 'resulted in many courses being built on unsuitable, poorly drained, heavy land with unsophisticated green construction' (Arthur, 1997; 17). *Penal* architecture, that failed to accommodate all standards of player, and unsatisfactory playing conditions, that came with the oft found heavy, clay soils, were placing golf's surging growth at risk. Led by Harry Shepland Colt in the heathlands of London's expanding suburbs, and followed, most notably, by Dr. Alister MacKenzie in the industrial north of England (see *Fig. 4.2.*), a significant shift in thinking brought about a 'strategic' style of architecture that follow those architectural ideals associated with the links prototype. Improved agronomic and construction methods, assisted golf's continuing expansion away from its early origin. Thus the period from 1910-1937 signified a paradigm change in thinking and the application of principles – a 'Golden Age' for architecture.

[**Fig. 4.2.** *Alwoodley*; Yorkshire, England (1907) – Par 4 5th hole. Alistair MacKenzie's first golf course set an architectural precedent for inland golf and aptly demonstrates his 'Thirteen Points' philosophy.]

Golf's early growth was not limited to England's hinterland as expatriates from the game's homeland firmly colonized golf across the globe. As documented in his own writings and a contemporary biography, Alister MacKenzie is arguably the benchmark figure for promoting the game. MacKenzie established a foothold for golf in Australia during a two-week visit in 1926. The courses he designed during that short period 'forever altered (Australia's) place in the golfing world (Doak et. al., 2001; 76). Although such an achievement seems incomprehensible in today's social and political climate, the demonstrated attitude towards golf and place, and the assimilation of a style unique to Australia's 'sand belt' is encouraging, especially given its consistent

high standing amongst critics and players. In the United States Charles Blair MacDonald pioneered a new threshold for golf course architecture that arguably remains today. The National Golf Links of America (amongst his other works) remains a monument to the adaptation of golf's finest characteristics to foreign landscapes. Although his use of template holes (see *Fig. 4.3.*) – surveyed from the best of Britain's links – is questionable to an art and game that relies on situation and originality, MacDonald was able to impose golf's fundamentals on the golfers and course architects that followed.

[**Fig. 4.3.** *Chicago*; Wheaton, IL (1895-23) – Par 3 7th 'Redan' hole. One of the author's favorite MacDonald, and his understudy Seth Raynor, reinterpretations of North Berwick's famous "Redan" hole.]

The thinking from this first global period of expansion is best summarized in MacKenzie's, now famous, 'Thirteen Points', as first laid-out in "Golf Architecture" in 1920:

'1. The course, where possible, should be arranged in two loops of nine holes.

2. There should be a large proportion of good two-shot holes and at least four one shot holes.

3. There should be little walking between the greens and tees, and the course should be arranged so that, in the first instance, there is always a slight walk forwards from the green to the next tee; then the holes are sufficiently elastic to be lengthened in the future if necessary.

4. The greens and fairways should be sufficiently undulating, but there should be no hill climbing.

5. Every hole should be different in character.

6. There should be a minimum of blindness for the approach shots.

7. The course should have beautiful surroundings, and all the artificial features should have so natural an appearance that a stranger is unable to distinguish from nature itself.

8. There should be a sufficient number of heroic carries from the tee, but the course should be arranged so that the weaker player with the loss of a stroke shall always have an alternative route open to him.

9. There should be infinite variety in the strokes used to play the various holes – viz., interesting brassie shots, iron shots, pitch and run-up shots.

10. There should be a complete absence of the annoyance and irritation caused by the necessity of searching for lost balls (excessive rough).

11. The course should be so interesting that even the plus man is constantly stimulated to improve his game in attempting shots which he has hitherto been unable to play.

12. The course should be so arranged that the long handicap player, or even the absolute beginner, should be able to enjoy his round in spite of the fact that he is piling up a big score...

13. The course should be equally good during winter and summer, the texture of the greens and fairways should be perfect and the approaches should have the same consistency as the greens.'

This concise list of design principles is representative of MacKenzie's belief that the ideals for a golf course should not be 'too didactic' and that the 'essence of golf is variety' (MacKenzie, 1995; 41). That such a straightforward, yet fundamental is, according to architect Mike Clayton, 'more relevant now than when it was written' is testament to the foresight of "The Good Doctor."

Unfortunately, the modern perception of what makes a course interesting, beautiful and playable has shifted far away from these beliefs. MacKenzie recognized that people became bored with golf that was dull and interesting. Yet, according to Clayton 'growing golf is dependent on making the holes enduringly interesting to play' and 'fun.' If the game is to establish and survive in emerging regions it appears essential that today's golf courses be built around such timeless principles.

The adoption of these principles by the designers of the 'Golden Age' is remarkably consistent. Furthermore, collaboration was a common denominator in some of the greatest courses of the time, such as Royal Melbourne, Crystal Downs, Cypress Point and Pine Valley. That the courses of the master architects remain revered throughout golf justifies their relevance to this thesis and golf course architecture today. The 'Golden Era' can be recognized for its collective effort to grow the game and ensure golf's long-term success, and the founding principles of golf course architecture can be viewed as a function of *place*, or at the very least *site*.

So, how do the site-specific design, construction and maintenance practices associated with the first 'Golden Age' of golf course architecture relate to the challenges facing golf's growth in today's emerging countries?

Cross-referencing the founding principles of golf course design from a wide sampling of 'Golden Age' architects, with the identified fallings of course development in emerging countries offers legitimacy to the author's belief that there is value in a return to the 'naturalistic' practices of golf's first great period of growth (see *Fig. 4.4.*). The language is pithy, with a dry sense of humor highlighting the importance with which the master architects viewed their role in governing golf's establishment and spread:

Key:
● Application of the lesson(s) from the 'Golden Age' in addressing the failings of contemporary golf course development.

Failings of *Established* Markets	Lessons from the 'Golden Age'													
	Site Selection	Land Use and Terrain Manipulation	Variety in Golf Course Architecture	The Art of Golf Course Architecture	Site-Based Design	Adaptive Use of Local Materials	Efficiency in Construction	Efficiency in Landscape Management	The Golf Course as a Social Asset	The Golf Course as a Physical Asset	The Golf Course as a Mental Asset	Growing the Game of Golf
Standardized Ideal for Golf and Golf Course Architecture	●	●	●	●	●	●	●	●	●		●	
Increased Course Footprint	●	●										
Irresponsible Management Expectations and Practice				●	●		●	●	●			
Inefficient Construction and Maintenance Practices	●	●			●	●	●	●				
Declining Design Quality	●	●	●	●	●							
Irresponsible Development Models	●						●	●				
Golf Course Architecture's Failure to Self-Regulate	●	●			●		●	●	●			●
Failings of *Emerging* Markets												
Complex Process of Development – Golf Pushed to the Fringes	●	●			●		●	●	●			
Ecological Damage on a Macro-Scale	●	●			●		●	●				
Golf for Speculation and the 'Wealthy Elite'									●	●	●	●
Lack of Cultural Understanding in Golf Course Design			●	●					●			
The Golf Course as "Garden"				●				●	●			●
Superfluous Construction and Maintenance Technologies							●	●				
Commercialized Approach to Golf Course Architecture	●	●	●	●	●	●	●	●				

[**Fig. 4.4.** Matrix: The Principles Of The 'Golden Age' Of Architecture In Relation To The Failings Of Contemporary Golf Course Development (identified in Chapter's 2 and 3.)]

Site Selection:

As William Flynn suggests, the selection of a site is imperative to the success of a golf course development:

> *"In order to have a satisfactory golf course you must first secure a suitable piece of land over which to lay it out."* (William Flynn, 1927) (Shackelford, 1997; "The First...")

But 'suitable' goes beyond the basic provision of finding an adequately sized site on rolling terrain, complemented by the odd outstanding natural feature or beautiful backdrop. Natural material – soil consistency and depth, and vegetation – is imperative in determining the playing characteristics of the course and long-term costs of maintenance. Reducing the need for expensive peripheral design elements, such as artificial drainage, with adequate siting and sound design, can help to make the game more accessible in emerging regions.

Although it would be prescriptive to describe an 'ideal' site, the free-draining links of Royal Cinque Ports (1896) typifies the terrain that the early architects revered (see *Fig. 4.5.1.*). Awkwardly routed over steep topography and heavy clay soils, the Georgia State golf course at Victoria Bryant (2002) demonstrates the unsuitability associated with the majority of modern sites (see *Fig. 4.5.2.*).

[**Fig. 4.5.1.** *Royal Cinque Ports*; Deal, England – Par 5 16th hole.]

[**Fig. 4.5.2.** *Highland Walk*; Victoria Bryant State Park, Georgia – Par 4 9th hole. Water from the hillside surface drains across a steep landing area that is impossible to hold.]

Development must be sensitive to site, responding and harmonizing with the local landscape through all stages of the courses life: design, construction and management. As Max Behr (1928) said:

> *"Golf architecture depends on the manner and style in which the existing character of the ground is interpreted and modified."* (Shackelford, 1997; "The Architect's...")

Regardless of the quality of available land, architects must be prepared to adapt, to take advantage of whatever workable features exist in the landscape.

Land Use and Terrain Manipulation:

Contemporary issues surrounding land use, especially in emerging regions such as China, are complicated by rapid urbanization and finite resource availability.

Inevitably golf course development, where permitted, has been pushed to marginal sites. Although the early architects extoled golf as a game that could be played 'anywhere,' the present day availability of suitably developable ground creates a conundrum for those who want the game of golf to grow sustainably so that it's diverse benefits may be appreciated by all:

> *"Golf may be played anywhere – that is anywhere there is room – but the quality of the golf will depend upon the kind of place it is played on, and the manner in which the ground is laid out and kept."*(Smith, 1898; 83)

Without this malleability golf would not have enjoyed such a pronounced expansion. It is possible to build a golf course virtually anywhere, but the architect must be creative and design for that place. As Willie Park Jr. emphasized:

> *"The adaptability of the game is one of the greatest features of golf, and there are really few places where a course cannot be laid out...."*(Park, 1896; 155)

Likewise, as Ted Ray implies, the possibilities for the unique game of golf are seemingly endless:

> *"Golf differs from all meaner games in its infinite adaptability. It can be played over any sort of country and by any kind of player."*(Ray, 1913; v).

But, the relationship between site suitability and architectural quality is closely linked. The adaptation of unsuitable ground, that diminishes the games playing characteristics, and increases the cost of course construction, is potentially detrimental to golf's uptake and viability. It may well be necessary to discourage the construction of courses in unfitting locales for the game's long-term health.

That the success of modern golf course development has largely been governed by *suitability* should not be surprising given its early prominence, first highlighted in Garden Smith's *The World of Golf* :

> *"Laying out a golf course is not a mathematical puzzle, and the position of the holes is to be settled by their suitability for the game, and not by the application of the Rule of Three*[1]*."* (Smith, 1898; 85)

But, what presents ideal golfing terrain?:

> *"It is desirable that the ground shall be rich in natural golfing features, that is to say, gentle fold in the ground, of suitable formation, which have a direct influence on the various shots, especially on the approaches to the putting greens."*(Tom Simpson) (Sutton, 1932; 1)

The early architects recognized the vital characteristics of the seaside links; not just in its free-draining sandy loam and fine fescue turf, but particularly in the gentle yet random folds formed by the natural power of the wind. Instead of replicating the Scottish seaside topography they looked for comparable features in the landscape, framing the strategy of holes around unique local variances. The famed "Alps" hole at Prestwick (1851-1882) demonstrates the unique variances in links land character (see *Fig. 4.6.*). Golf in its earliest form was very much a game of man *versus* nature.

[1] Smith references the 'Rule of Three' – a writing principle that suggests perfection or satisfaction when information is structured in threes – to emphasize adaptation over standards in the creation of a suitable course.

[**Fig. 4.6.** *Prestwick*; Ayrshire, Scotland – Par 4 17th 'Alps' hole (viewed from 18th tee to the right of the approach).]

Golf's pioneers revered rugged nature, and their apprehension about recreating its features is understandable given the availability and undeveloped nature of construction machinery and techniques at the beginning of the 20th century:

> *"And while we do succeed in approaching nature by artificial means, so frequently we are in utter despair in the realization of the utter futility of imitating the primitive contours and sweeps of the dunes."* (A. W. Tillinghast, 1935) (Shackelford, 1997; "Ideal Course...")

Construction techniques of the period – hand and horse powered labor – allowed careful manipulation of the landscape, creating gentle curves that blended into the existing landscape. The early architects also demonstrated selectiveness and restraint. At Cape Arundel (192?) Walter Travis' best greens are typically located on the interior

of the property where the terrain is flat and devoid of even the subtlest of feature (see *Fig.4.7.*). Because of advanced construction techniques – the limitations of larger equipment and hand labor costs – modern courses have largely failed to imitate the nuances of nature and the three-dimensional subtleties that can create challenging, yet fun courses for all.

[**Fig. 4.7.** *Cape Arundel*; Kennebunkport, ME – Par 4 8th hole.]

Perry Maxwell's Prairie Dunes (1937) in the Mid-West may be the best example of a golf course at ease with its natural surrounds in the United States (see *Fig. 4.8.*). As he announced, a golfing landscape cannot be created:

> *"Nature must precede the architect in laying out the course. The site of a golf course must be there, not be brought there. In this way, it will have its own character, distinct from any other course in the world."* (Arthur, 1997; 27)

Current construction technologies, aided by lavish budgets, have promoted a lack of honesty and integrity. The modern golf course lacks personality as sites can be completely reshaped or new landscapes created from imported material.

[**Fig. 4.8.** *Prairie Dunes*; Hutchinson, Kansas – Par 4 18th hole.]

Contemporary golf course architecture has largely looked to overcome and eradicate the intricacies of nature. But, as Martin Sutton suggests, the idea of imposing strict guidelines, given the complexion of golf as a game, and the environments in which the game takes place, seems false:

"So widely varying are the conditions met with in the making of golf courses that no one set of rules applicable in detail to each and every case can be framed." (Sutton, 1932; 18)

With architect Flynn's sentiment comes the widespread criticism of modern architecture:

"...Each layout should be designed to fit the particular ground on which it lies ...A successful architect, his greens are born on the ground and made to fit each particular hole." (William Flynn, 1927) (Shackelford, 1997; "Analysis of..."/"Designing the...")

Designers should look to create courses inimitable to place. With each new landscape come new opportunities for the unique design of individual holes and course as a whole.

That there has been a trend towards ecologically destructive golf course construction should not be solely attributed to less than suitable land. The proficiency of heavy construction equipment, and an attitude that the costly exercise of moving earth equates to quality, has negated the importance of routing the golf course. Even on less than ideal sites a considered and sensitive approach should prevail. The first great architects excelled in the laying out of courses by fitting together eighteen individual holes into a collective sequence. Taking the golfer on a journey through the landscape, the very best courses demonstrated rhythm and balance, using the natural terrain to present the golfer with an almost infinite number of scenarios and challenges. Achieving the ideal, if one even existed, was far from likely and the 'Golden Age' architects invariably had to compromise:

"Often it is necessary to get from one section to another over ground which is not suited to the easiest construction, but that troublesome hole must be made to stand right up in meeting with the others, and it has not got anything about it that might make it respectable, it has got to have quality knocked into it until it can hold its head

up in polite society." (A. W. Tillinghast, 1923) (Shackelford, 1997; "Giving Individuality...")

Presented with less than perfect terrain, and with limited earth moving power, architects would have to make do with what nature provided. Uninspiring topography was enhanced where possible with artificial measures, making the best do of strategic bunkering. Modern technology should offer the opportunity for contemporary designers to overcome these conundrums, with *restraint*, and create even greater courses.

Contrasting the Highlands CC (1928) and Mountaintop (2007) in the southern Appalachian Mountains underlines the different approaches to severe terrain. Donald Ross' routing flows over the difficult, mountainous terrain in a varied manner, while earth movement is limited to green sites (see *Fig. 4.9.1.*). Tom Fazio's nearby layout required significant rock blasting, regarding and sand-capping at a construction cost of around $20m (see *Fig. 4.9.2.*).

[**Fig. 4.9.1.** *Highlands CC*; Highlands, NC – Par 4 10th hole.]

[**Fig. 4.8.2.** *Mountaintop*; Cashiers, NC – Par 5 16th hole.]

Taking Garden Smith's observation, there needs to be more realistic expectations placed on the type of courses built in developing regions where the availability of suitable golfing terrain is absent:

> *"The first golden rule to be observed is "to cut your coat according to your cloth."* (Smith, 1898; 84)

That is not to suggest that the quality of golf course architecture should be diminished, but that courses should be more sensitive in their response to the existing landscape.

The terrain arguably forms the most significant factor in the equation of golf, as underlined by architect Tom Simpson:

> *"...The game is something of a triangular contest conducted between one player and another, with the course itself as a third party to be reckoned as an antagonist, the last of these being the very interesting combatant with whom the architect is*

primarily concerned…" (Tom Simpson/H. N. Wethered, 1929) (Shackelford, 1997; "A Triangular…")

Is it not reasonable, and more beneficial, then that contemporary golf architects should have greater input into the selection of land as many of the great early designers advocated?

Even where the available ground is far from ideal, the overall goal of design should be to create the best possible course:

> *"Success in construction depends entirely on expert supervision. It is like all successful golf-course construction, a question of making the best use of natural features and the devising of artificial ones, indistinguishable from nature."* (Alister MacKenzie) (MacKenzie, 1920; 114)

In such a scenario the role of architect should, according to author (and less prominent architect) Max Behr, be restrained:

> *"In this country architects are presented with few locations the topography of which is ideally fitted for the playing of golf. Hence, the architect must improve upon Nature, But such improvements have primarily to do with rendering Nature suitable for golf, and do not necessarily involve any improvement of Nature itself except for the definite purpose in hand."* (Max Behr, 1926) (Shackelford, 1997; "Naturalness In…")

In dealing with difficult or unsuitable terrain, course designers must still look to maximize the resources of the natural landscape. The 'Sacred Nine' (1893) takes advantage of the sites only prominent feature, a natural depression, throughout the compact routing (see *Fig. 4.10.*). Combined with an excellent set of greens and holes that sit on the edge of par, the course never gets tiresome. Golf courses should be reflective of their surrounds.

[**Fig. 4.10.** *Royal Worlington & Newmarket*; Suffolk, England – Par 3 5th hole.]

Without fully understanding the restrictions imposed on the architect there must always be some reservation when criticizing the design. That developers view the golf course primarily as a tool to sell real estate may partially explain the sub-standard quality of its architecture in developing countries. In this global culture where a bold visual seemingly sells, a reminder that developers need not seek grand, dramatic sites achieved by mass land movement and resulting in ecological disruption, is offered by architect Harry Colt:

> *"Nature will often provide us with a small feature which will work in successfully with the scheme for a good hole."* (Sutton, 1932; 88)

A 4ft high rise in front of the second green at the Old Course, amongst other gentle folds and hollows, demonstrates how subtle features can dictate strategy from the tee (see *Fig. 4.11.*).

[**Fig. 4.11.** *The Old Course*; St. Andrews, Scotland – Par 4 2nd hole.]

Variety in Golf Course Architecture:

The real estate driven model of course development has in part engendered a standardized approach to golf course design. With the golf course primarily as an, albeit expensive, accessory to lot sales, little premium was placed on innovation or creativity. Land planning, following a formulaic approach has generally determined a course's playing corridors and at the same time limited the architect's canvas. It is

difficult to fully attribute this trend to a particular portion of the golf industry, but an accompanying preference for 'straight-forward' courses steered design further away from its rugged origins. This cautious systematic design tactic went against the principles of all the great early architects:

> *"Golf architecture is not a science. Creativity is not amenable to measurable knowledge." (Max Behr, 1928)* (Shackelford, 1997; "The Architect's...")

Following what could be deemed a prescriptive approach to the design and development process, modern courses lack the local characteristics that make golf such a unique recreation.

Criticisms of standardization are not unique to contemporary course architecture. The 'Golden Age' architects looked to evolve golf course design away from the dogmatic style of the primitive beginnings of formalized design (Sutton et. al., 1912; 79). Characterized by 'cross-bunkering' that made the game difficult for golfing beginners, course 'design' at the turn of the 20th century was overly penal. The theory of these master architects evolved from the very first principles of the game. A progressive ideal for golf and its courses still respected the game as 'man vs. nature' while somewhat formalizing the game to accommodate its popularization.

> *"In the old view of golf, there was no main thoroughfare to the hole: the player had to use his own judgment without the aid of guide posts, or other adventitious means of finding his way."* (Alister MacKenzie) (MacKenzie, 1920; 22)

The progression of modern golf course architecture, however, has in many respects stretched the game to a version unrecognizable from its origin. Today, golf courses very rarely leave the player guessing, or engender a sense of adventure. Modern architecture encourages a point-to-point style of game, which in the author's opinion is rather dull. While the consequences may be dismissed by some within the golf

industry, it would be irresponsible to ignore the deleterious effects of golf's modern evolution given the legacy of the courses shaped by the 'Golden Age' architects.

The very idea of standardization in golf course architecture can be dismissed out of hand through the profuse reference and endearment to *variety* in the literature and courses of the 'Golden-Age' architects:

- *"Variety is everything in golf."* (Alister MacKenzie) (MacKenzie, 1920; 29)
- *"Golf is a game of situations... Nothing contributes more to the popularity of golf than its almost endless variety..."* (John Low) (Low, 1903; 20/162)
- *"It is well to remember that the value of a test of golf should be estimated only as it amuses or fails to amuse. A test of mechanical length and accuracy, such as might be applied at an aerodrome, is of no value whatever; and courses which approach this standard are as dull as ditch-water. Unlike other games, golf is not played, and should nit be played, upon a standardised arena; its variety is its greatest charm."* (C.H. Alison) (Sutton et. al., 1912; 15).
- *"There should be every variety of hazard. Variety is not only "the spice of life" but it is the very foundation of golfing architecture. Diversity in nature is universal. Let your golfing architecture mirror it. An ideal or classical golf course demands variety, personality, and, above all, the charm of romance."* (C.B. MacDonald, 1928) (Shackelford, 1997; "Architecture")
- *"Variety is the great thing to aim at, and here the hollows and hillocks, the plateaus and ravines, the whins and bunkers, and all the other incidents of seaside ground, will be full of suggestions for holes of interesting and sporting character."* (Garden Grant Smith) (Smith, 1898; 86)

Variety is not an independent variable of design, however, but a product of suitable land use and the resulting utilization of the best natural features of the land. William Langford's eleventh hole at Wakonda Club (1922) simply utilizes a rise in front of the green to create visual deception and stymie a mis-struck approach (see

Fig.4.12.). Operating in the 'Depression Era', architect William Langford created courses that responded to the needs of the time. With money tight Langford relied largely on natural, grassed features over maintenance intensive bunkers.

[**Fig. 4.12.** *Wakonda*; Des Moines, IA – Par 4 11th hole.]

The laying-out of a golf course, achieved through an innate understanding of the game and nature, was vital in producing timeless playing fields that popularized the game:

> *"If variety be strongly developed, we also promote the best feature of the game—classes of strokes under varying conditions. This is the real reason why golf has become so popular not only at home, but all over the world, and it is on account of this that people do not become bored with the game. So the designer of a course has one clear duty: to try to create fresh holes of interest, and not reproduce with*

unsuitable materials holes similar to those already in existence." (H. S. Colt) (Sutton et. al., 1912; 73)

Golf, as a game, should offer intrigue and discovery:

"A course that seems to a stranger completely honest and plain-sailing is a dull one…A good hole always keeps us guessing a little bit…The really great hole keeps those who know it best in delicious, agonizing, eternally recurring doubt." (Bernard Darwin) (Sutton et. al., 1912; xiii)

In the search of some sort of perfection modern golf architects have failed to take the risks that once allowed the 'Golden Age' designers to create their timeless masterpieces. Originally including nine C.H. Allison holes, Tom Fazio's present-day version of Sea Island's "Seaside" course (1999), for the most, lacks the playing excitement associated with classical golf design (see *Fig 4.13.)*. One would hope that the expansion of golf into new terrain and cultures presents the ideal opportunity for experimentation.

[**Fig. 4.13.** *Sea Island (Seaside)*; St. Simons Island, GA – Par 4 4th hole.]

Attitudes of the time, in which a game of chance and excitement are conjured by authors such as John Low, no doubt offered a framework from which golf was able to promote and establish itself:

> "'*Golf need not be played in bee-lines…Golf at its best should be a contest of risks…The true hazard should draw the play towards it, should invite the golfer to come as near as he dare to the fire without burning his fingers…*" (Low, 1903; 170-172)

That no prescribed notion for the 'ancient' game and its courses resulted in comparatively 'radical' courses, when contrasted to contemporary development at least, should be of no surprise. But, with the popularization of the game came a need for compromise:

> *"How far have we travelled since the old days when 'natural' golf seemed the one thing to be desired! I suppose the fact is that golf has become so popular that we cannot eat our cake and have it; we cannot have purely natural golf any more when so many of us want to play it."*(Sutton et. al., 1912; xv) (Bernard Darwin)

It is difficult to envisage how a sole dependence on truly *natural* golf course design could accommodate the hypothetical number of golfers that could exist in emerging countries. The author is skeptical that a low-cost and primitive version of the game is what the golf industry wishes to promote regardless of the potential benefits to the communities of developing regions. However, there is still value in such forms of the game and it is possible that such natural courses may accompany mainstream developments, allowing aspirational newcomers to learn and enjoy golf. If for example, golf clubs are to provide a caddy program it is vital to include a short course to teach the locals how to understand the game, so that they embrace it. Convincing developers, in emerging countries, to pay for such supplemental courses that benefit the working locals may be far from straightforward.

Examples of modern golf course architecture turning away from it's early, core principles are numerous. Rees Jones 'updated' version (from 2000 onwards) of Tom Bendelow's 1928 original "No.3" course at Medinah CC demonstrates the homogenization of modern, 'championship' golf course design (see *Fig.4.14.1.*). Not all are a product of standardization. Regarded as Mike Stranz' masterpiece, Tobacco Road (1998) melds wild shaping, unusually proportioned green complexes and various degrees of blindness to create a unique golfing landscape (see *Fig.4.14.2.*)

[**Fig. 4.14.1.** *Medinah CC No.3*; Medinah, IL – Par 3 17th hole. (Seen here in its pre-Ryder Cup (2012) condition.)]

[**Fig. 4.14.2.** *Tobacco Road*; Sanford, NC – Par 5 13th hole. A tiny punchbowl green sits behind a manufactured dunescape, aptly framed by grain silos in the distance.]

The relationship between how the game should be played (at least in the eyes of its early protagonists) and the design of courses has been stretched further by the introduction of golf into new regions. Yet, as Colt suggests, such trends are short-lived and place the long-term appeal and livelihood of the game at risk:

> *"Fashions in golf courses, as in ladies' clothes, seem to be so frequently hopelessly exaggerated."* (Sutton et. al., 1912; 68)

'Innovation' has been encouraged where there has been rapid or dense growth in developing regions. For example, the density of courses at the Mission Hills Resort (Haikou, Hainan Island, China) has demanded at least significant visual diversity to distinguish the sheer number of courses that have been built. Set to open in 2014, the

resort's "Icon Course" (see *Fig.3.5.)* is inspired by almost literal interpretations of icons from around the world. Designer Brian Curley describes what 'will be the wildest thing ever done; almost, full – scale mini – golf (Oliver, 2011). Although difficult to judge from afar, there is a danger that such design 'gimmicks' can weaken the game of golf and that variety is reduced to appearance over playability. While standardization was universally criticized by the 'Golden Age' architects, MacDonald (1928) was particularly wary of moving architecture too far in the opposite direction:

> *"Viewing the monstrosities created on many modern golf courses which are a travesty on Nature, no golfer can but shudder for the soul of golf. It would seem that in this striving after "novelty and innovation", many builders of golf courses believe they are elevating the game. But what a sad contemplation!"*(Shackelford, 1997; "Architecture")

There was a belief that although the principles of golf course architecture were tried and tested it is nature that provides this great canvas from which the architect can perform and still invent.

The 'championship' golf course is a term familiar with golfers across the globe, and is responsible for a trend in the development of courses that is as perplexing as it is damaging. Originally reserved for golf courses that hosted tournaments, the phrase has been adopted by the games 'market men' who have placed 7000-plus yard, par 72 layouts as an arbitrary seal of quality. As early as the 1910s, Colt intimated that the relationship between golf course quality and length does not correlate:

> *"It is obvious that there are many bad long courses and many very good short courses, and length has very little to do with merit."*(Sutton et. al., 1912; 74)

Courses that aimlessly seek length in their design are irresponsible and unsustainable in their use of resources, requiring greater land area and maintenance inputs. For all but the very best players the additional length of so-called 'championships' courses is

unnecessary, making the game time consuming, expensive and arduous to play. Such standardized courses typically promote length and accuracy in play over skill, especially in the short game, that may accommodate players with a range of abilities. Even if such a 'championship' model is required, the question to be asked is: do the properties of golf not allow the flexibility to produce something other than the standard? In developing golfing countries should courses not offer a playground for newcomers to the game, the opportunity to learn and progress, to fall in love, rather than become quickly disillusioned by its difficulties?

As writer O. B. Keeler (1926) implies, when comparing the concept of a 'championship course' in America versus Britain, cultural differences affect views on the game and thus the architecture of golf courses:

> *"...Where we fondly present to the world a scientific championship course (and I do not say it isn't, by any means), over there they have a notion of letting nature take its course..."*(Shackelford, 1997; "What I...")

The modernist prescribed approach is in contrast to the belief of 'Golden Age' architects such as MacKenzie (1926) who embraced the unpredictability of nature:

> *"...There are many bad golf courses made in an attempt to eliminate the element of luck – a mistake, surely. Luck is the zest of life, as well of golf..."*(Shackelford, 1997; "Pleasurable Golf...")

If the game is to sustainably grow then architects and the golf industry as a whole are responsible for applying Flynn's (1927) warning:

> *"'All courses can not be "championship" courses, that is, links where championships are decided, for they would be too expensive for the average club."*(Shackelford, 1997; "Designing the...")

The home course of the author of this thesis, at less that 5,800 yards and laid out on common ground above the town and of no more than sound architectural merit, serves its golfing (and non-golfing community) adequately (see *Fig. 4.15.*).

[**Fig. 4.15.** *Kendal:* Kendal, England (1913) – Par 4 4th hole.]

The obsession, within the golf industry, of using numbers to judge the caliber of a course has had a far-reaching influence on modern golf architecture. The unsuitability of such a movement was unsurprisingly recognized during golf's first great boom period:

> *"We regard the present tendency to stretch golf courses out to greater lengths than ever before, as an unfortunate and mistaken policy. To make our courses generally more enjoyable to the great majority, we rather incline to the conviction that shorter holes and smaller greens would be much better.'"* (A. W. Tillinghast, 1935) (Shackelford, 1997; "For the...")

Architect Robert Hunter recognized the popularity of such courses that place architectural interest and quality over length and quantity:

> *"Quality not length; interest, not the number of holes; distinction, not size in the greens – these things are worth striving for."* (Hunter, 1926; 155)

Unfortunately, the depression years and Second World War disrupted the 'Golden Age' architects in their task of guiding sustainable golf architecture that produced courses to be embraced by all.

A reminder as to what golf and the courses on which the game is played should aspire to is offered:

> *"Golf at its best is a perpetual adventure, that it consists in investing not in gilt-edged securities but in comparatively speculative stock; that it ought to be a risky business." (Bernard Darwin, 1927)* (Miller, Shackelford, 2001; "Architectooralooral")
>
> *"A round of golf should present eighteen inspirations – not necessarily thrills, for spectacular holes may be sadly overdone. Every hole may be constructed to provide charm without being obtrusive with it."* (A. W. Tillinghast, 1923) (Shackelford, 1997; "Giving Individuality...")

It is a reasonable assumption that if golf is to establish in new areas then courses must appeal over time and encourage repeat play. From the author's personal experience the homogeneous nature that tends to accompany modern golf courses often fails to stimulate. As MacKenzie suggests:

> *"A good golf course is like good music; it is not necessarily a course which appeals the first time one plays over it, but one which grows on the player the more frequently he plays it."* (MacKenzie, 1920; 42)

For golf to establish and growth in cultures unfamiliar with the game, courses must rely on more than what may be interpreted as an attractive aesthetic. In emerging markets it is imperative that courses hold interest and appeal over the long term in order to develop a devoted golfing population and culture.

As Robert Hunter recognized, the problem of standardization may be already engrained in a region's culture:

> *"Americans are given to standardization, but golf courses cannot be turned out of one mold."*(Hunter, 1926; 159)

The challenge to create interesting, yet place-based golf courses is undoubtedly complicated by such a scenario.

Standardization in golf goes architecture clearly contradicts the essential principles of the 'Golden Age' architects, which given their enduring qualities, are surprisingly simple. Relying on an innate understanding of the game and its interpretation in unique locations in nature the early architects thrived on presenting the golfer with a variety of challenges and problems. In the author's opinion, this understanding can only be gained through an emersion in the culture of the game, as still played in its homeland, and the study of the game's great courses.

If the golf industry is to grow in emerging regions it may well require a new generation of local designers to take on the challenge. It will be vital that today's custodians of the game encourage a return to its fundamental principles. An innate knowledge of the game of golf and understanding of the landscape is required, from which newcomers can adapt and apply their own culture. That the early architects opposed such an idea of an 'ideal' or standard model for courses should be embraced by present day architects who must take the opportunity to adopt the game and its courses to financial and cultural constraints. But, in the construction and design of our courses, architects must not lose sight of the games traditional ties to nature. Regardless of budget, site or environmental restrictions, there is no excuse for present-day architects to apply these enduring fundamentals to future golf course development.

The Art of Golf Course Architecture:

The idea of golf course architecture as an art is inherently linked. Behr's most elegant heightening of the discipline to an *art* helps us to understand the early ambitions for golf's exportation:

> *"…Thus we see that golf architecture, because it is an art, has to do with furthering the amenities of life. But when so-called architecture only contributes to its trials and tribulations, it loses both the sense and the dignity of its calling…" (Max Behr, 1928)* (Miller, Shackelford, 2001; "The Architect's…")

In many ways, the idea that the design of courses may be driven by their playing characteristics, that function as a recreational asset, is somewhat contradicted by the repeated reverence for golf course architecture as *art*:

> *"It is important that the course should be a good course from the point of view of playing golf, but it is infinitely more important that it shall be satisfactory from the aesthetic point of view."* (Tom Simpson) (Simpson, 1932; 6)

Nevertheless, the emphasis on aesthetic is understandable given golf's journey from the penal, 'chocolate-drop' school of architecture. The success of the 'Golden Age' in architecture, and resulting growth of golf, can largely be attributed to the successful combination of art and function.

One would suspect that the 'Golden-Age' architects would subscribe to the view that the aesthetic values have been too often diminished in contemporary course architecture:

> *"It may at first appear unreasonable that the question of aesthetics should enter into golf-course design; however, on deeper analysis, it becomes clear that the great courses, and in detail all the famous holes and greens, are fascinating to the golfer by reason of their shape, their situation, and the character of their modeling. When these elements obey the fundamental laws of balance, of harmony, and fine proportion they give rise to what we call beauty."* (Alister MacKenzie) (MacKenzie, 1920; 38)

Through (what could kindly be termed) experimentation, or even a lack of appreciation, the modern visual fights natural harmony, tempering the use of *genius loci* that the first course builders pioneered.

Although beautifully composed, Tom Fazio's 11th hole at Flint Hills National (1997) has a flawlessness that appears like it could be manufactured in any landscape (see *Fig. 4.16.1.*). In contrast, 'Westward Ho!' (1864) laid out over common land, grazed by sheep, retains a ruggedness inherent in the local landscape (see *Fig. 4.16.2.*).

[**Fig. 4.16.1.** *Flint Hills National*; Andover, Kansas – Par 5 11th hole.]

[**Fig. 4.16.2.** *Royal North Devon*; Westward Ho!, England.]

The current relationship between manipulated golf course terrain and nature has become compromised by the unsuitable selection of land and insensitive construction and maintenance practices adopted in present-day development. Ironically, as MacKenzie suggests:

"The finest courses in existence are natural ones." (MacKenzie, 1920; 37)

Golf's association with nature bound together the golf's first recognized architects. For the 'Golden Age' architects, ecological equilibrium, in design and maintenance, was vital:

> *"The success of links by the sea depends ultimately on the fact that there the destructive and constructive forces of Nature are nicely balanced."* ('A Golfing Botanist') (Sutton et. al., 1912; 136)

What should be a seamless transition between course and landscape has in the modern era evolved into a stark demarcation between man and nature. Renaissance Golf Design's yet to be open golf course in the Sands Hills demonstrates how a demarcation between golf course and nature, encouraged by a restrained irrigation system, can still be achieved today (see *Fig. 4.17.1.*). At Ballyneal (2006), Green and fairway – both fescue blend – are almost indistinguishable (see *Fig. 4.17.2.*).

[**Fig. 4.17.1.** *Dismal River (Red)*; Mullen, NE – Par4 6th hole. (Seen here during grow-in.)]

[**Fig. 4.17.2.** *Ballyneal*; Holyoke, CO – Par 4 7th hole.]

Tillinghast's ideal for the construction of golf courses opposes current trends in which the ideal of working with the land remains more a marketing tool than reality:

> *"It goes without saying that the ideal methods of golf course construction follow the lines of least natural resistance."*(Tillinghast et. al., 1995; Section 10)[1]

Such an approach leads to what "Tillie" termed 'originality in construction':

> *"Every great golf hole possesses many natural features which collectively make it a great hole, each dovetailing with the others and without all of them there is something lacking which spoils the whole."*(Tillinghast et. al., 1995; Section 9)

He believed that golfers sought inspiration.

[1] A collection of *original* articles that date back to the 'Golden Age.'

The sharp, artificial contours of Herbert Leeds Myopia Hunt course (1895) – characteristic of the early American style – demonstrates originality that blends with its natural surrounds (see *Fig. 4.18.*).

[**Fig. 4.18.** *Myopia Hunt Club*; Hamilton, MA – Par 3 9th hole.]

In a contemporary environment where the golf industry craves growth it is surprising that the majority of golf development has followed a uniform functionality.

Site-Based Design:

The contrasting approaches to creating courses between designers of today and the past is stark. The process of modern design, in which architects rely heavily on contractors to interpret in-depth construction documents and specifications, has

removed the opportunity for the refinement during construction that brings individuality to a course:

> *"The ultimate character of the course must be developed as construction progresses."* (William Flynn, 1927) (Shackelford, 1997; "Designing...")

The vast number of courses build during the 'Golden Age' meant that the most prolific architects would rely on (sometimes associated) construction crews to *interpret* the most basic of drawings. Although this method was invariably successful, courses such as Donald Ross' Palatka course (1925) demonstrates how architecturally interesting courses can be created from a sound understanding of the landscape (see *Fig. 4.19.*).

[**Fig. 4.19.** *Palatka*; Palatka, FL – Par 5 5th hole. The fairway's camber promotes a fade towards the Palatka Ravine Gardens that border the course.]

The sterile approach of contemporary golf course construction, that in the author's opinion tends removes the suspense and thrill of the game, risks diluting golf's value as a recreation. While the idea of a model course is not a new concept, the early architects recognized that any such thing as the 'ideal' course was always dependent upon the nature of the ground. MacDonald, and his associates, in their prolific use of 'template' holes were able to apply their archetypes with variety. Seth Raynor, originally a civil engineer, developed an understanding of golf course architecture that allowed him to incorporate original hole designs (see *Fig. 4.20.*).

[**Fig. 4.20.** *Yeamans Hall;* North Hainan, SC (1925) – Par 4 8th "Creek" hole.]

One of the five charter clubs of the USGA 'Brookline' (1894) is recognized for it's relatively small, yet excellently sited greens that are varied in cant and contour (see *Fig. 4.21.*). The early pioneers of golf in America were able to create a style of golf play and golf course design unique to their landscape and culture. This is somewhat ironic against today's stereotypical course that is imposed on developing golf regions with little sympathy to place.

[**Fig. 4.21.** *The Country Club*; Brookline, MA – Par 4 3rd hole.]

Adaptive Use of Local Materials:

Truly sensitive design represents the use of local resources:

> *"It is impossible to give any definite rules on laying out a course, or to state what length it should be, as everything must depend upon the nature of the materials in each individual case."* (H. S. Colt) (Sutton et. al., 1912; 74)

The 'Golden Age' architects adapted their architectural style according to local soil and climate conditions, using what was on site, whether out of the necessity of the time or in the search for economy. Lookout Mountain (1926) demonstrates how MacDonald generated fill for the construction of greens by blasting rock and excavating soil from immediately surrounding bunkers (see *Fig 4.22.*).

[**Fig. 4.22.** *Lookout Mountain*; Lookout Mountain, GA – Par 3 4th 'Biarittz' hole.]

Early 'push-up' style techniques for green construction relied on native soil, usually raising the putting surfaces and ensuring that they surface drained in multiple directions. Built on clay, Ross' green pads at Charlotte CC (1926) were 'pushed up' and contoured to efficiently shed surface water away over a large area and towards the closely cut bunkers (see *Fig 4.23.1.*). Ninety or so miles to the East at Pinehurst, the ideal sandy loam allows water to quickly percolate and dissipate in all directions. The result is subtle movement in course No.2's green complexes that requires precise placement off the tee, often at the fairway's perimeter to open up a favorable angle of approach (see *Fig 4.23.2.*).

[**Fig. 4.23.1.** *Charlotte CC*; Charlotte, NC – Par 4 2nd hole.]

[**Fig. 4.23.2.** *Pinehurst No.2*; Pinehurst, NC (1903-1935) – Par 4 3rd hole. Donald Ross' masterpiece, renovated in 2010 by Coore & Crenshaw, is famed for its varied green complexes.]

Today, with the formulation of specifications (USGA Green etc.), the prospect of litigation from clients, and lack of specialist input, particularly soil specification and water quality, architects are unwilling to deviate from the industry norm. Tom Doak references The Renaissance Club in Scotland as one of the courses in which greens used a blend of sand and soil sourced on-site. In developing regions, where the sustainable growth of the game is imperative, the creation of low cost designs that are characteristic of a specific site or region, surely offers a more responsible solution.

This opportunity presented by unique landscapes to construct innovative courses that promote a flourishing golf culture must not be overlooked:

> *"The more natural hazards there are on a course, whatever their character, the more interesting that course ought to be, and generally is."* (Aleck Bauer) (Bauer, 1913; 17)

Since golf is a game between man and nature, or so its first proponents believed, establishing an aesthetic that is representative of place and sensitive to the local environment seems imperative. The inefficient use of resources in maintaining a natural appearance (and playing surface) is of concern, but a revision in the expectation of golfers, and adaption of suitable management practices can allow the architect to create courses that are sensitive to location.

The relationship between *art* and *function* in golf course design is held in place by *nature*:

> *"In golf construction art and utility meet; both are absolutely vital; one is utterly ruined without the other... a main fundamental that we copy nature."* (George Thomas) (Thomas, 1927; 138)

Golf course architecture must strive to find an equilibrium between nature, art and, most importantly, function. Today the challenge is undoubtedly complicated by the unsuitable landscapes often designated for course development in emerging countries. It appears that the golf industry must educate developers as to the benefits of suitable site selection; quite simply, a better golf product, that costs less to build, more readily used equates to improved financial remuneration. There must be a balance between growing the game and constructing courses that are suitable to golf's newcomers.

Efficiency in Construction:

There is a danger that those exporting the game today may damage the future of golf in developing countries. It is hard to imagine the game of golf establishing and

growing with such costly fallacies as sand-capping and sub-air systems over a century ago, so why should the golf industry impose them now?

Concerns are not unique to the contemporary golf environment, although they have undoubtedly been amplified by the corporate nature of the golf industry today. Hunter's assessment is just as applicable today, if not more, as it was eighty or so years ago:

> *"I have no hesitation in stating my belief that for every dollar spent in construction another dollar is wasted."* (Hunter, 1926; ix)

There is a danger that such excess and carelessness in golf course construction can inhibit the accessibility of the game. But, as Donald Ross suggested:

> *"There is no good reason why the label "a rich man's game" should be hung on golf."* (Ross, 1996; 194)

Modern golf course design, driven by architect pride and a self-serving golf industry, has forgotten that construction can, and must, be affordable.

The resourceful building (and maintenance) of courses that can encourage the growth of the game is a vital consideration for the golf industry in developing regions, yet true efficiency can only take place where suitable sites and environments are selected for development. In the attempt to secure work, MacKenzie (1935), naturally promoted the importance of economy in construction:

> *"The natural conditions of soil and climate in America are not suitable for providing golf courses at low costs as in the home of golf, Scotland…if (golf) is to attain its acme of popularity at a low cost of maintenance and construction it must be designed by an expert."* (Shackelford, 1997; "Experts Needed…")

Yet, so often forgotten, the relationship between construction and cost extends to the maintenance of courses:

> *"…It is much more expensive to construct a natural looking golf course on account of the tremendous amount of material that must be moved, but the money saved in the*

subsequent maintenance greatly offsets the original cost." (William Flynn, 1927) (Shackelford, 1997; "Designing The...")

Shifting a relatively small amount of dirt, in context to today at least, to create natural-looking courses that may be maintained in a like-wise manner is clearly advantageous. But, while developing countries continue to offer cheap, manual labor for the intensive upkeep of courses this concern is unlikely to be addressed. Such an attitude is shortsighted though, with the increased cost of playing the game hampering the potential golfing population.

Tom Simpson best sums up the fundamental principles of golf course construction:

> *"Three cardinal qualities that apply to all architecture whatever may be its nature – mastery, economy of means, and completeness; in other words, the command over materials in order to bring them into efficient action, dexterity in planning to meet the conditions he may have to deal with in any locality, and lastly the technical finesse which we recognize in every other art as craftsmanship."* (Wethered, Simpson 1929; 57)

Efficiency in Landscape Management:

The difference between golf in the US and the British Isles is no more obvious than in the management of courses. Brora (1891) in Scotland demonstrates a more sensible attitude towards management in which only the key areas of play are intensively maintained (see *Fig. 4.24.*). That emerging markets are following the exhaustive practices and penchant for over management stereotypically associated with American golf courses is particularly concerning.

[**Fig. 4.24.** *Brora*; Brora, Scotland. Designed by James Braid – Nature, with the aid of the sheep and cattle, takes care of the rough (and fairway).]

A key proponent of 'economy and 'finality', the inefficiencies of golf course design, maintenance (and construction) clearly frustrated MacKenzie who believed this to be stifling golf's growth, and of course the opportunity for him to design more courses!

> *"...It is possible to have too high a degree of perfection...If we have never had a bad lie we are not likely to appreciate a good one, and moreover, the ability to play from a bad lie differentiates between a good player and a bad one..."*(Doak et. al., 2001; 187)

Today, the influencing factors seemingly stem from an over complexity of the game, especially when compared to it's crude origins. There may be a need for careful simplification when applying golf to emerging countries.

Martin Sutton, amongst others, recognized the need for place-specific adaptability, at a micro-scale, in the formation and maintenance of golf courses:

> *"The greens on a course will vary largely in character, and each will possess, in fact, a certain amount of individuality which must be studied, and even various parts of the same green may quite possibly need entirely different treatment."* (Sutton et. al., 1912; 25)

Standardized (USGA Specification) green construction techniques and a desire for 'wall-to-wall' uniform conditioning have negated the site-specific nature of courses. But a blanket-wide approach, especially in the management of courses is unnecessary. If sustainable growth of the game is truly desired in emerging countries then, in the authors opinion, there must be a move to reduce the influence of financially burdening construction and maintenance strategies as promoted by the golf industry.

The design and maintenance conditions of golf courses can also promote place-specific styles of playing the game is undoubted:

> *"America has developed a more or less stereotyped shot to the green that is the high, all-carry shot..."* (William Flynn, 1927) (Shackelford, 1997; "Analysis of...")

As golf evolved and 'transplanted' inland so did the 'principles governing what a course should be', ultimately encouraging a standardisation in golf course design (Miller, *Shackelford*, 2001). Present day architects must look to reverse this homogeneous approach.

The Golf Course as a Social Asset:

Contemporary industry sources are fairly generic in their arguments for golf courses as communal assets, citing economic, environmental and social for their existence. The 'Golden Age' architects, such as Max Behr (1928), were much more elegant in their validation of the game of golf:

> *"Golf has no other justification for existence than to heighten the joy of living, to diminish this is to defeat the purpose of golf."* (Miller, Shackelford, 2001; "The Architect's...")

The golf course was to be playable and thus gratifying to all golfing abilities:

> *"What is the aim of a Golf Architect? To design courses which shall give the greatest possible pleasure to the greatest possible number."* (C.H. Alison) (Sutton, 1932; 9)

In such a scenario, golf's value as a social asset could be undoubted. But, while modern course architect's typically reference multiple teeing options for broad playability, the author is concerned that the courses of the last sixty years or so largely failed to stimulate all players. Taking a more literal interpretation of Alison's sentiment, or that of many other designers of the era, would be even more damning on present-day real estate-led development in emerging regions. Although development courses typically sit amongst the newly formed communities, it is arguable whether they truly serve the working class populations that they often displace.

Valuing golf courses for their social (and environmental) benefits can, in the author's opinion, at least justify and maybe even stimulate the growth of golf in developing countries. It can already be argued, from the many highlighted references to appropriate site selection and working with nature, that the golf courses of the 'Golden Age' were, in many ways, ecologically sensitive. As a fundamental principle golf course design that accommodates all classes of player is more thoroughly cited, and can be argued to be the basis of creating golf as a social asset:

"The designer of a course should start off on his work in a sympathetic frame of mind for the weak, and at the same time be as severe as he likes with the first-class player. The more frequently he stamps on the mediocre shot of the latter, so much the better, provided that he does not become vindictive." (H. S. Colt) (Sutton et. al., 1912; 76)

If such an argument is valid, then the consequences of standardization (and unsuitable land use) are more far-reaching, diminishing golf's value as a social recreation:

"Immediately we attempt to standardise sizes, shapes, and distances we lose more than half the pleasure of the game. Too much stress cannot be laid upon the necessity of seeing and using the natural features present on each course to the fullest possible extent. It is only by doing this and selecting them judiciously for their special purposes that we can arrive at the success at which we aim." (H. S. Colt) (Sutton et. al., 1912; 87)

MacKenzie was arguably the leading proponent for golf's social well-being benefits:

"If this be so that games, and particularly golf, are of such vital importance to national health and social content, then surely the provision of adequate and proper facilities for golf should be taken seriously, and in making this provision the golf architect has a special part. The test of a good architect is the power of converting bad inland material into a good course, and not the power of fashioning excellent seaside material into a mediocre one." (MacKenzie, 1920; 170)

Such an approach is sadly ignored in emerging countries such as China, where golf course developments have largely failed to reach their full potential in providing facilities that promote the game.

The Golf Course as a Physical Asset:

That golf is valuable as a physical recreation has been a view long held, but its worth is only proportional to the design of its playing fields:

> *"The character of golf as an athletic game and a game of skill depends largely on the proper adjustment of the possibility of driving and the difficulty of the courses."* (John Low) (Low, 1903; 11)

First trained as a Doctor, MacKenzie (1926), also, repeatedly emphasized golf's capacity to improve physical well being, linking the ability of the course architect to accommodate players of all abilities to the quality of course:

> *"...We all play golf for the health and pleasurable excitement it gives us, and if a golf course fails to give pleasure to the largest number, it lacks something which prevents it being first class..."*(Shackelford, 1997; "Pleasurable Golf...")

That golf may provide a life-long pursuit, enjoyed by *all* was also highlight by Hunter:

> *"Golf is admirably fitted to men of all ages. Whether it is played in pastures or Pine Valleys is of little importance. As a recreation for all classes, golf seems destined to become as universal as it is beneficial."*(Hunter, 1926; 156)

The Golf Course as a Mental Asset:

The advocacy of golf as a recreation that promoted mental stimulation and well being, superficially at least, became a significant motivation for the 'Golden Age' architects. This enthusiasm was set against a backdrop of the rapid social advancement of the time. In such an age the golf course was especially viewed as an escape from daily travails:

> *"When the golfer has left a grimy city for a few hours' relaxation he wishes to find rest and pleasure in the scenery of the county." (H. S. Colt)* (Alison, *Colt* 1920; 48)

The beauty of the landscape, often subconsciously, added to the attraction of the game. In emerging markets today, it appears that locations which posses this inherent visual attraction present a quandary for architects. Spectacular sites are often accompanied by difficult terrain that inhibits low-impact design solutions.

As prolific architect Donald Ross emphasized, the game, where played on a well-designed course at least, offers an intellectual challenge:

> *"It is a mental test and an eye test. The hazards are placed so as to force man to use judgment and to exercise mental control in making the correct shot."* (Ross, 1996; 38)

Tom Simpson reaffirms the importance of the golf course to the mental challenges of the game:

> *"The game is something of a triangular contest conducted between one player and another, with the course itself as a third party to be reckoned with as an antagonist."* (Wethered, Simpson 1929; 12)

It is clear that if the golf course is to realize it's true potential it must present the player with a profuse array of tactical challenges.

Growing the Game of Golf:

There was almost a belief amongst the great early architects that it was their responsibility as 'artists' to seamlessly merge the game, and its courses, with the endless intricacies of nature. As golf spread to new territories and landscapes the 'Golden Age' architects were inevitably presented with unique opportunities for innovation:

> *"It follows that when the canvas of Nature over which the club-stroke must pass is filled with holes artificially designed to impede the golfer's progress, these obvious man-made contraptions cause a violation of that sense of liberty he has every right to expect…Indeed, the veriest tyro is unconsciously aware that golf is a contest with Nature."* (Max Behr, 1922) (Miller, Shackelford, 2001; " Natural Golf…").

In contrast to the present age, where architects pass responsibility for poor design to the constraints of client demands, golf's pioneers were driven by a need to educate a new golfing public to the social and physical benefits of a game played on courses simultaneously at battle and balance with nature.

Although somewhat out of the architect's control, especially with today's real estate driven model of development in emerging countries, golf's early proponents recognized the value of making the game accessible to a wider population base:

> *"An indifferent course which is close to a residential district may give more pleasure than a first-class course which is too far away."* (C.H. Alison) (Simpson, 1932; 9)

The past 15 years, or so, has seen an interesting trend with the development of, albeit a small number, of high-end resort courses in remote parts of the globe – Bandon Dunes (Bend, Oregon); Cape Kidnappers (New Zealand); Cabot Links (Canada). It is somewhat ironic that such courses, accessible only to a wealthy and established golfing population, are setting benchmarks for contemporary golf course architecture.

> *"This average golfer is the man who supports the game, and he must be considered. On the other hand, the good golfer and the improvement of our young players should have equally important consideration."* (George Thomas) (Thomas, 1927; 333)

Growing the game of golf in emerging countries requires the development of a golfing population, for which attracting newcomers of all social strata to the game is a major component. It may be automatically assumed that designing courses or facilities that are easy to play is the best way of introducing novices to the game, yet apparently such grounds soon lose their appeal, offering little opportunity for long-term development:

> *"The fascination of golf lies in its difficulties; in its problems, as it were, and the more difficult the course, the higher becomes the standard of play and the keener the enjoyment of the game."* (Aleck Bauer) (Bauer, 1913; 5)

Interestingly, the great golf author, Bernard Darwin (1926), somewhat counters this notion, but only with regards to the length of courses. If well positioned there is no need to compromise on the hazards that make the game so absorbing:

> *"I take it that the difficulty to which the humble golfer does object is that which comes from ever increasing length of holes. If ever there is a revolution of the golfing proletariat it will be on account of sheer length and not fierce bunkers."* (Shackelford, 1997; "Who Wants...")

Despite the modern penchant for distance, and the pressures it places on resources, there has been very little clamor from within the golf industry to change the current model of the game and courses. As architect Walter J. Travis suggested in making courses appealing to all, *'there is no such need to prostitute the game'* (Travis, 1901; 155). It is clear that golf course development must find a fine line between challenge and enjoyment in creating a product that is attractive.

'The Evangelist of Golf', MacDonald (1928) was more cautious about the growth of the game:

> *"...Today there seems to be a constant endeavor to make golf common place, to emasculate it, as it were, of its finer qualities."*(Shackelford, 1997; "Architecture")

Golfing culture and character are shaped by location, or they should be:

> *"In the old days one could often tell whence a golfer came by the shots he had..."* (Robert Hunter, 1922) (Shackelford, 1997; "The Purpose...")

There is a danger that by applying a standardized approach to golf course architecture, that the opportunity to establish a distinctive form of the game that is sensitive to local culture (and landscapes) is taken away from golfers in emerging regions:

> *"We forget that the playing of golf should be a delightful expression of freedom."* (Max Behr, 1927) (Shackelford, 1997; "What Is...")

With real-estate speculation and to some extent tourism directing the development of golf in emerging counties, the establishment of truly public courses in

countries such as China seems unlikely. Hope that golf may not always be a preserve of the wealthy upper classes, as it is today in many emerging markets, is at least offered by Hunter:

> *"The furor which golf is creating at the moment among all classes seems all the more extraordinary when recalls that less than thirty years ago the game was looked upon as something effeminate – an unmanly sport suited only to the pink-coated fops and dandies who played it."* (Hunter, 1926; vi)

MacKenzie, often in the search of commission, was a great proponent of public golf. His preference for such courses to be exhilarating is worth noting, and should be equally applicable for all forms of development if the game is to endure over the long-term:

> *"The most important thing of all in the designing and maintenance of a municipal course is the realization by everyone concerned that golf is played for fun…Then the charm of the course grows and grows and grows so that golf never becomes stale."* (Alister MacKenzie, 1935) (Shackelford, 1997; "Experts Needed…")

MacKenzie who spent the majority of his architectural career in the US, was well positioned to analyze and direct golf's expansion into unfamiliar cultural territory:

> *"…If more people connected with the promotion and upkeep of golf courses knew that they knew not, the game would probably not cost a quarter as much as at present, and as is the case of motor cars in America, would no longer be considered a luxury but a necessity for the promotion of the health, the happiness and prosperity of the community…"* (Doak et. al., 2001; 188)

The Scot clearly believed that the lack of knowledge in the economy of golf construction and upkeep was limiting the game's potential. Likewise, it is apparent that homogenization of golf course design can dilute the golf course's social and mental attributes. Amongst his contemporaries, MacKenzie's 'refusal to pander to conventional wisdom in his designs' and his associated 'def(iant)' attitude towards

standardization should provide inspiration enough for the next generation of architects. (Doak et. al., 2001; 184)

With hindsight it is easy to revere the 'Golden Age' architects for establishing the game in America when 'the country's grasp of the game was weak and conception exceedingly crude' (Tillinghast et. al., 1995; Section 26). Although this transformation offers hope that the new golfing world can determine a framework that enables it to sustain itself in the long-term, it is important to weigh the contributing factors:

a. Methods of construction were painstaking. Horse drawn scrappers limited the capacity for significant grading chance as a result every detail of the existing terrain was considered in the course routing. Such methods also encourage a light-handed approach that resulted in wonderfully crafted greens that tied seamlessly back into the surrounding landscape.

b. As with the British Isles, where the ideal links land terrain was readily available, the United States presented the early master architects with advantageous and often beautiful landscapes for golf.

c. The science of golf course maintenance, which has ironically contributed to the downfall of contemporary golf course development, advanced with the adaptation of greens irrigation and dedicated research of the USGA green section.

d. An era of great wealth that presented some of the most prolific architects, such as Donald Ross, the opportunity to practice and explore their ideas. This financial prosperity allowed the development of courses on, the above mentioned, spectacular if not difficult tracts of land.

e. Unlike modern designers, many of the architects from the roaring twenties pursued the occupation as a hobby over a trade. The exchange of ideas, and the desire for betterment in golf course architecture that resulted raised the standard of design. In certain cases the master architects were even able to tweak and perfect some of their courses over time.

f. The courses from the 'Golden Age' have been 'softened by the improvement in ball and club technologies. Beneficially, courses that were designed to test the leading players of the time are now 'playable' for the average player today.

The precedent of the 'Golden Age' is only relevant to some extent since modern architecture is in many ways forcing a more *established* version of the game on the new cultures and landscapes. The evaluation of the challenges facing golf's present day growth in emerging countries against the ideals of the game's most revered course designers is complex. It is clear that the problems and solutions are not independent. While the forerunners of golf architecture pursued the games exportation, and stressed the relationship between *site* and the game, it is difficult to argue that their approach was completely place-specific. This thesis suggests that, in addition, there is scope and value for courses to create social and environmental assets that truly benefit the wider community.

So oft ignored or misunderstood, the principles of the 'Golden Age' architects, in the author's opinion, must be regarded as a prerequisite for golf course architecture. For the long-term sustainability of the game in emerging markets, it is important that contemporary designers view their role as guardians of the game, just as the first architects.

So, how suitable is a site-specific tactic, inspired by golf's first international pioneers, in newly developing golf countries today?

Most pertinent in appraising the writing of the 'Golden Age' architects was the belief of many that *'the ultimate in golf and golf architecture is not yet attained'* (Thomas, 1927; vii) in relation to the 'strategy and diversity of golf courses' (Shackelford, 1996; 16). This is an interesting sentiment, especially since many contemporary sources would argue that this first great period of architectural ingenuity has yet to be surpassed. As such, courses from the 'Golden Age' should be inspirational to today's course builders. The interpretation is somewhat unclear, as economic depression and war all but ended course construction in the first half of the twentieth century. It suspected that the architects of the time believed that the advent of mechanized equipment would allow them to overcome the severities of a site in search of perfection. If golf course architecture is to sustain a long-term future it may well need to push new boundaries, if they indeed exist.

If the golf industry is to sustain the long-term growth that it is so keen to encourage, then the author postulates that its courses must first look to respect, just as in the 'Golden Age', the landscapes and cultures in which they will emerge. In contrast, the prevailing principles of golf architecture in emerging countries today have, diverged towards a standardized concept, paradoxically aided by technological advancement. Architect Fred Hawtree's critique of his contemporaries, in *The Golf Course* (1983), that *'the far greater number of later practitioners have not uncovered any truly original thinking on the art, but merely put on the old dress in modern times'* (Hawtree, 1983; 28), remains, disappointingly, still largely relevant today

As previously highlighted in Chapter One, golf course design first deviated from its fundamentals during the post-World War II period. Both the physical and written works from the Modernists conflict with the opinions of the early design pioneers. Such examples offer ideal case studies for questioning and evaluating alternative ideas in golf course architecture. That architects of this early-modern era were willing to experiment with the principles of golf course design must be respected.

In hindsight, however, these modernist design concepts may be viewed as far-from-progressive, and the appropriateness of a universal design style must be questioned. Hawtree's criticism was particularly scathing: *'similarity has led later designs to seek out the bizarre or outré to stamp their own inimitable seal on their creations. Unfortunately eccentrics are all too easily imitable and become a model for the less talented'* (Hawtree, 1983; 36). Returning to a sensitive type of golf course development that follows the site-specific principles of the 'Golden Age' is clearly desirable, but may be far from straightforward.

As Adam Lawrence suggests, the golf industry, and architects in particular, must be careful not to impose or transplant a model in new golfing countries: *'Building little islands of Florida in China or Brazil is not the way forward, but neither is building slices of Scotland.'* The true essence of 'Golden Age' architecture was an appropriateness of place, underlined by its adaptability to both a physical and social context. According to Lawrence, the challenge for architects today is to apply their: 'knowledge of the game's history and help build a new history that is appropriate to these new localities.' With a game of their own, new golfing regions must surely be better positioned to sustain the long-term future of the game.

Bob Cupp, believes that the greatest inspiration for developing countries in fact comes from the Scottish origins of the game in which 'they played it as they found.' Referring to the modern over-complexity of golf as 'its greatest enemy', Cupp is willing to accept an 'elite', unsustainable version of the game, but calls for a more simpler mode of the game that reaches a wider population: *'For the masses,* (golf) *must shed its stigma and go back to antiquity, returning to the joy of seeing the ball fly in the wind, drifting toward a patch of nice grass and a stick tied with a rag flapping in the breeze.* That *game has immortal potential.'* Such a vision undoubtedly has its merits, but a realization seems unlikely given the already established perceptions of the game. Although such a utilitarian form of golf has a lot of merit, especially when focusing solely on numbers entering the game, the author worries that stretching the accepted preconceptions of our golf courses may be too uncomfortable for those with more refined views of the game.

There is a perception that Chinese developers, in particular, want what Adam Lawrence describes as 'bling' – courses that are almost pretentious in their scale, shaping and lack of sensitivity to the landscape. This preference for artificial beauty may limit any hope of restoring a truly natural aesthetic. However, there is still an opportunity to provide this visual ostentation in a way that is sustainable and that most importantly provides 'pleasure to every golfer.' This culture in which courses are almost 'designed' and built out of a 'copybook', shows little regard to the characteristics of place. Such an approach is dangerous according to Darius Oliver: *'the game risks becoming stale and uninteresting.'*

Although the site-specific approach of the earlier golf course architects offers a more sustainable foundation for development, it is questionable that developing golf

countries are readily positioned, or indeed interested, in embracing the adaptive approach used by the early architects. Driven by developers focused on replicating the extravagant playing conditions and formulaic architecture similar to the American Country Club model, the establishment of an unsustainable golfing culture is already underway in many developing countries. Cultivating the attitudes of newcomers to the game in emerging markets may well have to be the responsibility of architects. This will be addressed in the concluding chapter. Educating golfers, to an approach that may otherwise be misunderstood, will be vital in encouraging a return to sustainable golf course construction and maintenance.

But, to what extent has the 'minimalist' renaissance in golf course architecture already directed us towards a 'place-specific' movement in golf course development?

The 'Minimalist' Renaissance:

When discussing modern architecture, thus far, the term has overlooked the relatively recent rediscovery of the philosophy and methods of the 'Golden Age' designers by a small group of designers. A 'minimalist' movement, in which *'the whole point of golf architecture is to discover and then present to the player challenging shots inherent in the landscape'* (Doak; "The Minamilst..."), was driven by Tom Doak and contemporaries such as Bill Coore and Gil Hanse. This renaissance movement, inspired by the early approach to golf course design and construction, seeks to evoke the art of nature, and create a game of adventure, with a site-sympathetic attitude.

The defining moment in the 'minimalist' revolution may be traced to Sand Hills (1995), Coore & Crenshaw's instantaneous classic in Nebraska (see *Fig. 4.25.*). At the

heart of minimalism lies a site-specific approach, in which the *'objective is to route as many holes as possible whose main features already exist in the landscape, and accent their strategies without overkilling the numbers of hazards'* (Shackelford, *Doak* 1997; "Play It..."). In essence, today's self-labeled 'Minimalists' are following the founding principles of golf course design in their approach, taking the time to fully understand and use the landscape as found. Modern construction techniques have allowed today's minimalist architects to emulate the 'Golden Age' calling for an advancement of architecture. Compromise brought about by severe or bland sites is no longer as profound.

[**Fig. 4.25.** *Sand Hills*; Mullen, NE – Par 4 18th hole.]

It is difficult to comprehend why such an approach, in which natural courses, with no compromise on architectural quality, has not been more readily embraced by the golf industry. It is particularly perplexing in developing countries where low-impact courses would arguably be most suited. There is an apparent misunderstanding of the 'minimalist' tactic from the many whose responsibility it is to develop and maintain courses. While the golf industry as a whole claims to uphold the ideals of 'working with the land', the reality remains that only a small number of those practicing actually remain true to what should be the fundamental principle of golf course design. Shackelford cites a 'complete refusal to appreciate the charisma and genius of the masters' from those who claim to be 'inspired by masterworks' (Miller, *Shackelford*, 2001; 10). There is also a danger that architects spend most of their time on sales and marketing after finding a certain level of success, thus stifling innovation. Hanse labels this as a product of 'franchise mentality' amongst golf course designers (Shackelford, 1997; "Designing in...").

Although the new smattering of 'minimalist' architects have, (only) at times, benefitted from spectacular site conditions, it has been their method of 'designing in the field' that has allowed them to make the most of the given terrain. Hanse likens this approach to the master architects in how they associated with the site: *'they got their hands on it, observed it in different lights, in different moods'* (Shackelford, 1997; "Designing in..."). Design, construction, and maintenance are not independent of each other. Bill Coore describes the process as *'evolutionary... starting with an idea, a concept, and then adapting to the changes that occur to that concept in the field'* (Shackelford, 1997; "In Tribute..."). However, adopting such a considered position is only possible when taking on a small number of projects at any one time.

The 'Minimalist' approach is also reliant on a skilled and dedicated on-site workforce. If golf continues to grow at anticipated rates around the globe, it may be that a revolution where locals take greater responsibility for the design and construction of courses is needed. A truly 'minimalist' approach would benefit from the available labor force in emerging regions.

Shackelford suggests that the early architects in fact envisaged a *'well-educated mass of golfer'*, that *'would soon understand the beauty of a rugged-looking but strategically-sophisticated course, while rejecting geometric and strategically-challenged designs'* Miller, *Shackelford*, 2001; 127). Sadly, the author is left wondering what happened. Why have golfers accepted the proliferation of uninspiring courses that devalue the game? Encouraging a native population of golf enthusiasts, that understand local social and environmental conditions, to direct the make-up of courses can only improve the games long-term sustainability.

The 'Minimalist' approach has been relatively successful over the last twenty years in guiding a return to the principles of the 'Golden Age' architects in established golfing countries. There is a concern, however, that many within the golf industry may misinterpret the artistic, natural design tactic as merely an aesthetic trend. Other architects replicate the visual style and promotional blurb without understanding that the true value of 'Minimalist' architecture is in its sensitive and efficient site-specific methodology that produces unique, varied and interesting to play courses.

Given the relative anonymity of the 'minimalist' approach in emerging regions, assuming that a similar tactic will be suitable in encouraging sustainable golf developments may seem premature. With developers in China seemingly uninterested

in the traditions of the game, establishing 'minimalism' as the aspirational model for golf course architecture is far from straightforward.

While the environmental sensitivity of the 'minimalist' design and build tactic may be underappreciated, the strategic and artistic merits of such courses are there to be enjoyed by all. A widespread adaptation of this contemporary interpretation of classic architecture resolves the majority of concerns relating to land use and standardization in the ongoing development of golf courses in emerging regions. While it is a rediscovery of 'beauty, character, and natural splendor' in the art of golf architecture that seemingly drives the current renaissance, it remains to be seen whether there is enough ambition to place the potential social value of courses – for which the author believes is a key proponent to its success in emerging countries – at the forefront of the design/development agenda.

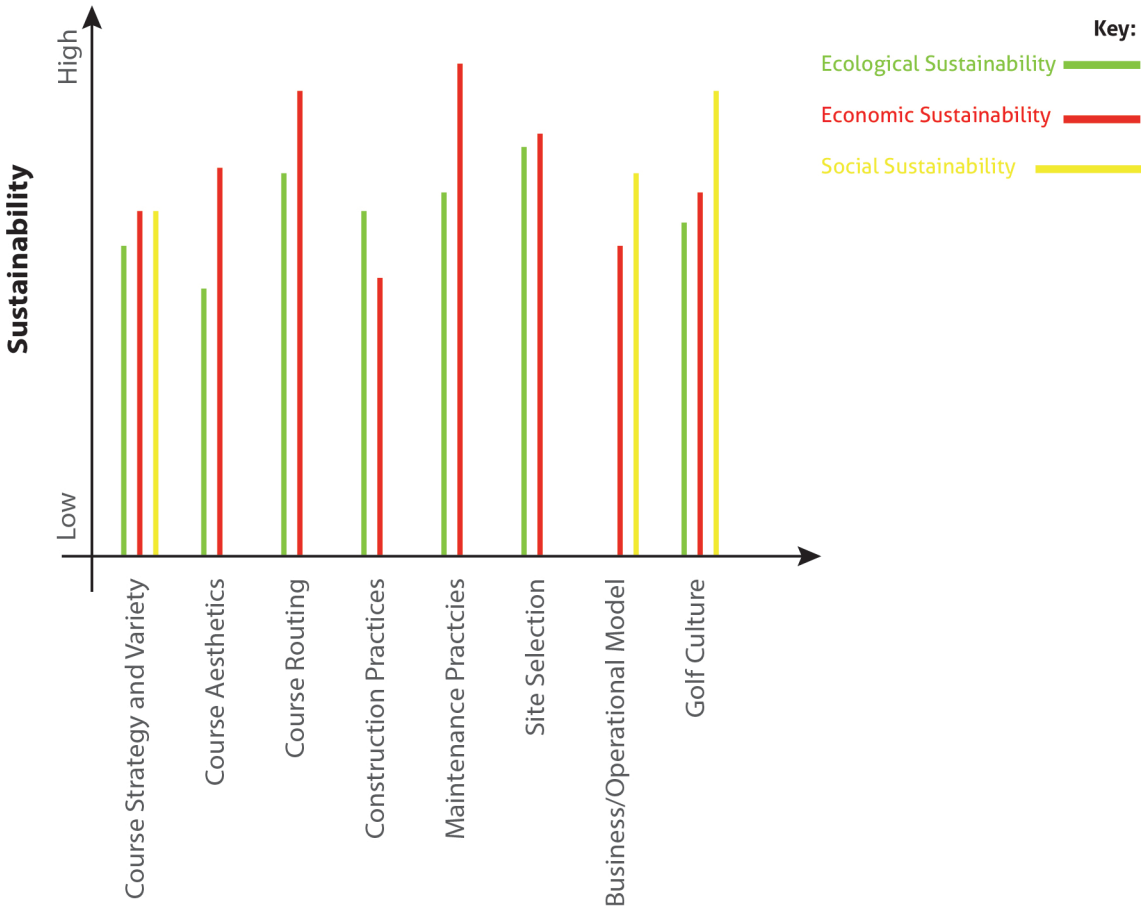
That the challenges facing golf today were identified, and partially addressed, by the master golf course architects of the early twentieth century, is as Shackelford suggests, somewhat 'ironic' (Miller, *Shackelford*, 2001; 185). It is apparent their methodologies and ideals should form the foundation for any ideal, if one even exists, in golf course architecture. A present-day 'minimalist movement' that has already recognized the value in adopting the practices of the 'Golden Age' designers in a contemporary golf industry is reassuring. Renaissance Golf Design's Blue Course at Streamsong, commissioned by The Mosaic Company to demonstrate the reuse of a phosphate mine in Florida, shows how this approach can be adapted to contemporary scenarios (see *Fig. 4.26.*). The challenge for the golf industry in sustaining itself is global, however, and the scope of transformation required appears to beyond the small proponents for site-spec*ifi*c development that currently exist.

[**Fig. 4.26.** *Streamsong (Blue)*; Lakeland, FL – Par 4 18th hole. Tom Doak's course is arguably the most playable of the 2013 opened 36 hole complex.]

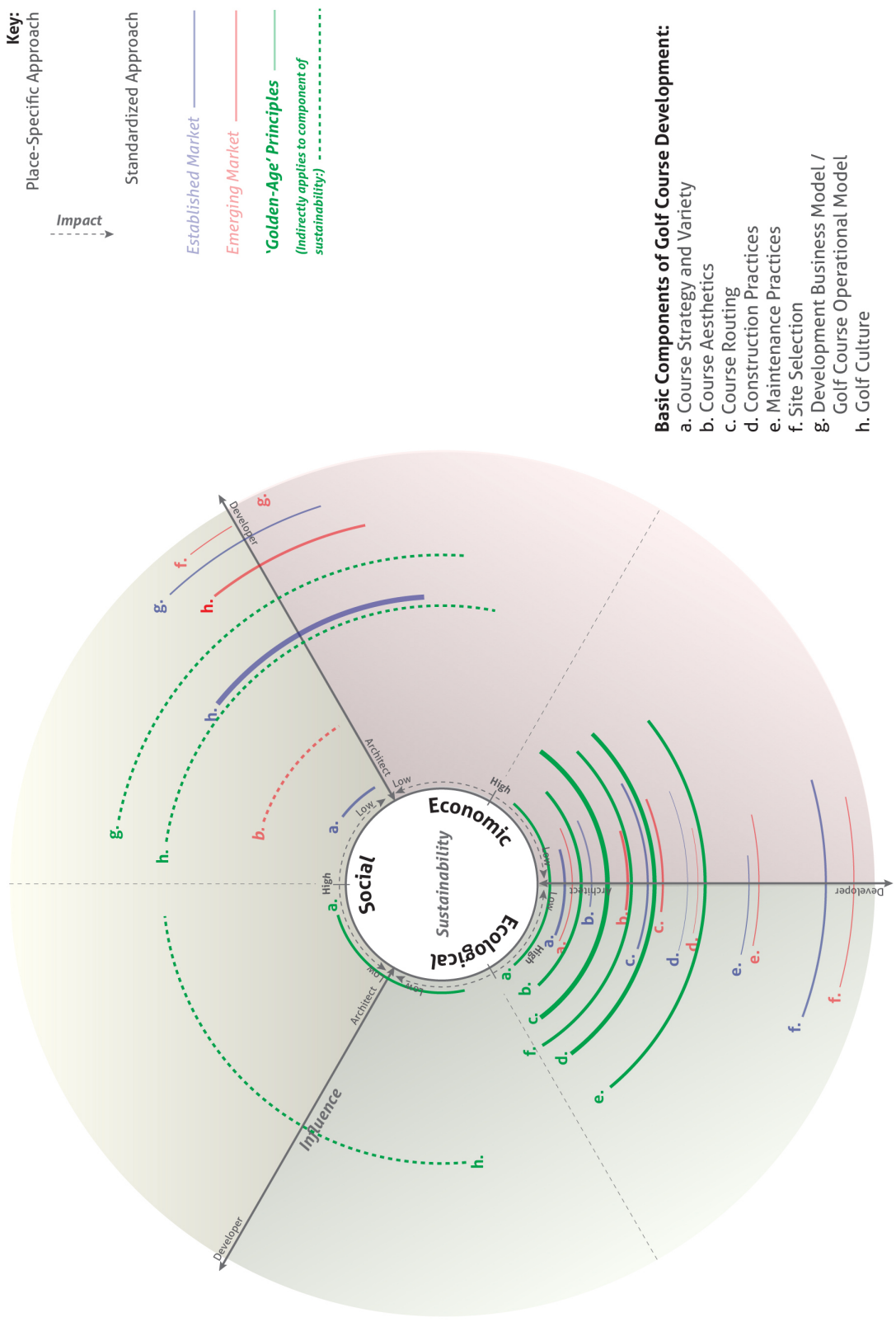
With sites in emerging countries typically characterized by heavily undulating, or dead flat, terrain and poorly draining soils, the challenges facing today's golf architects are not that dissimilar to those of MacKenzie et. al. in exporting the game. Golf's greatest early architects identified a clear relationship between land selection and use in design, efficiency in construction, and the game's role in providing social, mental and physical well-being. Although contemporary minimalist designers have begun to shape a return to the architectural practices of the 'Golden Age' the majority

of today's course developments have not reached their full potential, especially in adapting to socio-cultural needs that may well be fundamental to the long-term sustenance of the game in emerging markets. The enduring principles of the master architects must remain influential as the role of golf course architects in securing a future for the game in emerging countries continues to be questioned.

The thirteen principles of MacKenzie and the associated ideas of the 'Golden Age' architects have the potential to ease the existing social, ecological and economic injustices of contemporary golf course development in emerging markets (see *Fig.4.28). Figure 4.27.* breaks down these timeless design values and evaluates the sustainability of such an approach against each component of golf course development.



[**Fig. 4.27.** Interpretive Chart: The Sustainability Of 'Golden Age' Design Values Versus The *Components* Of Golf Course Development.]



[**Fig. 4.28.** Interpretive Diagram: Applying The 'Golden Age' Principle Of Architecture To The Development Of Courses In *Emerging* Markets.]

Following the site-specific ideals of the early master architects a balance between economy and ecology is found. An approach that advocates design for efficient maintenance and construction is vital. But, this requires the developer to allow more freedom for the architect to operate throughout the design and construction process. Embracing early attitudes towards the culture of golf and its social, mental and physical values in the business and operational models of golf course development would be advantageous to social and economic sustainability. Although advocacy of increased variety and strategy in course architecture somewhat enhances social sustainability, there remains apprehension that golf in developing countries must be encouraged to develop its own unique identity.

The concluding chapter condenses the research findings into a set of recommendations and offer suggestions as to the role of golf course architects and the golf industry in implementing a new paradigm for golf course development.

CHAPTER 5

A NEW PARADIGM FOR GOLF COURSE ARCHITECTURE AND THE GOLF INDUSTRY?

Despite the highlighted failings of modern golf course architecture and the dilution of values within the golf industry, many within the game continue to allow, if not encourage, unregulated expansion. Yet, it is hard to comprehend how today's model of golf, in which an image of exclusivity and wealth is portrayed, can truly be appealing and valuable to 'all'. As the golf industry looks to forge a future for itself, in spite of economic, and in some cases political uncertainty at a localized level, it is apparent that golf course designers *can* be 'central' to shaping a sustainable future for the game and its playing environments.

While there must be an emphasis on retaining golfers in established golfing countries much of the focus on developing new courses will revolve around emerging markets. Based on what was learnt in Chapter's 2, 3 and 4 a new set of principles for contemporary development are derived. The principles are largely inspired by the comparison of 'Golden Age' philosophy with the identified failings of golf course development in today's emerging markets (see *Fig. 4.4.* for clarification). But unfamiliar cultures bring about a new set of challenges, many which exist beyond the scope of the golf course architect. Suggestions for governing the new approach and shaping the growth of golf at a larger scale are introduced.

Thirteen Principles for Contemporary Golf Course Development

1. Create golf courses that accommodate *newcomers* to the game:

Architects must be responsible for creating strategically sound courses that are engaging for all players, and newcomers to the game in particular. In emerging countries there is no history or culture of the game for golf architects to rely upon. A legacy must be established. New players must be able to enjoy the game and stick with it. Encouragingly, for emerging golf markets, the creation of golf courses that accommodate newcomers to the game can be achieved by following basic, yet fundamentally sound principles of golf course architecture. The application of classic golf theory, as highlighted in Chapter Four, and knowledge of the game's history in establishing a new, location-appropriate golfing culture can be invaluable.

2. Design golf courses that respond to and accommodate cultural preference:

Golf course architects and developers must not be constrained by the history of golf or contemporary preconceptions of the game. Architects, while remembering the core principles of the game, must design courses that function according to local preferences for the game. Emerging markets must be allowed to shape their own golf culture. Educating a local core of golf architects that have a sufficient grasp of golf's fundamentals and an understanding of the nuances of a particular place would provide a sustainable platform for the games expansion.

3a. Reduce the footprint of golf courses to ease the pressure on land resource use:

The design of compact courses reduces land use, and thus construction and maintenance costs. Gently rolling and equally proportioned tracts of land are naturally conducive to efficient design. Creative routing can allow holes to share playing corridors where courses remain under utilized assets of the wealthy. But, golf's governing bodies, and the professional tour(s) must reign-in playing equipment if there is to be a widespread shift towards smaller courses.

3b. Limit terrain manipulation to green and tee complexes to minimize ecological disruption and reduce construction costs:

Efficiency in construction can be achieved by focusing on the green and tee complexes, leaving the landscape from tee to green largely untouched. The green-approach may be manipulated into the overall green complex and this can follow into the next teeing ground to achieve a continuous, but restrained flow of land shaping. Such, a controlled tactic is reliant on a golf course architects ability to incorporate a wide variety of existing features in golf course's layout and to develop ingenious green complexes where nature does not cooperate.

The simplicity of architecturally sound, and thus interested, is demonstrated by Dave Axland & Dan Proctor's Wild Horse (1999) (see *Fig. 5.1.*). Taking advantage of an ideal soil profile and natural conducive terrain the low construction cost means golf is relatively affordable and accessible to the small local community.

[**Fig. 5.1.** *Wild Horse*; Gothenburg, NE – Par 3 5th hole.]

4a. Adopt golf course construction practices that are flexible to *place* in order to promote sensitive and creative design:

There is a need to shift the culture of quantified design towards a more adaptive approach that responds to the social, economic, and political exigencies of place. In developing countries, where formalized western practices have been imposed in all aspects of the built environment, changing this mentality is particularly difficult. The architect must be responsible for understanding the local culture of construction. A design-*build* process produces a flexible mindset unlike any other form of construction procedure and can encourage architectural ingenuity in the field.

4b. Encourage a golf course aesthetic that is unique to the culture and landscape of *place*:

Emerging regions, typically, benefit from an affordable and malleable hand-labor force that allows the design-build process to be more detailed in the finish-shaping process, especially in the transition from turfgrass to native areas. Furthermore, sound construction management, such as reducing the footprint of heavy machinery that causes soil compaction and disturbance, can reduce damage to native landscapes. Modern courses are characterized by a generic aesthetic of man-made sharp edges and unnatural changes in contour that fail to recognize the strategic and visual values of subtle contour. A return to certain methodologies of early golf course construction can encourage a unique, site-led aesthetic unlike the prevailing style of the last 60 plus years. That the local workforce may have no preconceived conceptions for the golf course can only be advantageous in the creation of unique golfing features.

5. *Form* follows *Local Material*: Design for affordability and environmental sensibility.

As the game looks to grow, and establish a long-term role in the communities of developing regions, the straightforward relationship between cost and environmental sensibilities must prevail. The design of courses should follow the local landscape and adapt to locally available materials. Architects are best served using their creativity to reduce the inefficiencies of standardized construction and management practices. While scientific advances in the maintenance of golf courses must be admired, the golf industries promotion of expensive technologies has encouraged standardization. If growth is to be sustainable, the USGA and course maintenance associated industries

must convince developers that alternative methods of course construction and maintenance can be more than adequate.

6. Simplify maintenance practices through a 'Design for Management' approach:

Training a local workforce that understands the game and follows simplified maintenance practices can contribute to the establishment of a culture of low-input management. The concept is straightforward, the lower the quantity of artificial maintenance practices required, the lower the environmental disturbance and cost of playing the game. Tactics at the disposal of architects include prioritizing management to the key areas of play, reducing areas of turfgrass and reducing the number of artificial hazards.

7. Involve the architect from the outset of the development process so that golf courses tread lightly and respect the landscape:

The developer ultimately influences, directly or indirectly, many of the design and maintenance components of a golf course. Often the developer's biggest mistake is in failing to realize that selecting good sites can be vital in producing a sustainable business model. Courses that can be modestly built and maintained on attractive land are typically more appealing to the public. The importance of including the golf course architect in site selection and land planning – as first recognized by the 'Golden Age' designers – remains even more relevant today. Basically, unsuitable land adds time and cost to a project. Many of the inefficiencies of golf course construction and maintenance stem back to the routing and it is here the architect, even if constrained by a pre-existing land plan, has greatest influence. The use of natural green sites will

reduce the need for excess earth movement and incorporation of existing features can limit the dependency on artificial hazards that are costly to build and maintain.

8. Educate the wider community about the game through the mandatory inclusion of accessible 'short' courses:

Requiring developers to include a short course can be adequate enough to teach newcomers about the game of golf. Even if primitive or restricted in hole numbers, locals may even be responsible for the lay-out of a more flexible course as a way of introducing the basics of course design. The developer benefits from a 'training' facility that enables caddies and maintenance staff to gain an understanding of the game, fundamental to performing their duties. Made available to the wider community as a recreational asset, the public is encouraged to embrace the game. Such control would require government enforcement, in collaboration with national golf unions or the game's governing bodies, as part of planning permission and operational regulation.

North Berwick's 'Children's Course', like the nearby short course at Gullane, sits alongside the main course offering an opportunity for newcomers to embrace the game (see *Fig. 5.2.*). Established in 1888, the 'Golf Book of East Lothian' describes the course at the time:

> *"The situation of the course is delightful, the view of North Berwick and the Forth being the best to be had, while the undulating of the ground makes play interesting and the proximity of the gentlemen's' links imparts additional liveliness to the scene"* (Kerr, 1896).

[**Fig. 5.2.** Children's' Course; North Berwick, Scotland. ("North Berwick…", 2013)]

9. Utilize non-playing areas for the functional use of the wider community:

Particularly where land resources are scarce, there may be a requirement for the golf course to play an active role in the more functional needs of a community. Outside of the playing corridors, retaining the native landscape is obviously ideal from an ecological standpoint. But, such areas also provide a socio-cultural opportunity to engage the local community. Concerns over the loss of food-producing land can be negated or alternate recreations could be encouraged. Introducing non-playing areas for alternate uses is often at the prerogative of the developer or land planner, but when dealing with a severe site that inhibits a compact routing there may be scope for such areas.

Precedent in emerging markets exists. Faldo Design's course incorporates around 4ha of rice-padi fields bounding 5 holes Rice-padi fields that are maintained

and harvested by the locals at no cost to themselves (see *Fig. 5.3.1.*). Beneficially, The color contrast with the zoysia fairway grass is particularly striking (see *Fig. 5.3.2.*).

[**Fig. 5.3.1.** *Laguna Lang Co*; Vietnam – Rice-padi fields. (Jansen, 2013)]

[**Fig. 5.3.2.** *Laguna Lang Co*; Vietnam – Par 4 4th hole. (Castka, 2013)]

10. Restrict the development of golf courses to 'educated' developers in order to encourage responsible design.

It is vital to educate the developer on how following the above principles on 'good' golf course design, construction and maintenance can offer economic as well as environmental and social sustainability. Parameters would be established that developers must follow. It is important that the application of any such criteria is not used as a marketing tool for developers. The parameters would need legitimacy from golf's governing bodies and/or golf course architecture's professional societies that would be enforced in collaboration with government planning groups. Any recommendations should be updated and revised by an independent group of golf course architects.

11a. Manage the levels of golf course development at a regional level so that *growth meets demand*:

Governments can control growth by allowing new development only when open courses reach a golf industry agreed percentage of use. Private courses should be required to meet a realistic and sustainable minimum-use quota, otherwise open the facility free of charge to the wider community or face financial penalty that aids the development of affordable, public golf.

11b. Increase the variety of development models to provide recreational opportunities for the broader population:

Real-estate driven golf course development will be inevitable, but there must be variety in the types of courses that are built if the market is to sustain itself and provide for the broader population. Following the author's other recommendations, the golf course, if sensibly managed, should be self-sustaining and not reliant on alternate facilities or real-estate sales for survival. There must be a balance between public and private golf. If golf's profile is to rise then we may also see the advent of more 'pastoral' golf courses in the medium-term as the offshoot of private development. Encouraged by golf's governing bodies, government should ideally play an active role in funding and promoting the public game. Government regulation may require that a certain percentage of courses must remain accessible and affordable as part of the planning process for multi-course developments. Control would be required to ensure that government influence does not surrender freedom in design.

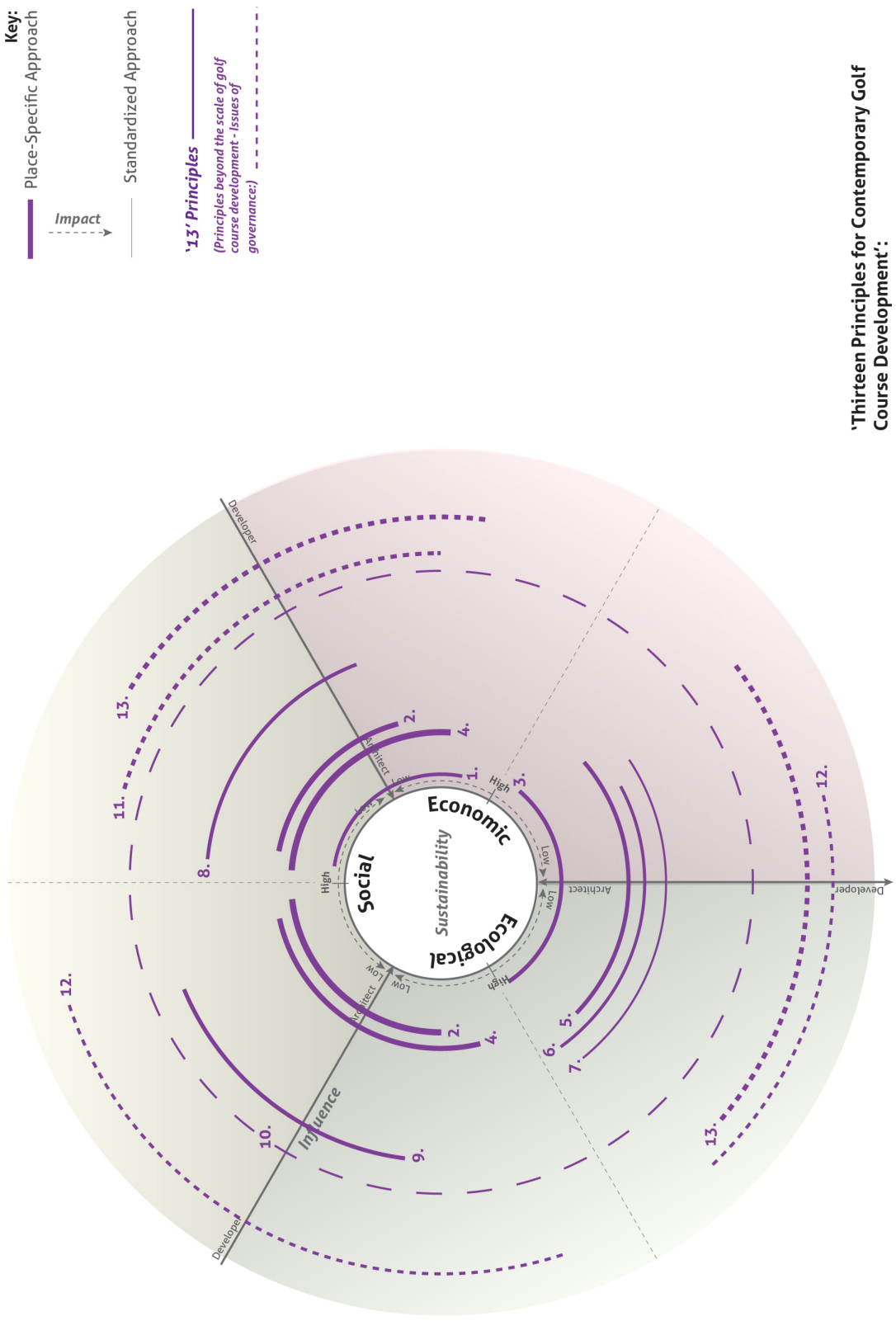
12. Encourage golf course development as part of the urban fabric to maximize the social, physical and environment well-being:

Golf in emerging markets should be brought closer to areas of high urban population. There is an opportunity for courses to perform as green lungs in areas of new development. As the middle classes grow - a characteristic of so many of golf's currently emerging regions - expansion of the urban environment is inevitable. There is even opportunity for farsighted developers to predict areas of growth, and speculate accordingly. The recreational value of golf courses is undoubted, and it may well be that courses in such areas can also accommodate non-golfing needs or facilities in their roles as social assets.

13. Focus initial development in emerging markets around the most suitable regions from which golf can grow.

Different geographical areas offer the potential to create unique golfing landscapes. Locations that are ideal for golf can allow developing countries to create courses that have a strong identity to the local landscape and culture, and are especially ideal where positioned close to areas of population. The efficient maintenance, the most oft forgotten limiting factor in successful development models, and creation of courses is a prerequisite for affordable golf. The creation of core golfing areas can offer a foundation from which the game can grow in less suitable areas. Identifying such locations requires a focused government effort or visionary developers. The establishment of a core population of golfers can facilitate a strong golfing culture for the self-regulation of golf course development.

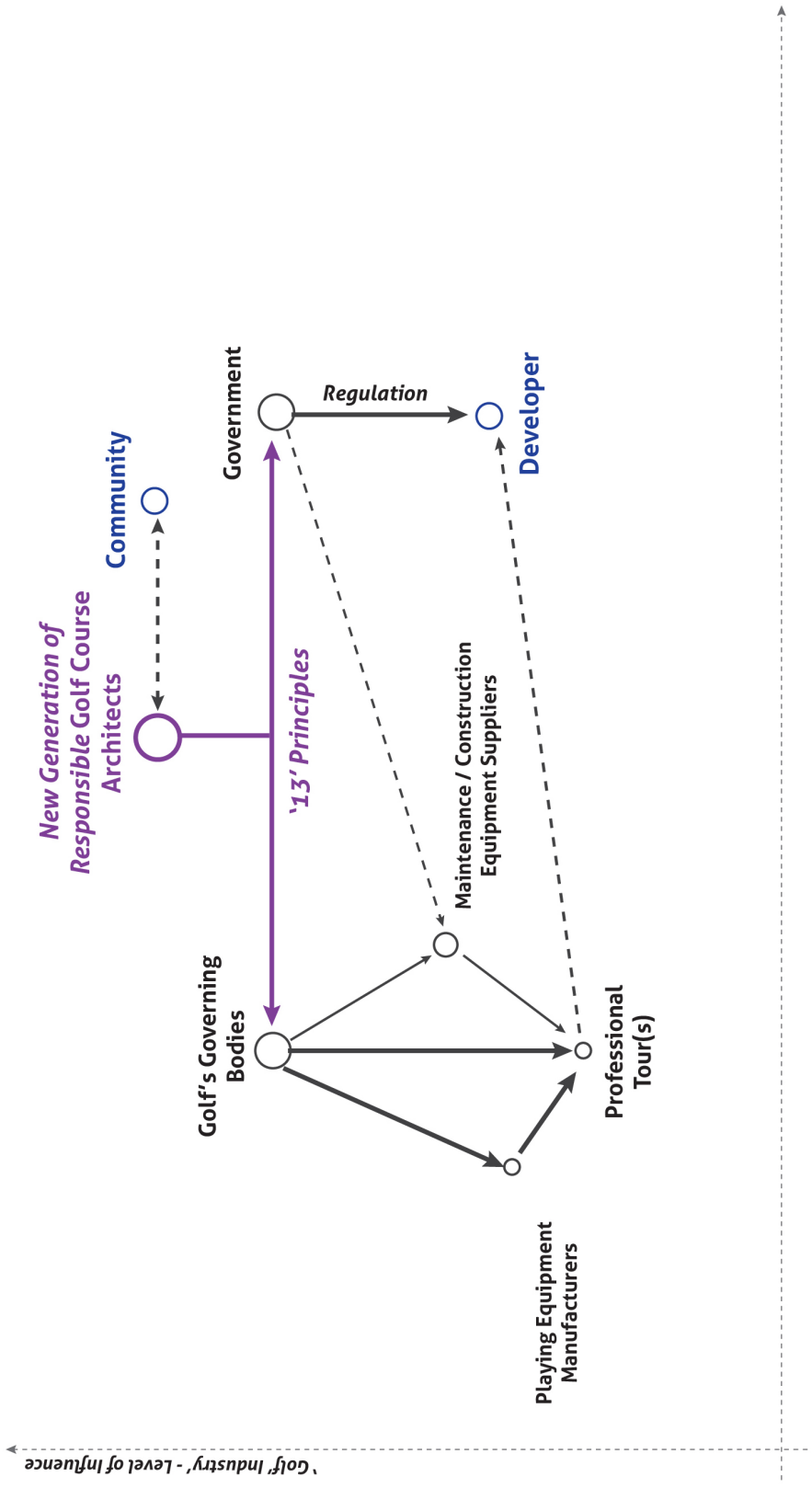
If the author is correct in his analysis and assumptions then the above recommendations should promote growth that is balanced in its social, ecological and economical *sustainability* (see *Fig. 5.4.*).



[**Fig. 5.4**. Interpretive Chart: *Thirteen Principles For Contemporary Golf Course Development* And Their Role In Addressing The Three Factors Of Sustainable Design.]

It must be recognized that the thirteen principles are presented as a set of *ideals*. It is also important to remember that emerging markets present vastly different constraints and opportunities. The golf industry must view their role as guardians of the game (see *Fig 5.5*.).

In the proposed realignment of golf industry relationships, sustainable golf course development is prioritized over the financial gain of individual stakeholders. Although promotion from golf's governing bodies may be sufficient enough to encourage the wide spread adaptation of a place-specific approach on a project-by-project basis, the implication of any recommendations at a regional scale would likely be at the jurisdiction of government. But, at the core of this new paradigm for golf course development must be a new generation of designers equipped to deliver architecture of *place*.



[**Fig. 5.5**. Interpretive Chart: A New Role For The Golf Industry?]

Reflection:

Being critical, the observations, assertions and suggestions in the thesis would not come as a surprise to the more discerning within the golf industry. Yet, the majority of golf courses that have been developed in the modern era, and continue to be developed today, are not maximizing the games potential. While the golf industry continues to match its hope in the game's expansion in emerging markets with a homogenized approach to golf course architecture, there are concerns over the long-term viability of the game.

There is a danger that introducing recommendation and regulation in design can stifle creativity. Design must not be about meeting criteria, but adapting to the demands of site and place. Calling for a paradigm shift in the trends of golf course development is ambitious. With many of the contributing factors connected, and the broad scope of the problem outlined, the thesis has not attempted to investigate the ways that the *thirteen principles* may be feasibly applied. It can be questioned who should be responsible for guiding the game. Architects are at the forefront of golf course design and should understand better than any other interested party the importance of a place-specific approach. But, it appears that golf's governing bodies are best placed to oversee an industry wide change. However, there first must be industry-wide recognition for the need for regulation.

It would be valuable for *future research* to determine how incentive for golf's stakeholders, such as equipment manufacturers, to change can be created. Convincing such profit-motivated organizations that long term-sustainability in emerging markets offers the best approach to golf's growth will be necessary. The thesis has evaluated the problems of golf from an 'industry' perspective, yet it appears that those who

regulate the development of courses are best placed to implement change. Investigation in the future should question how those outside of the golf industry could legitimately apply these thirteen principles.

Golf has become a truly *global* market. It can be seen that the trials facing emerging countries, although similar, must not be generalized and a project-by-project solution must be sought. The challenge facing those more economically challenged emerging markets contrast with those in more developed regions. Homogeneous, real estate driven development is a common denominator. Trying to cover the challenges facing development across the globe is a thankless task, especially given how quickly they are evolving. Additional research should look beyond China, and become more focused on specific on other emerging markets.

Themes throughout the thesis are held together by the inefficiencies and standardization of modern architecture. Despite at first trying to separate economic factors from the characteristics of modern golf course design, it became clear that the relationship between the two could not be ignored. After all, golf courses must function as a business. But, businesses need money to survive and this offers hope for change. Place-sensitive golf courses that are low impact and thus low cost should be at the center of creating sustainable golf business models.

That there must be a reminder of the time-proven principles of golf course architecture is disappointing. Such theories are at the foundations of the world's greatest golf courses, playing fields that have stood the test of time, and can just as readily be applied to even the most primitive of courses and regardless of place. It is sad that it may take this period of uncertainty to bring about *industry-wide* recognition for the need to change the modern philosophy of golf course design, construction and

maintenance. The failings, and potential repercussions for the future of the game, have already been recognized by a select group of architects, yet commercial constraints of the golf industry has made it difficult to overcome the prejudices in all but a small proportion of isolated course developments.

This thesis has been written as an aspiring architect with very little bias to the character of the golf course industry. Any criticism is formed from the author's own experiences and discussions with golf industry personnel. That those who were willing to offer their time and expertise for the most part agreed with the critique of contemporary golf course development is more indicative of those within the golf industry who are unwilling to change than the author's own leanings. Learning and experiencing the game in the British Isles has undoubtedly shaped an inherent preference towards natural, site-specific golf courses that serve their local populations.

It is hoped that this thesis will be a reminder that the future of the game is in the hands of the architects who shape its playing fields. Going forward it is apparent that development will continue to follow a short-term pursuit of profit at the expense of the game's long-term sustenance. The architect's responsibility, regardless of industry support or enforcement, should be to direct a design that will suit the wider community.

It can be seen that there is no universal solution; architects and developers must recognize the global variety of socio-ecological systems. Contemporary architects, like the course builders of the 'Golden Age' before them, must respect the adaptability of the game, using their creative powers to respond to the individual, place-specific challenges that are faced in an increasingly global marketplace.

Although the links courses, and the origins of the game, that inspire a return to a simpler model for golf are a product of centuries, the contemporary world and technology at least offers the opportunity for change to occur at a rapid pace. The golf course architect can educate the golfer through design just as the 'Golden-Age' course designers did. The time is to act now, if it is not already too late, before a foreign culture of golf risks the long-term sustainability of golf in its emerging markets!

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