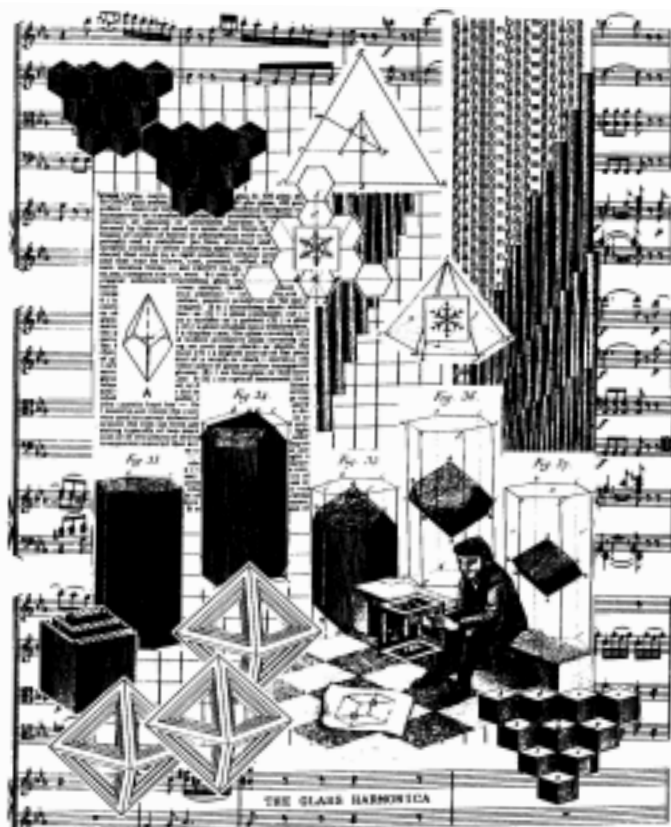


HipBone Games



AND *Hermann Hesse's* *Glass Bead Game*

————— *background* —————

Table of Contents

Basic Ideas:

The Glass Bead Game: the basic idea	4
HipBone Games: the basic idea	8
A quick sample game	12

Four Aspects of the HipBone Project:

1. Games of Mastery	15
Games of Mastery: overview	16
HipBone Games as games of mastery	18
HipBone Games as artforms	19
HipBone Games as games of scholarship	21
HipBone Games as meditations	22
HipBone Games development strategy	24
2. Games of Social Benefit	25
HipBone Games in dream analysis and therapy	26
HipBone Games in creativity training & conflict resolution	28
HipBone Games in education	30
HipBone Cards	34
3. Applications Elsewhere	35
The HipBone Games, AI and the rest: an Overview	36
Scientific interest in GBGs and HipBone Games	38
Glass Bead Game conference, institute and journal	39
4. Commercial Games	41
Mass-market HipBone Games	43
Delivery systems	44
Other considerations	45
Pushing the envelope of the computer games industry	46
Computer games industry responses	48
Appendices	49
A. Brief overview of the HipBone Project / Contact HipBone	50
B. In pursuit of bigger game?	51
C. Further support	52
D. Games of Mastery: Chess, Go and the GBG	54
E. Meditations for Glass Bead Game players	58

Glass Bead Game: The Basic Idea...

The Glass Bead Game is thus a mode of playing with the total contents and values of our culture; it plays with them as, say, in the great age of the arts a painter might have played with the colors on his palette. All the insights, noble thoughts, and works of art that the human race has produced in its creative eras, all that subsequent periods of scholarly study have reduced to concepts and converted into intellectual values the Glass Bead Game player plays like the organist on an organ. And this organ has attained an almost unimaginable perfection; its manuals and pedals range over the entire intellectual cosmos; its stops are almost beyond number. Theoretically this instrument is capable of reproducing in the Game the entire intellectual content of the universe.

— Hermann Hesse, *Magister Ludi*



Pythagoras playing a bead game?

From Gregor Reisch, *Margarita philosophica* (Freiburg, 1503).

The first Nobel Prize for Game Design?

The German Swiss novelist Hermann Hesse received the Nobel Prize for Literature in 1946 for his novel, *Magister Ludi*... You could say that the first Nobel for a Web-based computer game design was awarded to Hesse. It's not strictly accurate — but it does get a point across: that the design for a game, the “Glass Bead Game”, was central to Hesse's book.

It is not, I think, surprising that such a game should have drawn the enthusiastic interest of Hesse's fellow Nobel laureates, Thomas Mann, who refers to his own novel *Doctor Faustus* as a “glass bead game with black beads,” and Manfred Eigen, who wrote his book *Laws of the Game: How the Principles of Nature Govern Chance* “to translate Hermann Hesse's symbol of the glass-bead game back into reality”.

And it's interesting that both Mann and Eigen compare their own works to Hesse's game as such, rather than to the book: the game fairly leaps off the pages of the novel. And it is stretching the truth only little to say that a game design which can win its author a Nobel Prize may well be a game worth playing.

Hesse's Game is an Olympiad for the mind and heart...

Hesse's Game is played by juxtaposing ideas as though they were themes in a musical polyphony.

A Game, for example, might start from a given astronomical configuration, or from the actual theme of a Bach fugue, or from a sentence out of Leibniz or the Upanishads, and from this theme, depending on the intentions and talents of the player, it could either further explore and elaborate the initial motif or else enrich its expressiveness by allusions to kindred concepts.

The ideas in question are inscribed in a calligraphic notation — not unlike musical or mathematical notation — either on glass beads on a sort of abacus, or (this comes later in Hesse's fictional history of the game) in a highly developed “hieroglyphic language” on a board... the exact nature of which Hesse leaves to his reader's imagination.

The effect is to create what can only be called “a virtual music of ideas”.

a game which wins its author a Nobel may be a game worth playing

This is the game — a hypertextual multimedia play of ideas rich in aesthetic, scholarly and meditative implications — which the HipBone Games implement in playable form...

Why is the Glass Bead Game Important?

It lends itself so obviously to the transcendental aspirations of the Internet

Hesse's Glass Bead Game, as Lewis Lapham said in *Harper's*, "lends itself so obviously to the transcendental aspirations of the Internet" that detailed exploration of Hesse's Game as metaphor has much to contribute to our understanding of the future of electronic communications and culture, as well as of certain specific topics in hypertext, AI, semantic networks, constructed languages etc.

As Michael Heim wrote in his book, *The Metaphysics of Virtual Reality* (Oxford University Press, 1993):

glass-bead game:

A fictional game described in Hermann Hesse's novel *Das Glasperlenspiel* (1943), translated in English as *Magister Ludi* (the game master). Discussions of VR often evoke references to the glass-bead game because the game's players combine all the symbols of world cultures so as to devise surprising configurations that convey novel insights. Each player organizes the cultural symbols somewhat like a musician improvising on an organ that can mimic any instrument. The glass-bead game's synthetic, non-linear information play is a forerunner of hypertext and of virtual worlds. Hesse's fiction also touches on some of the human problems underlying the advent of cyberspace and virtual reality, such as the role of the body and of disciplines for deepening the human spirit.

See also the remarks on the conceptual importance of the Glass Bead Game in management (Paul Saffo), in understanding computers (Tim Leary), in thinking about the Internet (Bruce Milligan) and its cultural consequences (Lewis Lapham at greater length), and in scientific work (John Holland) etc., in Appendix C: Further Support, p 52.

Such diversity is possible...

Such diversity in the application of a single idea is possible because both the **digital revolution** which allows textual, visual, musical and numerical materials to be presented in tandem on the Web, and the **hypertext linkage** system on which the Web is based, correspond with eerie precision to the requirements of Hesse's Game — in which "ideas" from all human cultures and intellectual disciplines, textual, visual, musical and numerical, are linked by juxtaposition.

Hesse's Game models the World Wide Web

It both prophesies and critiques the Web...

Hesse's Game can be viewed as an astonishing "prophecy" of the Web, but also as a useful model for it, a corrective to it, and a source of artforms and games within it.

Viewed as prophetic, Hesse's book offers a far more detailed outline of the interlocking of all human knowledge than Teilhard de Chardin's concept of the "noosphere", while retaining much of the beauty of the Hua-Yen Buddhist idea of "Indra's Net".

As a model of the Web, the idea of the Glass Bead Game adds an aesthetic dimension to current discourse on such topics as "sorting", "indexing" and "pattern recognition" — a dimension which will prove fruitful in practical terms — while playable "forms" of the GBG such as the HipBone Games can serve as databases for those investigating the nature of human thought as well as its computer analogues.

It offers artists the art of hyperspace itself...

it offers gamers the first games comparable with Chess and Go native to the multimedia age...

As a corrective to the Web, it points toward the harmonious synthesis of ideas rather than their indiscriminate and unchecked profusion.

And as a source of artforms and games for the Web, Hesse's great Game is unrivalled. It offers artists the art of hyperspace itself, inherently multimedia, inherently based on linkages and juxtapositions. And it offers gamers the first games comparable with Chess and Go for depth and maturity native to the multimedia age...

But this is just the beginning:

Hesse's Game has much to offer any enterprise which concerns the future of the human mind and spirit. To take but one example: in the "information" or "knowledge" age, the virtual library and virtual museum will not be considered as separate entities... and Hesse's GBG will be found to have marked the point at which they converge...

HipBone Games: the Basic Idea

The Washington Post characterizes a HipBone Game as “a give-and-take of thinking styles and wit ... on-line match of ricocheting intellects”, while describing HipBone as “at the forefront of efforts to design and popularize games inspired by Hesse’s novel”.

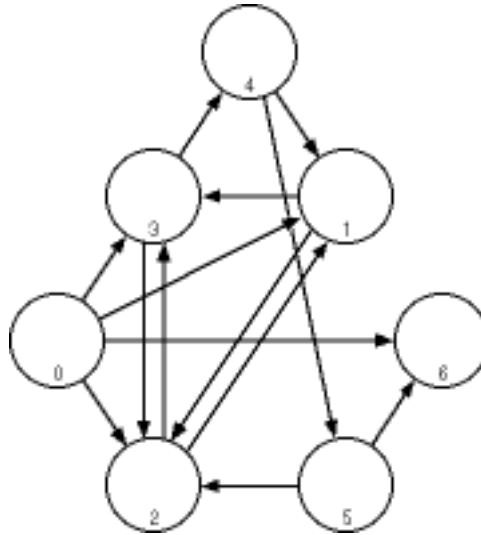
The basic idea is simplicity itself: think of one thing, think of another.

All we’ve done with this idea is to provide a means of formalizing and recording the links and connections between things. Also pretty simple. And like most simple things, even this means of formalizing links has been around for a long time.



Take this mediaeval representation of the Trinity, for example. It uses circles and lines drawn between them — a mathematician would call them “vertices” and “edges” — to plot the Catholic doctrine of the godhead: “So the Father is God, the Son is God, and the Holy Spirit is God. And yet there are not three gods, but One God”, in the words of the Athanasian Creed.

A HipBone board can be any graph of this sort which allows ideas to be juxtaposed and linked...



...such as this board, drawn from a recent scientific journal article.

and there are innumerable possible HipBone boards...

Consider for instance this Renaissance illustration of the “four elements” from Oronce Fine’s book, *De sphaera mundi*, 1542:



Once again, the “board” is used to explore the connections and associations between ideas — in this case, the relationships between the “four elements”, earth, water, air, and fire, and the “four qualities”, dryness and humidity, heat and cold.

*If it can be thought, imagined, hummed,
whistled, written, thumbnail sketched...*

The HipBone Games are played by placing “ideas” in the positions on one of the HipBone boards. Ideas can take the form of text, sound, or image: anything that can be thought, imagined, whistled, scribbled, expressed as an equation or thumbnail sketched can be a move in a HipBone Game.

Essentially, a move can be made out of anything under the sun... so long as it can be named.

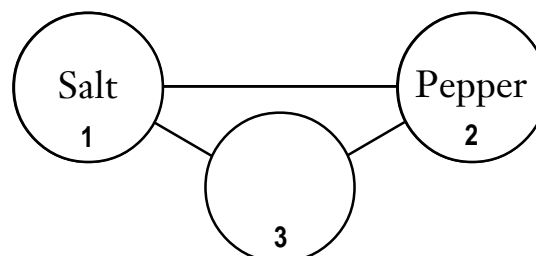
a word, quotation, paragraph, poem... the title of a book or story or name of a character... a play, film, video... an equation, a scientific law, a diagram of the elements... a theme from or the title of a piece of music... a concerto or opera, jazz record, pop song... a sound or sound effect... an image, sketch, photo, painting, sculpture... a natural object, shell, leaf, or feather... a manmade object, model train, deerstalker, pipe, magnifying glass, fingerprint... a date, event, or place... a battle, country, city, district... a person... a creature... animal, vegetable, mineral... a class of objects... an idea...

The whole universe of experience — knowledge, arts and sciences — is available. Taj Mahal... the Taj Mahal... Beethoven’s Fifth... a horseshoe door-knocker... the Fibonacci series... the World Series...

And the point of the game is to play ideas which “link” with other ideas along the lines of the game board.

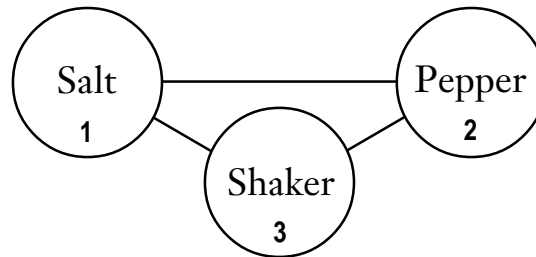
Moves can be entirely simple...

Your opponent plays “salt” in position 3, you can play “pepper” in 4... and claim a link because they are both condiments.



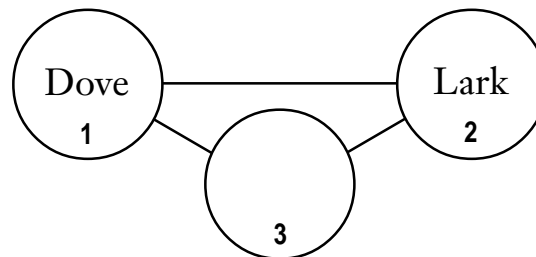
They can be as detailed as you like...

If your opponent then plays “Shaker” in 8, she can claim one point each for links to “Salt” and “Pepper” because salt and pepper shakers are common household objects — but if she has a copy of Amy Bess Miller and Persis Fuller’s book, *The Best of Shaker Cooking*, she can claim two more points by quoting a Shaker farm kitchen recipe which requires both salt and pepper...

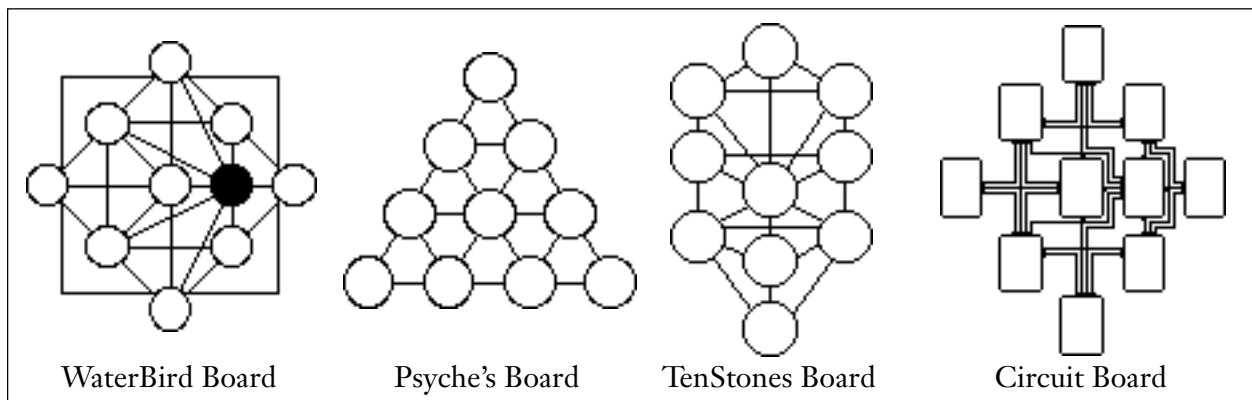


and they can be curiously beautiful...

if I say so myself, like two moves I played in a TenStones Game: TS Eliot’s poem “The dove descending”, from his *Four Quartets*, linking with Vaughan Williams’ beautiful “The lark ascending” for violin and chamber orchestra...



But you get the idea. And about the only other thing you need to know is that the HipBone Games are played on a variety of predesigned boards, most of which have ten positions (for other possibilities including extended and 3-D boards, see our brochure “HipBone Games for CD-ROM and Online Play”):



A Quick Sample Game:

Totentanz, or the Dance of Death

I played this game with my wife Annie, who has a morbid sense of humor and a love of history, as you'll see. Played on the WaterBird board.

Move 1: Annie plays “Catherine of Aragon’s body” in position 7

The body of Catherine of Aragon, first Queen of Henry VIII of England, was accidentally exhumed in the late 18th century. She was almost perfectly preserved. Her body was relocated to an outside burial spot while her crypt was being repaired. Some while later, some drunken rakes dug the body up. They danced around with her body, still well preserved, until the authorities neared — at which point they fled and left it behind. Queen Catherine’s body was at last returned to its crypt outside the church, and to this day anonymous person or persons leave bunches of flowers mysteriously at her feet. No other Queen of Henry VIII is so remembered or honoured.

Move 2: Charles plays “Holbein’s ‘Dance of Death’” in position 3

The Dance of Death (Danse Macabre, Totentanz) emerged as a major theme in the iconography of the 15th century: a skeleton or group of skeletons play various musical instruments (drum, trumpet, harp, pipes) as they lead the dance. Hans Holbein’s woodcuts of the Dance of Death enlarged the genre, picturing Death sometimes fighting, sometimes leading the living — people of all ages and walks of life — in a sequence of images that run from Adam and Eve in the Garden at one end to Christ’s final victory over the grave at the other. Holbein went on to become Henry VIII’s court painter, and died of the plague in 1543.

Move 3: Annie plays “Agnes de Mille’s ‘Fall River Legend’” in position 1

The ballet “Fall River Legend” is Ms. de Mille’s shivery ode to Lizzie Borden, in which Lizzie performs a “dance of death” as she picks up the axe and knocks off her parents. Nora Kaye was the ballerina most associated with this role.

Move 4: Charles plays “Exodus Ch. 20 v. 13” in position 2

In Exodus XX: 13, and even in the version of the Ten Commandments filmed by Cecil B de Mille (Agnes de Mille’s father), Commandment number 5 says “Thou shalt not kill”... But tell me, what else is a poor boy named Death supposed to do?

Move 5: Annie plays “The Marseillaise” in position 5

The French mob danced an euphoric reel to the Marseillaise, creating a sort of “dance of death”, stirring themselves to a fever pitch as the tumbril carts rolled towards the Guillotine. These rough-hewn carts would eventually carry the French Royal Family to their deaths.

Move 6: Charles plays “King Charles walked and talked” in position 9

There’s an English children’s saying, “King Charles walked and talked half an hour after his head was cut off”.

This children’s saying suggests that like Queen Catherine, King Charles danced a macabre dance after his death. Like that of the French King Louis XVI and Marie Antoinette at the guillotine, his death was not only in contravention of the Fifth Commandment, but also the killing of “the Lord’s anointed” — which is why regicide is considered of all killings the most heinous. There’s even a Lizzie Borden echo: like Lizzie’s parents, King Charles was killed with an axe.

Move 7: Annie plays “Salome’s ‘Dance of the Seven Veils’” in position 8

Princess Salome dances for her father’s court in order to gain John the Baptist’s head. Her biblical “dance of death” links with the biblical commandments, with Lizzie Borden’s dance, Holbein’s skeletons dancing, the French mob dancing round the tumbrils, and the rakes who danced with Catherine’s body — and even with King Charles’ talking head. Indeed it is recorded that Salome spoke to John the Baptist’s head for hours after the beheading.

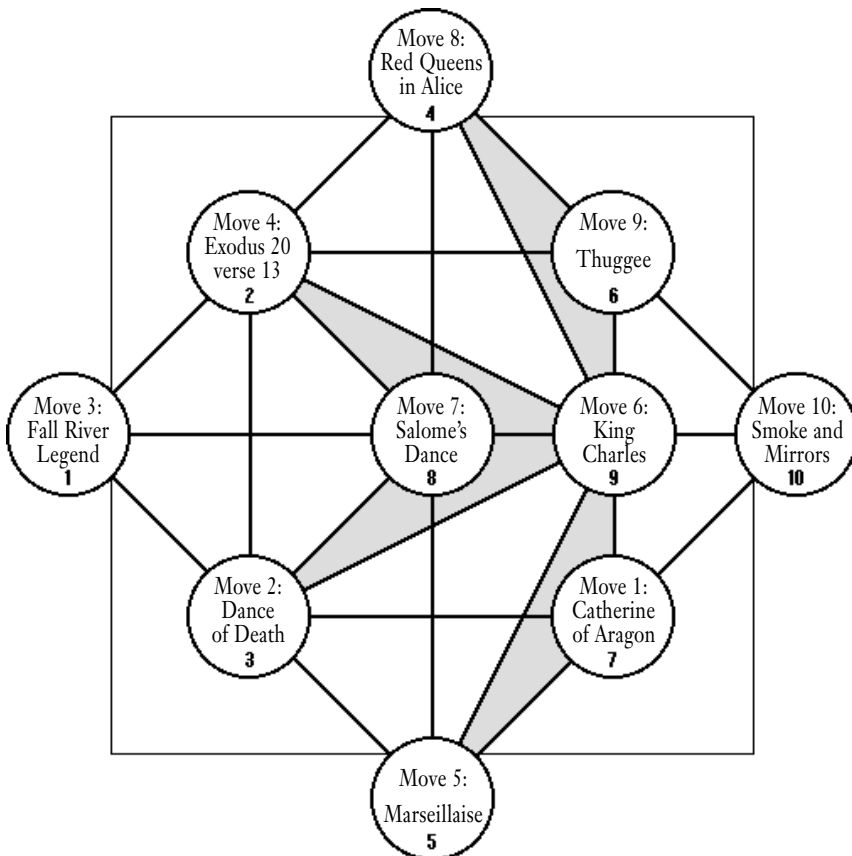
Move 8: Charles plays “Red Queens in Alice” in position 4

The Red Queen cries, “Off with their heads” in Lewis Carroll’s *Through the Looking Glass* — or was it the Queen of Hearts in *Alice in Wonderland*? In any case, the two of them would make a fine pair of matching moves in another Game we must play together some other day — one of them a playing card and the other a chess piece, both of them Red Queens, as different and same in their own ways as Tweedledum and Tweedledee. And one of them (it was the Queen of Hearts), keeps on crying “Off with their heads”...

Now if you lose your head, it doesn’t necessarily mean you die, but if you pass through a looking glass, it often means something pretty close to dying: the poet Orpheus passes through a looking glass to enter the realm of the dead in Cocteau’s film, although of course he’s still alive.

See next page for the continuation of this move and two final moves in the game.

See left the completed WaterBird board for our Totentanz game, with all “move titles” in place. Note how each move in turn links to all those previous moves which are directly connected to it along the lines of the game board.



And — just to be sure the connection between losing your head and going through the looking glass is crystal clear — Orpheus, like King Charles and John the Baptist, was also famous for what you might call his “talking head”. In fact Ovid tells us that after Orpheus had been torn apart by the Maenads, his head was swept out to sea still singing — and landed on the Isle of Lesbos where it continued giving prophecies until Apollo silenced it.

Or did I get it all muddled up again? St. Paul tells us, “now we see through a glass, darkly, but then face to face.” Is it the dead who are truly alive, perhaps, and the living who are already dead? It’s all so confusing: everything gets reversed when you pass through the looking glass... Is “Wonderland” the place you get to? Heaven? Hades? Hell? Or the “Collective Unconscious”? Which side of the glass is Life on, and which side is Death?

Move 9: Annie plays “Thuggee” in position 6

The “Thuggee” or “Deceivers” were a cult of sacred assassins in 19th century India, from whom we get our word “thug”. The Thuggee used ramal (wire) to practically behead their victims by garrotting them, and would then mutilate their bodies for their dark goddess Kali’s pleasure. Thuggee cultists believed they could do good by stamping out evil, and their highest religious commandment would be the mirror image of “Thou shalt not kill”. Their Goddess Kali herself is depicted holding a sword in one of her four arms, and a severed head in another: the Queen of Hearts in Wonderland would undoubtedly approve.

Move 10: Charles plays “Smoke and Mirrors” in position 10

This incredibly morbid Game is all, finally, a matter of smoke and mirrors. The magic here has been largely done with mirrors: we have seen evil and good trade places, and death and life. But what of smoke? King Charles’ father James I wrote a treatise on tobacco, which had been introduced into England from the New World during the reign of Queen Elizabeth I, daughter of Catherine of Aragon’s husband Henry VIII by his second wife, Anne Boleyn.

But it is the sacred assassins of Annie’s last move that provide the connection here, for our word “assassin” derives from “Hashishin” — the name given to an Islamic cult of sacred assassins, not unlike the Hindu Thuggee centuries later. The way the Hashishin were recruited is extraordinarily apt in view of the way this Game has developed. They were reportedly drugged with hashish, then taken into a paradisaal garden where they ate plenteous fruits and were serenaded by beautiful women — and saw the head of a man displayed on a plate on the ground. Later, this “beheaded” man would join them. They would thus be easily convinced — once the drug’s effects had worn off, and they had woken from a long sleep — that they had indeed been to paradise, and witnessed the resurrection of the dead.

When told that what they had tasted on this occasion would be theirs for eternity should they die in the course of one of their deadly missions, the Assassins understandably showed no fear of death...

Four Aspects of the HipBone Project:

I Games of Mastery

Games of Mastery

*Hesse's Glass Bead Game is the kind of game — like Chess and Go — which develops and permits **mastery** in its players.*

*For artists, writers, and composers it's important because it offers the first **multimedia art form** ideally suited to the Web, a truly polyphonic form of discourse, a virtual music of ideas. And the Bead Game can also be played meditatively, and indeed suggests new forms or techniques of **meditation**.*

There are games, and there are games of mastery.

If the twentieth century has provided anything to match Go and Chess, it's Hermann Hesse's Glass Bead Game. This should be no surprise: Hesse's aim from the beginning was to conceive of a game which would come close to the legendary origins of Chess and Go. HipBone's intention, likewise, has been to reproduce Hesse's great game idea as faithfully as possible.

The HipBone game-structure, however, is one that can also be implemented for mass-market play, and because of this we wish to emphasize the difference between the two implementations. Our mass-market games (see "Commercial Games", p 41) will offer players competitive play using preset moves in the form of "decks" similar to decks of Trivial Pursuit cards, and predetermined scoring. By contrast, the "games of mastery" which most closely adhere to Hesse's original idea — and the games applications for education and therapy — require us to provide only a HipBone board: the players themselves provide all moves and links out of their own minds, memories and imaginations, and the aesthetics (rather than the scoring) of moves and links is paramount.

We feel it is important to emphasize the "Games of Mastery" aspect of the overall HipBone Project, both because it is the reason we designed these games in the first place, and because it garners a kind of publicity which our games would not otherwise obtain.

Your game feels very much like Go, in that moves occur in context... you can be elegant and subtle, but also vicious: this is a game of having a rapier wit.

— Mike Sellers, Archetype Interactive, Game Designer, *Meridian* 59

For further discussion of the similarities and differences between HipBone Games and both Chess and Go, see Appendix D: Games of Mastery, p 54.

Jaron Lanier has a problem with Chess...

Jaron Lanier, who coined the term “virtual reality”, had some interesting thoughts about Chess in a recent issue of *Harper's Magazine*:

The reason I never became a chess fanatic is that I realized the game had a formal framework that would make it difficult to turn it into a purely aesthetic experience. Since it's a game with a formal sense of what winning is, it has limited options for creative extrapolation. There's no such thing as freestyle chess, in which making elegant moves is valued more highly than capturing your opponent's king...

Lanier made this remark during a discussion of Deep Blue's return match with Kasparov, and I believe it indicates a shift in the way humans feel about the Royal Game. Chess has now reached a point where the sheer number-crunching ability of a machine can “defeat” the finest human players, and we see the game in a new light.

maybe aesthetics is the key to mastery...

Go, of course, is far harder for a computer to play at master's level, and this may at least in part be because Go has a marked aesthetic side, which in no way invalidates the competitive and combative aspect. In the words of a modern Go historian:

Go offers both the fierce intellectual challenge of life and death combat as well as the aesthetic pleasure of finding beautiful plays that build territory efficiently and harmoniously. The game can shift from the one to other in the blink of an eye.

What I'm getting at there is that maybe aesthetics is the key to games of mastery: that a game of combat without aesthetic pleasure lacks that elusive quality which makes a game great — and that Chess is perilously close to losing all aesthetic interest now that machines can outplay humans...

Playable Variants on Hesse's Game

Hesse's Glass Bead Game is a supremely aesthetic game, and playable variants on Hesse's Game provide just the kind of “freestyle” play Lanier is looking for.

It is a delicious irony that at the very moment the computer is reducing chess to a matter of brute force, it is also offering us a game of mastery in which move aesthetics finally reaches the level of art — Hesse's Glass Bead Game, a multimedia artform for a multimedia age.

HipBone Games as Games of Mastery

The HipBone Games provide what Jaron Lanier is asking for — a freestyle game, in which “making elegant moves” is valued more highly than winning the game on points. That’s it. That’s it precisely.

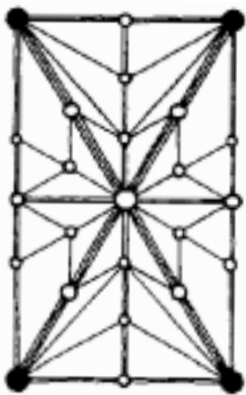
The moves in a HipBone Game can reference just about anything under the sun, but the glory of the games comes when you — the player, the observer — begin to see a three-dimensional architecture of ideas emerge from the “groundplan” of the board — “building the hundred-gated cathedral of Mind” as Hesse puts it.

It’s almost uncanny, the way the links build arches between the moves, and the mind somehow “sees” them. This can be a pretty heady experience, as gamer Carole Wilson reports:

*my mind was spinning with the connecting links
that intertwined almost three dimensionally...*

And just as in medieval times the cathedral was seen as a “mirror of the world” with its gargoyles and saints, its high vaulting roof and buried crypt, so too this mind-built structure can mirror the heights and depths of human culture, its light and shade, its superficial surfaces and hidden depths. Our mind-cathedral is far from a dead or empty space, and may house a choir, stained glass windows, space for contemplation: as player Caroline Kenner remarks, the games can be

*simultaneously fun and frolic, serious and profound,
numinous and competitive...*



Gothic cathedral “stellar vault”, also used as a HipBone game board

Cyndara Morgan moderates the Alexandria mailing-list on the Internet, and graciously hosted three of our games a while back: here’s what she had to say at the end of the event...

*I have just finished reading the final moves of the
Games in utter awe. The concepts raised, the links
made, the sheer information and connections
revealed in the summary explanations —
beautiful!!! ... an exquisite ongoing dialog on the
forces of nature, reality, and the human experience...*

HipBone Games as Artforms

We claim the HipBone Games are innovative “multimedia” art forms in their own right...

A Polyphonic Discourse:

The HipBone Games are not “just” for writers, but they do offer novelists and poets something quite new — a polyphonic form in which ideas can be presented in juxtaposition rather than in sequence. As such, they are close kin with other avant garde literary forms which cross over into the territory of games, such as Michael Joyce’s “hyperfiction” *afternoon, a story*, and “interactive fiction” games like Gareth Rees’ *Christminster* and Neil deMause’s *Lost New York*.

Polyphonic text is, in itself, something which the literary arts have been moving towards for some time now, as witness Maya Deren’s *Anagram* and Julio Cortazar’s novel *Hopscotch*. HipBone Games thus offer writers a “tight” polyphonic form whose “three-dimensional” structure inherently privileges a “holistic” over a “linear” reading — or as literary critics would say, “synchronic” over “diachronic” reading — and so fall on a literary spectrum closer to poetry than prose.

Your game resembles a conversation carved in crystal, a poem in two voices.

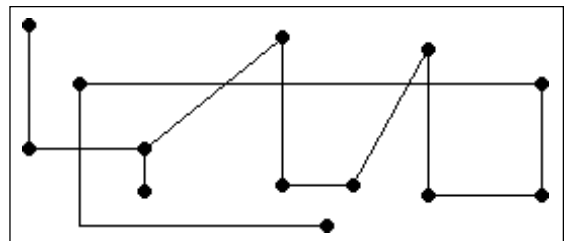
— Derek Robinson

Blending the Senses:

As multimedia artforms, the HipBone Games also address the issues in art history known by the somewhat unwieldy terms “kinaesthetics” and “gesamtkunstwerke”.

From the attempts of composers such as Scriabin to incorporate light and color into their work by means of “light organs” via Mallarmé’s “poem of all poems” to Wagner’s gesamtkunstwerke or work of total art in which poetry, music, theater and architecture combine, artists have been fascinated by the prospect of combining the arts in ways which will address all sensory, intellective and emotional modes of human experience simultaneously. ►

Robert Craft once asked Stravinsky to “draw” his music, and this drawing — reminiscent, again, of a HipBone board — was the result.



With the advent of the World Wide Web and the common digital “language” in which graphic, aural, verbal and numerical ideas can now be presented, these dreams can be realized in new and intimate ways, and the HipBone Games are designed to facilitate this line of exploration.

A Generic Theory of Arts:

The HipBone Games can also be viewed as offering a test case for a “generic” theory of the arts: that what constitutes an art (music, poetry) is a field of discourse (sound, language), while what constitutes a form within that art is a tightly defined structure (sonata, sonnet) which constrains the passions poured through it.

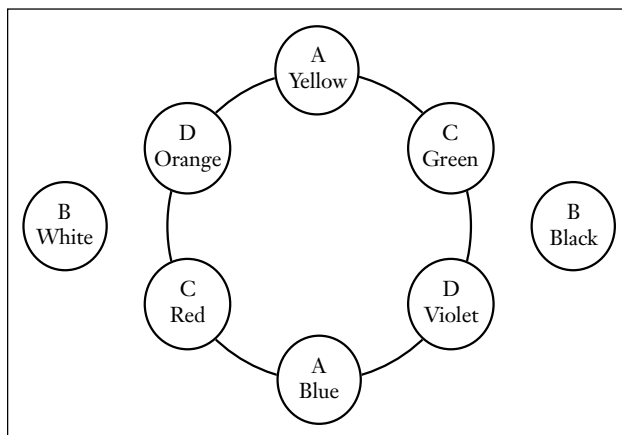
This is an astonishingly liberating view of the arts, since it allows one to search out and practice unknown arts, to recognize as arts things that are commonly thought of in other terms, and to devise new art forms with an understanding of precisely what it takes for an art form to succeed as such.

In these terms, The Glass Bead Game would be the art constituted by a field of discourse (ideas in all media, specifically including verbal, pictorial, and musical ideas), and the HipBone games would be an art form analogous to sonnet and sonata within that art, with their numbered board positions and predefined linkages providing the necessary “tightly defined structure” and constraint.

What emerges is a framework holding a complex, determined yet aleatory thought: a sentence with ten subordinate clauses, a small rose garden within which the mind can wander, needing (for the moment) no other thing.

— LeGrand Cinq-Mars

If this theory offers an accurate picture of arts and art forms, then it follows that a sonnet-like beauty should be feasible in our games.



And here’s Kandinsky thinking in a HipBone-like way, about color, in his seminal book, *Concerning the Spiritual in Art*.

His accompanying text reads, “The antitheses as a circle between two poles, i.e., the life of colors between birth and death”.

HipBone Games as Games of Scholarship

HipBone Games are uniquely adapted to creating textual polyphony, as we have seen, and this makes them ideal vehicles for a new kind of scholarly and even journalistic expression.

This is particularly relevant because both modern depth psychology, and eastern influences stemming particularly from within Buddhism, suggest that the human mind is itself polyphonic — that we each contain a whole chorus of voices, and that what one part of us understands another part can illuminate or put in context.

Indeed, as both ecology and chaos theory are telling us, the worlds we live in — biological, social and psychological — are a complex of interconnected feedback loops, and when things go wrong, the best solutions are those which model the complex of forces at work, not those which ignore all but one “linear” approach.

Here too, polyphonic discourse is the only possible discourse with which to represent the balance of forces at play, here too the HipBone Games offer a “form” in which that balance can be honored and represented.

The Scholarship of Comparison:

There is one particular type of scholarship, however, which is even more directly suited to the HipBone Games — the scholarship of comparison, to give it a name. By this I mean the kind of scholarship which compares two thinkers or systems in detail, and perceives extensive parallels between them.

One of the finest examples of this approach is Erwin Panofsky’s book, *Gothic Architecture and Scholasticism*, which compares the branching structure of gothic cathedral architecture with the branching structure of medieval scholastic logic.

I have finished reading your Yeats / Jung game. It is beautiful — like looking at a shimmery decagonal crystal with polished sides, and crowned with only one striving — mutually shared. Very nice indeed.

— Maury Krasnow, Jungian analyst

One of my own favorite games, played with a colleague and friend from the University of Washington, compared and contrasted two seminal theorists of the imagination, the psychologist CG Jung and the poet WB Yeats.

HipBone Games make fine vehicles for comparative scholarship of this sort.

HipBone Games as Meditations

Not to be too grandiose, but seems that the promotion of this kind of thinking, that which perceives and seeks connections, is toward cosmic consciousness while celebrating the infinite expression of it. It's the simultaneous meditation on the infinite and the one.

— Kim Bender, HipBone Player

Meditation and Hesse's Glass Bead Game:

Hesse describes the meditative function of Glass Bead Games thus:

Our mission is to recognize contraries for what they are: first of all as contraries, but then as opposite poles of a unity. Such is the nature of the Glass Bead Game.

The Glass Bead Game can be played by juxtaposing ideas of many kinds — visual, musical, verbal, or even kinesthetic. Behind every such pairing of ideas, however, whether in opposition or in parallelism, the unitive intuition may be found. Thus Hesse writes again:

Every transition from major to minor in a sonata, every transformation of a myth or a religious cult, every classical or artistic formulation was, I realized in that flashing moment, if seen with a truly meditative mind, nothing but a direct route into the interior of the cosmic mystery, where in the alternation between inhaling and exhaling, between heaven and earth, between Yin and Yang, holiness is forever being created.

Meditative Precursors of Hesse's Game:

There is a long history of contemplative techniques, some of which have “crossed over” into the arts — see for example Louis Martz’ book, *The Poetry of Meditation*, and his anthology, *The Meditative Poem*.

Western meditative precursors to Hesse’s Game include the classical Art of Memory and the Neoplatonist doctrine of signatures or correspondences, which lead in turn to the Renaissance notion of “reading nature as a book” — or what one might term “meditation on the calligraphy of god”. A modern example of this style of thought would be Gyorgi Kepes’ observation, in his *New Landscapes of Art & Science*:

Seen together, aerial maps of river estuaries and road systems, feathers, fern leaves, branching blood vessels, nerve ganglia, electron micrographs of crystals and the tree-like patterns of electrical discharge-figures are connected, although they are vastly different in place, origin, and scale. Their similarity of form is by no means accidental.

Abulafia's Dillug and Kefitsah

But perhaps the most striking congruence between past meditative practice and the meditative strand implicit in the HipBone Games can be found in the works of the Jewish kabbalist Abraham Abulafia. Gershom Scholem, in his book, *Major Trends in Jewish Mysticism*, discusses an Abulafian technique:

...the method which Abulafia and his followers called *dillug* and *kefitsah*, “jumping” or “skipping” viz. from one conception to another. In fact this is nothing else than a very remarkable method of using associations as a way of meditation ... The “jumping” brings to light hidden processes of the mind, “it liberates us from the prison of the natural sphere and leads us to the boundaries of the divine sphere.” All the other, more simple methods of meditation serve only as a preparation for this highest grade which contains and supersedes all the others.

This style of meditation by structured associative thinking would appear to come very close to the spirit of the HipBone Games.

Stereophanic Meditation in HipBone Games:

I think that it is clear from the quotations above that Hesse's Glass Bead Game players meditate by holding two parallel or contrary ideas in the mind's eye at the same time.

it is somehow right here now, a “window into eternity”

— Mary Lynn Richardson, HipBone player

Hesse's meditation is therefore closely analogous to “stereoscopic” vision or “stereophonic” sound: it involves the arising of a third or depth dimension which negates neither of the two elements which gave rise to it, while uniting them. Since this vision is inward, I have coined the term “stereophanic” to describe this effect — by analogy with the terms “epiphanic” and “theophanic”.

These associative and stereophanic effects appear to arise naturally during the course of playing the HipBone Games: they are not something players have to be taught, though no doubt they exercise a faculty which can be sharpened by practice.

HipBone Games Development Strategy

Our strategy throughout has been to develop and present the HipBone Games **first and foremost** in the context of Hesse's work and of other attempts at Glass Bead Game design — as games playable up to and including the level we call “mastery”.

Glass Bead Games played at the level of mastery — games played, as the Castalian Games in Hesse's novel were, as meditations, as works of art or scholarship and so forth — are neither commercial nor intended to be, and we have therefore made the rules and boards for the HipBone Games freely available on the World Wide Web.

These Games do, however, serve an indirect commercial purpose: they generate publicity: they make fascinating, compelling topics for magazine articles and the like — and our insistence on focusing on this aspect of the HipBone Games first has already attracted considerable interest.

The *Washington Post* called the HipBone Games

a give-and-take of thinking styles and wit ... on-line match of ricocheting intellects...

while Lewis Lapham of *Harper's* wrote that Hesse's bead game lends itself “obviously” to what he termed the “transcendent aspirations of the Internet” — and coolly recommended that Bill Gates' **Microsoft** should hire HipBone's Charles Cameron as a consultant.

As publicity vehicles, the “mastery-level” HipBone Games are extremely effective. They have caught the attention of computer game developers, members of the Artificial Intelligence community, artists and scientists, journalists and writers, educators and therapists, as well as parents and children, family, friends, and stray net surfers...

Your game does seem to really call to mind the Bead Game. Almost a divination system, much more metaphorical than most games.

— Scott Kim, Puzzle Master, Segasoft

When someone asks me which of the various Glass Bead Game variants I recommend so they can start playing and get a feel for the thing, I tell them to try one of the HipBone games first. They're the state of the art.

— Gail Sullivan, web mistress, Glass Bead Game homepage

Four Aspects of the HipBone Project:

II *Games of Social Benefit*

Humans need Training and Mending...

also known as education and therapy.

HipBone Games have applications in both these areas — from K–12 to graduate school, and from dreamwork to online counseling to creativity training, problem solving, conflict resolution and other things we haven't even thought of.

HipBone Games in dream analysis and therapy

Emotions, associations and play:

Emotions are very much the stuff of therapy — emotions folded in on themselves, so that all too frequently the surface emotion which “presents” itself disguises and hides a “deeper” emotion which is in fact driving our thoughts and actions. And both Freud and Jung discovered that one way to uncover this hidden layering of emotions was to listen carefully to the verbal associations their patients offered — indeed it was Jung's sending Freud a copy of his book *Word Associations* which initially opened up communications between them.

Associative thinking, in other words, is one of the keys to successful therapy. And since the HipBone Games offer a structure for evoking and recording associative thinking, they can serve as a tool in any arena where the disclosure of hidden content is important. But the connection between therapy and games goes deeper yet. The great child psychologist DW Winnicott wrote, in his book, *Playing and Reality*:

Psychotherapy has to do with two people playing together. The corollary of this is that where playing is not possible then the work done by the therapist is directed towards bringing the patient from a state of not being able to play into a state of being able to play. ...

It is play that is the universal, and that belongs to health: playing facilitates growth and therefore health; playing leads into group relationships; playing can be a form of communication in psychotherapy ...

Play itself is at the heart of psychotherapy: and Jung once told his friend and biographer Sir Laurens van der Post

One of the most difficult tasks men can perform, however much others may despise it, is the invention of good games — and it cannot be done by men out of touch with their instinctive values.

HipBone Games as therapeutic tools:

Thus far, the therapeutic possibilities of the HipBone Games have been explored mainly in the context of dream analysis. Commenting on an early “dream analysis” game posted to the World Wide Web, Glass Bead Game developer Terence MacNamee said

This is beyond praise. I have often wondered if personal items such as dreams or recollections could be part of a Glass Bead Game, but dismissed the thought as impractical. The solution provided here, where 3 other players respond with more or less learned associations to the dream-image, is utterly convincing.

Not long thereafter, New Zealand psychotherapist Walter Logeman and HipBone Games co-hosted a months-long internet “Dream Event”, in which the games were used to explore the symbolism of participants’ dreams. Walter called them

games with a psychological depth, unequaled as far as I know...

Over the course of the first month, more than 400 pages of single-spaced text poured forth from the sixteen brave souls who had volunteered their dreams and their imaginations to the project — dreams, autobiographies, Freudian “slips”, Jungian “amplifications”... and as we focused in on the parallelisms and oppositions between dream symbols, one startling recognition we came to was that the dreams themselves at times seemed to be playing a glass bead game of their own...

One dreamer dreamed she was hearing Handel’s familiar “Hallelujah Chorus” from *Messiah* — but with an intriguing word-change. Where the original text reads “King of Kings and Lord of Lords”, she heard instead the words “King of Kings and Song of Songs” — a subtle and wonderful change, since it introduces the sacred feminine and erotic qualities of the biblical “Song of Songs which is Solomon’s” into the otherwise all-too-masculine-and-abstract atmosphere in which we habitually think about the divine...

Perhaps the most moving tribute to the HipBone Games and the Dream Event came from the late Stuart Currie, another New Zealander whom I came to know, admire and love through our email gathering. Stuart had already received a terminal cancer diagnosis when the Dream Event took place, and his comment still moves me to tears:

I have been thinking about why I am so drawn to what is happening here. It seems to be that this might be a game that consciousness can play with itself irrespective of its containment in a body. *A propos pour moi a ce moment.*

HipBone Games in Creativity Training, Conflict Resolution...

Problem Solving and so forth

HipBone Games and Gabrielle Rico's Clustering

HipBone Games lead one to see hidden connections. And they do this more intensively than a creativity technique such as Gabrielle Rico's "Clustering" — with which they otherwise have much in common — for the simple reason that Rico's technique make no demands on the players beyond suggesting the initial set of associations and representing them in "balloons", all of which are linked to the single initial idea.

Rico's clustering, if you like, is a freeform precursor to the HipBone Games.

Our Games, by contrast, demand that players find linkages between the different associated ideas in play — differences that must map onto the stringent pattern of the HipBone board in question. And this in turn means that players must go back to the creative matrix, back to the imagination, again and again, in search of yet further analogies and linkages.

This by no means suggests that Rico's technique is invalid — quite the contrary. One very powerful way to use the HipBone Games in a problem solving or creative setting is to begin with clustering, and use the HipBone Games as a "second phase", demanding that all the ideas initially generated in the cluster must then be analyzed and sorted into the ten moves of a HipBone Game — and further links found between them.

Indeed, this procedure takes full advantage of the creative potential of clustering, while emphasizing the analytic skills which the HipBone Games demand.

HipBone Games and David Hyerle's Thinking Maps

Dr. David Hyerle's work on the Innovative Learning Group's "Thinking Maps" comes even closer to the HipBone Games: Hyerle provides maps for a number of different functions — identifying part-whole relationships, analyzing cause and effect, sequencing, defining in context — which are peripheral to the GBG, but his "Bubble" and "Double-Bubble" maps are remarkably similar to HipBone game boards, and the main difference between Hyerle's work and HipBone Games in training contexts would be one of emphasis.

Hyerle, so to speak, works horizontally, across different cognitive approaches, while HipBone works vertically within the specifically analogical approach — and in the context of "games" which reach all the way from the beginner's level to that of *glasperlenspiel*-style mastery.

Your game continues to work a transformation in how I think: it opens up reason, dislodges its tyranny, allows for pattern much richer than cause-effect. It gives me new ears for listening. Truly I am in awe of it: this game teaches a different kind of intelligence.

— Susanna Dorr

In certain problem-solving, creativity-training and conflict-resolution situations, HipBone's connection with games and play in general and the Glass Bead Game in particular will both facilitate the process itself, and leave participants with the sense that what they have learned can be applied in a multitude of other life arenas which Hyerle and the Innovative Learning Group do not attempt to touch. In short, I admire Hyerle's work, see close similarities between it and my own efforts, and consider it as complementary to the HipBone program.

HipBone Games in Conflict Resolution

One of the most encouraging notes I have received since work on the HipBone Games began comes from Leon Levin, a Consultant / Trainer in Mediation and Conflict Resolution whose work takes him to places such as Nicaragua, Cambodia, and Israel. Leon writes:

I've only been with this game a short time and have played a limited number of rounds. I took the idea to many of my groups that I lead in communication skills. I've even played it with children. The value I see in it, is not just the creative, art form, or the competitive fun and intrigue of making connections with all manner of ideas, but rather the insight we can reach that bridges the gaps in our differences.

I'm mostly interested in this form as a healing. Bridging people of diverse backgrounds and ideas. Particularly in conflict, where it appears to be unresolvable.

What if Israelis and Palestinians were to place their positions at opposite sides of the board and work their way across, making connections, looking for the common ground, literally, in this dispute, the commonality of visions? It is through vision, the values, that most conflicts are resolved.

It is through the context or meaning in those visions or values that we sometimes can bridge the differences, overriding the resentments and hatred.

HipBone Games in Education

The GLICA Model United Nations

Tom Hall of the Department of Education, Washington D.C., wrote me:

I sit on the board of directors of a non-profit called GLICA (Great Lakes Invitational Conference Association), and this organization sets up and runs Model United Nations (MUN) simulations for high school students. Our spring conference has schools from Michigan, Ohio, Mexico, Indiana, Canada.

One of my roles on the Board is to run the trainings for our staff, who are college students and young professionals. They have to learn how to be effective educators...

They were scheduled to play one game for an hour and we ended playing two games, switching teams, for three hours. A smashing success.

This years training, I was looking for ways for them to see the complex set of related skills required to be a model UN delegate... you have to understand a broad national policy and associate its nuances to specific topics, situations, relationships, etc. Furthermore, you have to be a writer, problem solver, public speaker, researcher... it is hard yet stimulating work.

When trying to decide how to run the training, I thought of the HipBone games. We did two games with teams of three who made collaborative moves (all three players made one move together). Teams would get together away from the board and plan moves... They used their research and understanding and came up with some very creative moves and links...

The staff was so impressed that we incorporated the game at the Conference, giving the students a chance to play...

The students "got it" very quickly and were eager to play, so off they went. Most of the kids took it seriously and played very well..

Anyway, it went really well and the role of this game in MUN was very helpful in allowing students to recognize connections across a wide array of issues, concepts, and skills.

Other Educational Applications

Second grade is the time when most children have largely mastered the concrete operations that have occupied the first seven years of their lives, and are beginning to learn abstraction and the other mental processes which will largely occupy them for the next seven.

HipBone Games designed for use in the second grade classroom would need to be both **age and curriculum** specific. We designed a couple of sample games with teachers Kenneth Cowan and Gail Frank: in one such a game, the teacher might begin class with the WaterBird board already drawn on the chalkboard, and then continue by asking the class ten questions, such as:

In the nursery rhyme, Peter Piper picked a peck of pickled *this*.
This crystal was used by early peoples used to trade with
Don't play with matches, you might light a *this*.
Mount Saint Helen's is one *this*, and Vesuvius is another.
No two flakes of *this* are identical.

These are **goal / task oriented questions**, designed to elicit specific knowledge appropriate to this age group, drawing on such things as a nursery rhyme, science, social studies, and health and safety.

The answers should be written in the appropriate numbered positions on the WaterBird board, and the teacher would then ask students whether they notice anything else about the filled-in board. Students are likely to notice that some of the items in different positions are linked — thus both Salt and Pepper are things we add to food to make it tastier.

They would then be invited to suggest linkages between any two items which are connected along the lines of the board. Thus Snow is a form of Water; Fire melts Snow; Pepper, Volcanos and Fire are all “hot”; and so forth. If the children are unable to come up with links along all the possible lines between items, the teacher can also supply some, with appropriate explanations. Some of the trickier links: Salt is used to clear Snow-filled roads, Pepper and Snow can both be a little chili, and so on...

I applaud the approach that you are exploring. I think the cognitive processes that you are interested in developing are critical to a decent education.

— Elliot Eisner, Past President, American Educational Research Assn.

Another second grade game would explore a story — Cinderella? — and place each **character, object or event** on the board, again seeking links between, say, the Mice playing in the fireplace as Cinderella did her chores, the Fireplace, the Magic Wand because the wand turns the mice into horses, and finally with Shoes because the mice carried the shoes to the castle in the carriage...

But Grad School would be a little different...

Each educational situation would require its own hand-tailored variant on the games. In a graduate seminar on World War II history, the board might be dispensed with entirely...

The seminar is held around a long table, and when the students arrive for their first meeting, the professor hands them copies of the usual enormous reading list, and announces that in addition to their individual papers and verbal contributions to group discussion, they will have an opportunity to score extra points in class by connecting any of a dozen or so items which he has scattered along the length of the table with aspects of the historical topic they will be covering.

Among the items on the table are a baseball mitt, a paperback espionage novel, and two equations scribbled on a piece of paper:

$$\begin{aligned}\Delta p \Delta q &\geq h/2\pi \\ \Delta E \Delta t &\geq h/2\pi\end{aligned}$$

The game rules are extremely simple: connect any one or more of the items on the table to some aspect of the topic at hand, i.e., World War II. Thus *any* example of WW II espionage can be connected with the spy novel. That's the kind of "easy" link that's liable to pop up in the first few minutes, and it doesn't merit a very high score.

Baseball, espionage and the bomb...

The game becomes more interesting if one of the students approaches a mathematician or physicist to find out what the two equations on the scrap of paper refer to, and finds out they are the limiting equations of Werner Heisenberg's celebrated Uncertainty Principle. Heisenberg was one of the founding fathers of quantum mechanics, and — that's it, the one man in Hitler's Germany who would likely be able to develop an atom bomb.

There's a link there, to be sure — but the student who goes on to read David Cassidy's biography of Heisenberg, or Thomas Powers' book *Heisenberg's War*, will find there the story of baseball player Moe Berg, who played in the major leagues from 1923 through 1939, and was recruited into the OSS during World War II. Berg, whose own life has been brilliantly chronicled by Nicholas Dawidoff, was sent to Switzerland by the OSS to hear Heisenberg give a single lecture during the war, with instructions to figure from the lecture whether Heisenberg was building the Nazis a bomb — and kill him at once if he was.

The student who gets this far can claim three links to the Moe Berg / Heisenberg episode: with the espionage novel, the baseball mitt, and the Uncertainty relations. And he or she has also thought more creatively, researched more widely, played — and won.

Art History and the Hieroglyphic Language

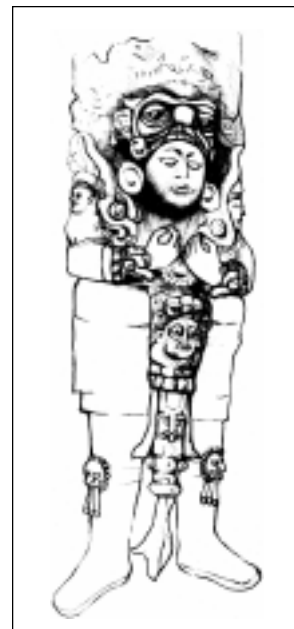
One specific educational project which we would like to develop is a standardized language of icons for use in art history.

This language would consist of a hundred or so small icons like the crossed knife and fork you see in restaurant guides, indicating “Florentine” “Dutch” “XVI century” “gesso” “mural” “canvas” “altar” “triptych” “impasto” “outdoor scene” “stag” “crucifix” “saint” etc. — so that fifteen or twenty could summarize salient physical and artistic components of a given work... The idea would be to incorporate these items in a database of artworks such as Microsoft’s Corbis archive, for use in conjunction with our Games.

Student players under this system would be highly motivated to search out works in areas of art history that they might otherwise overlook:

students with little or no interest in, say, “religious” art might still find a religious work which linked strongly with a given “secular” work, and vice versa.

Someone who played, e.g., Pisanello’s “St. Eustace” from the National Gallery in London — in which Eustace has a vision while out hunting, of a stag with a crucifix between its antlers — would send her / his opponent scuttling through the databases looking for other paintings with stags, crucifixes, saints etc. in them... Another player might find an astounding level of resemblance between a Honduran figure from 782 CE and a Chinese figure from 730 CE.



And again, the net impact would be to increase the breadth of research while playing and winning.

The HipBone Cards

The HipBone Cards are a Tarot-like deck of images illustrating some of the deep structures that nature follows in the “building” of universe. The cards themselves can thus serve as game-pieces that focus specifically on patterns found throughout nature — and in the mythic imagination of humankind. And they can be consulted any time someone is looking for deep structure, as an idea source...

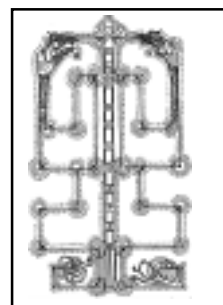
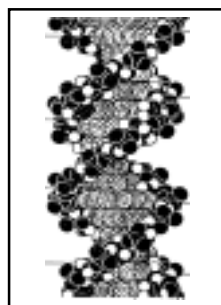
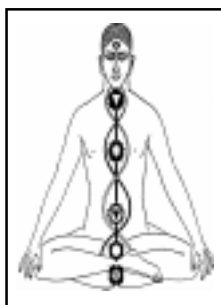
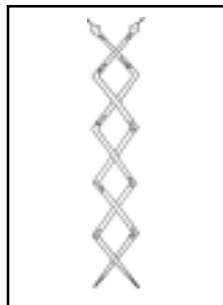
One image from the deck would be that of the Twin Serpents. Mythographers have known the importance of this image for centuries, calling it the Caduceus (the wand of Hermes — two winged serpents winding about a staff, crowned) or Kundalini (twin serpents coiling around the human spine).

When Linus Pauling at CalTech was racing Watson and Crick at King’s College, Cambridge for the deep pattern of the DNA molecule, he first tried single and triple helices — while Watson and Crick tried the double helix, and made what is perhaps the greatest scientific discovery of our times.

If this deck of cards had been around CalTech at the time, Linus Pauling might have won himself that third Nobel prize

If this deck of cards had been around CalTech at the time, Pauling could have flipped through to the Caduceus / Kundalini card and tried the double helix first — knowing that a pattern which occurs so universally in the myths and dreams of humanity is liable to be a significant deep structure in nature, too — and perhaps won himself that third Nobel prize...

Does this sort of thing sound a little strange? It shouldn’t. Way back when he was at a loss to know the structure of benzene, the chemist Kekule von Stradonitz glimpsed the ouroboros-serpent biting its tail in a reverie one day, and from it intuited the benzene ring... another image from our deck. We can think of Kekule’s reverie figuratively as “playing solitaire with the dream-originals” of the HipBone cards...



I suspect the Deck will turn out to be a particularly useful tool in Grad School other higher-level Educational Games.

Four Aspects of the HipBone Project:

III *Applications Elsewhere*

The HipBone Games, AI and the rest:

an Overview

Derek Robinson

If, instead of using the real world, one carefully creates a simpler, artificial world in which to study the high-level processes of perception, the problems become more tractable.

— Douglas R. Hofstadter & the Fluid Analogies Research Group, in “Fluid Concepts and Creative Analogies”, 1995, p.190

The HipBone Games of Charles Cameron were developed to be small and simple but non-trivial, and possibly even profound, minimally structured ‘fields’ wherein human wit may freely range and be observed at its play by the game’s players and spectators. They are like little windows that open out onto certain crooks and corners and crannies of the mind, which otherwise might not be so readily suspected or seen.

A HipBone board is at outset empty, a matrix of possibilities, pregnant with incipient linkages between the board’s loci. The board is just a set of nodes, connected by lines, forming an abstract geometrical pattern: TenStones, WaterBird, Tetraktys. As the game is played, the players in alternating moves populate the board’s nodes with ‘concepts’, symbolic references to, well, anything at all really — its backdrop is the entire atlas, landscape, encyclopaedia of cultural forms.

a model ‘elaboratory’ for investigating the creative potencies of the mind

Within the game’s small compass, comprising less than a score of loci, we are given a model ‘elaboratory’ for investigating the analogical, poetic, creative potencies of the mind. A move in the game must simultaneously resolve or bridge the concepts already in play upon the board, while yet proposing further original, hitherto unexpressed (while latent and implicit) changes rung upon the central theme.

The game form imposes the strict constraint that any move made must link adjoining nodes not just geometrically...

but semantically, meaningfully, deliberately, playfully.

What governs a move in a HipBone game — the placement of a concept, a passage from a work of literature or a line from a song, an image recognizable by all or intensely personal, an idea from mathematics or the special sciences, an event or an individual from the pages of history or today's headlines, an allegorical symbol or emblem drawn from folk or fairy tales, from dreams, or from the sacred traditions of East or West, positioned onto a free node on the board, and thereby linked to the nodes and hence to the concepts already played — is simply salience, a sense for what is meet, a sensitivity to the opportunities afforded by a fertile analogy.

The game form imposes the strict constraint that any move made must link adjoining nodes not just geometrically but semantically, meaningfully, deliberately, playfully.

The nature of the connection can be virtually anything that anyone might consider to be a 'relation' — symmetry, mirroring, opposition; metonymy, metaphor, the 'figures' or 'tropes' of rhetoric; movements up, down, or across a categorical tree; puns, verbal or visual; euphemisms or spoonerisms; chains of cause and effect; syllogisms and enthymemes; allusions or cliches; allegories, archetypes; the arts of memory and of 'topics', altogether.

Here we have a 'toy universe' ready-made for AI researchers

There has been increasing interest in categorization and the mechanisms of metaphor and analogical reasoning among people working in the cognitive sciences, in linguistics and philosophy — theorists like Douglas Hofstadter, Melanie Mitchell, George Lakoff, Mark Johnson, Mark Turner, Dierdre Gentner, David Gelernter, Roger Schank, Janet Kolodner, S. Kedar-Cabelli, Keith Holyoak and Paul Thagard, as well as many others active in the areas of neural networks, machine learning, fuzzy logic, and case-based reasoning.

An archive of HipBone games can provide a wealth of examples of how analogy works, of what makes one analogy succeed where a different analogy might fail.

Here we have a 'toy universe' ready-made for AI researchers wishing to tackle the slippery slopes of analogy, metaphor, resemblance, the making and taking of meaning.

Scientific Interest in GBGs and HipBone Games

Derek Robinson's article suggests some ways in which Hesse's Glass Bead Game and the HipBone Games in particular may be of interest to some people more as objects of study rather than as games to play.

Paul Prueitt and William Rose

Drs. Paul Prueitt and William Rose of Highland Technologies Inc. and BCN — the Behavioral and Computational Neuroscience Group — are actively exploring the Glass Bead Game as a model for the handling of vast quantities of digital documentation, and have hosted a Persistent Online Discussion on the World Wide Web using Hesse's Game to model procedures and rules. In his article, "The Road to Castalia", Dr. Rose writes:

The cybernetic version of the Glass Bead Game will allow users to actively navigate through great amounts of data with ease, using much more than pure intellect to understand the input's meaning. Great amounts of data will be synthesized into meaningful sensory images and the individual will have an instinctual method of extraction through sensation, thought, feeling, and intuition. The results will be a new level of human / information interaction and the use of this interaction to solve many of the intractable problems of humankind.

Dr. Prueitt refers to the HipBone Games as "advanced work" in this area, and feels that much can be gained by an interaction in which scientists provide "a deeper foundation in autonomous machine reasoning".

John Holland

Meanwhile Dr. John Holland, distinguished computer scientist and inventor of genetic algorithms, told *Omni* in a recent interview that the glasperlenspiel was something he had been working towards all his life:

If I could get at all close to producing something like the glass bead game I can't think of anything that would delight me more.

Dr. Holland has also indicated an interest in developing software for his vision of the Glass Bead Game, and feels that a small group of bright programmers could accomplish the task within two or three years.

There is serious interest, in other words, in how Hesse's idea of the Glass Bead Game can aid the development of computer science and information management in a variety of ways. HipBone believes the time has come to synthesize and cross-fertilize these interests by presenting a Glass Bead Game Conference, and setting up an Institute and Journal.

The Glass Bead Game Conference

HipBone is currently seeking a site for the first Glass Bead Game Conference, which we hope will attract speakers like John Holland from the AI side, Johnny Wilson of Computer Gaming World from the games industry and others, and bring together those who are interested in the GBG as a metaphor, GBG designers and players, interested scholars, researchers, software developers and non-GBG game designers to read papers, compare notes, and play the various GBG variants now available.

The Conference should immeasurably strengthen the GBG designers' community which already exists: and our hope would be that in addition to the cross-fertilization of ideas and networking of projects which it would facilitate, it might lead to the exploration of other avenues for GBG development:

The Institute of Glass Bead Game Studies

Most important of these would be the organization, in an academic setting, of an Institute of Glass Bead Game Studies. We envision this Institute exploring the cultural, metaphorical, semiotic, and scientific implications of playable Glass Bead Games and their uses in education and therapy, as well as topics in Hesse scholarship.

One major Institute project would be the design of a complete suite of GBG software to John Holland's specifications, a project in which Dr. Holland himself has expressed keen interest, and which he estimates might take two or three years work by a core-group of computer scientists.

The Glass Bead Game Journal and Monograph Series

The GBG Journal, a refereed cross-disciplinary academic journal, would carry the proceedings of the first GBG Conference in its first issue, and thereafter explore the same range of topics as the Institute. More extended studies could be published in a Monograph Series.

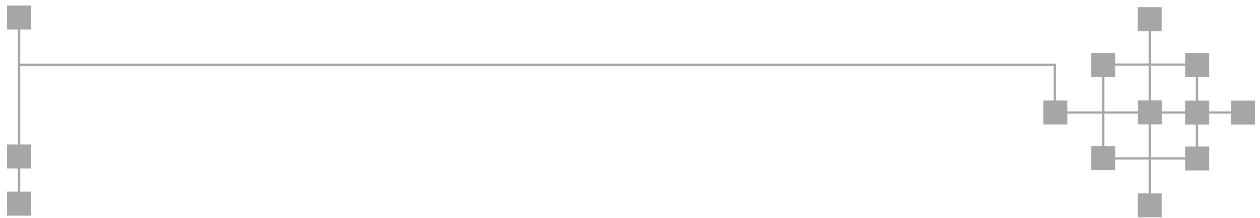
According to Professor Gunther Gottschalk of UC Santa Barbara, who has been in contact with them, the Feustel-Bucherer family in Switzerland possess a game built by Hesse's friend the painter Max Bucherer, incorporating the work of Bucherer's wife, Als Feustel — whose theory of the correspondences between the musical and color scales Hesse himself mentions in his novel.

but this is no
more than an aside,
a footnote, and a
dream...




HipBone would very much like to see an Institute graduate student — hopefully under Professor Gottschalk's guidance — make further contact with the Feustel-Bucherer family and write up a scholarly study of this Game, and of Als Feustel's theory of the correspondences. Such a study would be an impressive first publication for the Institute: while the Institute, Journal and Monograph Series together would constitute a long-overdue and proper homage to Hesse himself.

Four Aspects of the HipBone Project:

IV Commercial Games



HipBone Games

-  *quality content*
-  *independent group*
-  *with a garage and a vision*

NOW IS THE TIME *to pursue a designer's dream: when large publishers desire quality content and actively seek independent groups that demonstrate both a vision and a plan. For those whose business is the creation of worlds, development is returning to the heady days of the mid-1980s, when a few people with a garage and a vision really could revolutionize the computer gaming industry.*

— Sid Meier, co-founder of MicroProse Software, author of games such as *F19 Stealth Fighter* and *Civilization*, in his “Soapbox” column in *Game Developer* magazine, April-May 1997.

Therefore...

-  *now is the time*
-

Mass-market HipBone Games:

Mass-market HipBone Games — implemented for CD-ROM or an online service — would be far more structured than the free-form “Games of Mastery”: game play would be definitive, i.e., a computer could always tell who won and who lost. They would use clearly defined content drawn from pop-cultural fields such as sports or movie trivia.

Games with pre-set moves and scoring

*like a cross between
Trivial Pursuit
and Rubik’s Cube*

Kimberly Bieber,
interactive film /
game development

To make the HipBone Games more user-friendly and mass-marketable, we would configure Games where the “moves” themselves are already provided to players, along with the game board — so the player doesn’t have to invent or research them, but can simply “play” them.

This means that a commercial game — whether presented online, or on CD-ROM, or as a board or TV game — would include a deck or series of decks of “cards”, each of which contains one “datum” or information point, and also an automatic mechanism for scoring the links claimed when these cards are played on the board.

It also suggests the possibility of providing several decks of cards for different categories of “trivia” — one for the movie industry, one for sports, one for world history...

The sheer mathematics

However the sheer mathematics involved is daunting. When once you calculate the number of possible links an automated scoring system would be required to handle, it is on the order of half the square of the number of cards. For 200 cards in a deck, which we estimate to be a minimum for interesting play, that would mean a little under 20,000 links. The possible moves would need to be individually researched and written, and approved links between them identified and scored in advance of the game shipping, for inclusion in a scoring book or database of whatever kind.



This in turn makes it extremely unlikely than anyone else will “borrow” the idea and work along these lines — but we have some **tricks up our sleeves** for getting around this problem of sheer volume of links...

Delivery Systems:

Online Services:

One way to go would be to present a smorgasbord of HipBone offerings to an Online Service such as AOL, or my own service provider, EarthLink.

This would center around the “commercial” variant game with fixed moves, but might also include boards for “free-style” play, and feature specific game variants in a variety of sub-sections of the online environment such as “kids”, “education”, “problem solving”, “the arts”, “higher ed”, “self-help”, “dreamwork”, etc. HipBone “Wrinkles” (additional rule sets, see next page) and extended 3-D boards could also be used. Benefits: the same engineering would be applicable to many online areas.

CD-ROM:

It would also be feasible to present a similar variety of games — mostly with “set” decks of moves and links, but with the “freestyle” option for those who prefer it — on a HipBone CD-ROM. See comments above on “Wrinkles”, extended boards and engineering.

Board Game:

There’s no reason why HipBone Games should be played only on computers, and a board game with “set” moves and “freestyle” option is entirely possible. Our sense is that such a game would not distinguish itself from other “trivia” style games enough to interest a games company until the point where accompanying publicity from “mastery level” and / or “computer driven” variants — or a “contest” — have created easy name recognition and reasonably large consumer interest.



TV Games Shows and PBS

TV program spinoffs could range from a commercial HipBone variant running as a Jeopardy-level trivia game on one of the networks, to an in-depth series exploring Hesse’s Game, its importance as a metaphor for the net and Web, and the range of GBG variants now available, hosted by a “thinking person’s” commentator such as Bill Moyers or James Burke — whose own program, “Connections”, bears a strong resemblance to a GBG — and aired on PBS.

Other Considerations...

“Wrinkles” for added viciousness

We have a number of “wrinkles” (additional rule-sets) in mind for the HipBone Games in general — including “Trumps”, which allows players to remove their opponent’s existing moves by suggesting alternate moves in the same position which claim more links — adding a touch of viciousness to the competitive side of the games.

Another wrinkle, “Weathers” — more suited to a HipBone CD-ROM (see previous page) — would involve the use of extended 3-dimensional boards, various sections of which would be influenced by a variety of “weather conditions” during the course of play, each of which would invalidate existing moves, shift their positions dramatically across the board, or temporarily block certain areas of the board from play. As in life...

Extended boards for more intriguing play

Extended HipBone boards are also envisioned to make for more complex and immersive play (see “Wrinkles” below): these could range from simple boards with preexisting “meanings” such as a board based the London Underground map to three-dimensional boards such as models of molecular structures to Escher-like “tiled” boards to more complex boards and games in which HipBone “positions” are rooms and the connecting lines become “corridors” in which Mario-like figures can engage in magical or military battles..



Taking a leaf out of Oracle

There’s also the possibility of building a database of links which the players themselves suggest in an online version of the games, which — as in Peter Langston’s *Oracle* — the computerized opponent would then use to propose its own competitive links in later games, giving players the uncanny feeling that the game’s AI was almost unbelievably human. And so forth...

All of which brings us to the wider issue of successful game genres already used by the computer games industry, and the possible role of HipBone Games in that context...

Pushing the envelope of the Computer Games Industry...

Our second objective is to design compulsively playable computer games which push the envelope.

The HipBone direction...

Specifically: our aim is to design games which expand the genre in the directions of emotional depth and intellectual and aesthetic value, without compromise to playability.

HipBone's Games and writings are quietly acquiring something of a reputation on the net and among game designers. HipBone is "Editor at Large" at *The Cursor*, a magazine for game developers, and Mark Pesce described HipBone's article "Doom Goes to Church", which discussed the curious parallels between computer games and Tibetan Buddhist meditations, as

Mark Pesce, co-author of VRML, the language in which the Web goes 3-D

SO brilliant I wish I had written it

We aim to continue to work, write and learn within the present framework of the computer games industry, not least because we have some 3-D walkthrough game ideas of our own, including some hinted at in our *Cursor* article, and in our essay "Myst-like Universities, Oxford-like Games?"

Game Ideas are two-a-penny...

But computer game ideas are two-a-penny, and it would clearly be inappropriate at this point in any case to reveal more than a little of HipBone's future plans in the development of new games. Several ideas for highly commercial games are in the works, however, including a children's game based on skip-rope which would teach elementary math, and a Tetris-like game which would convey the basic principles of musical composition.



As we say, computer game ideas are worth very little without the teamwork which goes into development and implementation: but it seems important to convey something of variety of games HipBone is proposing. Two of our other non-GBG-like game ideas may give you some idea of our range...

Tibetan Game:

HipBone recently worked as “document architect” on *Nile*, a CD-ROM game title from Simon and Schuster Interactive in association with the Metropolitan Museum of Art. It appears that the Met would be interested in further games dealing with civilizations in which they have “holdings”, and we have informally broached the subject of doing a Tibetan game along similar lines — but also with input from Tibetan Buddhists.

HipBone is in contact with a computer science professor at Cornell who has already worked with Tibetan lamas on a “walk through” 3-D mandala, and a serious Buddhist with an interest in games currently working on VRML programming at Silicon Graphics. It should be entirely feasible to put together a game team which balanced the respective sensibilities of gamers, Buddhists and the Met. HipBone has given some thought to the specifics...

The game design challenge here would be to combine a fast action play mode with a much slower contemplative mode for players who wished to learn about the culture portrayed and / or participate in a meditative manner.

Mother and Daughter Games

It became clear at the “What do women want in games?” roundtable HipBone attended at the Computer Game Developer’s Conference that the computer games industry as a whole is looking to find ways to break out of the “core gamer” market of younger males and into the wider market of computer users, and also that women on the whole look for social interactions around the games they play as well as “gameplay” within them.

HipBone’s solution to this double issue is the development of “mother and daughter” games — and more generally, “adult and child” games — which can only be played by the child if she persuades an adult to play with her, thus providing needed social interaction at the same time as introducing new, older and in many cases female players to the image of themselves as game players.

There are a number of companies that in the wake of *Barbie Fashion Designer* selling in excess of 200,000 units last Christmas season might well be interested to develop games of this sort.

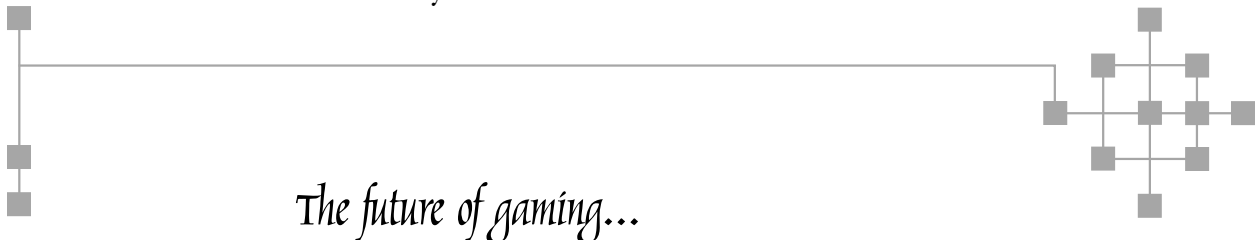


Our aim is to offer the industry a wide variety of playable, highly saleable game concepts and to work with existing providers on their implementation.

Computer Games Industry Responses

Are we listened to? We're read.

HipBone's articles for *The Cursor* reach an audience of game developers, and his writings on the rec.games.design newsgroup have attracted a number of approving responses: but the truth of the matter is that HipBone hasn't "come out" yet. HipBone's work on the S&SI *Nile* project was — from HipBone's own point of view — an apprenticeship with a mainstream computer game project, not in any way a showcase for HipBone's ideas. The materials you are now reading represent the first comprehensive attempt to describe the HipBone GBG variants and other game projects, and to bring them to the attention of the industry as a whole.



The future of gaming...

The people HipBone has contacted within the industry, however, seem to think that HipBone's approach represents the future of gaming. Mike Sellers of Archetype Interactive, speaking mainly of HipBone's GBG variants, says:

HipBone offers us a glimpse over the horizon at the future of games — where we are going, or could go. I think we're headed for "emergent entertainment" — games in which the gameplay emerges out of the interactions of two or more people. HipBone Games are an almost pure distillation of that idea, because you're dealing directly, mind to mind.

And Johnny Wilson of *Computer Gaming World* says something very similar:

One of the most important contributions of the computer game of the future will be the introduction of relational aspects to gaming. Currently, most games are very transactional: shoot weapon, kill monster, get reward. Life is not so simple and games shouldn't be, either. ... The HipBone Games are pioneering the actualization of ideas which I only dreamed about. Right now, the web-based e-mail games offer stimulating ideas and new, exciting connections between previously unrelated data and symbols. Imagine being able to play computer-moderated games between humans or even playing a game against a Deep Hesse in the future. I look forward to multiple versions of the HipBone GBGs that will expand our understanding of intelligence, symbolism and meaning. They just might establish new levels of artificial intelligence, artificial personality, and neural networking, as well.

Appendices:

A: Brief Overview of the HipBone Project

B: In Pursuit of Bigger Game?

C: Further Support

D: Games of Mastery

E: Meditations for Glass Bead Game Players

Appendix A: Brief Overview of the HipBone Project

The following text is taken from our introductory brochure, and conveniently summarizes the HipBone project as a whole.

Take a Nobel-winning game design,

*build a compulsively enjoyable game,
simple enough a child can play it,
yet with room for mastery...
with applications in education and psychology,
interesting academic implications,
and varied commercial potentials —*

*offer it free on the Web,
sell it to the games industry / online services,
and pitch it to foundations, educational institutions
and maybe the President of the United States...*

*And you have the ambitious project known as
The HipBone Games.*

Contacting HipBone

To contact HipBone Games, send email to hipbone@earthlink.net, write to Charles Cameron, 9735 Green Road, Midland, VA 22728, or phone (540) 439-9395.

Copies of the introductory brochure or these background materials can be obtained from HipBone at the above addresses. And since we mentioned the U.S. President above, let's move directly to our next Appendix...

Appendix B: In Pursuit of Bigger Game?

In the preceding pages, we have at times outlined and at times detailed HipBone's approach to games of mastery, some educational and psychological uses to which those games might be put, and HipBone's interest in games development in the commercial world of computer games. There are, however, some major projects which we have not mentioned.

A nationwide HipBone Games Contest

HipBone would like to suggest a nationwide student competition for the best HipBone Games, with substantial prize money / corporate sponsorship. This could accompany publication of a book which explores Hesse's Game against the contexts of the importance of play in human life and creativity, the internet as it intersects with the print culture of the past, and the ways in which computer games may be influential for better or worse in shaping our cultural future...

Intellectually challenging contests can draw a terrific response. Perhaps the classic example of this is Jonathan Cape's publication of Kit Williams' book, *Masquerade*, which contained a complex puzzle for its readers to solve, and a hefty prize — a jeweled hare made of gold, eventually sold at Sotheby's for \$31,900 — for the first correct solution. Williams' book sold a million copies.

The White House Millennium Program...

Another major avenue for HipBone Games to explore, possibly in conjunction with a contest of this sort, is the White House's recently announced Millennium Program, which is designed to "highlight projects that recognize the creativity and inventiveness of the American people", thus "honoring the past and imagining the future."

and the British Mind Sports Olympiad

HipBone views the turn of the millennium as a suitable time to hold "Games" comparable to the Olympics, but focused on mind and heart. A similar festival-of-games was recently held in London's Albert Hall, and HipBone intends to submit proposals both to the White House Program and the British "Mind Sports Olympiad".

Overall, HipBone is an extraordinary project...

We intend to explore all appropriate avenues to ensure that our games reach the most diverse audiences, and deliver as much pleasure and insight as possible.

Appendix C: Further Support

John Holland

— psychologist, computer scientist extraordinaire, and inventor of “genetic algorithms”, in his fascinating *Omni* interview with Janet Stites:

I’ve been working toward it all my life, this *Das Glasperlenspiel*. It was a very scholarly game, starting with an abacus, where people set up musical themes, then do variations on it, like a fugue. Then they’d expand it to where it could include other artistic forms, and eventually cultural symbols. It became a very sophisticated game for setting up themes, almost as a poet would, and building variations as a composer. It was a way of symbolizing music and of building broad insights into the world.

If I could get at all close to producing something like the glass bead game I can’t think of anything that would delight me more.

Bruce Milligan

— director of new media at the AOL subsidiary, Redgate:

As I work to help position Redgate as a leader in the programming of content for the World Wide Web, I’ve spent a good deal of time thinking about the nature of the Web — a realm of pure intellect, minds interacting with machines, constructs of information designed to facilitate the sometimes-ordered, sometimes-random and often serendipitous roamings of human inquisitiveness... But more than anything, this process of information publishing and linking on the Web reminds me a lot of the Glass Bead Game that Hermann Hesse wrote about in his 1943 novel *Das Glasperlenspiel* (translated “The Glass Bead Game”, subtitled “Magister Ludi”...)

Timothy Leary

— hipster, on the Glass Bead Game as an analogue of the Macintosh:

In the avant garde, cyber-hip frontiers of the computer culture, around Mass. Ave. in Cambridge, around Palo Alto, in the Carnegie Mellon AI labs, in the backrooms of the computer graphics labs in Southern California, even in the Austin labs of MCC, a Hesse comeback seems to be happening. However. This revival is not connected with Hermann’s mystical, eastern writings. It’s based on his last, and least understood, work, *Magister Ludi: The Glass Bead Game*.

This book, which earned Hesse the Expense-Paid Brain Ride to Stockholm, is

positioned a few decades in the future when human intelligence is enhanced and human culture elevated by a device for thought-processing called The Glass Bead Game. Up here in the Electronic '80s we can appreciate what Hesse did, back down there (1931-1942).

Alan Watts

— in his book *The Joyous Cosmology*, comparing the Glass Bead Game with the psychedelic experience:

The nearest thing I know in literature to the reflective use of one of these drugs is the so-called Bead Game in Hermann Hesse's *Magister Ludi* (*Das Glasperlenspiel*). Hesse writes of a distant future in which an order of scholar-mystics have discovered an ideographic language which can relate all the branches of science and art, philosophy and religion. The game consists in playing with the relationships between configurations in these various fields in the same way that the musician plays with harmonic and contrapuntal relationships. From such elements as the design of a Chinese house, a Scarlatti sonata, a topological formula, and a verse from the Upanishads, the players will elucidate a common theme and develop its application in numerous directions. No two games are the same, for not only do the elements differ, but also there is no thought of attempting to force a static and uniform order upon the world. The universal language facilitates the perception of relationships but does not fix them, and is founded upon a "musical" conception of the world in which order is as dynamic and changing as the patterns of sound in a fugue.

Similarly, in my investigations of LSD or psilocybin, I usually started with some such theme as polarity, transformation (as of food into organism), competition for survival, the relation of the abstract to the concrete, or of Logos to Eros, and then allowed my heightened perception to elucidate the theme in terms of certain works of art or music, of some natural object as a fern, a flower, or a sea shell, of a religious or mythological archetype (it might be the Mass), and even of personal relationships with those who happened to be with me at the time.

Paul Saffo

— Research Fellow at the Institute for the Future in Menlo Park, in his brief article "The Manager as Mystic":

You're in your favorite bookstore, scanning the new titles in the business section, looking for something that will help you make sense of the turmoil of competition. Wrong section! Wrong decade!

For the most important management book for the 1990s, try fiction from the 1940s: Hermann Hesse's Nobel Prize-winning novel, *The Glass Bead Game*. It combines leader-as-servant, pragmatic mysticism, creative destruction — in other words, all the business issues of the decade! Plus it's a great read.

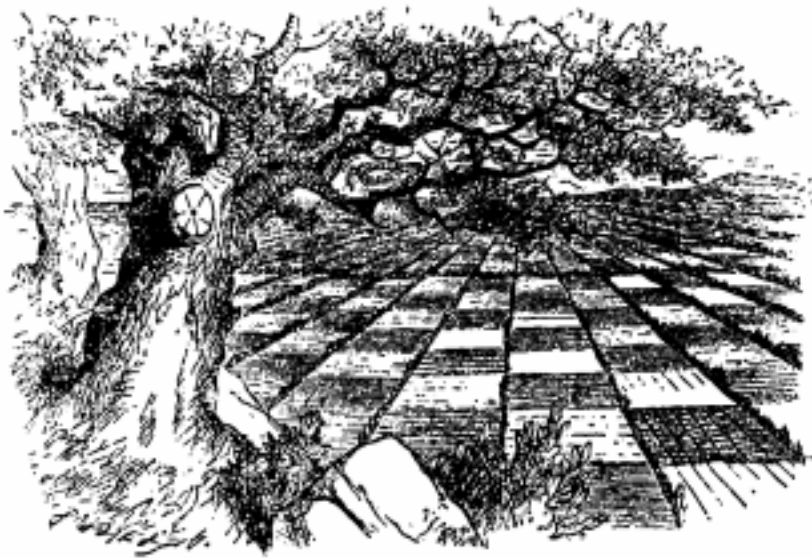
Appendix D: Games of Mastery

An article on Chess, Go and Glass Bead Games.

There are games, and there are games of mastery.

Voltaire called Chess “the game which reflects most honor on human wit”, but then he almost certainly didn’t know about Go. And he can hardly have heard of Hermann Hesse’s Glass Bead Game.

Chess and Go are the two great, ancient games of the human race, the places where human play reaches the level of mastery. Oh yes, I’ll agree, Bridge has finesse. And the Olympic Games — if you count sports among games — are masterful. But I still say Chess and Go are the two great games that spring to mind when that word “mastery” comes up. Both games can be played enjoyably by beginners, gifted amateurs and masters, and both games are therefore extremely popular with a wide range of players — witness the 5 million hits in a single day which almost crashed the IBM site during the first Kasparov vs. Deep Blue games, or the public reaction when Deep Blue defeated Kasparov in the second series.



Landscape — or battlefield?
the chessboard from Alice

If the twentieth century has provided anything to match Go and Chess, it’s Hermann Hesse’s Glass Bead Game.

This should be no surprise: Hesse’s aim from the beginning was to conceive of a game which would come close to the legendary origins of Chess and Go.

Hesse wrote:

Here and there in the ancient literatures we encounter legends of wise and mysterious games that were conceived and played by scholars, monks, or the courtiers of cultured princes. These might take the form of chess games in which the pieces and squares had secret meanings in addition to their usual functions.

The Glass Bead Game may be very different from the games of Chess and Go as they have come down to us, but it derives its power from the same roots.

A Game not unlike Chesse...

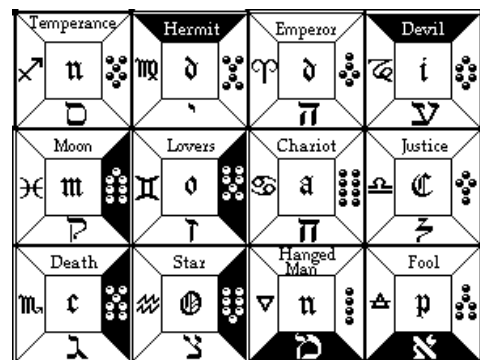
Legend has it that Chaturanga — the earliest form of Chess — was invented by a Brahmin at the court of Rajah Balhait in the 5th century BCE. The rajah had asked the wise man to invent a game that would exemplify the virtues of diligence, foresight, prudence, and wisdom, and especially oppose the fatalistic element of chance that was popular in dice-games such as backgammon. Chess was a game of wisdom...

Johann Valentin Andreae refers to a game “not unlike chesse” in his 1616 book *The Chymical Marriage* which seems to be a precursor for Hesse’s thoughts on the matter:

Meantime, the king and queen, for recreation’s sake, began to play together. It looked not unlike chesse, only it had other laws, for it was the vertues and vices one against another, where it might be ingeniously discovered with what plots the vices lay in wait for the vertues, and how to re-encounter them again. This was so properly and artificially performed that it were to be wished that we had the like game too.

And the members of that infamous 19th century occult society, the Golden Dawn — the poet William Butler Yeats among them — seem to have attempted to recapture something of the “wisdom” element of the game. They played a four-player Chess variant called “Enochian” or “Rosicrucian” Chess — and a spirit was sometimes invoked when a fourth player was lacking!

Mediumistic device or
variant chess-board?
Detail of the board used to play
Enochian Chess.



In this complex variant, the four sides of the chessboard are related to the four classical elements, and each square is imbued with a multitude of magical correspondences. Like Hesse's Glass Bead Game, each move contained an element of meditation, in that players (human and spirit alike?) scryed into the squares of the board for inspiration.

games in which the pieces and squares had secret meanings...

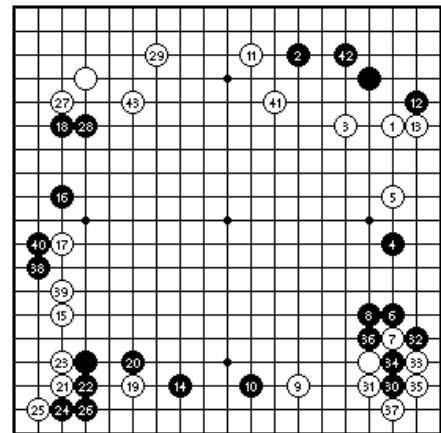
It is this aspect — Chess as meaning and meditation — which Hesse attempts to capture in the Glass Bead Game:

A reader who chanced to be ignorant of the Glass Bead Game might imagine such a Game pattern as rather similar to the pattern of a chess game, except that the significance of the pieces and the potentialities of their relationships to one another and their effect upon one another multiplied manifold and an actual content must be ascribed to each piece, each constellation, each chess move, of which this move, configuration, and so on is the symbol.

And it is this aspect, too, that my friend and colleague William Horden brilliantly captures in his Chess-variant Glass Bead Game, *Intrachange...*

A Game not unlike Go...

Field of combat or star field?
Go board from the game
between the Wu prince Sun Ce
and his general Lue Fan



Go, like Chess, was originally a highly symbolic Game. Thus the historian Ban Gu (32-92 AD) wrote:

The board must be square and represents the laws of the earth. The lines must be straight like the divine virtues. There are black and white stones, divided like yin and yang. Their arrangement on the board is like a model of the heavens.

Again, there is a marked aesthetic side to Go, which in no way invalidates the competitive and combative aspect:

Go offers both the fierce intellectual challenge of life and death combat as well as the aesthetic pleasure of finding beautiful plays that build territory efficiently and harmoniously. The game can shift from the one to other in the blink of an eye.

How do the HipBone Games compare with Chess and Go?

Instructively. How about that for an evasive yet positive answer?

Obviously, no Go master or Chess aficionado is going to take kindly to the suggestion that the upstart HipBone Games are entirely comparable to the two great classics of gaming — which in any case have their own arguments as to which is the subtler or more complex game.

Nevertheless, as Don Oldenburg noted in the *Washington Post*,

Glass Bead Game players talk of those uncommon moves the way chess players cherish a great gambit, the way Jungians embrace moments of synchronicity.

HipBone Games are first and foremost *glasperlenspielen*, Glass Bead Games, and their qualities are the qualities of the genre: the play of ideas against ideas, rather than of pieces against pieces, troops against troops. In this respect, the HipBone Games resemble Johann Valentin Andreae's game of the virtues against the vices, or the game of Enochian Chess which Yeats played, more than they resemble either Chess or Go...



And yet there is a marked combative and “territorial” quality to a HipBone Game, there are strategies and tactics to be weighed — a player can dominate the board from position 9 in a WaterBird game, playing it too soon can leach much of the enjoyment from a game, while playing it too late can be a next-to-impossible task...

For those who like fierce combat to spice up their aesthetics, there are “wrinkles” — additional HipBone rule-sets such as “Trumps”, in which a player can capture his or her opponent's moves — which can do much to intensify the viciousness of the Games.

In the final analysis, the point is not whether the HipBone Games do or do not resemble Chess or Go, but that they share with them a classic quality — they can be played with enjoyment by young or old, at any level from beginner through enthusiastic amateur to mastery.

Appendix E: Meditations for Glass Bead Game Players

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First, I ask you to consider the rhyme of “womb” with “tomb” — which has the delicious property that these two words describe, if you will, the two chambers from which we enter this life and through which we leave it. Not only do the two words rhyme on the ear, in other words, they can also be said to rhyme in meaning.

Meditation: if you were wearing headphones, and these two words were spoken, what would the stereophony of their meanings be?

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Next, I would invite you to consider visual rhymes — known as “graphic matches” in film studies. Take, for instance, lipstick and bullet. To rephrase the opening of a book I am still working on:

The conjunction comes from a Yardley’s cosmetic advertisement of a few years back: a woman model wearing a leather bandolier with a variety of lipsticks in place of bullets. It is a powerful image partly because it plays on the visual similarity of bullets and lipsticks, each in their own metal jacket. Indeed, the visual match between them is astonishing — and the lurking Freudian visual pun only adds to our delight.

The juxtaposition of lipstick and bullet I take to be an example of a certain kind of visual logic, a visual kinship. Transposing their relationship from visual to verbal terms, one might say that lipstick and bullet “rhyme.”

But there is more than the purely visual here too... There is also a meaning rhyme that echoes in Freud’s pairing of Eros and Thanatos, in Wagner’s *Liebeshod*, in Woody Allen, and in the opening sentence of Bedier’s *Tristan and Iseult*: “My Lords, if you would hear a high tale of love and death...”

Meditation: what is the stereophony (by analogy with epiphany, theophany — neologism intended) of the meanings of lipstick and bullet?

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Consider next musical rhymes — fugal treatment of a theme — and if you have the means, play yourself Bach’s Chromatic Fantasia and Fugue, BWV 903, or Passacaglia and Fugue, BWV 582...

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Next I would ask you to consider — briefly — rhymes between ideas themselves... Ponder, for instance, the twin themes of the myth of Narcissus, and the rhyme that exists between the idea of “reflection” and that of “echo”...

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Consider rhymes between things, between names and the things they name (onomatopoeia), and between ideas and names and things and images:

Seen together, aerial maps of river estuaries and road systems, feathers, fern leaves, branching blood vessels, nerve ganglia, electron micrographs of crystals and the tree-like patterns of electrical discharge-figures are connected, although they are vastly different in place, origin, and scale. Their similarity of form is by no means accidental.

— G Kepes, *New Landscapes of Art & Science*

When the surf echoes and crashes out to the horizon, its whorls repeat in similar ratios inside our flesh... We are extremely complicated, but our bloods and hormones are fundamentally seawater and volcanic ash, congealed and refined. Our skin shares its chemistry with the maple leaf and moth wing. The currents our bodies regulate share a molecular flow with raw sun. Nerves and flashes of lightning are related events woven into nature at different levels.

— Grossinger, *Planet Medicine*

VI

The links of association that are possible between one thing and another are extraordinary, and rhymes of the sorts we have been discussing are just the beginning...

On being asked:

What is the intersection of fish and flames?

my list-colleague Barbara Weitbrecht responded:

Fish being cooked ... flame-colored fish ... fish flickering through sunlit water like flames ... things to do with water: one in it, one antagonistic to it ... fish and flames both images of sleep, of subconscious ideas surfacing, of revelation ... fish and flames both images of the Deity

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Consider all things as the calligraphy of a god or gods...

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Consider, finally, the stereophany between these two elegant paragraphs, one written by the contemporary American poet and naturalist, Annie Dillard, and the other by her compatriot Haniel Long:

My friend Jens Jensen, who is an ornithologist, tells me that when he was a boy in Denmark he caught a big carp embedded in which, across the spinal vertebrae, were the talons of an osprey. Apparently years before, the fish hawk had dived for its prey, but had misjudged its size. The carp was too heavy for it to lift up out of the water, and so after a struggle the bird of prey was pulled under and drowned. The fish then lived as best it could with the great bird clamped to it, till time disintegrated the carcass, and freed it, all but the bony structure of the talon.

— Haniel Long, *Letter to Saint Augustine*

And once, says Ernest Seton Thompson — once, a man shot an eagle out of the sky. He examined the eagle and found the dry skull of a weasel fixed by the jaws to his throat. The supposition is that the eagle had pounced on the weasel and the weasel swiveled and bit as instinct taught him, tooth to neck, and nearly won. I would like to have seen that eagle from the air a few weeks or months before he was shot: was the whole weasel still attached to his feathered throat, a fur pendant? Or did the eagle eat what he could reach, gutting the living weasel with his talons before his breast, bending his beak, cleaning the beautiful airborne bones?

— Annie Dillard, *Teaching a Stone to Talk*

These are the beads from my glass rosary. These are the rhymings of the ten thousand things. It is with such meditations as these that we may build the “hundred-gated cathedral of Mind” to which Hesse refers...

Stereophony and Stereophany

I have used the terms “stereophony” and “rhyme” here to describe a form of meditation in which two ideas are “kept in mind” simultaneously — so that as with stereoscopic vision or stereophonic sound, both merge into a “third thing” without loss of detail but with an additional “depth dimension”.

I call this effect “stereophany” by analogy with “epiphany” and “theophany” — from the greek “phainein”, to show or shine forth.

Cover image **The Glass Harmonica** used courtesy of Christian Bok from his brilliant book *Crystallography* (Coach House Press, Toronto, 1994, ISBN 0-88910—496-4).

Game boards and rules can be printed out or downloaded from the **HipBone Games** website: <http://home.earthlink.net/~hipbone> -- see also <http://www.beadgaming.com>

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