


THE DEVIL in the Dice Cup

Backgammon, destiny and dope By John Graff





Time was when backgammon wasn't the national pastime. A few years ago only aged survivors of the last great gammon craze—in the Twenties, never to be forgotten—still wrestled with its mysteries. Today it's as common a remedy for hip boredom as dope and sin. Hugh Hefner, Candy Bergen, Jack Valenti, Felix Rohatyn, Telly Savalas, Twyla Tharp, Herb Caen, Bob Zimmerman and Andy Warhol are but a few of the trendy many who've whiled away the idle hours over the big board. Hollywood vultures and Wall Street bloodsuckers make sweetheart deals while pushing their checkers around, and coke-crazed groupies stake their favors on a turn of the dice. But why has this ancient game become a mass movement, and why now?

Chances are it has something to do with sheik chic—the tent-heads invented the game, and it's become a fashionable way for London's casinos to take their petrodollars away from them. Then there's the youth culture: thousands of nomadic

hippies drawn to the Middle East for hashish and dharma, returning with ivory-inlaid backgammon boards and a mystical devotion to the game. *Mary Hartman*, the raid on Entebbe, the new pornography and disco also suggest a few possibilities. Whatever else it may be, though, backgammon has become a badge that says "I'm in," which, as we shall see, is the status it always has conferred on its most devout followers.

For thousands of years backgammon was a game of the elite. It was first played by royalty and the priesthood. Later the game fascinated philosophers, mathematicians and, of course, gamblers. Each found its own secrets spelled out—in code—in the game, and secrets are power. For backgammon provides an exciting model of Chance, or Fate, a thing the elite tends to play with more than the masses. The game theory conducive to success on the backgammon board is inextricably linked to the control of countries and the winning of battles. Today the secrets are democratically dispersed in thousands of backgammon manuals, but they were once as jealously guarded as the name of the Master Mason.

Dice and primitive crap layouts have been found in such exclusive spots as the royal tombs of Egypt and the Great Death Pit of the Kingdom of Ur (roll them bones!), 4,000 and 5,000 years old, respectively. Were the pyramids really casinos in the desert, like Vegas, built by high-rolling gamblers from outer space? At any rate, the ruling classes of Egypt and Ur obviously took their dice seriously, for their play was inextricably bound up with the development of pyramid engineering and the meteorology that predicted the rise and fall of the Nile—feats that guaranteed the continuity of power to those who held it. As a result, backgammon has been tied up with the development of mathematics for 5,000 years, and still influences the scientists who work in the most abstruse equations.

There are two reasons for the intimacy of backgammon and math. The first has to do with the evolution of "modern" six-sided square-faced dice ("Oh, you means dice!"). The other deals with the spirit of backgammon—the element of Chance and its evolution from an inscrutable Fate to its role as a calculable factor in the scientific social security of modern technology.

The elements of plane and solid geometry were the "state secrets" of ancient Egypt and Iran (Persia). A few carefully selected individuals were entrusted with such information, and they were sworn to absolute secrecy. No one was permitted to write any of it down; it was transmitted by word of mouth. Gaming boards are found only in the graves of ancient royalty.

When the Greeks finally got this infor-



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mation, they weren't so discriminating, and they began writing down everything they could remember from their exposure to the Middle East. The game was imported along with math and philosophy from secret Mideastern connections, and the "backgammon" that was played in Athens approximately 2,500 years ago is described in a thin volume entitled *Backgammon: Its History and Practice*, written in 1844 by a London dandy named George Frederick Pardon:

Dice were common in Greece, and an intellectual people would soon have wearied of throwing them without further result than the ascertaining who flung the highest numbers; hours, unattended with deep gaming, is so wearisome that some contingent play *must* have been in use, and we accordingly find among them a sufficient approach to backgammon. They used a kind of tablet known as the *abacus*, in form not unlike our gammon board, with lines traced upon it; the men, or counters, were moved according to the numbers on the dice alternately flung by the two players. This amusement so evidently resembles the game of which we write, that it is fair to conclude the first authentic mention of it is in the Greek writers.

In the 1890s, certain Sanskrit writings were translated into English and described a game that is unmistakably the prototype of modern backgammon. According to these manuscripts, a Persian emperor named Ard-shir Bābākan I, the

first emperor of the Sasanian dynasty of Iran-Zamin, invented backgammon early in the second century A.D. The ancient Persians called this game *nards*, to commemorate its inventor. This game was played on a cloth

... containing 12 divisions or compartments according to the 12 solar months of the Persian year and the *muhrahs* or counters with which *Nards* was played, corresponded with the number of days of the lunar month of the Fire Worshipers or Ancient Persians; and one half of the counters were white and the other half black, because one half of the month has moonlight nights, and the other half dark ones. The moves from one division or space to another he [Ard-shir or Nardishir] likened to the decrees of destiny, which vary and change, are turned and inverted, in the life of every human being, and fate of each one differing from that of another.

—*Society of Bengal Journal*, 1902

The reference to "Fire Worshipers or Ancient Persians" suggests the possibility that the origins of backgammon are even more ancient. It was during the reign of this same Ard-shir Bābākan that Zoroastrianism, or the Magian (read Magician) Order, became the official religion of the empire. In other words, the same man who invented backgammon also began a new political dynasty based on a spiritual renaissance. Members of the Magian Order traced their wisdom back to the profound teachings of the legendary Zoroaster, who preached the cult of Ahura Mazda (Fire/Light).

To suggest that early Zoroastrians played a rudimentary form of backgammon is not as outrageous as it may appear. Through Zoroaster, the Magi linked themselves to the *then* ancient wise men of Vedic Iran-India (c. 3,000 B.C.) even retaining in their worship the rituals involving soma, the powerful Vedic drug. Though none of their writings have survived, the Magians are believed to have authored many books on philosophy, astrology, alchemy, theurgy (the summoning of spirits or divine intervention in human affairs), magic and mathematics. Many early Athenian street-sages claimed Zoroaster and the Magi as the source of their inspiration and their information. Very likely Plato (d. early fourth century B.C.) and certainly Aristotle (d. 322 B.C.) were acquainted with the doctrines of Zoroaster, and Zoroaster himself was supposed to be the master who taught Pythagoras his mathematical metaphysics.

This connection between backgammon and the "fathers" of mathematics/

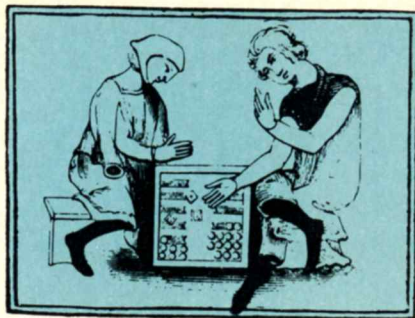
philosophy is an essential clue both to the origins of the game and to the intentions of whoever contributed to its design. As Pardon pointed out, backgammon evolved from early forms of craps, but it is *the perfect compliment to tossing two regular six-sided cubes*. The design of the board and the concept behind the rules governing play are intended to create and maintain a mathematically perfect state of equilibrium, the perfect environment for two persons to engage the fateful cavorting of dice demons. But in order to understand why the ancients designed the backgammon board as they did, it is necessary to understand their concept of Fate and how they related it to the cube form.

Nobody can say with certainty whether the first dice were used for gambling or for divination, but it stands to reason that there must have been at least some ancient wise men who made a living using dice both ways: for prophecy and for profit. Casting lots for oracular purposes is common even among primitive cultures. This is evident from the finely crafted receptacles, or dice cups, that survive. The Greeks used conical cups, the Romans used cylindrical cups, and some North American Indians made round grass baskets about 10 inches in diameter that were specially woven for tossing their flat, two-sided dicesticks. "The die is cast" indicated the course of Destiny not only to the Romans but to most civilizations that we know.

To the thinkers of antiquity, the form of the cube contained within its geometric construction the sacred mysteries that open the doors to cosmic illumination. Through geometry, they found this wisdom exhibited in the perpetual state of balance (the seventh point) created at the axis, or center, of every cube.

The number seven is important in any dice game involving two dice. Of the 36 numerical combinations possible with two dice, seven comes up more than any other number. (Six of the 36 combinations yield a seven. This holds true for craps but not backgammon, where the player may choose to separate the sum total of the roll and use each of the two numbers individually.) All honest dice are marked so that the faces opposite each other add up to seven (e.g., the side with six spots is opposite the side with one spot).

The profound mysteries veiled in the cube form have always found their expression in the religions of the Middle East. Muslims all over the world pray facing towards the small cube-shaped temple in Mecca called the *Kaaba* (Cube). Pilgrims to Mecca still walk around the *Kaaba* seven times, and each time round they cast one of the seven stones they carry against a certain pillar in the area. Mohammed (c. 600 A.D.) is said to have renovated the temple's exte-



The altar of Apollo's temple on Delos was a cube constructed entirely of horns from sacrificial goats. From Apollo's cube at Delos evolved the theory of probability — "odds" were born.

rior and to have emptied the interior, leaving nothing but 13 gold and silver lamps burning inside. According to Muslim tradition, the *Kaaba* was built by Adam, directly under the spot occupied by the *Kaaba* in heaven.

The design of the backgammon board is an attempt at demonstrating or representing the mystery of "cubeness" in the absolute certainty of the two-dimensional plane. In theory, at least, it accomplishes this feat: as the square has four sides, so the backgammon board has four "tables," or divisions; as the cube has six faces, so in each backgammon division there are six "pips," or points; and just as the cube implies the seventh point at its center, so does the unnumbered "bar" imply a seventh point, six points in from any corner, at the center of the board. So both are based on the mathematical function of 4×6 , and both imply the number seven. Using classical "whole number" arithmetic and its concept of "perfect numbers," it is possible to prove that the backgammon board was intentionally designed to theoretically demonstrate "cubeness" in a two-dimensional plane, and the the unnumbered bar is meant to represent the seventh point at the center of the cube.

To Pythagoras the universe was composed of numbers. He honored the digits and geometrical forms with the names and titles of gods. He saw a divine geometry at work in all nature, especially in the rational nature or reasoning power of human beings.

Pythagoras devised a system of mathematical philosophy that, when applied to the backgammon board, brings to life the circles, triangles and cubes as people, places and events

propelled by Chance through a rectangular utopia of justice. And even with all our sophisticated technology, there is still only one way today's backgammon player can appreciate the inner beauty of the game's geometry, and that is to approach the board as a Pythagorean would have over 2,500 years ago.

To understand the mathematical perfection of backgammon, you have to have Pythagoras' idea of perfect. There are no fractions or decimals or zeros in Pythagorean arithmetic, since unity (1) is indivisible, or irreducible; it can stand for the smallest particle of existence or it can stand for the entire cosmos. And since there must be at least one of everything in existence, zero or absolute zero or absolute "nothing" or the "void" does not exist.

In this "whole number" system, only those numbers are "perfect" whose "whole number" parts, or "submultiples" (a "submultiple" is a number that is contained by another number an integral number of times without a remainder), when added together again equal the original whole number from which they were derived. For example, the first perfect number is 6. The submultiples of 6 are 1, 2, and 3, since 6 contains each of those numbers an integral number of times. The sum of 1, 2, and 3 is 6. Perfect numbers are very rare; 6 is the only perfect number between 1 and 10; 28 is the only one between 10 and 100; between 100 and 1,000 there is only one, 496; and between 1,000 and 10,000 there is again just one, 8,128. Certainly, to the eye of the classical geometer, backgammon must have appeared to have been born from the depths of the cube, for both are constructed of the first two perfect numbers, 6 and 28.

While there appear to be only 24 spaces (6 pips \times 4 tables) on the backgammon board, there are actually 28, since the bar too is a space on the board that can be entered and occupied from any of the 4 tables. If the unnumbered bar is given the number 7 (6 pips in from each corner) and the rest of the pips numbered accordingly from 1 to 25, the board makes Pythagorean sense.

Pythagoras conceived an allegory of life from the elegant patterns formed by the generation of number. Each number has a specific meaning that describes its position and function in the infinite "net" of numbers. On the backgammon board, the numbers 4, 6 and 7 are the basic components of design. The number 4 relates to the 4 sides of the square faces of the cube and the 4 divisions of the backgammon board; its meaning in Pythagorean arithmetic is solidity, strength or power. The 6 pips of each table and the 6 faces of each cube signify perfection of work. The implied 7th point of both means rest, happiness, equilibrium. So, without the "esoteric" 7th

point, there are 4 divisions of 6 pips each or 4 (power) x 6 (perfection of work), for a total of 24 spaces (24 = traveling, exile, inconstancy). With the seventh point, there are 4 (power) x 7 (equilibrium), for a total of 28 spaces (28 = gifts, tokens, omens).

It's hardly worth the effort or risk to transcend the first 23 planes (triangle = surface, plane) only to end up on the road, in exile and headed for oblivion. After the 24th space, the "pieces" are "borne-off" or removed from the board completely: one by one, they are stricken from their "existence" in "backgammon reality" and disappear until all are gone, leaving emptiness instead of victory.

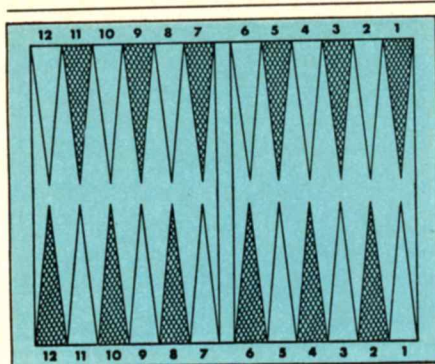
However, if the board is numbered 1 through 25, with the bar counted as number 7, then the last plane the pieces reach is the 25th (25 = intelligence, progeny), or the number 5 (marriage, pleasure, joy) squared. The risks these pieces took to make it that far have been worthwhile. They have achieved wisdom through intelligence and they have provided for their impending departure from this form of "reality" by leaving progeny to keep the "game" alive after they've gone.

In the home tables, or "interior world," this numerical arrangement places the first pip opposite the 25th pip, the second opposite the 24th, and so on. Each pair adds up to 26 (benevolence, charity). On the other side of the bar, in the "exterior world" of the outer tables, the sum of each pair of pips is 27 (bravery, heroism, daring). In the traditional 24-pip numbering, the pips facing each other add up to a sum of 25 on both sides of the uncountable bar point.

Logically, the center bar has to be accounted for somehow. According to the rules, any piece left occupying a "plane" alone is liable to be thrown off course by the opposition. When this occurs, the piece retires to the "center," the 7th point, to rest. Neither this piece nor any of the 14 other mates can make any forward progress until the piece on the bar can find a way to begin again. For the backgammon player with a piece on the bar, this delay is best used to reassess the position and to look for openings or mistakes in the opponent's defense to make up for the player's own lack of foresight. The player's piece must remain on this plane, physically immobile, until the player can find an opening, or an omen, through which to reenter the action and turn the tide of events.

There still remains the allegorical question of where the pieces in the game "go" when they leave the board. The pieces are to be removed from the board, but there's no designated place for them to go. Are they just "out there" allegorically, or somewhere "in infinity" numerically?

In the *Laws of Backgammon* prepared



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by the Racquet and Tennis Club of New York City in 1931, rule 3 reads: "For entering and throwing off, the points in both inner tables are considered as numbered from 1 to 6, beginning with the point nearest the light." What better ending can there be for the allegory: the pieces leave the backgammon "world" headed straight for the "Light." Knowing that the game was played by the Fire Worshiper cults of ancient Iran and India might help explain this otherwise unnecessary stipulation.

How closely linked are Luck and Merit,
Doth never to these fools occur;
Had they the Philosopher's Stone, I swear it,
The Stone would lack the Philosopher!

—Mephistopheles,
in Goethe's *Faust*

We say we are playing against each other at backgammon and it's true, we are playing opposite the moves of another person. But it's more accurate to say we play backgammon *with* each other and against the dice—both players inevitably must deal with the odds, or Chance. Each player helps create and is in control of half the scene, but when it comes time for action, the actual moment of confrontation is with Chance, not the other player. The will of the dice is the only unknown in backgammon. Everything else about the game is balanced by design and open to the inspection of either player at any time. Nothing is hidden but dice in dice cups—the Chance element.

Some players like to talk to the dice to get the Fates to fall their way, while others have made a science of the game by memorizing the odds for certain numbers to appear for certain situations on the board. Most serious players use a combination of the two methods. But with backgammon, no matter how lucky somebody is, no matter how familiar with the theory of probability a player

may be, a bad or untimely series of rolls can ruin anyone's plan at any point in any game. Of course master-gamblers use these perfectly natural losses to keep their hustle alive.

At the time that the ancient Greeks were turning on to mathematical philosophy, they were also being initiated into the fire cults of the ancient Persians. The mysteries, rites and rituals of the fire god of the Middle East were absorbed into Greek culture in the form of Apollo, the god of light, music and medicine.

Apollo was the first god in the classical pantheon to communicate the will of the Fates directly to human beings. He engaged in prophesying during his time on the earthly plane, and after his departure continued to speak to humans through drug-entranced priestesses. Apollo had two fabulous temples: One was on the island of his birth, Delos (Light), southeast of Athens in the Aegean Sea. The other was at Delphi, in the mountains northwest of Athens, on a line with Delos, with Athens situated approximately midway between the two. The main attraction at Delphi was a subterranean chamber with a gaseous fissure where Apollo spoke through his priestess, revealing the will of Destiny. A brass tripod was built over the fissure; the priestess climbed into a chair suspended from the center of the tripod, fastened herself in her seat belt and fell under the influence of the fumes that enveloped her. In this state of "enthusiasm" (in Greek, *en theo* = god inside), she spoke with Apollo's voice. The god's oracular utterances were usually veiled in symbolism and open to various interpretations.

The altar of Apollo's temple on Delos was a cube constructed entirely of horn from sacrificial goats. From Apollo's cube at Delos evolved the theory of probability—"odds" were born. According to the myth, Apollo became angry with the inhabitants of Delos and visited a plague upon the island. In the ensuing pandemonium, the people consulted his oracle, who commanded them to double the size of the altar without changing its shape. Modern mathematicians still refer to this particular cubic equation as the *Delian problem*.

The classical geometers, however, lacked the algebra necessary to solve this or any problem involving cubics. They rejected any mathematical proof that couldn't be constructed on the physical plane before their very eyes. Grudgingly, they accepted an approximation for π in their calculations on the circumference of circles, but only because the Egyptians and Babylonians had accepted this approximation before them. Since nearly all cubic roots are necessarily approximations, no classicist had much of a chance to find the solution to any cubic equation, except those very rare equations whose

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Stalking Bigfoot

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the edge of the woods. Melvin, who has been the staunchest UFO disbeliever of anyone around, says he and Kenneth saw great glowing spheres just above the trees several times tonight. "You don't think there's anything to that UFO business, do you?" Melvin says, believing his most frightening suspicions.

I move closer to the woods. Melvin and Kenneth darkly warn me not to go any further. I want to see whatever is in there and I want to see it bad. Another loud crash. I get the shakes. My mouth fills with the taste of coins. But I want to go into those woods and I tell Melvin and Kenneth so. Melvin aims his gun above my head and says he'll keep me covered. I determinedly walk forward, as if pushing against an elastic wall. More branches cracking, exploding. It is pitch black inside these woods. I can't see a thing. I hear something moving a few feet in front of me and I suddenly think this isn't such a hot idea and I tear out of there rabbit-quick.

Melvin and Kenneth and I stand between Melvin's house and the woods for an hour and a half while we hear noises of something colossal close by. Twice, Melvin says he sees some form through the trees, but I see nothing. Then we hear the creature plod away, fading deeper into the dark woods.

Melvin is relieved because his home and family are safe, and I am miffed because I have seen nothing. Melvin says he wishes I saw something, and Kenneth says that can be arranged and yowls those creepy noises that he thinks attract the beast. It is a very bizarre growl he makes as he cups his hands in front of his mouth and inhales.

From the woods we hear heavy footsteps barreling toward us. Closer. Closer. I've got the heebie-jeebies bad, but I step forward and stand in front of the path so I can see. And as incredible as this sounds, it's the absolute truth. The thuds approach the wide part of the path 25 feet away, still behind trees; they swerve to the left and change to what sounds like a loud mechanical clicking. Like baseball cards snapping against wheel spokes, only slow—about two clicks per second—and much louder and very mechanical. The clicks come from a height of nine feet. In four seconds, the noise abruptly ends and there is nothing but dead silence. Word of honor.

Melvin and Kenneth and I are trembling. We wait and watch and listen for hours and there is nothing. Then the sun begins to come up and we investigate where we heard the noises. We find a very fresh print where the animal apparently skidded and tried to dig in with its toes. We find a long white hair in the print.

For the hell of it, I try bellowing Kenneth's Bigfoot call. I listen for a couple of seconds and I try again. Then from a few

feet into the woods comes the same grisly call, so loud it sounds like it's amplified over a PA system. It reverberates all around me and I get groggy with awe. It gets louder and louder and then dies out after 20 seconds. I wonder what I said. I run to the other side of the field and get Kenneth and we go into the woods and find nothing.

An hour later I am hiking through the woods, blaring my new Bigfoot call every few minutes. This is not easy to keep up. For one thing, I've been doing it so loud and so often that my throat is getting scratchy. For another thing, I jitter every time I hear it. The creature approaches but stays behind cover 40 yards away, then moves off.

I spend the rest of the morning trekking through Peaceful Hollow, and I get to thinking that whatever is out there remains a very important discovery. We have a lot to learn from these animals. I also get to thinking I don't have any of the proper tools to make that discovery. I've learned a lot about the animal's behavior. I've also learned that its genius lies in its ability to elude people. Since the animal is nocturnal, I need night-vision instruments and camera stations that will be triggered automatically by infrared electric eyes and other equipment. I need to enlist accomplished scientists who will be part of an organized and sophisticated expedition. And I need to know that no harm will come to this creature that has managed just fine without human interference. If I thought this beast would end up in a zoo or circus—or getting picked off by Phantom jets from atop some Vegas casino—I would do everything I could to assure people that Bigfoot is really just a myth, just a legend.

I tell Huston and Melvin and Stanley and Kenneth and Allan and Jim of my plans for a more effective expedition, and they agree that it's needed. I say goodbye, that I'll see them soon. Staring into Peaceful Hollow, I telepath the same message into the thick green woods.

Since I left, the police have been keeping people away from Peaceful Hollow. This resulted from the decision of those in the search that the less the creatures were disturbed, the better. I have changed the names of the localities for the same reason.

Progress: Eight more people, including a priest, have seen the Peaceful Hollow creature. My plans for a return expedition are coming together. A mammalogist is examining the nail Stan Ingram gave me. He has said it looks like it came from a primate, although he hasn't yet been able to identify which particular primate it belonged to. World-known forensic pathologists are analyzing the other specimens. Preliminary tests on the hair reveal it bears many human characteristics, although not enough to make it human in origin. What kind of animal the specimens came from has still not been determined.

This much is certain: nothing, my friends, not a thing. ■

Devil in Dice Cup

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dimensions were all whole number cubic roots. To these early mystic mathematicians, the impossible problems involving the cube form were proof of its transcendental nature.

After the fall of Rome and the disappearance of most traces of the Hellenistic world, the game of backgammon was kept alive in the Arab world, where Europe's Dark Ages didn't interrupt either the advance of mathematics or the playing of backgammon. The mathematician-poet-astronomer, Omar Khayyám (c. 1,000 A.D.) figured out the solution to some cubic equations using algebra, but his discovery remained isolated from European thinkers.

The first European to understand cubic equations was a bizarre character of the Italian Renaissance named Girolamo Cardano, a medical doctor-mathematician-astrologer-professor-gambler and author of many books, including *The Book on Games of Chance*. Although he always liked to refer to himself as a doctor, Cardano's medical practice never went beyond the treatment of influential friends, political patrons and, when necessary, his gambling creditors. Evidently Cardano saw no conflict, ethical or scientific, in reconciling his gambling with his scholarly reputation. His mathematical masterpiece, *Ars Magna*, was printed in Nürnberg, Germany, in 1545. The book contained "Cardano's Solution of the Cubic." *Ars Magna* was published at almost the same time as *De Revolutionibus Orbium* (*On the Revolution of the Planets*), and its effects on mathematical science were as profound as those of the latter on astronomy. Yet, with all his success in scientific and literary pursuits, Cardano found himself in the poorhouse on a number of occasions, due to his fondness for gambling: "Even if gambling were altogether an evil, still on account of the very large number of people who play, it would seem to be a natural evil. For that very reason it ought to be discussed by a medical doctor as an incurable disease."

In the unholy trinity of dice, "tables" (backgammon) and chess, Cardano classifies backgammon as the best example of games involving both skill and chance. His chapter "On Games of Chance Among the Ancients" is devoted largely to backgammon, which he knew to be among the oldest games in the world. He too saw a metaphor in the backgammon board; he quoted the Roman playwright Terence: "The life of man is like when you play with *tesserae* [backgammon]: if the best throw does not turn up, then whatever does turn up by chance, you must use to the best advantage."

In his *Book of My Life*, Cardano's

description of himself epitomizes the kind of person who might easily become addicted to the game of backgammon:

Nature has made me capable in all manual work, it has given me the spirit of a philosopher and ability in the sciences, taste and good manner, voluptuousness, gaiety, it has made me pious, faithful, fond of wisdom, meditative, inventive, courageous, fond of learning and teaching, eager to equal the best, to discover new things and make independent progress, of modest character, a student of medicine, interested in curiosities and discoveries, cunning, crafty, sarcastic, an initiate in the mysterious lore, industrious, diligent, ingenious, living only from day to day, impertinent, contemptuous of religion, grudging, envious, sad, treacherous, magician and sorcerer, miserable, hateful, lascivious, solitary, disagreeable, rude, divinator, envious, lascivious, obscene, lying, obsequious, fond of the prattle of old men, changeable, irresolute, indecent, fond of women, quarrelsome, and because of the conflicts between my nature and my soul I am not understood even by those with whom I associate most frequently.

The unlikely mix of science and gambling in Cardano has since proved itself to be the norm rather than the exception among the famous men who have contributed to the modern refinement of "probability." Galileo took time off his other researches to get involved with the gamblers who approached him for advice. He wrote a small treatise on the game of dice. Blaise Pascal (1623-62), French mathematician, philosopher, physicist and inventor of the first calculating machine at age nineteen, became seriously involved with a colorful character by the name of the Chevalier de Méré, an intellectual gambler. De Méré translated his gambling questions into neat mathematical problems that fascinated Pascal and became the basic concepts of a new branch of mathematics—probability.

Early in the eighteenth century a mathematician named Abraham De Moivre, who gambled in the coffee-houses of London, published a study of probability entitled *Doctrines of Chance*. He formulated the concept of the normal curve (trends), a basic tool of today's economic and political world. Like Pascal, he maintained that the theory of probabilities contained moral implications. In his preface to *Doctrines of Chance* (1718), he says he hopes the book may "be a help to cure a kind of superstition, which has been of long standing in the world, viz., that there is in play such a thing as Luck, good or bad. I owe there are

a great many judicious people, who without any other assistance than their own reason, are satisfied, that the notion of Luck is merely chimerical."

In 1812, the mathematician Pierre-Simon Laplace published *The Analytical Theory of Probability*, launching probability theory into practical application. His ideas were developed during the 1800s by the Belgian mathematician Quetelet, who first used figures as a source of sociological theory. Florence Nightingale, the "Passionate Statistician," was an admirer of Quetelet, and regarded the study of statistics as a religious duty.

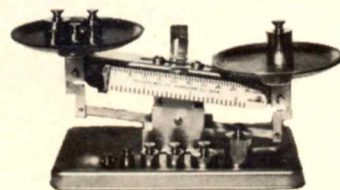
At this same time, Darwin was constructing his theory of evolution based on what he called "natural selection," the interplay between choice and chance in the development of species. A half century later, Einstein was telling us, "We have to abandon the description of atomic events as happenings in space and time, we have to retreat still further from the old mechanical view. Quantum physics formulates laws governing crowds, not individuals. Not properties, but probabilities are described; not laws disclosing the future of systems are formulated, but laws governing the changes in time of probabilities and relating to great congregations of individuals."

In 1928 John von Neuman wrote a mathematical treatise on the strategy of poker that was used by Project Rand to solve problems of military strategy. In his masterwork on probability, *Theory of Games*, he states: "A theory of rational behavior—i.e., of the foundations of economics and of the main mechanisms of social organization—requires a thorough study of 'games of strategy.'"

At this very moment, giant computers in the bunkers of the Strategic Air Command may be waging a theoretical Armageddon on backgammon programs. Indeed, the mega-states of the universe may now be fighting wars with gammon, not guns. But the game will probably continue to be played more for amusement than for statistical modeling or Pythagorean pondering. And in an age ruled by probability computer programs, opinion polls, random samplings and market projection, combining pleasure with meditation on ever-changing odds may be an ideal way to practice for the game of life. Backgammon may be the game of lounge lizards and serious tokers everywhere, but it still has socially redeeming features built in.

Remember, Apollo's prophesy could be taken two ways—mathematical meditation and stoned gas euphoria. Perhaps it's no coincidence that backgammon is so popular with today's hedonistic gamblers. Serious backgammon may be an ancient way to play with Fate and win. And if that doesn't work, you can always flip the board over and play checkers. ♠

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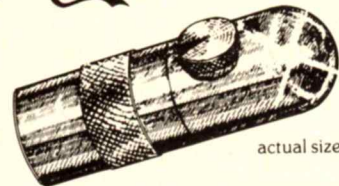
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