

Ed Thorp has an unbeatable system at blackjack

# The Professor Who Breaks the Bank

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The gambler of song and fable almost never seems to lose and he behaves so nobly on those rare occasions when ill fortune costs him his roll (or the deed to the old plantation) that he must be given an A for aristocrat every time. Reality is somewhat different: the compulsive plunger either cheats or is doomed to bankruptcy and his manner, as a good many Boot Hill epitaphs suggest, is often less than endearing. The dark-eyed river boat cardsharp was usually a sport who would steal money from his girl friend's stocking, and Arnold Rothstein was a larcenous boor. But romantics need not mourn. Comes now Edward O. Thorp, a 31-year-old mathematician who is not only equipped with a Ph.D., horn-rimmed glasses and a modest mien, but with a genius for blackjack, or twenty-one. Thorp does not cheat. But Thorp cannot lose.

Humans have been betting on games of chance since the dawn of history, but Thorp—a faculty member at New Mexico State University—must be considered the greatest system player of all time.

By inventing a precise and valid method of circumventing odds, he has done for gambling what Roger Bannister did for the mile. He knows exactly what fraction of advantage he holds, or what fraction the house holds, before each hand of blackjack is dealt. By rigidly keying fixed units of his capital to this knowledge when betting, he is able, thanks to predetermined mathematical formulas, to achieve that condition of beatitude about which gamblers have always dreamed: he *must* win more than he loses and, though he plays forever, he *cannot* go broke.

Thorp arrived at the basics of his system because he was the first man to realize that the electronic computer was capable of analyz-

ing all the millions of possibilities inherent in a deck of cards. But converting this stupefying mass of data into a simple and coherent method of operation was something else again. And making it work against cold-eyed professional dealers in Las Vegas, Reno and Lake Tahoe has not only demanded lightning reflexes but a degree of audacity, concentration and sheer, cold nerve one does not come by simply through achieving a doctorate in mathematics.

Thorp was quick to discover that the Nevada casinos will let the well-heeled and irrational plunger win large sums (since the house is virtually certain to win them back), but will send in a "mechanic" to cheat almost any consistent player who edges more than a few hundred dollars ahead. Thorp has been victimized by crooked dealers in almost all of the major casinos in Nevada. He has been backed off (thrown out) by pit bosses, he has been harassed by shills, plied endlessly with booze, eyed significantly by plug-uglies and, on two occasions, rendered spectacularly rubber-legged and goggle-eyed by knockout drops, courtesy of the house. He has compensated for these hazards of casino play by converting himself into a cardsharp as quick, cool, skilled and wary as any who ever followed a gold rush or rode the transatlantic greyhounds.

"The people who run the casinos are tough and smart in so many ways," he says, "but they belong in the Dark Ages. Sometimes I can hardly believe the way their minds work—it's fantastic. They explain the phenomena of their world the way the ancient astrologers did. They really believe that the dice get hot!"

Thorp calculates he could average \$300,000 a month if the casinos did not cheat him, if he could play head on (alone against a dealer) for eight hours a day and if he could make the \$500 maxi-

um Nevada bet on suitable occasion without stirring up a hornet's nest. He is certain, in fact, that under these conditions he could win the earth and everything on it in 80 days. In reality he can realize but a tiny fraction of his system's potential. Still, he feels that he can visit Las Vegas or Reno perhaps four or five times a year and, by using false names and disguises, betting small and moving from casino to casino, that he can "pump out" \$2,000 or \$3,000 each time before attracting attention.

No small part of Thorp's difficulties with dealers and pit bosses stems from his academician's insistence on letting the world in on his discoveries. He has not only written technical papers on the subject ("A Favorable Strategy for Twenty-One," *Proceedings of the National Academy of Sciences*, vol. 47, no. 1, 110-112, 1961), but has published a book, *Beat the Dealer* (Random House, 1962), which explains every detail of his system. Thirty-five thousand copies of *Beat the Dealer* have been sold in the 15 months since it went on the market and its readers descend on the Nevada casinos in increasing numbers every month.

If Thorp had kept his typewriter shut, he would doubtless be able to milk the blackjack tables with comparative ease, even today, for the casino operators still do not seem to realize the enormity of the revolution he has visited upon them. The guardians of gambling's ancient concepts instinctively feel that a college professor has to be some kind of nut, and a thousand years of underworld tradition suggests that system players are simply suckers with a method for going broke. However, they have been subjected to such a broad and enthusiastic attack by the new breed of book-learned gambler that they have made it increasingly difficult for any blackjack player—Thorp, of course, included—to take away more than a few hundred dollars at a time.

There are reasons. Two hundred of Thorp's apostles can now use the most complex aspects of the system—and 200 winners constitute a cancer on the very liver of the Nevada gambling empire. And though the boobs and marks may go on losing after reading *Beat the Dealer*, they lose so slowly that they inhibit the flow of money into the casino cashboxes.

Thorp the Card Shark suffers from this state of affairs, but Thorp the Author, Thorp the Citizen and Thorp the Social Critic seem absolutely delighted by the whole phenomenon. Gambling, in one sense, is only a hobby with him. He devotes far more time to functional analysis, the area of mathematics in which he specializes, and to publishing scientific papers with titles like "Best Possible Triangle Inequalities for Statistical Metric Spaces" than to games theory or his adventures at the tables. At New Mexico State he also supervises candidates for doctorates in mathematics. Since none of this involves class work, he often leads a quiet, detached and contemplative existence for months at a time and does so with every evidence of satisfaction and contentment.

Still, gambling has made him a celebrity in the academic world. "Ed's work on blackjack strategy," says Dr. Ralph Crouch, head of New Mexico State's math department, "is the greatest achievement in probability since Cardano [a 16th Century Italian gambler-scholar who charted this branch of mathematics]. He has made himself an immortal." Thorp's name is known in universities around the world. His lectures at scientific conventions are always jammed. The Air Force was recently moved to press a \$32,000 grant upon him to support his work in pure mathematics. And it is gambling which has helped finance and furnish his pleasant, lawn-bordered ranch house, and which has made his bank account—at least by the standards usually applied to a young professor—a very gaudy little institution.

It is hard not to feel that gambling gives Thorp something yet more essential to his nature—foes to smite, dragons to slay. Thorp is

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Mathematician Thorp sits down to a game of blackjack surrounded by sampling of the strategy tables which guide his playing. Charts at top tell player how to play his hand, depending on the dealer's up card.