

WELCOME, DR. THORP

Gambling Times columnist and blackjack expert Stanley Roberts recently interviewed Dr. Edward O. Thorp when Dr. Thorp visited our offices in Hollywood, California. Although he hardly needs an introduction to most of our readers, Dr. Thorp is a professor of mathematics at the University of California, Irvine and the forerunner of all the blackjack systems that have proliferated since 1962. Starting with next month's issue, Dr. Thorp will be contributing a regular column to *Gambling Times* on the mathematics of gambling.

Roberts: Dr. Thorp, it certainly is a pleasure to have you here today, and it's an honor to welcome you as a fellow staff writer for *Gambling Times*.

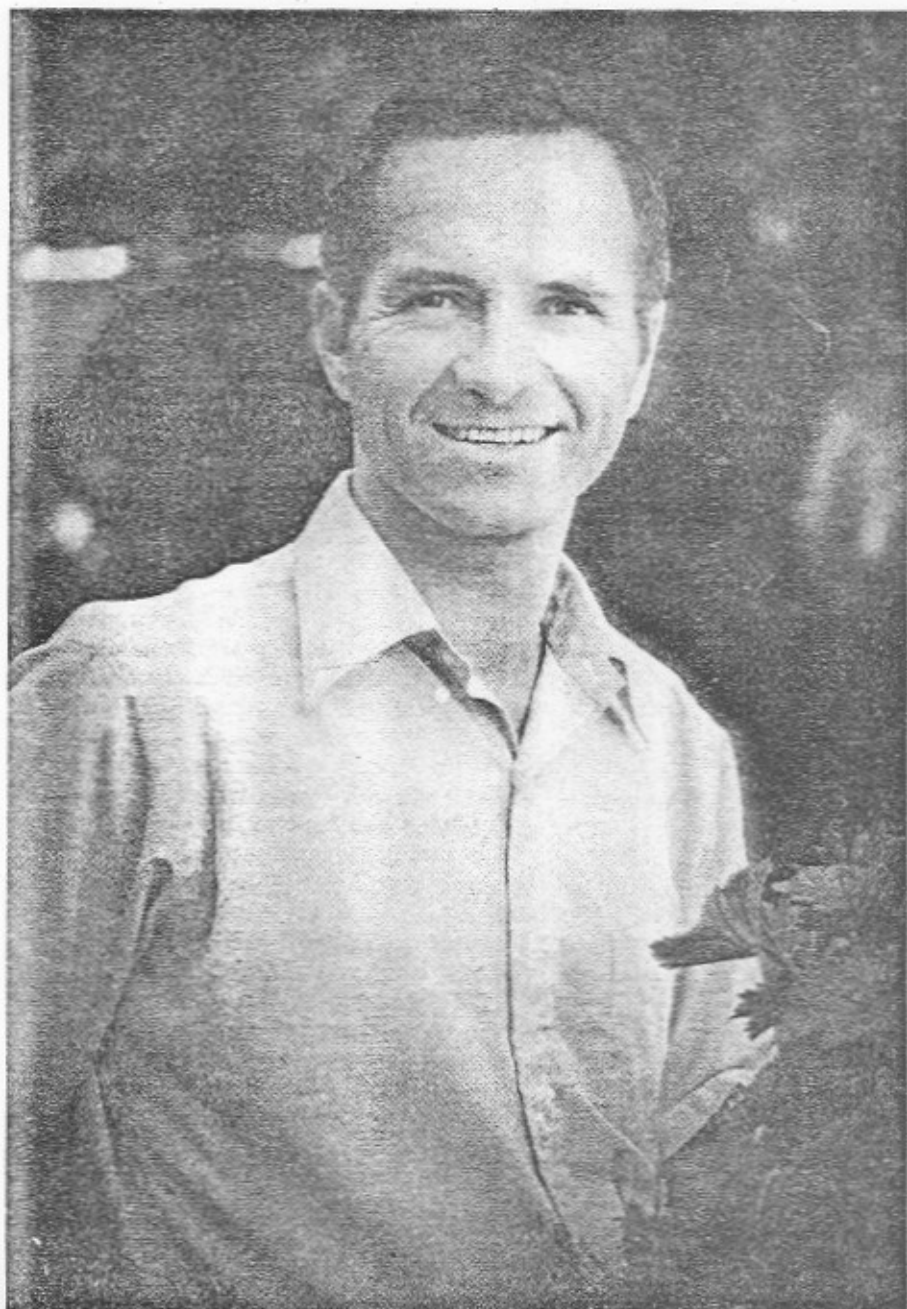
Thorp: I've enjoyed your hospitality here today, and I'm very impressed with what I've seen of *Gambling Times*' operation.

Roberts: Could you give us a little background on why you became interested in analyzing the game of blackjack in the first place?

Thorp: It was purely by chance. My wife and I were going on a vacation to Las Vegas, where we never gambled. Somebody at UCLA, where I was then teaching, showed me the article by Baldwin and co-authors* where they developed a basic strategy.

Roberts: When you read the Baldwin article, did you feel that they had the answer, or did you

*Baldwin, Cantey, Maisel, McDermott, "The Optimum Strategy in Blackjack," *Journal of the American Statistical Association*, vol. 5 (1956).



think that perhaps a little extra work might be needed?

Thorp: Well, they showed that, following their method, you couldn't quite win, but you could come very close. They didn't count cards, and it occurred to me immediately that card counting was almost sure to give people substantial advantages if it was carefully developed.

Roberts: That's because blackjack is a game of dependent trials process as opposed to craps and roulette, which are games of independent trials process.

Thorp: Exactly.

Roberts: Roughly, how much time did you spend developing your formulas and computer calculations before you arrived at a system that was satisfactory to you?

Thorp: I spent about a month going through all the Baldwin notebooks, the calculations they'd done by hand for three years at Aberdeen Proving Grounds. Then I wrote computer programs which would analyze decks with cards missing, based on their ideas, but with important modifications. It took me about a year of half-time work to write the programs, debug them, run them, and think through the results.

Roberts: When you first felt that you had a winning system, can you give us some idea of the way you approached the idea of taking it into the casinos? How did you feel about that?

Thorp: Well, I had forty minutes of casino blackjack playing experience when I learned about the Baldwin system. Then I came back a year later, played for about an hour, and lost \$32. I was trying out the ten-count then. My wife swore that I was being cheated; I thought it was ridiculous to think that a casino would cheat someone, but she finally got me to quit playing. Then I came back about a year after that with a bankroll and backers. I had received publicity for developing the system, and I'd also received a lot of ridicule from people saying that it wouldn't work, so I felt obliged to show it would work.

Roberts: How did you feel the first time you walked away from

the casino with some of their money in your pocket?

Thorp: Terrific!

Roberts: Did you feel like you were David slaying Goliath? Were you overjoyed, or did it prompt you maybe to do some more research?

Thorp: I felt a lot of different things. I felt that I was the best blackjack player who had ever lived, and it's always exciting to be the best at something. It also felt good to know that I had an endless bank account available, so that whenever I needed or wanted any money I could come back and extract it from the casinos. It was also gratifying to develop a mathematical theory and then go out and see it in action, see it actually working.

Roberts: You had some interesting playing experiences after that, which you wrote about in your book. What was your biggest win in any one session?

Thorp: In one two-hour session at Lake Tahoe at Harvey's Wagon

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Wheel, I built up a \$17,000 lead, which then was largely wasted by a backer of mine who was also playing at the tables. But still, we walked away after two hours with \$6,000 in winnings.

Roberts: What level were you playing—what was your maximum bet during that period?

Thorp: At that time we were betting \$50 to \$500. I don't know for sure, but probably the most money on the table, arising from one initial hand, was \$2,000.

Roberts: What prompted you to put this down in a book and let other people know about it?

Thorp: That was another more or less accidental thing. I'd been thinking about the possibility of writing a book, but I hadn't really made up my mind. Then a book salesman came walking through the math offices at MIT, and we got to talking. I became very en-

thusiastic, so I gave him a list of chapter headings. He took them to his publisher, who liked the idea, so I began writing.

Roberts: And the result was probably the best-selling gambling book that has ever been written. Do you have any idea of how many copies have been sold to date?

Thorp: I'd have to guess. As of five years ago, Random House had sold 100,000 hardbacks and 100,000 paperbacks. The paperbacks were just getting going, so the sales are certainly larger now, but I don't know how much larger.

Roberts: Probably in the 300,000-plus range, based on the way we see it moving out of the bookstores.

Thorp: My foreign trust and I hope that you're right!

Roberts: After you decided to publish the book, did you ever have second thoughts about revealing your exclusive knowledge?

Thorp: I did. I had a lot of mixed feelings about publishing. One of the arguments against publishing was that I could presumably use this knowledge secretly for years and make a lot of money from the casinos. To do that, though, I'd have to change my entire style of living and become a gambler. I'd have to live full-time in Nevada or in other casino areas and play blackjack exclusively. I estimated that I could make about \$300,000 a year if I did that—a figure that seemed to astonish people in those days. And it was a fairly conservative estimate—I thought that if I made a thousand a day, which was pretty good compensation for a lot of watching and not very much playing, that I'd make \$300,000 a year. Naturally, I would spread myself around the casinos in Nevada and the rest of the world so that they wouldn't tire of me very rapidly.

Roberts: But you preferred the kind of life that you had built for yourself as a mathematics professor. You had a certain vested interest in that lifestyle.

Thorp: That's right. That was probably the biggest single factor. Another important consideration was that I knew someone else, within a few years, was going to come along and discover these

same things and publicize them if I didn't. So I might as well get the benefits, the satisfaction, of publicizing and being discoverer of these things myself. Finally, I felt this wasn't by any means the only idea of this sort that I was going to have. I already had several others in mind, and at least one of them has paid off a great deal more than blackjack has since then.

Roberts: What idea was that?

Thorp: That was the idea of warrant and option hedging in the stock market.

Roberts: And you've used that fairly exclusively with your own group of people, as opposed to selling it as a service.

Thorp: Basically, yes. I did write a book called *Beat the Market*, which revealed the idea of warrant hedging, but the eleven years of theory and development since then I've kept quite secret.

Roberts: And it's been very profitable.

Thorp: Yes. I struggle with the temptation of saying how profitable

Roberts: Well, that's not necessary. Uncle Sam appreciates your contributions every year, I'm sure. If you had to do it all over, do you think you would have done it a little differently, and in what way?

Thorp: One thing I would like to have done was to start a newsletter and maintain contact with the very large number of people who wrote and inquired about blackjack.

Roberts: I understand you still get inquiries weekly.

Thorp: Yes, I get hundreds of letters, calls, or visits a year, most of which I've just been fending off because I've been very busy. But I'm getting interested in writing again, and maybe through *Gambling Times* I'll be able to re-awaken some of that contact.

Roberts: I'm sure you will, and of course everyone here is delighted to have you writing for *Gambling Times* and informing our readers of your new work on the mathematics of gambling. What is the first subject you're going to be dealing with?

Thorp: Next month, I plan to write the first of a series of articles on figuring the odds in backgammon situations.

Roberts: Backgammon is certainly a popular game, and it's taking off like wildfire. I'm sure there'll be a lot of people interested in that. Could you give a little idea of what your interest in backgammon is?

Thorp: I noticed a few years ago that an important part of the game—where the opposing men are out of contact and there's no more blocking—can be perfectly solved mathematically. There's a total, exact solution which, despite a considerable amount of privately circulated work on the subject, seems to be largely unknown. It's aspects of that perfect solution to that part of the game that I'll be discussing in some of the columns.

Roberts: Backgammon tournaments with huge prizes, including one a few months ago in Las Vegas for a quarter of a million dollars, are becoming increasingly common. Somebody who has this information could profit from it immensely.

Thorp: It won't make a person a world-champion player by itself, but a player of any level will be better off for the information. One of my close associates in the stock market has an uncle who is an amateur backgammon player and not terribly skilled. But in a tournament in Miami in 1975, he met a world-champion player in the quarter finals and eliminated him by using this method.

Roberts: That certainly speaks well for the theory you've been working on. To get back to your other research, you've written a number of papers over the years on the stock market and on gambling, most of which have been published only in a very limited way in special journals. We're pleased that you have given SRS Enterprises these papers to be assembled for future publication. With regard to your stock market papers, do you feel the astute investor could get a good return by using the concepts you developed in these papers?

Thorp: I think that if the investor is able to go at it the way I do, with a computer, a staff, a substantial amount of money to invest, and good information and contacts, that he might very well get an extremely high payoff.

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Roberts: Do your gambling papers offer new mathematical insights into other games? Is it possible that they will give the player an edge, just as your blackjack system has done?

Thorp: I think that people who

read these papers are likely to be better players in the games that are covered. At the very least they will lose less than they did before. It's also quite possible that the ideas in the papers might develop, in the future, into the basis for fur-

ther systems of one sort or another.

Roberts: Well, I certainly look forward to reading your first article in the upcoming issue, and I'm sure the rest of *Gambling Times'* readers do, too. 9

BLACKJACK UPDATE:RENO

Shame, shame on you Lincoln Fitzgerald. Your namesake Abraham would not be proud of your latest actions. After rendering high praise to Lincoln's Nevada Club for dealing the only "honest" game in Nevada in the February issue of *Gambling Times*, I arrived in Reno the second week in May, as the guest of the magnificent new MGM Grand, to find that Mr. Fitzgerald had changed the rules. For many, many years, the Nevada Club would deal every single card out of the deck. Shortly after my article appeared, they decided honesty was not the best policy. Their claim, according to a pitboss, was that they were attracting too many counters. He didn't say whether they also attracted more players, and I for one would make book on increased blackjack profits. That same pitboss also said that their current policy is to shuffle up on suspected counters and that they do not bar these somewhat unwelcome players.

Well, gentlemen, deliberate shuffle-up is an act of cheating. It is a purposeful action taken to alter the random selection criteria that determine the out-

come of the game, and it is a violation of Nevada state law. This act should be cause for closing a casino, although the Gaming Control Board has never resorted to such measures.

As far as roulette players are concerned, the Nevada Club still has the only single-zero wheel in Reno and is naturally highly recommended for roulette . . . if only they would hire a good interior decorator! Both the Nevada Club and Fitzgerald's, under the same ownership, exhibit two of the most tasteless casino decors in the entire state. You almost expect to find sawdust on the floors when you look at the walls, ceilings, and costumes on the personnel. Even the customers seem to be seedier, older, dirtier, more unkempt and disheveled, in keeping with the environment. This is in stark contrast to the extraordinarily good taste found in Harrah's next door and the somewhat more casual but well-done Harolds Club on the opposite side of the Nevada Club. One would have thought the relatively new Fitzgerald's, across the street, would have had some place in its budget for an interior decorator.