

Alan Kotok, the duplicate bridge player

**Unabridged recollections for the occasion of a celebration of his life
including more tutorial information on duplicate bridge than you may want to know**

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I joined Digital Equipment Corporation in the summer of 1967 to work in the PDP-10 software engineering group. DEC's ventures into large computers were off to a good start with the shipment of about twenty PDP-6 computers, and the PDP-10 was a compatible follow-on machine, where Kotok had played a major role in the design of its KA10 processor. The first KA10s were in production and scheduled to ship soon while the hardware engineering team was already turning its attention to the next upgrade, the KI-10 with integrated circuits. The PDP-10 hardware engineering team lived on 5-5 in the old mill, with VP Win Hindle in the corner office managing what soon became known as LCG, the Large Computer Group. Kotok shared a large and busy office with David Gross and Alan Kent. There were too many of us named Alan, and a few too many Daves also, so we easily fell into the habit of using last names only, and no disrespect is intended when I simply refer to Kotok throughout this talk.

I soon learned that both Kotok and Gross liked to play bridge and volunteered to join either of them for duplicate. The engineering team often dined together after work at Russo's restaurant in Maynard, and I vividly recall the October evening of my first duplicate game with Kotok when he explained the basics of his very different bidding system in half an hour over dinner, I absorbed as much as I could and we went off to play at a local bridge club, with some trepidation on my part. That was the beginning of a 38-year partnership where we played together almost once per week. I estimate we played somewhere between 2,000 and 3,000 duplicate sessions together. Typically there are 24 hands per session, we must have played well over 50,000 bridge hands together. Since the total number of possible bridge hands exceeds 635 trillion (binomial 52 over 13), no one need worry about seeing them all in any human lifetime.

In these nearly forty years, there were obviously significant changes in our personal lives as the bachelor Kotok married, raised a family, and then grieved over his wife's death. These were also years of great technological changes, and I think this audience will be interested in some of the ways in which tournament bridge has been impacted by computers and by the internet.

Duplicate bridge was one of Alan's primary recreational interests, and my intent today is to share some of the joy of playing with him, showing the skills and wit he brought to the game. To do this, I need to explain a few things about how duplicate bridge is played, but I will try to keep my tutorial remarks to a minimum. Bridge is a very serious and difficult game with thousands of books written about it, many instructional, some humorous, and many proposing improved techniques for playing the game. It

would be futile to attempt any summary of that vast knowledge in a brief talk. Instead, let me give you a very simple definition of bridge that John McNamara told me about. He said **“bridge has three parts: the bidding, the play, and the recriminations, where the last is much more important than the other two.”** Kotok was good at all three phases of the game and I propose to tell you something about each of them....

Some Duplicate Bridge Basics:

Let's begin with a little "Show-and-Tell". What I have in my hand is a duplicate bridge board. You may remember bridge as a card game where four people sit around the table, shuffle the cards, deal them out, and throw them into the center of the table as each trick is played. Not so for duplicate bridge. It is crucial that the exact same hands be played multiple times, and this device makes it possible. At the beginning of the session, the hands to be played are dealt and each is put into one of these boards. At some clubs, the hands are still dealt by shuffling, but at any tournament the hands will have been generated by computers. A Stanford statistics professor has proved that it requires at least seven riffle shuffles to achieve randomness, and the computer can do much better. We will avoid digressing into a substantial rat hole about random number generators and how computer hands are produced,

Depending on the number of tables in play at the club or tournament, the game begins with either two or three boards on each table, ready to play. Players remove their cards from the board, the bidding proceeds with the board indicating who is the dealer and who is vulnerable. At the end of the auction, dummy is faced in the usual way, but as each trick is played, each player puts his played cards in front of him face down and at the end of playing the hand, the cards are all returned to their respective slots in the board. Tournament bridge is a timed event. After fifteen or twenty minutes, the Director will signal the end of the round, and both boards and players move on to play the next round. By convention, North-South remain stationary, East-West move to the next higher numbered table and the boards move to the next lower numbered table. Notice this folded piece of paper that goes along with the board. It is called a traveler, and is used to record the result achieved at that table when the hand is over.

I must purposefully avoid going into the rather complex details of bridge scoring, but suffice it to say that each pair achieves a particular numeric score on each board and this score is recorded on the traveler. But winning or losing at duplicate is all about **comparisons**. The scores on each traveler are compared at the end of the game. Each score is compared only to the scores of each other pair who held exactly the same cards. If you did better than another pair, you get one matchpoint, worse gets you zero, and a tie is ½ point apiece. If that board were played twelve times during the course of the session, your score is compared to eleven others, so your maximum score on the board is eleven, called a TOP, while if you had the worst score on the board, you get zero matchpoints, a BOTTOM. Usually, you get something in between. Your scores on each of the boards you played are added up to give your final score, and these scores are ranked to identify the winners of the event. At the end of each hand when

the score is entered on the traveler, you get to see some partial information on how well you are doing on that one board.

The bidding:

The bidding at duplicate is much different than in the typical social bridge game. Ladies playing bridge over tea and crumpets (excuse the sexist image) may indeed believe that gossip is the primary goal of the game. At duplicate it is much different. Duplicate is governed by a set of laws adopted internationally and modified at infrequent intervals. [Hold up Rule Book] **Law 73B is titled “Inappropriate Communication Between Partners”** and reads as follows:

1. Gratuitous information. Partners shall not communicate through the manner in which calls or plays are made, through extraneous remarks or gestures, through questions asked or not asked of the opponent, or through Alerts and explanations given or not given to them.
2. Prearranged communication. The gravest possible offense is for a partnership to exchange information through pre arranged methods of communication other than those sanctioned by these Laws. *A guilty partnership risks expulsion.”*

You may be aware of several scandals that have happened in international play over precisely this issue. The highest levels of national and international events are now conducted with a bidding screens positioned diagonally across the table so that players cannot see their partners during the bidding. As you might imagine, Kotok’s ethical standards required strict adherence to the Laws.

In fact, there are only seventeen words that are legal to utter when making a call during the auction. They are the numbers one through seven, the four suits (clubs, diamonds, hearts, spades), No Trump, Pass, Double, and Redouble. However, today the auctions are essentially silent due to the invention of something called a “Bidding Box” which I wish to show you next. These have come into general usage over the last ten or fifteen years and solve several problems. It is no longer possible for your bidding to be overheard at the next table where the board will soon be played. Nobody has to ask for a verbal review of the bidding, since these bids are all left face up on the table until the auction is over. Perhaps most important, many of the issues about improper communication through tone of voice in making bids are removed. There are still disputes about conveying information by the tempo of bids, and players are expected to bid in a uniform tempo, with possible penalties if a slow action conveys information that partner acts upon. Auctions with Kotok were conducted at a thoughtful pace, but had many fewer painful hesitations than with some of my other partners.

The purpose of the auction is to determine which side will play the contract, at what level, and with what suit as trump. The dealer is the first to call, and bidding proceeds clockwise with each player either making a higher bid than the last previous bid, or passing, or occasionally doubling. The auction ends when a bid is followed by three consecutive passes, and the last bid becomes the contract to be played. But this simple

explanation of the rules of the auction does not begin to convey what bidding is all about. Bidding usually consists of a series of bids whereby a partnership attempts to determine its best trump suit and how high a contract should be attempted. Using the limited vocabulary available, the partnership conducts a *conversation* using agreements about the meaning of each bid in a sequence. Those agreements are referred to as a “bidding system”. Bidding systems have evolved significantly during the time Kotok and I played together and Kotok had a hand in some of that evolution.

By the 1950s, Charles Goren had popularized methods for evaluating hand strength and conducting auctions. These methods became known as “Standard American”. But the U.S was frequently getting soundly defeated in international competition by the Italians, who played a system known as “Blue Team Club”. One of our best bridge players, Howard Schenken, proposed a strong club system of his own. Kaplan and Scheinwold devised methods based on 5-card majors and weak NT opening bids. Kotok and his friends at the Tech Model Railroad Club played a lot of bridge and experimented with combining these ideas into what they called “Schenken with weak NTs”. This is the system that Kotok taught me that night at Russo’s. A bridge entrepreneur by the name of Kathy Wei had similar ideas and published them in a book that named her methods the Precision System. In later years, we referred to our methods as “Modified Precision” even though they originated before Precision.

In any bidding system there are two kinds of bids, natural bids and artificial bids, the latter also known as conventional bids, as they are implemented to convey or obtain specific information. The most commonly understood example is the convention known as Blackwood where a 4NT bid asks the question “partner, how many aces do you have?” The usual responses use 5C for zero, 5D for one, 5H for two, and 5S for three. With Kotok, we played Roman Blackwood where 5H showed two matched aces, and 5S showed two unmatched aces. Then we eventually switched to “1430 Roman Keycard Blackwood” which treats the trump king as a 5th ace and has ways to find out about the trump queen. Would you believe that Eddie Kantar wrote a 120-page book that goes into all the nuances of RKCB? This is meant to be indicative of the evolution of bidding systems and their complexities. There have been numerous books on variations of Precision, with “Precision Today” by David Berkowitz perhaps being the most widely read, and offering many significant innovative sequences.

If you sit down to play with a new partner, you need to quickly agree on what bidding methods you will use. You may typically ask a few basic questions to verify the knowledge level of your partner, and then proceed with a basic or complex system based on partner’s abilities. Faced with a novice, the best system has the Acronym KISS, for “keep it simple, stupid”. The *lingua franca* would usually be “Standard American” with a few more questions about frequent additional gadgets. You may hear the term SAYC which stands for “Standard American Yellow Card” and is a good choice for playing with unknown partners on the internet. But in Britain and much of Europe, the default would be methods called Acol. If you are lucky enough to be playing with an expert, you could quickly agree to play “2/1 game force” or “Eastern Scientific” or “Bridge World Standard”, each of which implies the inclusion of certainly commonly

used conventional gadgets, but you would check to be sure you were on the same page about a few of those that had been introduced recently. All of this may bear a striking resemblance to the need to agree on standards for a computer language or a communication protocol except that there are no governing standards bodies at work to carefully define these matters, and so the opportunities for confusion abound. For this reason, established bridge partnerships have a huge advantage over new partnerships, mainly due to having made lots of prior mistakes and resolved their misunderstandings.

When you play duplicate, you must be willing to explain your particular agreements to your opponents, and this is done primarily through a convention card, which you are required to have on the table for your opponents to consult. I've brought along a blank ACBL convention card, the simple SAYC, and the most recent card describing my Precision Agreements with Kotok. Items printed in Red are conventional agreements, and you can see that my Kotok card is full of them.

Bridge conventions have wondrous names. One useful convention Kotok had a hand in inventing is called "Transfer Checkback Stayman". Alas, it takes several minutes to explain it. In tournament bridge, the "Double" bid gets employed for many purposes beyond the raw meaning assigned to it by Mr. Vanderbilt in the 1920s. That obvious meaning would now be called a "penalty double" and means "I think we can defeat the contract the opponents have proposed, and wish to double our rewards for doing so". Today, most low-level doubles are "takeout doubles" and convey the message "partner, please bid one of the unbid suits". But experts have been inventing additional meanings for **double** in specific contexts, and a double might now be any of: a negative double, a responsive double, a support double, a maximal double, a positive response double, a lead-directing double, a Lightner double, a cooperative slam double, a Striped-Tailed Ape double, or a dozen other mutant variations. Since the same single word can have so many possible context-related meanings, opportunities for confusion abound. Treating a take-out double as a penalty double or vice-versa can both lead to terrible results, and this one area provides much fuel for later recriminations.

Different bridge partnerships have different tolerances for change. I have had partners who never met a new convention they didn't like and would propose systems changes every session we played. Kotok, on the other hand, preferred stability, and, albeit in an inherently complex system, strove for simplicity. Kotok was clever at using his skills for generalization and abstraction to broaden the cases to which an agreement might be applied. He was also meticulous in wanting to do a case-by-case analysis to be sure we both understood how an agreement would work in all situations. But when proposing adding new things to the system, we got into a lot of cost/benefit analysis. The extent of the benefits often depended on how frequently one could expect the new agreement to come into play, and the cost to which Kotok was most sensitive was the likelihood for forgetting it. Kotok wisely knew he had a finite bridge memory and he allocated it with all the care of a micro-coder who has an inadequate micro-instruction storage space. I gave Kotok a copy of the Berkowitz book, but most of the fancy sequences it contains come up with very low probability and thus were not worth memorizing. He did agree to switch from our agreement on "impossible negatives" to

the more useful “unusual positive” responses, but both only come up about once every six weeks, so we had little opportunity to test whether he really knew how to use this tool.

Even with an elaborate set of agreements, there is room for individual variations, mainly along the lines of being more cautious or more aggressive. Kotok was the more cautious, and I the more aggressive, so he risked underbidding and he often thought that I overbid. There are missed opportunity penalties for underbidding and obvious negative scores for going down in overbid contracts that prove tenuous. I would complain that I had to bid his cards as well as my own since he underbid them himself. He accused me of being a wild man.

Then, cases will arise which are not explicitly covered in our agreements, and where one of us must choose a totally undiscussed bid to continue the auction. In these cases, I will admit that I sometimes threw Kotok a “curve ball” and that his success rate in catching the proper inferences or nuances was less than desired. I would later complain about his lack of imagination and Kotok would complain to his wife “you won’t believe what Frantz did to me tonight”.

The Play:

Now I want to move on to the second phase of the game of bridge, the play. There are actually two very different aspects of this – offense (or declarer play) and defense.

You might ask if Kotok was good at the play of the hand? He would admit to being a bridge expert, but would then refer you to his favorite definition of an expert:

“Someone who recognizes the right play soon after he has made the wrong play.”

This is not an entirely frivolous or humorous definition. There are plenty of less talented bridge players out there who have no clue that they have just made a very wrong play, let alone what the right play might be. And it is considered quite improper to explain these errors to your opponents unless they explicitly ask you to do so.

Skill at declarer play involves several elements, and Kotok was good at all of these. One has to identify the various alternative lines of play that one might attempt, and Kotok usually found the best line and was quite creative at choosing some difficult sequence of plays. These choices are based on knowledge of the probabilities of the way the opponents’ cards are likely to split, tempered by any inferences that are available from the opponents’ bidding and their plays up to that point. There are also a number of expert plays that are useful in certain situations and Kotok was often able to create squeeze positions, end-plays, dummy reversals, and a few other coups. Kotok was particularly fond of a position called a “trump coup” that occurs quite rarely, and I believe I only saw him pull it off twice or three times. It involves discovering that your right hand opponent has all the missing trumps, and that you cannot lead through him often enough to finesse him out of an apparent trump winner. But if you can arrange to be in dummy at the critical point near the end of the hand when you have arranged for both yourself and the opponent to have only trumps left, you can lead any plain card

from dummy and overtrump your opponent to steal the extra trick. This can be most elegant when you must trump some of dummy's winners to reduce your hand to the same number of trumps as the opponent. All this works only if the opponent has exactly the right distribution and you have lots of dummy entries, but when it did all work, it would light up Kotok's face with a smile that would last for several sessions.

There was one aspect of Kotok's declarer play that was not so good, and that was guessing which opponent had the missing Queen in a suit where a finesse can be taken in either direction. Sometimes inferences are available to point which way to take this so-called 2-way finesse, but sometimes it is mainly a guess, and Kotok was fatalistically convinced that he would always get it wrong. Alas, he did but less than 50%.

Defense is harder than offense, and we certainly had a mixture of successes and failures, and plenty of cases to be referred to later recriminations. Kotok favored and perfected a style which is called passive defense, mainly involving not breaking new suits and preferring not to lead away from strong holdings. It is true that the defense, on average, loses half a trick every time it breaks a new suit, so this is usually sound policy, but one also has to recognize those cases where a more aggressive approach is needed. Among the items on the convention card are the partnerships agreements about which card will be led from specific sequences, and we tended to play standard agreements, except that we always played "MUD from three small". Indeed, this was Kotok's favorite lead. Holding three small cards in a suit, he would lead the middle card (middle-up-down) and continue with his higher card on the next round to give partner the count in that suit.

Signaling is an important part of defense, and there are three kinds of signals. You might guess these are the smile, the frown, and the rolling of the eyes heavenward to indicate a totally clueless action. At duplicate, such explicit gestures are severely punishable, dare I say frowned upon. Instead, signals indicate attitude, count, or suit preference, depending on context, and misinterpretation of signals is another prime excuse for recriminations over why a defense failed.

How successful was Kotok as a bridge player? Tournament bridge games are sanctioned by the American Contract Bridge League and award "masterpoints" for winning or coming close in each event. Unlike chess, where your rating can decline based on losing, masterpoints are never taken away and thus become a dual measure of both success and attendance frequency. We have had many a bad session where we were glad not to be penalized for our temporary incompetence. Kotok was a Life Master. One achieves this title when one has accumulated at least 300 masterpoints, some of them for high placements in Regional and National tournaments. This used to be a considerable distinction, but has become more commonplace. As a measure of standing among tournament players, Kotok's relatively modest masterpoint total is not indicative of his skill, because he played much less frequently than most serious players. Together we had a few notable successes, once winning the right to represent New England in a National team tournament in New Orleans. We also won occasional Regional team events, including an 80-team Flight B knock-out team event with a team

of six players all utilizing variations of our Precision methods. But overall I would describe us in baseball terms as AA or AAA players. At the club level, we were proficient at beating up on the halt and the lame, but against the strongest competition we usually struggled. One bright spot was our participation in the Route 128 Bridge league which played twice a month during the winter season, and where our DEC team won the league the last five years of its existence, until the other teams gave up and quit. This league played as four man teams, and we were fortunate to have some true experts anchoring our team, including Bob Cohen, Bill Braucher, and Jay Keenan.

Compared to Kotok's outstanding engineering career, his bridge successes were relatively modest, but provided us both hours of enjoyment.

Recriminations:

And now we come to the presumably important part, and how we handled recriminations in our lengthy bridge partnership.

Good partnerships avoid arguing at the table, there will be plenty of time for that later. However, if it is clear we have had a misunderstanding on exactly what bidding methods we are playing, we pause to get on the same page, so we will not make the same error on the next hand.

I always recorded out bidding sequences on the score card because I could not trust my memory to repeat them. The score card also contained notations about good plays (gold star awards) and errors, some of which were disputed later. When I was frustrated by Kotok underbidding, I would make the sign of the chicken next to that board. For particular egregious cases, I would award him a chicken with extra feathers. The ownership of chicken awards were also subject to post mortem disputes.

For tournament events, and frequently now also at club games that use computer hands, there are printed hand-outs showing the full deal for each board, and these provide clarity to these post-mortems. I have a couple samples here for those that may be interested. When we played in two session events with time out for dinner between sessions, we could discuss all of the afternoon hands over dinner. While we might chuckle over our good results and the times we fooled our opposition, the serious discussion always concerned the hands we got wrong, and sought out ways to avoid repeating the same mistakes. We would point out alternative lines of play, or missed inferences, or nuances to improve our defenses. These served as a form of design review, and helped us craft improvements to our agreements.

Recriminations is too strong a word for these post mortems, but they were laced with frequent sarcasm, and illusions to turkeys or other un-thinking creatures. Indeed, at the end of a particularly bad session, we might look at each other and each simply say "gobble, gobble". Kotok's most severe epithet, when looking at a hand on which he contended that I had overbid was to sourly proclaim "**Taste forbids!**" in the most puritanical judgmental tone he could summon.

Kotok had a simple rule for assigning blame: If both parties contributed to a disaster, whichever one had made the first mistake owned all the blame. He was also fond of saying, “**I’m a results player**. I don’t care if the line of play you took was theoretically better. If it failed, you should have taken the alternative that worked.”

There is one word which Kotok was fond of using in this kind of discussion and which I have not heard from anyone else. He frequently used the term “pessimal” as meaning the abject opposite of optimal. Does anyone know if this was his own invention or was instead current among some group of people at M.I.T.?

Kotok’s style of criticism evolved over the years. When I first knew him, he was often more blunt than needed, readily proclaiming an idea to be “a total crock”, and it took a while to get used to the fact that such negative outbursts were only directed at one’s ideas and not intended personally. He later learned to mix more diplomacy with his negative comments. I understand that his use of the phrase “with all due respect...” (when indeed he intended no respect at all) became a classic Kotokism at W3C.

Some final thoughts:

I want to comment on several ways in which bridge has evolved in the nearly forty years we have been playing it. In the old days, bridge games were notoriously smoky events and one would go home reeking of tobacco. Whenever, Kotok and I sat North-South we would remove the ash trays from our table, and whenever people asked if we minded them smoking, we would pointedly reply that yes we do mind. Fortunately, today essentially all bridge events are entirely non-smoking, sometimes with two “hospitality breaks” to let addicts go outdoors for a smoke. And in the bad old days, temper outbursts, rude behavior, and shouting matches occurred too often. Disputes would occasionally arise at our table, but Kotok’s style was so impeccably reasonable that I can never recall a dispute turning ugly. The ACBL has been successful at implementing a “zero tolerance” policy that has effectively curbed most bad behavior. The rule is simple: “Thou shalt not do anything to spoil another player’s enjoyment of the game – and that includes your partner.” Married couples were sometimes most guilty of these bad temper displays, and we would encourage them to go fight elsewhere. There have been some notably successful married partnerships, but there have been many more couples who realized that attempting to play bridge as partners was not a good idea.

Technological changes have impacted the game of duplicate. Scoring the game used to be done entirely by hand. The director would collect all of those travelers, compute the matchpoints in the right margin of each traveler and then enter those matchpoints on a large tally sheet, typically a grid of up to thirty players vertically and thirty-six boards horizontally. The horizontal rows would be added to get each pair’s final score, and the sum of those scores should match a check tally. When the tally was off, a search would begin for errors. Kotok was good at arithmetic. You would see him on the other side of the table from the director rechecking horizontal and vertical totals to isolate the errors. If you have been to dinner at a restaurant with Kotok where the

check needs to be split among many people, you have seen this same skill at work where Kotok would add in tax and tip and then compute each diner's bill to the penny. This was not because Kotok was niggardly, he just valued simple accuracy.

Kotok thought that the scoring methods for duplicate could be improved by inventing a mark-sensed card for players to record their results, and made some preliminary designs but nothing came of this before technology moved on to better ideas. Today almost all duplicate games are scored by computer using a program called ACBLscore distributed by the ACBL, and improved over about a dozen years. We are currently using version 7.44, but it still basically has a DOS interface. The director now does data entry of the scores from the travelers, but the matchpointing and other computations are done by the computer and the results printed and displayed in a variety of useful formats. A better system is coming and has been pioneered in Australia. Each table is equipped with a device for entering the result of playing a hand, with verification that the right pair numbers are playing there and other error checking, and these results are then transmitted by wi-fi to the computer that tallies and prints out the results. This permits the results to be ready instantly and eliminates several sources of error that exist in the current traveler-based system. Unfortunately, all those wi-fi stations are expensive and this system is just beginning to become available in this country at a few major tournaments.

You would not be surprised to learn that you can play bridge on the Internet. There are a couple of very good sites that offer tournament-style play with partnerships formed across the world based on similar skill levels. Fears about cheating by extraneous communication with partners by phone lines cannot be easily overcome but have not proved a problem. These services charge playing fees similar to local clubs. Then there are free game rooms on services such as Yahoo, where you can briefly get hooked up with players from all over the world but the standard of play is pretty awful and the level of civility is worse, some apparently mainly getting their kicks from cursing at unknown partners. At Digital, the internet also offered a tool for recrimination in the form of an active discussion forum called the Bridge Notesfile where problem hands were posted and experts gave their opinions on bidding and play. Occasionally, a simulation program would be invoked to compute relative success of different bids or lines of play.

Part of the delight in playing with Kotok is that we usually dined together first, and this was the occasion to learn about parts of his world that I would otherwise never have known. He was fond of explaining technical matters, and tried to teach me a great deal about telephone switching systems beginning with the old electro-mechanical Stroger switches, and then describing the latest trends in digital voice transmission including how time-division multiplexing works. He and Judie would travel abroad on "organ vacations" where Judie would get to play some magnificent pipe organs and Kotok would get a tour of their innards. He could explain and diagram the distribution of wind from the bellows to the pipes in great detail and knew the differences between Italian organs' wind systems as opposed to those built in Northern Germany. He amazed me by explaining that Mexican organs from their colonial era sometimes also had innovative

ideas for wind distribution. Our wives were both musicians engaged largely in teaching music to children and would sometimes join us for these pre-bridge dinners. They could hold their own conversations while Kotok and I discussed bidding methods.

Kotok's preferences for early music were well known, with his attending suspicions of anything composed after about 1750, so Ann and I decided to broaden his horizons by inviting Judie and Alan to join us for a Paul Winter concert at Symphony Hall. Ann is fond of "New Age" music, and Paul Winter is one of its foremost proponents. His group works in an improvisational mode while composing, and includes some recorded sounds from nature in their music. They performed Gaea, an Earth mass that includes recordings of whales calling to each other, and another Canyon Suite with bird songs including Ann's favorite canyon wrens. Paul plays various wind instruments, clarinet or most frequently soprano saxophone. The ensemble had perhaps eight musicians including a willowy blond flautist who performed a virtuoso flute piece that was enjoyable for enthusiasts of any musical era. A cellist formed the backbone of much of the music. They turned off the lights and gave a demonstration of their improvisational working as each musician proposed phrases or embellished another's ideas, but this often led to cacophony instead of any merging into recognizable themes and harmonies. The Kotok's graciously said they enjoyed the evening, but Alan said he found the music somehow all the same. I replied that I had similar difficulty in detecting differences among early music compositions for harpsichord.

And are sessions at the bridge table fraught with a similar sameness? During the course of each hand every player must make about a dozen decisions, maybe three or four in the bidding and another ten or so in the play, a total of perhaps four hundred choices over the course of a session. Some decisions are routine, but others are tricky multiple-choice questions. Some have little effect on the outcome, but some are absolutely critical, and no sirens go off to warn the player that this seemingly innocuous choice is really the most important decision of the session. The diversity of problems presented are more than sufficient to keep strong minds such as Kotok's continually fascinated and coming back. But one also builds enjoyable friendships at the bridge table. I have several other regular bridge partners, some better players than Kotok, but none who provided me with such interesting windows on their world, and made bridge such a thoroughly pleasurable experience. I play bridge with somewhat lesser joy now, and think of Kotok frequently. I miss him. I miss him dearly.

You may have heard the story of the tennis player who went to heaven and discovered a beautiful tennis club with immaculately groomed grass courts and the finest facilities. Even better, many great tennis players from the past were there and invited him to join them for a game of doubles. But then one of the Aussies asked him, "Aye, mate, did yer bring any balls?" I'm not sure that the conventional view of heaven as eternal bliss with no problems to be solved would suit Kotok the master problem-solver, and I'm also guessing they must have a few decks of cards around up there.