A Brief Analysis of the Twenty-One Card Trick and Related Effects [2001-2006]

Introduction

The Twenty-One Card Trick is one of several classical effects which rely upon what might be termed a grid-system method. In other words they involve locating the position of a selected card or cards in more or less the same way as locating a place on a map through the use of grid references. However, to give the impression of magic or mind-reading the system is, in each trick, disguised in some way.

The Sixteen-Card Trick

Probably the simplest of these tricks is that which is generally known as the 'Sixteen-Card Trick', where the sixteen cards form a 4x4 square; although it must be noted that none of these tricks are restricted to a specific number of cards. The present trick may also be done with nine cards (forming a 3x3 square), twenty-five (5x5), thirty-six (6x6), or forty-nine (7x7).

To perform, the desired number of cards (in this case sixteen) is fanned out in front of the spectator's eyes with the request that they think of one of them. The cards are then shuffled and dealt face up on the table in four rows of four. The spectator is asked to indicate in which horizontal row their card lies and is then asked to concentrate on their card. The magician/mentalist, seemingly unable to receive their thoughts (but secretly remembering the number of the row indicated), gathers the cards up (in order), starting with the first card of the first vertical column and ending with the fourth card of the fourth column (this card ending up on the face of the packet). The cards are turned face down, given a false cut or shuffle, then dealt face up again in horizontal rows. Again the spectator is asked in which horizontal row their card lies. The magician concentrates and then reads their mind, naming the selection.

The way the trick works is that it uses a system of disguised grid references. If one were to deal the cards out just once and ask in which horizontal row and vertical column the selection lies, this would obviously indicate the selected card which lies at the point where the column and row cross over. To hide this, therefore, the cards are gathered up vertically after the first layout and re-dealt horizontally. The result is that when the spectator indicates the relevant horizontal row in the second layout they are, in actuality, providing you with the grid reference for the equivalent column in the first layout. This now indicates the selected card to you where the two grid references cross over.

W.W. Rouse Ball's explanation of this effect (Mathematical Recreations and Problems (1892), pp. 97-98; Mathematical Recreations and Essays (1987), pp. 325-326) is interesting for two reasons: first, he describes noting the leftmost card of the indicated row in the first layout in lieu of remembering the number of the row, the selection being situated at the point where the indicated row and column containing the key card cross over in the second layout.

Second, he mentions that the packet can be given complete cuts before the re-deal, the only requisite being that you take the cards and cut them yourself (if necessary) to bring one of the four cards from the original first row to the face of the packet. Of course, this requires the memorising of the four cards (either during the first layout, or setting four known cards in position beforehand), but it makes an effective addition and might throw off anyone who possesses only a working knowledge of the original method, not an actual understanding of how it works.

The Twenty-Five Card Trick

A second trick which uses such a system, which can be found in H. van Etten, Recreations mathematiques (1629), pp.92-93, 'Probleme 64. Plusieurs cartes estans proposees à plusieurs personnes, deviner quelle carte chaque personne aura pensé', is popularly known as 'Mental Poker', because the usual way of referring to the five piles of five cards used in the trick is as hands of Poker (Frank Garcia, Super Subtle Card Miracles (1973), pp. 113-114, 'Poker-Mental').

Five 'players' are each asked to pick up their hand of five cards and think of one of the cards. The hands are gathered up in numerical order and placed on the deck (hand #1 uppermost), the deck false shuffled, and the top twenty-five cards dealt again, face up, as if dealing a game of Stud Poker. Each player is asked to indicate in which hand their thought-of card lies. Without asking any more questions the magician removes or reveals all five thought-of cards!

As before the grid system indicates which cards have been selected. Whichever hand each spectator indicates, the card which they are thinking of lies at the same position as the spectator is situated in the row of five spectators. For example, when the first spectator in the row points to the hand which contains their card you know that it is the first (rearmost) card in this hand. When the second spectator points to one of the five hands (whichever it may be) you know that their card is the second (from rear). This rule applies even if more than one spectator indicates the same hand as containing their card.

The trick may also be performed for only one spectator, and it is very effective. The five hands are dealt face down and the spectator asked to pick one of them up and remember a card in that hand. The hands are then gathered up in order, placed on the deck, and the deck false shuffled. After dealing the five hands a second time, face up, you simply ask the spectator to point to the hand containing their card. Whichever hand they point to you know their card, because the position of this card in the hand corresponds to the position of the hand originally picked up. For example, if, in the first layout, the spectator picked up and noted a card in hand #4, then in the second layout the fourth (from rear) cards in each hand will be a possible selection. (If the reader is familiar with the 'Mental Reverse' effect then this may be performed once you have ascertained which hand/packet contains the selection. Although the repeated deal-out may be superfluous from an effect standpoint without some justification, memory modification can easily occur causing the spectator to merge the two deal-outs into one when reconstructing the effect.)

It should be noted that when performing the trick for several spectators you do not need to remember which spectator picks up which hand, because when they replace their hands on the table you simply gather them up in order from left to right. The first spectator's card is now among the first five cards, the second spectator's among the second five, and so on.

In John Mendoza, The Book of John (1978), pp. 22-23, a very effective way of concluding the routine is described. If two of the spectators happen to indicate that their card is in the same hand, reveal the name of one of these cards then discard this hand after mentally noting the other spectator's card. After the other three selections have been revealed, place all the cards back onto the deck and give it a shuffle, acting as if the effect is over. When it is pointed out that you have forgotten the fifth spectator, apologise and then 'make ammends' by simply concentrating and naming their card as if by direct mind-reading. (Incidentally, the rest of Mendoza's presentation is also very strong, and the reader is recommended to study it. As with the other effects described here, the above is only a bare-bones description of how the trick works, not how it should be performed.)

If one analyses the workings of this trick one will find that it is essentially the same trick as the Sixteen-Card Trick. If one were to perform the latter effect with twenty-five cards, dealing them into five rows of five cards, those five rows are the equivalent of the five hands of cards in Mental Poker. In Mental Poker, when the spectator points to or picks up the hand containing their card, this is the equivalent of them pointing to the 'disguised vertical column' in the former effect.

As mentioned at the beginning, Mental Poker, like the Sixteen-Card Trick, is not restricted to a fixed number of cards. You can use three hands of three cards, four hands of four, six hands of six, and so on. However, using five hands of five seems the best since the numbers used can be justified with the Poker theme, helping to take the emphasis off the fact that it is a mere mathematical puzzle.

Mutus Nomen Cocis Dedit

This third effect, which (as mentioned by Ball) appears in Claude-Gaspar Bachet, Problemes plaisans et delectables (1624), pp. 148-151, disguises the grid system even further, and is possibly the most ingenious of the various tricks. Through the secret application of the phrase given in the title the trick is achieved. (In Bachet the secret phrase is not employed, a numerical system being used instead. A description of the trick where the phrase is used can be found in Gilles-Edme Guyot, Nouvelles récréations physiques et mathématiques, Nouvelle Édition (1799), pp. 241-242. I haven't checked previous editions of this work.)

The first thing to be noted is that in the above phrase each letter appears exactly twice: there are two 'M's, two 'U's, two 'T's, and so on. To perform, ten pairs of cards are dealt face up on the table and a spectator is asked to look at and remember any one of these pairs, remembering both of the cards which comprise this pair. The magician then gathers up the ten pairs in a genuinely random order (but without splitting the two cards which comprise each pair).

After false cutting or shuffling the cards the magician deals them into four rows of five cards, face up, but in a special way, according to the memorized phrase. This is done by first imagining that the four words are written on the table, one under another. The first card is dealt to a position where one of the imaginary 'M's is situated. The second card is dealt where the second 'M' is situated. The third card is placed where the first 'U' is situated, and the fourth where the second 'U' is. The fifth card is placed where the first 'T' is

and the sixth where the second 'T' is. Because there is already a card at the second 'U' in 'Mutus', we jump to the next free letter which is the first 'S', placing a card here, after which the eighth card goes onto the second 'S'.

The ninth card is placed where the first letter 'N' is situated, and the tenth where the second 'N' is. The eleventh is placed on the first 'O' and the twelfth on the second 'O'. Because there is already a card at the second 'M', the thirteenth is placed on the first 'E' and the fourteenth on the second 'E'. Because the next letter 'N' is already covered we move to the next row and place the fifteenth card on the first 'C', the sixteenth going onto the second 'C'.

The seventeenth goes onto the first 'I', the eighteenth on the second 'I', the nineteenth on the first 'D', and the last card on the second 'D', all the imaginary letters now being covered with cards. At this stage you ask the spectator to tell you in which horizontal row or rows their two selections are situated. When the spectator points to the row or rows, you use this information to ascertain the two cards as follows:

Let's say that the spectator indicates the first and third rows. The secret is to look for the only two matching letters in these rows. (There will only ever be two such letters.) In this case the only two matching letters in the first and third rows are the two 'S's. This means that the two selections are the cards lying upon the two 'S's. It's as simple as that. If, as another example, the spectator had indicated the second and third rows, then the only two matching letters in these rows are the two 'O's, indicating that the selections are lying upon these letters.

It is possible that the spectator may only point to one of the rows, indicating that both selections lie in the same row. For example, if they point to only the first row, the (only) two matching letters in this row are the two 'U's, indicating that the cards lying upon these letters are the selections.

As with the previous effect the trick can be done with any number of spectators, not just one; although it would be best to initially deal the pairs face down and have the spectators (up to ten of them) each pick up a pair and remember it, followed by gathering up the pairs, false shuffling, and dealing face up. The reason for this is that if more than one spectator were to remember the same pair (if the cards were face up), then when they both indicate the same rows and the magician reveals the same pair to each person, the possibility of some kind of system might become apparent (even though such an occurrence would still arise if there was no system).

The trick may also be done with a greater number of cards, and even triplets and quadruplets instead of pairs; although the phrase which is used in each case will vary (see Ball, pp. 100-101/p. 328, and Christopher McManus, Word Ways, 1994). Also, the trick need not be done with playing cards, but with words or dates written down in pairs by the spectator, two of them being remembered, and the magician re-writing the words according to the formula given and divining the two selected words. Such an approach - which may well have been the way the trick was originally done if it existed before the use of playing cards - was described by Tom Sellers in his Magical Pleasantries (n.d.), pp. 8-9.

A fairly elaborate, but clever, variation can be found in J.N. Hilliard, Greater Magic (1938), pp. 120-128. In this version the pairs are not gathered up but simply scooped together and genuinely shuffled, then re-dealt to the table consecutively, not according to the familiar pattern. In spite of these two modifications the mind-reader succeeds in divining the thought-of pair or pairs in the usual way.

In Karl Fulves' The Chronicles magazine (No. 6, 1978, p. 1124) there is a version by Allan Slaight called 'Mutant Nomen' which, combined with a system of Overhand Shuffling, cutting, the so-called 'Klondike Deal', and a unique set of words, the twenty cards may be dealt consecutively. Fulves credits the basic idea to Stewart Judah, saying that the latter, '...appears to be the first to deal the original 20 cards in normal fashion after a mixing, although he dealt them in vertical rows. His words were UNDUE, GOANO, TETRA, RIGID (LR, Feb. 1964, Phoenix #319).' Fulves mentions other versions by John Hamilton, Steve Freeman, and Mel Bennett which also attempted to streamline the method.

The Twenty-One Card Trick

We now come to the effect which, although it may have a poor reputation among many magicians, remains one of the classic pieces of card magic; partly because of its strong effect - that of the revelation of a thought-of card - and partly because of its appealing and easy-to-remember method, making it the ideal layperson's card trick. Unlike the first three tricks there is no brain-work involved: it is entirely mechanical.

The trick, like all the others, dates back at least to the seventeenth century and probably much further. As mentioned by Ball, a description can be found in Bachet (1612), pp. 87-90, 'Probleme XVI. De plusieurs cartes disposees en divers rangs deviner laquelle on aura pensé'. (Researchers including Daniel Rhod have referred to Orazio Galasso, Giocchi di carte bellissimi di regola e di memoria, 1593. However, the copy in the British Library has been destroyed. According to http://erdnase.com/nkbib.htm there is a copy in the French National Library.)

Ball mentions in his foreword that, 'Several of Bachet's problems are taken from the writings of Alcuin [735-804], Pacioli di Burgo [1445-1510], Tartaglia [1499-1557], and Cardan [1501-1576], and possibly some of them are of oriental origin...'; while in the foreword to the English translation of van Etten (Mathematical Recreations (1633) - another source of the Twenty-One Card Trick) it is stated that many of the recreations were culled from, '...the writings of Socrates, Plato, Aristotle...', and so on.

Whether or not magical effects such as the Twenty-One Card Trick are among the recreations referred to is not known to the present writer. Although playing cards do not appear to date back more than 1200 years or so (at least in the form in which we would recognise them), that does not mean that the underlying principle used in such effects could not have been used previously in some way.

For example, the Twenty-One Card Trick itself can easily be done with three rows of seven letters, ranging from 'a' to 'u', written on a piece of paper. A letter is thought of by the spectator and the column in which the letter lies indicated. The magician now writes the rows out again using the seven letters from one of the columns not indicated to start the three rows; then using the indicated column to continue; and finally the second non-indicated column to end. A column is again indicated, then this is repeated once more, at the conclusion of which the selected letter will be in the central position of the last-indicated column.

Similarly one could use twenty-one (or however many) pennies with letters marked on them, sliding the pennies from one side of the table to the other each time the columns are converted into rows, the indicated column always being the second one to be converted. A trick closely resembling this appears (along with the Twenty-One Card Trick) in Jacques Ozanam, Récréations mathématiques et physiques (Nouvelle Edition, Rev. Montucla, 1778), pp. 164-166. The trick may also be done with any other appropriate objects: dominoes (as a 'Twenty-Seven Object Trick', minus, say, the double blank), the Major Arcana from a Tarot deck, etc. (While versions such as these seem to emphasize the puzzle nature of the effect even more than the standard version with cards, it is the underlying principle which is of most concern to us here.)

Of course, the great fascination for most people, as usual, is how the trick works. While some may be satisfied with the fact that it is mechanical and works itself, many others, particularly the student of card magic, will want to go further and discover the precise mechanics. While it would take too long to explain them here, the reader can easily discover the workings by simply turning over the cards in the initial thought-of pile and following their distribution during the subsequent deals and pick-ups. Also, it should be pointed out that, like the previous three effects, the number of cards is by no means restricted to a fixed number. Twenty-one is probably an arbitrary number, perpetuated by a mistaken belief that exactly this number of cards must be used. As Ozanam mentions (Ibid., p. 166), the trick can be done with any number of cards divisible by three - even fifty-one, the selection ending up ninth in the final indicated pile (or on the top/bottom of the deck if this pile is placed between the other two and the face-down deck given a Straddle Faro, In or Out at the top).

A version which goes some way towards streamlining the repetitious procedure is Bert Allerton's 'You Remember This One' from Rufus Steele, 50 Tricks You Can Do (1946), pp. 44-45. In this, three rows of six cards are dealt face up and a card thought of in one of the piles. The pile containing this card is placed behind the other two piles and the cards dealt again. The spectator is again asked in which pile the selection lies, at which point the magician scoops up all the cards except one: the selection.

The way this works is that after the cards are dealt in rows the second time, the six possible selections will be the rear two cards in each pile. When you scoop the cards up you leave the rear card of the indicated pile on the table. If there is no immediate reaction from the spectator, you immediately table the card which was second from rear, picking up the previously-tabled card while saying, 'Oh, I meant to leave this card there.' Of course, this is not the most convincing way to end the effect (even if it worked for Allerton), but one could substitute a Top Change (or Rear-Steal Colour Change with the reassembled cards face up) to turn the wrong card into the selection; or alternatively gather up all eighteen cards so one selection is on top and one on bottom. Have the selection named, and either turn over the top card or turn the whole packet face up to end. (This can be preceded by Running the top card to the bottom and bottom card to top in a shuffle before having the selection named; and an 'X-ing the Cut' force may also be used, having the selection named and then turning over either the top half or the top card of bottom half.)

Of course, the version described can hardly be credited to Allerton per se, but nonetheless credit is due to him for recognising and using what is undoubtedly a streamlined version. Essentially the same version also appears in Ball, p. 106/p. 333, although thirty-two cards are used (an écarté pack, dealt in four rows). In my opinion this is even stronger than the eighteen-card version, since the greater number of cards naturally makes the location of the chosen card seem even more impossible. If the indicated pile is placed second from top when combining the piles, there will be two possible selections third and fourth from the rear of the face-up rows after they are dealt a second time. Once the row is indicated a second time, all thirty-two cards may be gathered in an apparently haphazard manner, but with the indicated pile going to the rear. (Varying the manner in which the piles are picked up - e.g., picking up the target pile, using it to scoop up a second pile, then picking up a third pile and placing it atop the first two, followed by scooping the fourth

pile on top of all, etc. - can disguise the ultimate location of the indicated pile.) Cutting three cards to the bottom will then position one selection on top and one on bottom. As before, only one of the cards need be remembered after the row is indicated a second time in order to then reveal the named card at either top or bottom (or via X-ing the Cut).

Fifty-Card Trick Plus Sandwich - Higham

A fifty-card version, dealt into five rows of ten, may also be performed. You will note that (assuming there are no Jokers in the pack) there are two cards left over after the deal-out. Say that you will use these later. (If you like, start the effect by having a spectator nominate two 'magic' cards of the same value and colour, such as the two black Fours. Openly remove these two cards and place aside. Then have them merely think of one of the other fifty cards, followed by the first deal-out.) After the second deal-out, gather-up, and cutting of the two possible selections to top and bottom (while remembering one of them), turn the two remaining cards face up and explain that they will find the chosen card. Place one of these cards face up on top of the pack and one face up on the bottom. Have the selection named. If they name the top selection, turn the pack over and openly side-jog the rear face-down card to the left. Count, 'One! Two! Three!', and execute the Hofzinser Toss, retaining the two face-down sandwich cards and the face-up rear selection (Reinhard Muller's '3-Card Catch'/'Quick as a Wink': Pallbearers Review, July 1971; Fulves, Self-Working Card Tricks, 1976, pp. 111-113). If they name the bottom card, don't turn the pack over: simply side-jog the bottom face-up card and catch the bottom selection between this and the top face-up card. (Of course, the trick as it stands - like many other versions of this effect - is nothing more than a group of disparate elements cobbled together into something resembling a card trick. The challenge, as always, is to find some presentational justification for these elements, or failing that a different form of method which retains the positive elements and discards the negative.)

A version which goes even further in eliminating the laborious deals is Edward Marlo's well-known '21 Card Trick Streamlined' from The Cardician (1953). Again, the student will need to read and study Marlo's method in detail, but it will be mentioned here that only one deal-out of the cards is made in spite of the traditional number of twenty-one cards being used. To the 'initiated layman' who knows the original this should be very surprising. (Other versions can be found in Jon Racherbaumer, Sticks & Stones No. 9 (1977), pp. 1-2, and Racherbaumer, Marlo Without Tears (1983), pp. 146-153.)

As all of these variations show, the main weakness of the original is the repetitious dealing. However, with presentation - without which the true magician would be failing in his task anyway - this main weakness can be almost turned into a strength, as the following version shows. The idea is the same, conceptually, as saying in the classic 'Out of this World' effect, 'To show you that I have perfect control over you, we shall change over the indicator cards, and I will still cause you to deal them correctly.' (Out of this World, Supreme Magic, 1981). Although logic suggests that it probably makes more sense to try and streamline methods rather than use patter to disguise or justify them, if the overall effect is more rounded and logical then you may ultimately have a better effect. (Whether or not the resulting effect fits your own personal style is another factor.)

Justified Twenty-One Card Trick - Higham

(This first appeared, in a slightly different form, in Roger Crosthwaite, The Saga of the Twenty-One Card Trick (2001), pp. 13-14 as part of my original 'Analysis', and later modified in a letter to Abracadabra #2923, Feb. 2, 2002, p. 233. Also see Mike Hopley's '31 - 12', Abra #2922, Jan. 26, 2002, pp. 212-213. Note that the concept of the following can also be applied to the Sixteen Card Trick. Simply have them concentrate on the suit of their card during the first deal-out, and the value during the second. For the record call this 'Justified Sixteen-Card Trick'.)

1. Remove twenty-one cards from a shuffled deck and fan them out with their faces toward the spectator. Have the spectator remember one of these cards, then shuffle them again and deal face up into three piles of seven cards on the table, the piles being spread towards the audience.

2. Ask the spectator to point to the row containing their card. Then say, 'Would you please concentrate on just the colour of your card. Don't worry about the suit or value, just think of the colour.' Concentrate for a few moments as they do this, then say, 'Okay: I now know the colour of your card!'

3. Let the impossibility of this statement sink in, then gather up the three piles with the indicated pile going between the other two as per the standard method.

4. Deal the cards face up into three rows of seven as before, and again have them indicate which row contains their card. Then say, 'This time I would like you to concentrate on the suit of your card. Don't worry about the colour or the value, just visualize the shape of the suit. Imagine that you were drawing that shape on a piece of paper....' After a few moments of concentration, say, 'Okay, I now now the suit of your card!'

5. Repeat Step 3 as described.

6. Deal the cards face up into three rows as before, have them indicate the necessary row, and as soon as they do so remember the central card in this row (the selection). Then say, 'Finally, can you please concentrate on the numerical value of your card. Don't think of the colour or the suit, just the number.' After a few moments' concentration, say, 'Okay: I now know the value!'

7. At this point you are telling the truth: you really do know the value, along with the colour and suit. Scoop up all the cards and place them aside, then look at the spectator and say, 'The colour of your card is _____. The suit is _____. And the value is _____!'

As with the classical version of the effect, I prefer to gather up the cards while turning them face down, followed by dealing out face up again, rather than keeping the cards face up throughout the whole effect.

Taking the opposite tack, as Marlo, Crosthwaite, and others have done in their pseudo versions of the Twenty-One effect, one can simulate the original effect while using a completely unrelated method. The resulting hybrid acts as mental misdirection for anyone who knows the original effect. As before, any number of pseudo versions can be devised, but the following is strong as it retains an apparently mental approach:

Pseudo Fifteen-Card Trick - Higham

This is an even more direct version of my 'Direct 15-Card Trick' from Collected Card Notes (1999), p. 77, which in turn was inspired by the Third Phase of Marlo's 'Nouveau 21-Card Trick' (Marlo Without Tears, pp. 148-149). The idea of using Vernon's deal-down procedure from his 'Out of Sight - Out of Mind' (Ganson, More Inner Secrets of Card Magic, 1960, pp. 14-15), was inspired by Roger Crosthwaite's use of the idea in his Think-a-Card version of the Twenty-One Card Trick. (See Crosthwaite, The Saga of the Twenty-One Card Trick, 2001, pp. 5-6.) The main difference is the method of limiting the number of possible selections to three. Crosthwaite used his Think-a-Card method, while I use a Jerry Sadowitz principle explained in his Cards on the Table (1988), p. 84.

1. Have the spectator shuffle the deck and then deal three piles of five cards to the table face down, followed by placing the rest of the deck aside.

2. Instruct the spectator to cut some cards (making clear the plurality, as you do not want them to cut off a single card) off any one of the piles, look at the bottom card of the cut-off section, and then replace this section on its pile (the one from which the cards were cut). Then have them place this whole pile onto one of the other piles, and place the remaining (single) pile on top of all. These actions should be made while your back is turned to the audience.

3. If you like you can use a Charlier Shuffle at this stage (marking off the top card with the right thumb and ending by cutting this right-jogged card back to the top), or else a Jay Ose False Cut as you use the cuts to apparently demonstrate what just took place (i.e., 'The cards were cut into three piles...you looked at a card and replaced them...then the cards were gathered up). I prefer to use the simplest false cut of all: cut off half the cards and table in front of you; table the talon to the right of the cut packet; and place the cut packet on top of the talon on your right.

4. Place the cards well forward on the table (or on top of a drinking glass) and end a la Vernon: that is, remove five cards one by one with the right hand by their inner short ends, fingers on top and thumb below, placing each card (still face down) into left-hand dealing grip. When you get to the sixth and seventh cards, glimpse their inner indices as they are placed into the left hand. (Note that the cards are not tilted any further than the previous five cards, the faces of which would also be visible to you if you were watching them.) Stop at this point as if you had a sudden impulse. Have the spectator name their selection. If they name the top left-hand card, turn this card over, face up, onto the packet. If they name the second left-hand card, Double Tunrover or Second Deal to reveal (in-jog and take a break below the second card if planning on using the former). And if they name the un-glimpsed card, turn over the top card of the tabled pile.

Of course, each possible number of cards - fifteen, eighteen, twenty-one, etc. - used in the basic effect suggests its own possible methods. If fifteen cards are used, after they are dealt into three piles and the pile containing the thought-of card placed between the other two, the cards may now be dealt into five piles of three. The selected-card pile is pocketed by the spectator, and the magician reaches in and removes the selection (the middle card). (See, for example, Merlini, How to Entertain Children with Magic you can do, 1962, pp. 73-74.)

A visit to a website called Card Trick Central (http://www.cardtricksite.com/) will reveal numerous such variations. The question, as always, is: Is this method and resulting effect stronger or weaker than other versions? As Marlo always used to say, 'Variation for variation's sake is not the way to go. Something must be added.' However, knowing what to

add, or remove, can only come about after contemplating original versions, and websites such as the aforementioned, with all its myriad variations, can provide much in the way of information for the researcher and historian concerned with origins and developments as well as the creator of improved methods. After all, very few of the effects explained online by lay people will have been invented by them, having entered the public domain hundreds of years ago and then passed down the generations by word of mouth and reprint in later works. A study of ancient magic and recreational works will confirm this. In other words, if something appears online in the public domain, it is highly likely to originate in some ancient text. The task is then to find this text and see who to credit (at least as far as variations go - the originators of the underlying effects are probably lost to time).

Conclusion

A study of the Twenty-One Card Trick and related effects will reveal, among other things: that none of the tricks are in any way 'fixed', either with regard to the objects used, the number of objects, or the procedure; and that they all rely upon the same underlying principle. It makes little difference whether the items used are dealt in rows or piles, whether one uses secret codes or counting, or how many times one deals or rearranges. Of course, while it may be inaccurate to say that they are all the same trick, it might be as inaccurate to say that they are all different tricks. There are no clear dividing lines between any of them, rather a whole spectrum of forms based upon a single principle.

Some of these forms have emerged as distinct entities over time due to (1) the archetypal differences between dealing, counting, rearranging, and so on, and (2) the mistaken assumption by those who learn and pass on the tricks parrot fashion that certain numbers, objects, or procedures are fixed and unalterable.

Attempting to understand why the tricks work and how they are related, far from being just an academic exercise, is essential if one wishes to structure and present one's routines more effectively, and even devise new variations and make new discoveries. The present analysis has only skimmed the surface of this subject; experimentation and further analysis will reveal far more.

End Notes

A previous version of this article first appeared in Roger Crosthwaite's IBM lecture book, The Saga of the Twenty-One Card Trick (September 2001), pp. 8-16, of which an abridged version was published on www.card-magic.com. This version is an update of the original, unabridged article.

Please note that much of the credit for references to the older texts must go to W.W. Rouse Ball. Indeed, the roots of my own research can be found in the first page-and-a-half of his Mathematical Recreations. My references are simply expansions on his. The purpose, therefore, was not to make any new discoveries, but to weigh up the archetypal effects and methods from the point of view of magic rather than mathematics, as in the works by Ball and his predecessors. In short this is a conceptual analysis and not an historical one.

30 July 2001, 10 September 2006