

Craps and Magic¹

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ABSTRACT

Problem 1.—How can these players operate simultaneously in both the dimensions of rationality and irrationality, of probability and magic? These cab driver-crapshooters usually bet according to known probability (“rational” aspect of the game), yet they have many magical practices in their betting and shooting that make little sense to an outside observer (the “irrational” aspects of the game). Once one understands the players’ basic belief system, their system of cause and effect, one then sees that their magical practices are also “rational,” that is, the strategies these players use to maximize their own control over the dice when they are shooting and to minimize the control of other shooters are logically consistent within their belief system. Without understanding their belief system, we do not understand their behavior.

Problem 2.—What is the origin of their magical behavior and belief system? An attempt is made to reconcile theories of Malinowski and Kroeber concerning the origin of magic with principles of operant conditioning.

I. PROCEDURE OF DATA COLLECTION

In investigating cab drivers by participant observation, I spent as much time as possible with cab drivers, both on and off duty, participating in whatever activities cab drivers engaged in as a group. One of these recurring group activities was craps-shooting. I participated in seventeen craps games with these drivers. Sixteen of the games were held between the work shifts from about 3 A.M. to 6 or 7 A.M. by Metro drivers in or behind the Metro garage or in

a nearby used-car lot. The other game was held in the apartment of a driver from a different cab company, with drivers from several St. Louis cab companies participating. Portions of several of these craps sessions were recorded, this being unknown to the other participants.

II. RULES OF CRAPS

The rules of the game of craps which were followed by these driver-players were quite simple. They were of two kinds: fixed and variable. The fixed rules, those concerning the rudiments of the game, can be summarized as follows:

1. Two dice are used.
2. Bets are made on the outcome of the throw.
3. If the shooter receives a 7 or 11 on his first throw, he has made a “natural” and is automatically the winner.
4. If the shooter receives a 2, 3, or 12 on his first throw, he has made “craps” and is automatically the loser.
5. Whatever other combination shows up (a 4, 5, 6, 8, 9, or 10) is the shooter’s “point.”
6. On second and subsequent throws of the dice only combinations totaling either 7 or the shooter’s “point” count. All other combinations are disregarded.

¹ The unproved and perhaps unprovable assumption in this paper is that one cannot “control” dice, i.e., that dice are not subject to the wishes or desires or needs of the craps shooter, but obey fully the laws of probability, of chance, of odds. This assumption prevails throughout this paper. The reason it is mentioned at this point is that the field of investigation known as parapsychology disagrees entirely with this underlying assumption. The form of extrasensory perception (ESP) that would apply here is psychokinesis (PK), influencing physical events through mental operations. However, according to a review of over two hundred studies, “. . . evidence of PK as a psychological phenomenon is totally lacking” (Edward Girden, “A Review of Psychokinesis [PK],” *Psychological Bulletin*, LIX [1962], 353–88). See also C. E. M. Hansel, *ESP: A Scientific Evaluation* (New York: Charles Scribner’s Sons, 1966), especially pp. 153–63.

7. If the shooter makes his "point" before a 7, he wins.
8. If the shooter makes a 7 before his "point," he loses.
9. Changing shooters:

A shooter is allowed to continue shooting until he has received a "point," that is, shooting "craps" on one's first throw(s) does not disqualify a shooter from continuing to shoot. (He has lost the bet but retains the right to shoot.) As long as a shooter continues to make his "point," he is allowed to continue shooting. When he is "coming out for a new point" and makes craps (i.e., he has already successfully made a point or points, but makes craps when he throws anew), or if at any time he loses by throwing a 7 before his "point," he must quit shooting, and the next man to this shooter's left becomes the new shooter. (In this case, he has lost both the bet and the right to shoot.)

10. Betting:

The shooter offers whatever amount he wishes as a bet. The former shooter ("bag man") has the right to "cover" as much of this bet as he desires, other players taking what remains. This bet is placed on the playing surface in the center of the players, who are forming a semicircle around the backboard object, and is known as the "bet in the middle." In addition to this, there are "side bets," bets that players make with one another and/or with the shooter, the money being placed on the ground at the side of the semicircle or held by one of the bettors.

The variable rules are of two kinds: optional and situational. Optional variable rules are rules whose acceptance is completely dependent on the discretion of the players at any given time: players are allowed to invoke and follow an optional rule when they desire and to refuse it when they desire. The binding power of this type of rule depends on the free acceptance of the rule by two or more players, the time period during which the rule will be binding being implicitly understood. An example of the optional variable rule is the "bar" bet. To "bar" a bet means that all the fixed rules hold except that a 7 formed by the combi-

nation of a 6 and 1 calls off the bet. Bets are "barred" on points of 10 and 4 (and occasionally on 5 and 9) in order to keep even money in the bet even though the chances of a 7 appearing before a 10 or 4 are two-to-one. (The "bar" bet allows the money to remain one-for-one instead of two-for-one.) The "bar" bet is optional in that when it is offered a player will (a) accept the "bar" bet, (b) accept a two-for-one bet instead, or, rarely, (c) take a one-for-one bet without the "bar."

Situational variable rules are those rules whose introduction and employment are dependent on something in the external situation, and once they are introduced they are binding on all the players for the duration of the game. Examples of the situational variable rule are those rules that govern "No Dice." "No Dice" means that the throw is declared invalid, that the resulting combination does not count. The circumstances that determine when "No Dice" will be called are dependent on the external situation. For example, "No Dice" may (or may not) be called in the following situations:

- a) when either one or both dice do not hit the backboard object;
- b) when a die is located in an indentation or against an object such that it is not certain which side is facing up ("cocked dice");
- c) when the dice leave the playing area or go under an object, such as a car;
- d) when both dice do not hit first on the near side of a line and then bounce clearly across the line (a "strike").

Whether "No Dice" is called will depend on the agreement by the players before the game or at some point during the game that "No Dice" will prevail under certain circumstances. Once the circumstances are agreed upon, they are binding on all the players and are not up to the discretion of individual players for their acceptance as are the optional rules.

III. THE PRACTICE OF MAGIC IN CRAPS

When I first started shooting craps with these driver-players, I thought that they

were shooting and betting solely under a rational system of probability, but after I had shot with them for some time it became apparent that this was not the case. Although probability as expressed by "odds" does greatly influence and determine their betting behavior—for example, every crapshooter knows that the probability is two to one against the shooter making a "point" of 10 before making a 7, and the betting usually accurately reflects this probability—this rational aspect of crapshooting falls far short in explaining the behavior of these players. Much more is involved than this rational aspect. In analyzing their behavior and statements, the conclusion to which I came was that they believed in and were practitioners of magic. This is not to say that they define themselves as magicians or that they would themselves state that they believed in magic, but it means that if magic is defined as it traditionally is in anthropology as *the belief and/or practice in the control over objects or events by verbal or non-verbal gestures (words or actions) where there is no empirical (natural or logical) connection between the gesture as cause and the object or event as effect*, then these driver-players do believe in and practice magic.²

I came to this conclusion because it became evident to me that these players were convinced that they could control the dice, that is, as shown by their behavior (by their statements, gestures, and betting practices), they were not playing solely under the assumption of probability or odds, but, rather, they also moved within the framework of a system of magical beliefs. This conclusion is not based on any a priori assumptions on my part (indeed, my world view and assumptions were quite the opposite), but it derives solely from the

² See, e.g., the definitions by E. R. Leach in Julius Gould and William L. Kolb (eds.), *A Dictionary of the Social Sciences* (New York: Free Press, 1964), p. 398; and Thomas F. O'Dea, *The Sociology of Religion* (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1966), p. 7.

data themselves, from the verbal and non-verbal behavior (statements and actions) of the players in their betting and shooting.

The principles of magic which these players use are not formal, that is, these men do not in some formal or overt manner officially subscribe to the principles of belief underlying their practices. (It is not as if one must first become acquainted with the system of beliefs and then, after agreeing to it, be allowed to engage in crapshooting.) These principles are diffuse, covert, and latent, being generally unrecognized by the participants themselves. Since this is so, they must be abstracted by the ethnographer, and what follows is an attempt to interpret and clarify, on the basis of the participants' own statements and actions, the principles of belief in magic which determine particular behaviors.³

³ This is precisely what Sir James Frazer concluded concerning his study of magical practices among more primitive people: "The primitive magician knows magic only on its practical side; he never analyzes the mental processes on which his practice is based, never reflects on the abstract principles involved in his actions" (Sir James Frazer, *The Golden Bough* [London: Macmillan Co., 1922], p. 11). Therefore, "(it) is for the philosophic student to trace the train of thought which underlies the magician's practice; to draw out the few simple threads of which the tangled skein is composed; to disengage the abstract principles from their concrete applications" (*ibid.*, p. 12).

Malinowski concurs that it is the ethnographer who must abstract these principles: "We cannot expect to obtain a definite, precise and abstract statement from a philosopher, belonging to the community itself. The native takes his fundamental assumptions for granted, and if he reasons or inquires into matters of belief, it would be always only as regards details and concrete applications. Any attempts on the part of the Ethnographer to induce his informant to formulate such a general statement would have to be in the form of leading questions of the worst type because in these leading questions he would have to introduce words and concepts essentially foreign to the native. Once the informant grasped their meaning, his outlook would be warped by our own ideas having been poured into it. Thus the Ethnographer must draw the generalisations for himself, must formulate the abstract statement without the direct help of a native informant" (Bronislaw Malinowski, *Argo-*

The magical belief that is most basic in determining the actions and statements of these players is: *It is possible to control dice by verbal and non-verbal gestures, by words and actions.* (Since, of course, there is no logical or empirical connection between the words or actions and the movement of the dice, this belief and its associated practices are herein being called "magic.") Out of this basic conviction on the part of craps shooters has grown a fairly extensive system of beliefs on the basis of which the craps shooter modifies his gambling behavior so that it conforms with these beliefs.

Because of this basic belief, the players view craps as a game of skill, much as competitive sports are ordinarily viewed by members of society. Arising from this basic belief are corollary beliefs that dictate to the players what strategies and techniques are to be followed under given circumstances. These strategies and techniques center on (a) maximizing one's control over the dice (Parts IV–V below), (b) regaining control when it has been lessened (Parts VI and VIII), and (c) minimizing another player's control (Part IX).

nauts of the Western Pacific [New York: E. P. Dutton & Co., 1950], p. 396).

However, even though it is not the subject who generally states the principles, they are still the realities of his thinking, not that of the ethnographer. The ethnographer discovers implicit principles of reality, not invents them. Malinowski also states this well when he says: "In arriving at such general conclusions about vast aspects of primitive human thought and custom, the Ethnographer's is a creative work, in so far as he brings to light phenomena of human nature which, in their entirety, had remained hidden even from those in whom they happened. It is creative in the same sense as is the construction of general principles of natural science, where objective laws of very wide application lie hidden till brought forth by the investigating human mind. In the same sense, however as the principles of natural science are empirical, so are also the final generalisations of ethnographic sociology because, though expressly stated for the first time by the investigator, they are none the less objective realities of human thinking, feeling, and behavior" (*ibid.*, p. 397).

IV. MAXIMIZING CONTROL BY CORRECT SHOOTING

The basic way to maximize one's control over the dice, to produce desired points, a belief which seems to be shared by all the craps shooters observed, is that one is able to bring about one's needed point if one shoots in the correct way. At least if one shoots in the correct way one will have a better chance of making the point than if one shoots in the wrong way. Shooting in the correct way requires certain techniques, techniques that match an underlying corresponding belief. For example, it is believed as a principle that "a hard throw produces a large number, and a soft or easy throw produces a low number."

B was trying for "Little Joe," a 4. He tried several times, and on one throw the result was a high number. He then said, "Shot too hard that time."

Occasionally, shooters are even cautioned or instructed by other players to shoot easier for a lower number or to throw harder for a higher number.

Other shooting techniques that are believed to maximize control over the outcome of the dice involve evidencing concentration and effort. For example:

One does not simply listlessly throw out the dice, check the combination they form, and quickly throw them out again, continuing until there is a significant result, a 7 or one's point. This is what I did the first night I played, and an experienced player reacted to this by saying, "Take your time! Don't throw 'em out so fast! Take your time and work on it!" A short while later, this player instructed me more fully by saying, "Talk to 'em! Talk to 'em when ya shoot!"

It is obvious to the players that a throw can result in any point between 2 and 12. When one needs a certain point, one can increase one's chances of receiving it (although there is no guaranteed efficacy) by evidencing this required concentration, which consists of "taking one's time in shooting," of "workin' on it," and of "talkin' to the dice."

"Talkin' to the dice" is an especially important and common technique. In the most frequently recurring form among these driver-players the shooter uses the point as a verb and commands the dice to deliver his point. As the dice are thrown, he says, "Five it!" or "Six it!" or "Eight it, Dice!" etc. A variant of this command is to divide the point into its component parts and reassemble it as the verb used to demand the desired results, such as, "Fifty-three, Dice!" (the shooter's point is 8, and he is calling for a 5-3 combination). "Thirty-two, Dice!" (for a point of 5), or "Sixty-four, Dice!" (for a point of 10), etc.

Another way of controlling the dice while shooting is for the shooter to snap his fingers after the dice are thrown and as they are rebounding from the backboard. It is as if the snapping of the fingers will bring the dice down on the desired point. Some shooters become so ritualistic about this that they never cast the dice without an accompanying loud snapping of their fingers. This, of course, could be attributed solely to habit with no meaning content to the shooter. Indeed, this is how it first appeared to me until I noticed the following particular form of this gesture:

It sometimes happens that, after the dice are cast, one die will spin like a top on one of its corners. When this happens, the shooter will frequently point with his index finger close to the die, wait until the die has slowed down, and, just as it begins to fall to rest from the spin, loudly snap his finger against his thumb in an effort to control the resultant point.

Permeating the techniques of shooting that are defined as correct by these players is the requirement of confidence. In general, it is believed that confidence means success because confidence imparts control to the shooter. In order to exert control over the dice by using this principle, shooters will sometimes express supreme confidence in the outcome of their throw. This takes two forms: In one, the shooter, as he casts the dice, says, "There's a (desired point)!" In the other, as the shooter throws, he says,

"Shoot the (amount of the bet)!" In both forms, the shooter is confidently stating that the dice are going to come out favorably. In the latter, he is saying that he is going to win on this throw and that he is so confident of winning even the following throw that he is going to let the money ride, to double up on the bet, is not going to "pull" any of his winnings.

Because it is believed that there is a close connection between confidence and control, the shooter must attempt to maintain his confidence in order to maintain his control over the dice. Accordingly, players who have a vested interest in the positive outcome of the throw—those who have bet that the shooter will make his point—sometimes caution the shooter, saying, "Don't get shook!" This is very similar to statements they make to a shooter that he should "take it easy" and "take his time," thus encouraging the shooter to maintain his control. Since it is believed that there is a skill basis to crapshooting, confidence is essential to maintain and practice this skill, and if the shooter were to "get shook," this would mean that he had lost his confidence, thereby being deprived of control and unable to make his point.⁴

V. MAXIMIZING CONTROL BY CORRECT BETTING

Not only is it thought by these players that the way the dice are thrown affects the outcome of the throw, but it is also believed that the bet itself can influence the dice. Included in this conviction are beliefs that the person with whom one places a bet, the person against whom one is betting, the amount of the bet, and the odds of the bet will change the combination that will appear on the dice, that is, the result of the

⁴Note how similar this statement is to those sometimes made in competitive sports, where a player must not "get shook" because he needs his self-control in order favorably to influence an outcome; e.g., in the closing seconds of an important basketball game a player has a free-throw that can decide the outcome of the game. "Time out" is called, and the player's coach or teammates encourage the shooter with this or a similar comment.

throw would have been different if certain betting practices had or had not been followed.

The practical working-out of this belief leads to what appear to be bizarre forms of behavior, but they are consistent within this particular magical belief system. For example:

At one game a bettor refused any of the "bet in the middle," i.e., money the shooter was offering as a bet. He said, "I know that guy too well. I wouldn't put money agin him." Yet he made a "side bet" that the shooter would not make his point.

What is significant about this is that the bettor refused part of the "middle bet," that is, he would not accept the bet that the shooter was offering, but at the same time he was willing to accept and actually did accept a "side bet" against this same shooter. In either case, the bet and its outcome are objectively identical, that is, if the shooter were to win, this bettor would lose, and if the shooter were to lose, this bettor would win. *The outcome of the betting was unchanged, but what was changed was the person with whom the money was wagered.* Thus, negative results were foreseen if the bet were placed against the shooter by placing the money with the shooter, but positive results were foreseen if the bet were placed against the shooter by placing money with another player. (Indeed, in the latter case, he did not even define or view his bet as being against the shooter!)

Since these players are "rational in their irrationality," that is, they are logically consistent within their own framework of beliefs, and since it is also believed that control over the dice is never an absolute matter, but is something that is possessed in degree, that is, some people have more skill or control over the dice than do others, we should expect to find that players will be more ready to bet against those shooters to whom they attribute less skill and to bet with those shooters to whom they attribute more skill. This is precisely

what happens: *Bets are refused or accepted on the basis of whom one is betting for or against.* Thus, if a player feels that a particular shooter has much control, he will almost always bet with him, never against him (unless there have been indications that his control is faltering), and vice versa. For example:

One shooter had made several passes (successfully made his needed point) and then had finally lost. On his next turn as shooter, one player said, "I'd never bet agin'm. Ya don't know what that motha's gonna do!"

And when a player who supposedly possesses less of this "power" makes his point, surprise is registered:

R is the shooter. He has made one pass. On his second attempt, he gets 8 as his point. He makes the 8 and a player says, "Goddamn! He did!" R fails on his next try.

This type of betting is not thought to actually change the outcome of the dice, as do other practices above and below, but is, rather, a means of control in the view of these players; that is, it is thought to be a "rational" strategy by which players other than the shooter are able to maximize their profits.

VI. REGAINING CONTROL BY CORRECT BETTING

This belief concerning the effects of betting on the dice is held so strongly that there have developed betting strategies by which it is believed the shooter can regain control when he feels that he is losing his control over the dice. When the shooter is having a difficult time making his point, or has a difficult point to make, this is taken as a sign that he is losing control over the dice. There are three strategies that the shooter, when he is in this difficulty, can employ in order to favorably influence the dice. The first has to do with the size of the bet. It is believed that by increasing the size of the bet the shooter increases the likelihood that he will make his point. This often takes the form of increasing the bet after each inconsequential throw.

B was shooting. He had an 8, an easy point, but after shooting five times with no consequences (neither a 7 nor an 8 appeared), he put another dollar on the 8. He threw again, but with no results. He put another dollar on the 8. He threw again. Again he put a dollar on the 8. At this, a player commented: "He'll make it now. He put more money on it."

The second strategy shooters sometimes employ in this situation is to offer an odds bet at even money. Although 4's and 10's are two-to-one against the shooter, and the bet is ordinarily made at two-to-one odds or else is "barred," shooters will sometimes attempt to "force" the 4 or 10's appearance by offering bets at even money. As the following examples illustrate, players strongly believe that this type of betting does effectively influence the dice:

The shooter had 4 as his point. He shot for a long time with neither a 7 nor a 4 appearing. He made some bets at even money. Later one player said, "I've got one ya don't make it." Another added, "I've got one ya don't four." Another player, who had money bet against the shooter, became quite perturbed at this offer and said, "That'll guarantee that he'll make it! Don't you guys know that?"

In another game, the shooter had a 10 to make. He was taking bets at even money, and one player said to those who were accepting the bets, "Don't jump on those! Doncha know that's gonna make'em make it! Anytime ya jump on 4's and 10's the guy's gonna make it."

In the above examples, it at first appears strange that the shooter, whose betting is usually consistent with known odds, should become so irrational in his betting practice, but fortunately we do not have to guess at the reason for this "irrationality" because we have the players' own statements as to the meaning of the behavior for those involved. This behavior, although objectively irrational, is, again, logically consistent with and derived from their system of beliefs in magic. It is "rational irrationality."

It is possible that this type of betting practice is also related to the general principle mentioned earlier, that confidence imparts control over the dice. If it is so related, it would be consistent with this

principle and could be interpreted in the following way: The shooter, by either increasing the size of his bet in an uncertain situation or by accepting even-money bets in a situation that calls for an odds bet, is attempting to manipulate the dice by expressing confidence backed by cash.

The third strategy bettors sometimes use is to make a bet for "odd money." There are two forms that this strategy takes. In one, the shooter says something like: "Shootin' a dollar an' a penny." He then lays a dollar bill down with a cent on top of it. It is believed that somehow or other the bet for "odd money" will influence the dice in his favor. The other form of the "odd money" bet is a "bet for change." For some reason, the shooter feels that it is in his interest to make the bet the exact amount that another player has in his hand or pocket, amount unknown. For example:

A player had taken a handful of silver from his pocket. It appeared that he had from \$1.50 to \$3.00 in change. The shooter, when he saw this, said:

Shooter: I'll bet whatever change ya got in your hand.

Player: Just a minute, I'll count it.

Shooter: No, no. Just whatever it is.

Player: A dollar [meaning that he wants to bet a dollar of the change]?

Shooter: No, no. Whatever it is.

In this third and also unusual strategy, the changed form of the bet, as initiated by the shooter, is believed to affect favorably the outcome of his attempt to make a point.

VII. LESSENING CONTROL OVER THE DICE

In examining some of the strategies which shooters use to overcome decreased control over the dice (see Part VI above), we saw that these players believe that control can be lessened. What are the specific ways that these players believe that this control becomes lessened, that is, what are the things that are viewed as negatively affecting the outcome for the shooter?

Certain of these ways have been implicitly included in the above analysis; for example, a lack of confidence and a lack of

concentration or evidence of "workin' at it" are viewed as having a negative effect on the shooter's control. In addition, *what happens to the dice themselves is viewed as affecting the outcome of a throw*. This involves "gettin' the points knocked off the dice," changing the dice, and dropping the dice.

For example, players believe that what happens to the dice when one player is shooting affects the outcome of the dice for the next shooter. When a shooter is making several straight passes, the player who will be the next shooter sometimes says, "They're gettin' the points knocked off 'em." In other words, in their view, there are just so many points that can be made on the dice. The present shooter is "knocking these points off the dice," which means that there will not be as many points left for the next shooter, and he is more likely to lose.

It is also believed that control over the dice is removed from the shooter when the dice are changed against the will of the shooter, as in the case of "lost dice":

We were shooting against an upturned coke case in the back of the garage near the alley. P had made several passes. He increased his bet and shot again. One of the dice hit the case, but the other missed and went under a cab. It couldn't be found. P was given a different die. He threw and lost. Disgusted, he said, "That did it! Changin' that dice there, that did it!"

In this type of situation, the shooter's will (to continue using the same dice) is not being followed, is frustrated (the dice are changed against his will), and this signifies that the dice are out of his control. With this situation, there appears to be no action the shooter can take to neutralize this effect.

Very similar to this belief is the belief that accidentally dropping one or both of the dice negatively affects the outcome of the next throw. These players believe that dropping the dice affects the dice in such a way that the point that was going to show up will not now show up. The reason-

ing seems to be the following: The shooter wants to control the dice. When the die or dice drop, this is an action or movement of the dice that is out of the control of the dropper: it is accidental, not purposeful. It is as if some external force (it surely was not the dropper, since he did not want it to happen!) is causing the dice to drop, to do something that the shooter does not want to happen.

VIII. OTHER METHODS OF REGAINING CONTROL

As we have seen, there are certain strategies, consistent with the belief system, by which shooters are able to overcome decreased control over the dice. Fortunately, from the players' view, there also exists a strategy (which could be called a form of "countermagic") to overcome the negative event of dropping the dice. Without exception, each shooter, after dropping the dice, rubs both dice on the ground or playing surface.

The players consider dropping the dice to be a bad omen. (As one player said when the shooter dropped a die, "You dropped your luck.") But this omen is not definitive: it can be overcome by rubbing the dice on the playing surface. Rubbing the dice is a means of regaining control, of placing the dice again in the control of the shooter. This rubbing on the playing surface neutralizes the negative effects of the drop and allows the dice to turn up the point they were going to turn up before the dropping took place.

Another form of rubbing the dice is also viewed as bringing positive results. Sometimes (but this is rare) the shooter will rub the dice on another player in order to favorably affect the dice. He will sometimes rub them under the chin of the player betting against him or on his clothing as an attempt to gain control.

Under certain circumstances, the shooter will attempt to regain control by means of making a promise concerning his next bet. When a shooter has a difficult point to make, usually a 4 or 10, or if he has an

easy point but has shot for a long time with inconclusive results, he is likely to say, "If I make (desired point), I'm gonna shoot (amount of the bet)." The shooter has viewed the difficult point or the prolonged attempt to make the easy point as a bad omen, as meaning that the dice have become "contrary" and are not going to yield the point without something extra, ergo, the promise. The shooter is really saying, "If you treat me right (by giving me the point), then I'll treat you right (by expressing confidence by money that you'll come out right the next time also)." The shooter is promising a future bet to the dice and is, in a sense, buying their favor.

This is a means of regaining control in that the shooter realizes that, since (a) he was trying for either a natural or a good point on his first throw and did not get it, or (b) he has an easy point, but he cannot make this easy point, as evidenced by his many inconsequential throws, that the dice are no longer in his control, that they are being moved by a will other than his. Therefore, since he can no longer control them by effort, he attempts to buy them off with this promise. (Note the similarity here with strategies one and two in Part VI above.)

There is consensus on the part of the players that this is a reasonable promise, the right thing to do, or almost an obligatory duty. Almost invariably when a player makes this promise, other players say, "Yeah, boy. If you make a (point), *you sure ought to*" or "I would, too." (It is as if the dice do not need to respond; and, therefore, if they respond, it is *gratia*, and this carries with it a reciprocal obligation in the subsequent betting.)

IX. MINIMIZING OTHER'S CONTROL

Since it is believed that the shooter exerts control over the dice and that strategies exist by which one can maximize control, if these players were consistent in their magical perspective, one would also expect to find strategies by which a betting opponent could minimize or negate the

shooter's control. And this is what we do find.

One such strategy is an institutionalized practice known as "catching the dice." Anyone having part of the "middle bet" is permitted to grab the dice after they are thrown and before points show. When this happens, the throw is invalid, and the shooter must shoot again. When it appears to the bettor that the shooter has control, that is, the shooter either shows great confidence in the manner with which he is shooting or he has just had a string of successful passes, the bettor will "catch the dice." He believes that, if he does so at the right time, he will break the shooter's control and cause the shooter to lose. The following is an example of such strategy with an added unusual element:

V was having a "hot streak." He was being faded by Pe. After V threw, Pe caught the dice. Pe then slowly rubbed two sides of the dice against his greasy forehead and laid them on the table. V said, "Shit! I'm not gonna throw those fuckin' greasy dice now!" C, the houseman, then picked up the dice and wiped them on the sheet covering the table and gave them to V.

V shot again. Again Pe caught the dice. This time he slowly, exaggeratingly, and deliberately rubbed them in large circles on his forehead which was glistening with sweat. He put them back on the table. Again V made a similar comment. Again C wiped the dice and handed them to V.

This happened four times. The tension grew each time. On the fifth time, Pe again caught the dice. However, this time he made a rubbing motion *by* his forehead, but yet 2 or 3 inches from his forehead, rubbing the dice in the air in slow circles. He then set the dice down and allowed V to complete his next shot.⁵

⁵ The analogy with competitive sports is again apparent since this is essentially the same strategy sometimes used in competitive sports that *are* based on skill, e.g., basketball. When the opposing team is "hot," attempts will be made to "cool them off." Often the captain or coach will "call time out," which is used to re-plan strategy but is in itself part of the strategy to interrupt the action. The other team is "rolling," and their momentum needs to be slowed. The above action by Pe contains the same basic conviction and strategy.

The rational basis for this action is obvious: Since the shooter is exhibiting much control over the dice, as is evidenced by the number of passes he has made, the opponent attempts to break this control by interrupting the action and by "getting the shooter shook." The false premise for this otherwise rational act is not apparent to the actors.

X. THE INFLUENCE OF PERSONAL RELATIONSHIPS

Certain personal relationships of these crapshooters, relationships that appear completely unconnected and extraneous to crapshooting, are also believed to have an effect on the dice. The following incident illustrates one such relationship:

One of the drivers is a "store-front preacher," and his Sunday activity is well known to the other drivers. He is known as "The Preacher" to the other drivers. One night The Preacher won heavily. It was his third straight night of winning. At one point, he made nine straight passes and just about broke up the game. At another point he made seven straight passes. The odds against one person doing this in a couple of hours are phenomenal. The reason for his winning was expressed by one player as: "He reads The Good Book." Later a player said, "Yessir! He's bettin' through The Book." And one player said, "When I get home . . . I'm gonna go home and read The Book myself."

Some sort of power (mana) is felt to reside in the Bible, and a person connected with the Bible (The Preacher) possesses from this association power over such things as dice. Those who do not have this association or connection do not have the same amount of power or control.

The continued incident above also illustrates a belief in a causal connection between need and winning:

After the game, The Preacher counted his winnings and said, "I wouldn'ta played 'cept I'se in need." A player asked The Preacher if he really needed the money, and The Preacher replied that he needed it for the rent which was due tomorrow. The player then replied, "Oh, that's why you won."

XI. EXPLANATION OF NEGATIVE EVIDENCE

If players attribute control to the shooter when he is successful, how do they reconcile the fact that he is so often unsuccessful?

It is not believed that the shooter has perfect or full control. At best his control is partial, enough to make the outcome more favorable than chance would allow, or he has "streaks of control"—times when he feels that he "can't miss." Where there is failure, then, it is because he did not have *enough* control.

Failure does not represent "the absence of control" but, rather, that someone's or something's control over the dice was greater than that of the shooter's. It is never that it was merely chance.

H had made two passes. This was better than he had been doing, and he began to feel confident. He increased his bet on his third attempt, but he threw craps. He said, "Why those motha fuckas! They'll turn around an' fuck ya in the ass every time!"

The negative result was not attributed to luck or chance, but to control possessed by the dice themselves. The speaker seems to be saying, in his colloquial fashion, that the dice will allow a certain amount of winning; and then when the shooter thinks he is going to hit it big, the dice turn around and show that they are in control.

XII. ORIGINATIONS OF THESE BEHAVIORS

Having examined the magical belief system of these crapshooters and having seen how their behavior is logically consistent within this belief system, one might ask how these beliefs and behaviors originated. Since, for the most part, these behaviors were not observed as they arose but only after they were in effect, what follows concerning originations is mostly theoretical and not empirical.

Magic has held the interest of scholars of varying fields for centuries, but it has traditionally been systematically studied by anthropologists, who have proposed varying theories concerning its origins and functions. One of the clearest theoretical formulations of the origin of magical be-

havior is a "theory of the gap," or a homeostatic theory, contributed by Malinowski. He said:

Man, engaged in a series of practical activities, comes to a gap; the hunter is disappointed by his quarry, the sailor misses propitious winds, the canoe builder has to deal with some material which he is never certain that it will stand the strain, or the healthy person suddenly finds his strength failing . . . his anxiety, his fears and hopes, induce tension in his organism which drives him to some sort of activity. . . . His nervous system and his whole organism drive him to some substitute activity. . . . His organism reproduces the acts suggested by the anticipation of hope.⁶

Thus, according to Malinowski, the furious man clenches his fists and utters insults at

These gestures are felt to bridge the gap, to be efficacious in bringing about the desired ends, and when practiced instrumentally, one has magic. Magic thus becomes "a body of purely practical arts, performed as a means to an end."⁷

According to Malinowski, since magic functions to reduce anxiety, to fill the void of the unknown, where there is no void or anxiety, neither is there magic. Thus, in situations where the native understands technology, he follows the technology and not magical practices and beliefs. For example, the Melanesians know that they must dig the soil to plant yams and must hoe to keep down the weeds. But beyond these skills are pests, animals, and climate which affect their crops. In these latter

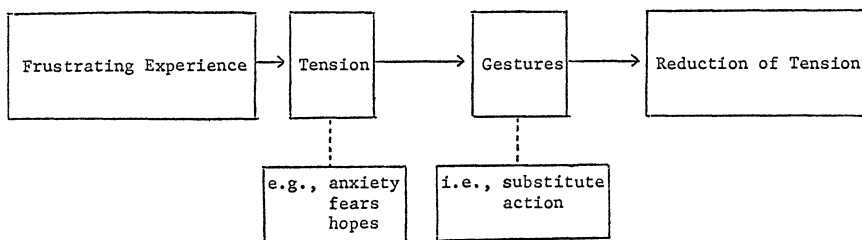


FIG. 1

a mental image of his enemy; or the lover addresses, entreats, commands, or presses the mental image of his beloved; or the fisherman or hunter utters the name of or describes a mental image of his desired catch or quarry. This passion allows the pentup physiological tension to flow over, the tension is spent, and the desired end seems nearer. The actor has regained his balance. These gestures, verbal and non-verbal, then become institutionalized, expected under given circumstances, and finally become supported by myth.

This homeostatic theory of the origin of magic may be diagrammed as in Figure 1.

⁶ Bronislaw Malinowski, *Magic, Science, and Religion* (Garden City, N.J.: Doubleday & Co., 1948), pp. 79–81. For another version of this argument, see Bronislaw Malinowski, "Culture," *Encyclopedia of the Social Sciences* (New York: Macmillan Co., 1931), IV, 621–46.

areas, they then employ magic (and religion) to control the unknown. These practices and beliefs are functional to the natives in that they restore their confidence.

The same thing holds true with fishing. When the native fishes in the lagoon, his yield is assured in relation to his effort, dangers are non-existent, and the empirical features of the situation are understood, ergo, no magic for lagoon fishing. But when these same Melanesians fish beyond the lagoon, when they go deep-sea fishing, then the empirical features are not understood, the yield is not assured, and great dangers exist. Thus there is much magic surrounding deep-sea fishing, and it functions to give the natives reassurance or to relieve

⁷ Malinowski, *Magic, Science, and Religion*, pp. 38 and 88.

their anxieties and thus allows them to continue this necessary activity.⁸

Kroeber disputes Malinowski's theory. If Malinowski were right, he says, then a people who face greater dangers will have more magic, but this does not hold true because the Eskimos, who have a much more dangerous life than the Melanesians, have less magic. And if two peoples have almost identical environments, they should have the same amount of magic, but this also does not hold true, because the Polynesians and Melanesians face about the same needs and problems, but the Polynesians have less emphasis on magic. And if a people have hardly any danger, they should have hardly any magic, but the Yurok and Karok Indians of California, who have plentiful resources of salmon and acorns, and who face neither foreign foe nor even pestilence, are completely circumscribed by magic.⁹

After refuting Malinowski's theory, Kroeber does not go on to develop an alternative theory to explain the origins of magic. Rather, he says that a magic and taboo system "is due to an orientation of the culture and has nothing to do with any necessities or actual problems. For some unknown reason the culture just had gone hypochondriac . . . they were taught by all their elders."¹⁰ He concludes "that there is no relation of simple function between . . . needs rooted in the body and the mind or in the environment . . . and . . . magic."¹¹ Although Kroeber confesses that the reason for the origins of magic is unknown, he does make the point that magic continues as an element of a culture, that it is a taught and learned way of dealing with life.

I propose that it is possible to reconcile the basic features of the views of Malinow-

⁸ *Ibid.*, pp. 30-31.

⁹ Alfred L. Kroeber, *Anthropology: Culture Patterns and Processes* (New York: Harcourt, Brace & World, 1963), pp. 116-18.

¹⁰ *Ibid.*, p. 117.

¹¹ *Ibid.*, pp. 117-18.

ski and Kroeber, to relate these to the *origins of any magical behavior*, and in so doing to explain the origins and continuance of the system of magical behavior and beliefs of the crapshooters as examined above. This can be done by relating these views to the phenomenon of superstition as it has been studied in operant conditioning.

What the operant conditioners call "superstition" is the same as what I have called "magic." They are both characterized by instrumental behavior in which there is no empirical connection between the behavior and the ends; or, in operant terms, where the reinforcement is not contingent upon the behavior emitted, that is, where the reinforcer is not presented as a consequence of a particular response, and yet that response is meant by the behaving organism to be instrumental.

The essential components of superstitious behavior, where apparently irrelevant behavioral components are chained into an entire response pattern leading to reinforcement, were first noted by Guthrie and Horton. In teaching cats to move a pole that would open the door of their cage, they observed that if a cat happened to be backing up the first time it knocked down the pole, this backing-up behavior was adventitiously reinforced, and the cat continued to back up into the pole to operate the release mechanism.¹²

Superstitious behavior in animals was labeled as such and further studied by Skinner. He found that whatever behavior the animal is engaging in when he receives his reinforcement has a higher probability of occurrence on subsequent trials. This can result in rather bizarre forms of behavior.

If a clock is now arranged to present the food hopper at regular intervals *with no reference whatsoever to the bird's behavior*, operant conditioning usually takes place. In six out of eight cases the resulting responses were

¹² Edwin Ray Guthrie and George P. Horton, *Cats in a Puzzle Box* (New York: Holt, Rinehart & Winston, 1946).

so clearly defined that two observers could agree perfectly in counting instances. One bird was conditioned to turn counter-clockwise about the cage, making two or three turns between reinforcements. Another repeatedly thrust its head into one of the upper corners of the cage. A third developed a "tossing" response, as if placing its head beneath an invisible bar and lifting it repeatedly. Two birds developed a pendulum motion of the head and body, in which the head was extended forward and swung from right to left with a sharp movement followed by a somewhat slower return.¹³

The conditioning process is usually obvious. *The bird happens to be executing some response as the hopper appears; as a result it tends to repeat this response.* If the interval before the next presentation is not so great that extinction takes place, a second "contingency" is probable.¹⁴

The application of these principles to crapshooters and their magical behavior is obvious. As a shooter is shooting, he is emitting various behaviors other than the throwing of dice. He may be saying certain things, moving his hands or other parts of his body in a particular way, etc. If, while doing this, the dice come up with a winning combination, this behavior is reinforced because of the close temporal connection between the occurrence of the behavior and the winning combination, and it will tend to be repeated. If it is repeated and is again reinforced before extinction takes place, the probability is that much greater that it will tend to continue. The individual will then think and act as if there were a causal connection between this behavior and his winning, will be engaging in magical or superstitious behavior.¹⁵

Skinner continues:

The experiment might be said to demonstrate a sort of *superstition*. *The bird behaves as if there were a causal relation between its behavior and the presentation of food, al-*

¹³ B. F. Skinner, "Superstition in the Pigeon," *Journal of Experimental Psychology*, XXXVIII (1948), 168 (italics in original).

¹⁴ *Loc. cit.* (italics added).

though such a relation is lacking. There are many analogies in human behavior. Rituals for changing one's luck at cards are good examples. A few accidental connections between a ritual and favorable consequences suffice to set up and maintain the behavior in spite of many unreinforced instances.¹⁶

What is missing from this analysis thus far is that we are dealing here with human beings, and not pigeons or cats. The relevant difference is that humans live in a social context. Their behavior arises in a social context, and their behavior is reacted to by significant others who, in a social context, serve as reinforcers to their behavior, magical and non-magical.

As such, once non-instrumental behaviors are adventitiously reinforced and thought to be instrumental and are then practiced, they can become a part of the participant's culture—in this case, a part of expected crapshooting behavior. These behaviors are

¹⁵ An excellent example of bizarre behavior in which the origination of the behavior is clearly demonstrated was brought to my attention by a sports announcement on KSD Radio of St. Louis, Mo., on October 6, 1966. The broadcast revealed how Jim "Cakes" Palmer, the Oriole pitcher, had received his nickname. It seems that "Cakes" had struck out four straight in a particular game and had happened to have had pancakes for breakfast that morning. Since that game, he has always had pancakes on the day he is slated to pitch. His pitching success during the 1966 World Series against the Los Angeles Dodgers, wherein he became the youngest pitcher ever to pitch a shut-out in a World Series, and when he again had pancakes for breakfast, of course, adventitiously reinforced this magical behavior; and one can predict that it will take a long history of a lack of reinforcement to extinguish this behavior.

This story was verified during an interview with Jim Palmer and his wife on "Supermarket Sweep" on ABC-TV on November 7, 1966. During this program, Mrs. Palmer added that he also carried three sticks of bubble gum in his back pocket whenever he pitched.

¹⁶ Skinner, *op. cit.*, p. 171 (italics added). For more recent work in this area, see R. J. Herrnstein, "Superstition: A Corollary of the Principles of Operant Conditioning," in W. K. Honig (ed.), *Operant Behavior* (New York: Appleton-Century-Crofts, Inc., 1966), pp. 33-51.

then informally taught or transmitted to novices by the more fully socialized crapshooters. Each novice is indoctrinated into the prevailing magical behaviors. Since the crapshooter is being reinforced on a variable ratio reinforcement schedule—behavior dependent on this schedule being the most difficult to extinguish—it does not take much adventitious reinforcement for these magical behaviors to be maintained.

Magical behavior arises adventitiously; being reinforced it is informally taught in a social situation and accepted by the members; and being occasionally reinforced on a variable ratio reinforcement schedule, it maintains itself.

If one had complete control over contingencies of reinforcement, one should be able to produce magical behavior among crapshooters in the laboratory. This would require control over the dice such that whenever the shooter was engaging in some behavior that the experimenter wished to become magical behavior, such as snapping his fingers, holding his hand above his head as he shot, uttering a particular word or phrase, etc., the experimenter could make certain that a winning combination appeared. By again reinforcing this behavior before extinction takes place, the shooter should come to engage in it frequently, associating the behavior with winning and thinking in terms of a causal connection (e.g., "I'm lucky when I do that"). The situation should then be such, now that the behavior is emitted frequently, that it will be adventitiously reinforced in the normal process of shooting craps and should maintain itself without the control of the experimenter. It would, of course, take a laboratory experiment to empirically prove or disprove this.

In my field work I never saw pristine origination of magical behavior, but I did see such behavior informally taught by example and then adventitiously reinforced and maintained. Also, I was fortunate enough to be able to see a particular belief and practice arise which helps explain

the origin of certain betting practices which are magical:

I was down to my last 50¢. I took a 50¢ bet and won. I then took a \$1.00 bet with the same bettor and won again. I ended up running the 50¢ into \$9.00 in a string of winning bets. About an hour later, when I was down to my last dollar, the man with whom I had placed the original 50¢ bet was offering a dollar bet that the shooter would make his point. I said I would take the bet. He refused to bet with me and then told everyone how I had started with a quarter and ended up with \$9.50.

He would accept the identical bet with anybody but me. His losing against me and my successive successful wagers now placed me, in his view, on a different level than the other players. I was no longer "neutral" in his eyes, but I represented a "bad luck omen" (or a negative reinforcer). He defined the situation such that, if he made the bet with anyone else his chances of winning were good, but if he made the bet with me his chances of winning decreased.

Malinowski and Kroeber can be reconciled by applying these principles discovered in operant conditioning. According to this view, Malinowski would not necessarily be correct in the details of his analysis, but the plausibility of what I take to be the main point of his analysis—that of reduced tension as being at the root of originations of magical behavior and beliefs—is compatible with the principles of operant conditioning. That is, we will never know for certain if the Melanesians' magic arose precisely in the way Malinowski hypothesized, but in some way some particular behavior probably reduced tension, or at least was rewarding, thus being reinforced; and, again, in a similar situation it tended to be repeated, and in a social context it became an accepted ritual. Because of the temporal relationship between the actions and some success, a causal connection is then believed and taught.

Kroeber is right when he says, contrary to Malinowski, that the reasons for any given magical practices in a culture are unknown, that they are not dependent upon

necessities or dangers, that there is no relation of simple function between needs and magic. However, this "unknown reason," as explicated in this paper, is adventitious reinforcement of some behaviors somewhere in the past, these behaviors becoming ritualized within a social context, being occasionally reinforced, and thus being maintained as part of the culture. According to this analysis, then, contrary to Kroeber's logical deduction from Malinowski, there does not have to be a linear or even a direct relationship between the

amount of danger and the amount of magic within a culture or between cultures. This relationship does not have to exist because magical behavior does not originate on a one-for-one basis of danger to magic; rather, the reinforcement of behavior—and thus the continuance of that behavior in ritual—would not be dependent upon the amount of danger present in a given culture, but would be dependent upon adventitious reinforcement.

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