

ON AMERICAN LOT-GAMES, AS EVIDENCE OF ASIATIC INTERCOURSE BEFORE THE TIME OF COLUMBUS.

BY

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(With plate V.)

It is now nearly twenty years since I brought forward in the *Journal of the Anthropological Institute* and elsewhere¹⁾ a comparison between two elaborate games of mingled chance and skill, namely *pachisi*, an ancient and still popular sport in Hindustan, and *patolli*, which was an established diversion in Mexico at the time of the Spanish conquest. My argument was that the principle and even the details of these two games bear so close a resemblance, as to make their independent invention improbable, justifying the inference that at some date before 1500 the Asiatic game had passed over to America. Such a theory, if well-founded, supports the opinion long ago enunciated by ALEXANDER VON HUMBOLDT, that the old civilization of Mexico bears unmistakable traces of Asiatic influence. Accordingly, the problem of the two games became matter of anthropological controversy, their alleged connexion being claimed by some as convincing, and by others not less positively rejected, while admitted on both sides as bringing to a definite issue the question of American civilization before the European period. New evidence which has since come in, makes it desirable for me to return to the discussion. Especially not only has the text of Father DIEGO DURAN's History of the Indies been published, but the picture-writing on which he commented has been reproduced; his chapter on *patolli* is thus fully available, and with it the authentic representation of two Aztecs playing the game, which is here copied in Plate V, Fig. 2. I have to thank Sir ALFRED LYALL for providing the fit pendant to this picture by having a photograph taken in India, of a match at *pachisi* between a Hindu and a Mohammedan, from which Fig. 1 is a copy. The mere comparison of the two groups seems to me sufficient to set up a *prima facie* case, that the gamesters of the Old and New World are engaged at games which, though not quite the same, are closely connected varieties from one original.

¹⁾ On the Game of Patolli in Ancient Mexico and its probably Asiatic Origin; Journal of the Anthropological Institute of Great Britain and Ireland, 1878. — Backgammon among the Aztecs, in Macmillan's Magazine, Dec. 1878, etc. etc.

The group to which *pachisi* and *patolli* belong is most familiar to Europeans in trictrac or backgammon, though some other forms are in use, such as the "royal game of goose" (*jeu de l'oie*, *juego de la oca*, &c) and various race-games and others. In their complete forms, games of this class are played by opponents who move pieces on a diagram or board in opposition to one another, the number of places moved being determined by the players throwing lots or dice. It has to be noticed that just as dice-throwing by itself serves as a means of gambling, so it is with lot-throwing, the appearance of which latter in America has to form part of the present argument. Dice and their use need no special remark here, but this kind of gaming with lots is less familiar, and must be briefly considered. The lots used are two-faced, and their earliest purpose may have been for divination, before they came to serve for sport. The sacred lots consulted in Confucian temples in China are here represented in Fig. 10; they are halves of a bambu root which are solemnly thrown down, both round sides up giving a negative, both flat sides an indifferent, and one round and one flat side an affirmative answer of the oracle. By a larger number of lots gamesters obtain a greater variety of results, in a mode which may be best explained by setting down, according to the elementary rule of probability, the frequency of the combinations of heads and tails when n coins are tossed together (1, n , $\frac{n(n-1)}{2}$, $\frac{n(n-1)(n-2)}{2 \cdot 3}$, etc.), and thence the proportionate value of each combination. For example, let five coins be tossed, and let the value of the two best throws, five heads or tails, be taken as 25.

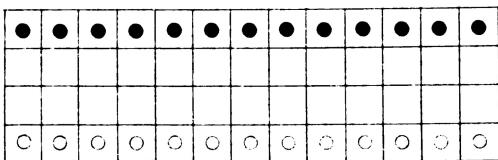
Heads up	5	4	3	2	1	0.
or						
Tails up	0	1	2	3	4	5.
Frequency	1	5	10	10	5	1.
Value of Throw . .	25	5	$2\frac{1}{2}$	$2\frac{1}{2}$	5	25.

When the calculated values of the throws are compared with the values given to them in the various games to be presently described, it will be seen that the rules of scoring are in general inexact. For instance the game of *pachisi*, played by throwing five cowries, ought to conform in the scoring to the figures just given, but in fact it only shows an imperfect similarity. At the same time, the whole series of lot-games displays a consciousness of the infrequency of throws of all, or nearly all the faces one way, as compared with throws where the faces are nearly equally divided. When these games were invented, the mathematical method of working out the combinations had not been reached, and apparently the only guide was experience, showing which throws were rarest and therefore ought to count most. Thus these games are of interest in the history of mathematics, as showing the early empirical stage of the doctrine of chances, which reached its logical development in the hands of PASCAL and FERMAT far on in the 17th century. As a means of gambling except in its simplest forms, the casting of two-faced lots is a clumsy process in comparison with the use of numbered dice, which tends to supersede it wherever both are known, so that it may be reasonably thought that the lot-games represent the original form, out of which the dice-games arose.

As a simple Old World type of lot-backgammon, the game called in colloquial Arabic *tab*, and popular in Moslem countries, may be specified. The lots thrown are slips of split palm-branch about a span long, white on the inside, while the outside is left green (Fig. 3), these sides being called white and black respectively. They are thrown against a wall or an upright stick, and the throw counts according to how many white sides come uppermost, thus:

Whites up . . .	4	3	2	1	0.
Score	4+	3	2	1+	6+.

Those marked + give a new throw. Their values agree fairly well with the calculated odds, which are 6, $1\frac{1}{2}$, 1, $1\frac{1}{2}$, 6. The game is played by moving pieces, usually bits of stone on one side and red brick on the other, on a diagram scratched on the



ground, or with a more formal board and men. The *tab*-board (Fig. 11) is divided into four rows of an odd number of squares; each of the two players placing a number of his pieces or "dogs" in the outer row on his own side. The lots are thrown by the players alternately till one player throws one white, which throw is called "*tab*" and gives him the

right to move one of his pieces from its original place; while there it is called a Nazarene, but when moved and able to go out to fight it becomes a Moslem. Throwing four whites or blacks, or one white, gives a new throw. Each player moves his right-hand man first, the course being from left to right in his own row, then right to left in the row in front, then from left to right again; a piece moved into a place occupied by one of the adversary's pieces takes it; if a player has two or more pieces on one square, they move together as one; pieces which have reached the adversary's row are in safety. The lot-throwing part of the game may be played by itself, the throwers of 6 and 4 being called Sultan and Wezir, from whom the unfortunate thrower of 2 receives blows on the soles of his feet with the palmstick shown in the plate Fig. 4.¹⁾

There is a Chinese variety of the game of four sticks, popular under the name of *nyut* in Korea, where Mr. STEWART CULIN describes it.²⁾ Four lots are used, made of bow-wood, plano-convex and with one black and one white side, somewhat like those in Figs. 6 & 7 of the Plate. The scoring is

Whites up . . .	4	3	2	1	0.
Score	4+	3	2	1	5.

Four blacks give another throw. The calculated values would be 4, 1, $\frac{2}{3}$, 1, 4.

¹⁾ E. W. LANE, Manners and Customs of the Modern Egyptians, vol. II, chap. IV. — HYDE, De Ludis Orientalibus, part II, p. 217.

²⁾ CULIN, Korean Games (Philadelphia 1895).

Little sticks or other objects are used as markers or pieces, called horses (*má*) of which each player has from one to four, which move and take along the spots of the diagram.

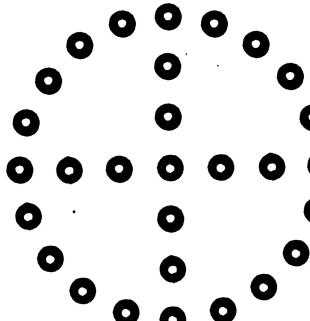


Fig. 12. Diagram for game of *nyut*.

Sanskrit literature furnishes early mentions of this family of games in India. The game of *ayānaya*, luck and unluck, has been discussed by Prof. ALBRECHT WEBER¹⁾, and the mention of *panchikā*, a game played with five cowries, may refer to *pachisi*, with which we are specially concerned, and which will now be briefly described. Fig. 5 represents the cloth embroidered with squares which commonly serves as the board, often carried by zealous players rolled in their turbans. The pieces (*got*) are shown on the left, of four colours, a set of four of one colour being played by each of four players, or by two playing two sets each, as in Fig. 1. The five cowries thrown as lots score as follows:

Mouths up . . .	5	4	3	2	1	0.
Score	25+	4	3	2	10+	6+.

The calculated value has been already given, 25, 5, $\frac{21}{4}$, $\frac{21}{4}$, 5, 25. The name of the game *pachisi* (= 25) or *dás pachisi* (= 10 25) is taken from the two highest throws. The scoring with five cowries is from a good authority²⁾, but Dr. RAJENDRALALA MITRA, who has been good enough to send me a careful account, takes six cowries as the usual number, which requires the addition of 6-up, counting 12+, to the scoring with five cowries. In playing *pachisi*, the object of each of the four players is to move his pieces from the central space down the middle row of his own arm to its end, then along the outer lines of squares from left to right (against the sun) till having made the circuit of the whole board they come back, each reaching the end of its proper arm and returning home as it came, the winning player being he who gets his four pieces round first. The pieces move onward as many squares as the score of the throw, but a piece can only be started from the central space, or return there from the last square, by means of the starting 1 which is given to the thrower of *dás* (10) or *pachisi* (25) in addition to his proper score. The high throws 25+, 10+, 6+, entitle the player to a new throw. A single piece on a square is taken by an enemy's piece moving on to that square, and has to go home and begin afresh. But two or more on one square hold it safely; also in the crossed squares or forts (*chik*) a single piece is in safety, and blocks the entrance of an enemy. It will have been noticed that the relation of *pachisi* to *tāb* is close, *pachisi* being reduplicated to admit four players. A further change is to replace the cowries by dice; these are of a peculiar long form with four faces, shown on the right of Fig. 5. Thus modified, *pachisi* passes into the game known as *chūpur*.³⁾

¹⁾ A. WEBER, Indische Studien, Vol. XIII, p. 471.

²⁾ Qanoon-e-Islam, transl. by HERKLOTS. London 1832, p. LII.

³⁾ See HYDE, De Ludis Orientalibus II. p. 68. — FALKENER, Ancient Games, London, 1892. p. 257. — Another variety is known as *ashṭa-kashte*.

In this manner a simple lot-game like *tāb* may have given rise to the dice-game which prevails with so great similarity across the world, that ordinary European names may be used for it almost indifferently, such as tables, trictac, backgammon. Its introduction may be assigned to Western Asia, probably to Persia, where it was known at the time of ARTAXERXES, and flourishes still under the name of *nard*. It is needless to discuss its later history here, but attention should be drawn to a point which touches the present enquiry. While the dice-game is common to the Eastern and Western worlds, so that an Icelander could easily play backgammon with a Japanese on an ancient Roman board, the lot-game which seems to have preceded it spread east rather than west. At any rate, if any game like *tāb* or *pachisi* played with two-faced lots ever reached Western Europe, it is not commonly known, nor recorded in ordinary books on the history of games. In now examining the American games, it will be seen that this bears forcibly, though not indeed conclusively, on the question whether these correspond more closely with games belonging to Asiatics or to Europeans.

As early as 1519, the Spanish invaders on their way to the city of Mexico noticed cloths worked in chessboard-pattern from which they judged that the dice-boxes of chequers were also in use in the country¹⁾. The only known Mexican game for which these cloths were likely to have been intended was *patolli*. Of this game the description by LOPEZ DE GOMARA was written between 1540–50, as follows: Sometimes MONTEZUMA looked on as they played at *patolitzli*, which much resembles the game of tables, and which is played with beans marked like one-faced dice which they call *patolli*, which they shake between both hands and throw on a mat or on the ground where there are certain lines like a merell-board, on which they mark with stones the point that came up, by taking off or putting on a little stone²⁾. JUAN DE TORQUEMADA partly follows this account but gives further details: "there was another game they call *patolli*, which somewhat resembles the game of royal tables, and is played with beans having points made in them after the manner of one-faced dice, and they call it the game of *patolli* because these dice are so called; they throw them with both hands on a thin mat which is called *petate*, with certain lines drawn on it in the form of a St. Andrew's cross and others across them, marking the point which fell upwards (as is done with dice) taking off or putting on stones of different colour, as in the game of tables³⁾. BERNARDINO DE SAHAGUN has other details to contribute, especially as to the marking of the beans. He mentions

¹⁾ PETR. MARTYR. De nuper repertis Insulis, Basileæ 1521 p. 38; De Orbe novo, Compluti 1530, p. 86. "Lodices uarias gossampinas, cädido, nigro et flavo coloribus intextas, duas auro et gemmis dites, tresq: alias pennis et gossampino intextas scacorum ludo; quod argumentum est et scacorum fritillos habere eos in uso." "Non est alienum a re, licet ludicum, quibus ludis utantur dicere: scacorum fritillos habere notum est, per scacos in lodicibus contextos."

²⁾ FRANCESCO LOPEZ DE GOMARA, Istoria de las Indias, Saragossa 1552, fol. 42. "Algunas veces mirauia Motecumuma como jugauan al Patolitzli, que parece mucho al juego de las tablas. Y que se juega con hauas, o frisoles raiados como dados de harinillas que dizan Patolli. Los quales menean entre ambas manos. Y los echan sobre una estera, o en el suelo, donde ay ciertas raias, como alquerque, en que señalan con piedras el punto que cayo arriba, quitando, o poniendo china." The harinillas or arenillas were dice used in Spain at the game of rentilla, they had points on only one face, numbering one to six.

³⁾ JUAN DE TORQUEMADA, Monarquia Indiana, Seville 1615, book XIV, c. 12 "Auia otro juego que llaman *Patolli*, que en algo parece al juego de las tablas reales, y juegase con hauas y frisoles, hechos puntos en ellos, a manera de dados de arenillas, y dizenle juego *Patolli*, porque estos dados se llaman assi; echandolos con ambas manos sobre una estera delgada que se llama *petate*, hechas ciertas rayas a manera de aspa y atrauessando otras señalando el punto que cayó hacia arriba (como se haze en los dados) quitando, o poniendo chinias de diferente color, como en el juego de las tablas."

patolli as a pastime of the lords, describing the lots as "four large beans, each having a hole", and again that "they made on the mat a painted cross full of squares... they took three great beans with certain dots made in them, and let them fall on the painted cross. By the time of this writer the game, at which gold and jewels used to be staked, had been given up under suspicion of idolatry¹).

The already mentioned History of the Indies bearing the name of DIEGO DURAN appears from the critical examination by RAMIREZ and CHAVERO to have been more or less an earlier composition written by a native Mexican, probably in his own language. The picture-writing accompanying it, though so late as to be much Europeanized, is an authentic document. The whole may be taken as a record from, or near, the first generation after the conquest in 1521. Chapter C. treats chiefly of *patolli*, at which and other games the Indians not only would gamble themselves into slavery, but even came to be legally put to death as human sacrifices. So covetous were these gamblers that they took as their particular gods the instruments of their game, if it was dice-playing they held the dice as a god and the lines and figures marked on the mat, as seen in the picture²), which gods they worshipped with particular ceremonies not only at this game but at all their other games. They played the game of *merells* or draughts imitating the game of chess played by the Spaniards, taking one from the other the black and white stones or pieces. "There was another game, which was that they made on a plaster floor little hollows after the manner of a game-board, and one took ten stones and the other ten others, and the one placed his stones on the one edge and the other on the other on contrary sides, and taking some reeds split down the middle they threw them on the ground so that they sprang up, and as many reeds as fell with the hollow side upward so many places he moved his stones forward, and thus one followed the other, and all such stones as he overtook, he took one after another till he left his adversary without any." There was also the game of the mat, which was the keenest they played, at which many could play jointly and in company, "the game they played on this mat they called *patolly*, which is the same word we now use for cards". On this mat they had painted a large St. Andrew's cross filling the mat from corner to corner, within the hollow of which cross there were some transverse lines serving for squares, which cross and squares were marked and drawn with diluted olin (caoutchouc)... for these squares there were twelve small stones, six red and six blue, which stones they divided between the players so many to each; if two played as was usual, each took six, and although many might play, one always played for all, they following his play.... who had the best throws of the dice, which were some black beans, five or ten according as they wished to lose or gain, which had some little white holes in each bean by which were marked the number of squares which were gained on

¹⁾ BERNARDINO DE SAHAGUN, Historia Universal de las Cosas de Nueva España, in KINGSBOROUGH, Antiquities of Mexico, vol. VII, book VIII, c. 10, 17. "Tambien los Señores por su pasatiempo jugaban un juego que se llama *Patolli*, que es como el juego del castro ó alquerque ó casi, ó como el juego de los dados, y son cuatro frisoles grandes que cada uno tiene un agujero, y arrojanles con la mano sobre un petate como quien juega a los carnicoles donde está hecha una figura. A este juego solian jugar y ganarse cosas preciosas, como cuentas de oro y piedras preciosas, turquesas muy finas. Este juego y el de la pelota hanlo dejado, por ser sospechosos de algunas supersticiones idolátricas que en ellos hay." "El segundo pasatiempo que tenian era un juego como dados; hacian en un petate una cruz pintada llena de cuadros semejantes al juego del alquerque ó castro, y puestos sobre el petate sentados tomaban tres frisoles grandes hechos ciertos puntos en ellos, y dejabanlos caer sobre la cruz pintada, y de allí tenian su juego."

²⁾ Plate V. fig. 2.

each hand, where five were marked they were ten, and ten twenty, and if one, one, und if two, two, and if three, three, and if four, four, but marking five they were ten, and if ten, twenty, and thus these little white dots were the lots and counting of the lines which were gained, and for moving the stones from some squares to others." So many spectators and gamblers crowded round the mat, some to play and some to bet, that it was wonderful, and if the game was played on a sudden and there was no olin to make the lines of the gamingboard with on the mat, they used plants, as gourds or a herb called *chichicpatly* or bitter medicine, with the soot of pine-wood. The gamblers used to go about with the mat under their arms, and the dice tied in a cloth, and as in our day gamesters go with the cards in their breeches from one gaming-house to another, so these carried the dice and stone pieces of the game in a little basket, doing reverence to them as gods, and talking to them as they played as to intelligent creatures, which as our author says, he does not wonder at, seeing how Christians of our nation who pride themselves on their delicate judgment will with hands crossed beg the cards for good points, and afterwards if they do not gain utter a thousand blasphemies against God and his saints, so these alked to the little beans and the mat with a thousand loving words and then would set the little basket in the place of adoration with the instruments of the game and the painted mat beside it and bring fire and throw incense into it, and doing their sacrifice in front with an offering of food, set to play with all the confidence in the world.... The name of the god of dice was *Macuilxochitl*, that is to say Five Roses¹⁾; him the gamblers invoked when they threw the beans from their hand, which was in the manner I shall state, that the beans which serve as dice are five in honour of that god who has the name of Five Roses, and to throw a main they carry them first a while turning them over between the hands, and in throwing them on the mat where is the figure of their gaming-board and score, they called in a loud voice *Macuilxochitl*, and gave a great clap of the hands and turned to see the points they had got, and this *Macuilxochitl* was solely for this game of dice." There was another god who was for games in general, named *Ometochitl* or Two Rabbits, and whenever in this or other games they wished deuce to be thrown they invoked him. He was also the god of pulque and tavern-keepers, and Fray DIEGO winds up his account by saying that he remembered when the magistrates were putting down the games and apprehending and punishing the gamblers, tearing up the *patolli*-mats and burning the beans, in order at once to put an end to the superstitious practices and the harm and waste caused by gambling²⁾.

¹⁾ More correctly Five Flowers.

²⁾ DIEGO DURAN, Historia de las Indias. 2 vols & Atlas. Mexico, 1867-80. Vol. II. cap. C. The somewhat abridged translation of this diffuse account may serve to interpret the author's meaning, but some of his statements are obscure. I have to acknowledge help kindly given by Don FERNANDO DE ARTEAGA, Lecturer in Spanish in the University of Oxford, in dealing with these difficult passages, but he thinks it impossible to make sense of some of them.

Cap. C. "En todas las naciones hubo y hay juego y tahures que los inventasen y jugasen no solo para perder sus haciendas y dineros pero algunos pierden las vidas y lo que peor es que juntamente las almas (lo cual es mucho de doler) de los cuales juegos no careció esta nacion mexicana pues ténfan juegos y maneras de perder sus haciendas y á si mismos despues de perdidas se jugaban y se volvian esclavos perpetuos de los cuales ganaban y perdían juntamente las vidas pues era notorio que vuelto esclavo venian á parar en ser sacrificados á sus dioses. Había en aquel tiempo tantos y tan codiciosos tahures y era tanta la codicia que había entre ellos de ganar que los que eran dados á este vicio tenian por dios particular suyo á los instrumentos del juego cualquiera que fuese por que si era de dados á esos dados tenian por dios y á las rayas y efigies que en la estera estaban señaladas (como en la muestra vimos) á quien con particulares ofrendas y con particulares ceremonias honraban y reverenciaban no solamente á

I pass over descriptions of *patolli* by later writers¹⁾, who had no direct knowledge of

este juego empero á todos los demas de que usaban jugar con interes de perder ó ganar los cuales juegos eran muchos y diversos con diferentes instrumentos y maneras. Jugaban el juego del alquerque ó de las damas imitando el juego que nosotros jugamos del adjedrez prendiéndose las chinas el uno al otro las cuales piedras servían de piedras las unas blancas y las otras negras.

Había otro juego que era que hacían encima de un encalado unos oyos pequeñitos á manera de fortuna y el uno tomaba diez piedras y el otro otras diez y el uno ponía sus piedras por la una acera y el otro por la otra en contrarias partes e con unas cañuelas hendidas por medio daban en el suelo y saltaban en alto y tantas cuantas cañuelas cajan lo güeco hacia arriba tantas casas adelantaba sus piedras y así seguían el uno al otro y todas cuantas chinas le alcanzaba se las iba quitando hasta dejarle sin ninguna y acontecía habelle quitado cinco y seis y con las cuatro que le quedaban decirle también las cañuelas que revolvía sobre el otro y ganale el juego. Había este juego de la estera que era el mas recio que se jugaba casi como entre nosotros la primera ó las presas que son juegos para de presto como dicen á este juego podían jugar muchos juntos y de compañía como querían y así era el juego mas usado que había del cual principalmente pienso tratar y declararlo pues nuestro principal intento es en este capítulo tratar de él y del modo que de jugalle tenían para lo cual es de saber que al juego que sobra esta estera jugaban llamában *patolly* que es el mismo bocablo que agora llamamos *naypes*. Sobre esta estera tenían pintada una aspa grande de que tomaba el petate de esquina á esquina dentro del güeco de esta aspa había atravesadas unas rayas que servían de casas la cual aspa y casas estaban señaladas y rayadas con olin derretido . . . para estas casas había doce piedras pequeñas las seis coloradas y las seis azules las cuales piedrezuelas partían entre los que jugaban á cada cual tantas: si jugaban dos que era lo ordinario tomaba las seis y el otro las otras seis y aunque jugasen muchos siempre jugaba uno por todos atendiendo á la suerte de aquél como entre los españoles se juegan los albures ateniéndose á la mejor suerte así se atenían acá al que mejor meneaba los dados, los cuales eran unos frijoles negros cinco ó diez como querían perder ó ganar los cuales tenían unos agujerillos blancos en cada frijol por donde pintaban el número de las casas que se aventajaban en cada mano donde se pintauan cinco eran diez y diez veinte y si uno uno y si dos dos y si tres tres y si cuatro cuatro pero pintando cinco eran diez y si diez veinte y así aquellas pintillas blancas eran suertes y cuenta de las rayas que se ganaban y para mudar las piedras de unas casas en otras. Al cual juego cuando se jugaba acudían tantos miradores y tahures que estaban unos sobre otros sobre la estera unos para jugar otros para apostar que era cosa extraña. Cuando las rayas de esta estera (si el juego se inventaba de presto) no había olin para hacellas había particulares yerbas para hacer las rayas de aquella fortuna como eran hojas de calabaza ó la misma calabacilla pequenita ó una yerba que ellos llaman *chichicpally* que quiere decir la medicina amarga ó con tigne de *ocotl*. en lo cual mezclaban supersticion por causa de que había de ser con esta yerba y con esta y no con otra siempre teniendo obgetto á idolatria. Andaban los tahures de este juego siempre con la estera debajo del sobaco y con los dados atados á un pañito como algunos tahures de este tiempo que siempre andan apercibidos con los naypes en las calzas de tablago en tablago aquellos dados juntamente con las piedrezuelas del juego traían en una baserita pequeña á los cuales hacían reverencia como á dioses fingiendo en ellos haber alguna virtud y así les hablaban cuando jugaban como á cosa que tuviese algún sentido ó inteligencia de lo que le pedian y no me espanta ni me maravillo que les hablasen pues era gente de no tan agudo juicio como lo son los de ntra. nacion les hablasen y pidiesen les fuesen favorables y ayudases en aquel juego pues hay cristianos de nuestra nacion que presumen de muy delicados juicios que puestas las manos piden al nayne buen punto y buena suerte y si no le entró despues de haber adorado los naypes si así se puede decir (con las manos puestas) decir mil blasfemias contra Dios y sus santos así estos naturales hablaban á los frijolitos y al petate y decian mil palabras de amor y mil requiebros y mil supersticiones y despues de habelles hablado ponían la petaquilla en el lugar de adoracion con los instrumentos del juego y la estera pintada junto á ella y traia lumbre y echaba en la lumbre incienzo y ofrecía su sacrificio ante aquellos instrumentos ofreciendo comida delante de ellos. Acabada la ofrenda y ceremonias iban á jugar con toda la confianza del mundo . . . El nombre del Dios de los dados era *Macuilxochitl* que quiere decir cinco rosas á este invocaban los jugadores cuando arrojaban los frijoles de la mano lo cual era á la manera que diré que los frijolitos que sirven como de dados son cinco á honra de aquel Dios que tiene hombre de cinco rosas y para echar la suerte traíenlos primero un rato refregándolos entre las manos y al lanzallos sobre la estera donde esta la figura de la fortuna y cuenta suya que es á la manera de dos bastos llamaban á alta voz *Macuilxochitl* y daban una gran palmada y luego acudían á ver los puntos que le habían entrado y este *Macuilxochitl* era solamente para este juego de los dados había empero otro dios que era general para todos los juegos el cual es el que ves presente y tenía por nombre *Ometochtly* que quiere decir dos conejos y así para el juego dicho como para los demás todas las veces que querían que les entrase el dos hacían la misma invocacion al soltar de las arenillas dando aquella palmada *Ometochtly* que quiere decir dos conejos. Tambien es necesario que al vino que beben tuvieron estos por dios antigualemente y llamabanle *Ometochtly* y todos los taberneros y tabernerías le celebraban sus ritos y ceremonias y ofrendas con toda la solemnidad y devoción posible . . .

Acuérdome que antigualemente andaban las justicias seglares á destruir estos juegos y a aprehender y castigar los jugadores poniéndoles graves penas rompiéndoles las esteras en que tenían pintadas aquellas fortunas la causa de aqueste rigor era por destruir las supersticiones y malas venturas etc. etc.

¹⁾ CLAVIGERO, Storia antica del Messico. Cesena 1780, Vol. II, p. 185. — BRASSEUR DE BOURBOURG, Histoire des Nations Civilisées du Mexique et de Amérique Centrale, Paris 1858, Vol. III p. 671.

the game and in no way improve on the statements of the early chroniclers. The foregoing citations from these may have seemed to the reader of tedious length, yet there is hardly a sentence in them which is not evidence in the case. The accounts of the popularity of the game at the time of the conquest, the mention of its special god and the ceremonies of his worship, preclude the idea of the Europeans having brought it into the country with their own cards and dice which have long since superseded it. The descriptions given by the Spaniards indeed show that the game was new to them, for they noticed its resemblance to the game of tables and in a less degree to draught-games; had they known anything nearer they would have said so. The only difficulty lies in the descriptions of the lots and the scoring, the very confusion of which seems to show that the Spaniards were not familiar with the device of lot-scoring, as a Hindu or Arab would be, or they would have expressly distinguished it from the use of numbered dice or tallies.

Here, however, other evidence is available, in that some variety of the game, more or less simplified or broken-down, appears to have spread northward among the wilder Indian tribes, where it remained in vogue after its disappearance from among the Aztec nation. Father JOSEPH OCHS, a Jesuit missionary in this part from 1754–68, and who lived among the Tarahumara and Pima Indians, writes thus: "Instead of our cards they have slips of reed or wooden sticks a thumb wide and almost a span long, on which, as on a tally, different strokes are cut in and stained black. These they hold together tight in the hand, raise them as high as they can and let them fall on the ground. He who has the more strokes or pips for him wins the stakes. This game is as bad as the notorious hazard. They call it *patoles*. As it is forbidden on pain of blows, they choose a place out in the woods, yet the noise of these bits of wood has discovered for me many sharpers hidden in the bush. To play the more safely they spread a cloak or carpet, so as not to be betrayed by the noise."¹⁾ Thus the Aztec name of *patolli* was still in use among a distant people of alien language to denote gambling with wooden lots. Another account, probably from an old authority, describes a more complete form among the South Californian Indians. "Fifty small pieces of wood, placed upright in a row in the ground at distances of two inches apart, formed the score. The players were provided with a number of pieces of split reed, blackened on one side; these were thrown, points down, on the ground, and the thrower counted one for every face that remained white side up, if he gained eight he was entitled to another throw. If the pieces all fell with the blackened side up they counted also. Small pieces of wood placed against the upright pegs marked the game. They reckoned from opposite ends of the row, and if one of the players threw out so many as to make his score exactly meet that of his opponent, the former had to commence again"²⁾. This description may be compared with the particulars noted by Mr. ROBERT FRAZER of Philadelphia as to the Apache game of *tze-tiehl* or "stone and sticks", which account he kindly sent me with the diagram (Fig. 13) and a set of the lot-sticks (Plate V Fig. 6) on his return from a visit to the Apache country in 1884. These lot-sticks are thrown against the centre stone shown in the diagram and score thus:

Convex up	3	2	1	0
Score	10+	3	1	5

¹⁾ MURR, Nachrichten von verschiedenen Ländern des Spanischen America, Halle 1809, part. I. p. 256.
²⁾ BANCROFT, Native Races of the Pacific States of North America, Vol I. p. 415.

According to calculation the numbers would be 10, $3\frac{1}{2}$, $3\frac{1}{4}$, 10. Three-up gives another throw. Fig. 13 shows the position of 40 small stones placed in quadrants round the centre,

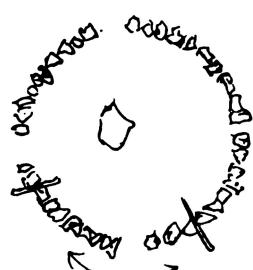


Fig. 13. Diagram of Stones arranged for Apache Lot-game.

the two players moving their marking-sticks, which are the pieces in the game, in opposite directions, and the player whose stick falls on his opponent's taking it up and sending it back, from which it is evident that the game is won by getting first round. If now this Apache game be compared with the Chinese-Korean game of *nyut* (Fig. 12) the resemblance will be seen to be so close that the Indians might conceivably have learnt it from the Chinese who for years past have swarmed in this part of America. But in one form or another the game prevails among the native tribes; thus the lot-sticks shown in Fig. 7 are those used by the Pueblo Indians of Arizona. It has been seen that the earlier accounts from the district date from times before the Chinese immigration.

At this point the evidence comes in of the often described "game of the bowl" among the Indian tribes further north in the region of the great lakes. The Jesuit missionaries describe it among the Hurons so early as 1636, close on the first years of intercourse with the whites. Father LE JEUNE describes this "jeu de plat" as played with six plumstones, white on one side and black on the other, in a dish which was struck hard against the ground so as to turn the stones over. He thought the game was simply to get the faces all black or all white, but perhaps he did not take the trouble to examine thoroughly anything so trivial as a savage sport.¹⁾ His account is implicitly contradicted on this point by Father LAFITAU, who remarks that although the plumstones have only two sides, white and black, the Indians have a number of combinations rendering the game long and agreeable. This learned observant missionary-anthropologist noticed that the American game resembled one brought by the negros from Africa to the West India Islands.²⁾ Fig. 8 represents the bowl and peach stones as used half a century ago in the festival games of the Iroquois described by L. H. MORGAN. This diversion was believed to have come down from the beginning of the Iroquois League centuries ago, and the Indians hoped to continue its enjoyment in the happy regions of the future life. The tribes, represented by champion players, gambled ceremoniously in the public councilhouse, when the six peach-stones, shaped flattish and burnt black on one side, were shaken in the bowl, scoring thus:

Blacks or whites up . .	6	5	4	3	2	1	0.
Score	5+	1+	0	0	0	1+	5+.

All throws counting gave also another throw. The calculated values being $5, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, 5$, it results that the scoring corresponds to the nearest whole number, which is the only case of such accuracy I have met with and even suggests the possible intervention of some white schoolmaster. Also, the game was played with a bank, consisting

¹⁾ Relations des Jesuites dans la Nouvelle France. Quebec reprint 1858, vol. I. (1636) p. 113.

²⁾ LAFITAU, Moeurs des Sauvages Ameriquains, Paris 1724, vol. II. p. 339. — LABAT, Nouvelles Voyages aux Isles de l'Amérique, vol. IV. p. 153; this game is described as played with four perforated cowries, throws of four-up four-down or two each way winning; an account rather founded on fact than correct.

usually of 100 beans divided between the two sides, these beans being given and taken according to the throws, and the match being won by the side gaining all the other's beans. This arrangement, familiar to the white man, I have not met with any other mention of among the native American tribes. The Iroquois game of deer-buttons, whether played as a family sport or publicly, did not differ essentially. The eight lots, cut out of elk-horn with one side blackened, were thrown from the hands, and the throws taking a corresponding number of beans from the bank reckoned.

Blacks or whites up .	8	7	5	6	4	3	2	1	0.
Score	20+	4+	2+	0	0	0	2+	4+	20+.

The theoretical computation is $20, 2\frac{1}{2}, \frac{5}{7}, \frac{5}{14}, \frac{2}{7}, \frac{5}{14}, \frac{5}{7}, 2\frac{1}{2}, 20$, which is wanting in the accuracy of the peachstone game¹⁾. The game of the bowl is not yet forgotten by the Indians, and Fig. 9 represents a dish and bone buttons with a white and a red side, which were given me by a lady, familiar with Indian life, Miss ABBY ALGER of Boston. The score is put down as

Whites up . . .	6	5	4	3	2	1	0.
Score	20	6	3		3	6	15.

SCHOOLCRAFT has described among the Dakotas and Ojibwas more elaborate bowl-games, in which the lots have on them figures of tortoises, war-clubs etc., and his account has had much popularity through being worked by LONGFELLOW into the poem of Hiawatha. These games, though founded on the native Indian games, are Europeanized hybrids of late times.²⁾

Examination has now to be briefly made of the results of the preceding evidence. The existence in Mexico before the Spanish period of a game allied to *tib* and *pachisi* may be maintained as hardly open to question. How the Aztec players moved and captured the coloured pieces along the rows of places on the diagrams according to regulated chance, is known by positive description and even by an authentic picture. The manner of the deciding chances, though sometimes indistinct, is on the whole recognizable. The use of simple two-faced lots, which have lasted on till now among the wilder northern tribes, is unmistakeable; the Aztec split reeds, and the beans with a hole on one side, can have been nothing else. The marking by several lines or dots may very well have been for the same purpose, but it is not impossible that it served for numbering the canes or beans so as to convert them into rudimentary dice somewhat such as the Spanish arenillas. If this were so, it would follow that the Aztecs knew how to play their game either with lots or dice, as the Hindus do at this day; we meet, however, with no trace of dice in early accounts of the Indian tribes to the north. The descriptions of the moves also agree with lots rather than dice. In DURAN's first game we read that the number of canes fal-

¹⁾ L. H. MORGAN, League of the Iroquois. Rochester 1851, p. 302.
²⁾ SCHOOLCRAFT, Indian tribes of the United States. Part. II. p. 71.

ling with the hollow side up determined the number of places to be moved, which easy method agrees with the play of the Southern Californians. In DURAN'S second game which was *patolli* proper, we meet with what seems a rule of probability, giving a much higher value to the extreme throws than to the middle or average throws, which as usual show a tendency to follow the mere number of faces turned up, as in the previous more rudimentary game; the reader sufficiently interested in the problem will make the comparison for himself between DURAN'S numbers and the scoring lists here given.

The idea that the similarity between the American and Asiatic games resulted from independent invention has seemed probable to more than one anthropologist. This suggestion raises the problem, as yet only imperfectly solved, of determining what kind and amount of similarity in the arts or customs or opinions of different districts may justify us in denying the possibility of their independent development and claiming them as results of transmission. Experience has indeed led the educated world to judge positively on this question in extreme cases. If Englishmen landing on a remote island were accosted by natives in their own language, the notion that English had been developed here as well as in England would be treated as a jest. If the natives were seen shooting with guns or playing chess, the suggestion of guns and chess having been twice invented even in approximate forms would hardly fare better. Where, then, is the limit of similarity which proves common derivation? Popular opinion is no doubt led by accumulated experience to consider that highly special or complex phenomena of thought and habit do not so readily recur as the obvious and simple, and probably this judgment is sound. The subject ought however to be brought to altogether more accurate definition. I have found it useful at any rate as a means of clearing ideas, to attempt a definite rule by analyzing such phenomena into constituent elements showing so little connexion with one another that they may be reasonably treated as independent. The more numerous are such elements, the more improbable the recurrence of their combination. In the case of a language recurrence may be treated as impossible. If the invention of the gun be divided into the blow-tube, the use of metal, the explosive, the lock, the percussion etc., and classed as an invention say of the 10th. order, and the invention of chess with its six kinds of pieces with different moves indicated as of perhaps the 6th. order, these figures would correspond to an immense improbability of recurrence. Such a game as *pachisi*, combining the invention of divining by lot, its application to the sportive wager, the combination of several lots with an appreciation of the law of chances, the transfer of the result to a counting-board, the rules of moving and taking, would place it in perhaps the 6th. order, the recurrence of which might be less than that of chess, but according to common experience still far outside any probability on which reasonable men could count.

If this argument be admitted, the relation of the *pachisi-patolli* groups of games in the Old and New World must be accounted for by intercourse before the Spanish conquest, other than that of the Northmen, which fails to answer the conditions. If communication across the Atlantic fails, the alternative is communication across the Pacific from Eastern Asia, where the sportive material required could readily be furnished.

It is with no slight satisfaction that I take this occasion of contributing to a volume commemorative of ADOLF BASTIAN. Trivial as a mere game may be in itself, its consideration involves problems coming within the wide range of interest of my honoured friend. I well remember how, soon after *Der Mensch in der Geschichte* was

published in 1860, Professor LAZARUS placed it in my hands as a book from which a student engaged on the quest of the principles of culture might profit much. Indeed this work did most to bring the laws of development of human thought within the range of modern anthropology, by basing their study on the widest collection of facts, not distorted by premature generalization. The study of culture, in those days vaguer and more speculative than now, required a method which should cause fanciful theories to fall away simply by want of support, leaving the enquirer to seek the elements of sounder generalization in the converging evidence from the most distant lands and ages. Anthropology owes not less to him for his work in the region of recorded facts than for what he has accomplished in foreign exploration or in the great Ethnological Museum of Berlin.

