# TAROT CARDS: A LITERATURE REVIEW AND EVALUATION OF PSYCHIC VERSUS PSYCHOLOGICAL EXPLANATIONS

## By Ital Ivtzan

ABSTRACT: Tarot cards, considered by some a tool to predict the future and understand one's inner issues, originated in ancient Egypt and remain popular in our day. The clash between the paranormal and the nonparanormal explanations revolves around people's claims that the cards accurately reflect their own individual issues. The paranormal explanation claims that the cards portray opportunities, hidden motives, and potentials, therefore allowing clarity concerning the individual's questions and conflicts. The cards, according to the paranormal explanation, provide a reflection of the client's inner processes. The nonparanormal explanation, on the other hand, is based upon two psychological explanations: the Barnum effect and "cold reading." The Barnum effect refers to our tendency to interpret general statements as applying specifically and accurately to one's own unique circumstances, whereas "cold reading" refers to a set of deceptive psychological techniques that are being used in the psychic reading to create the impression that the reader has paranormal ability. This review juxtaposes these two perspectives while reporting studies that involve tarot cards.

It is estimated that more than 400 different tarot decks exist today, representing ideas derived from different occults, religions, and spiritual brotherhoods (Decker & Dummett, 2002). The roots of the word *tarot* derive from the Italian word *taroochi* (referring to the tarot deck) from the beginning of the 16th century; the French derivative of this Italian word is *tarot* and this is why the final *t* is silent. The origin of tarot cards is a topic of heated debates and arguments but remains nonetheless obscure. One of the earliest existing tarot decks is the hand-painted German "hunting" pack of Stuttgart, which dates back to about 1420 and depicts a hunting series with dogs, stags, ducks, and falcons for suit signs (Kaplan, 1980). There are different theories as to the origins of tarot prior to recorded history. One of the popular theories points to ancient Egypt; some researchers claim that the major arcana constituted the Egyptian hieroglyphic book of Thoth (Egyptian god of wisdom), which is also known as the book of tarot (Willis, 1988).

Almost all tarot decks follow the same 78-card structure, which is divided into the major arcana (22 cards), and the minor arcana (56 cards); *arcana* is a Latin word meaning *mysteries*. The cards in the major arcana, major mysteries, represent the main themes concerning human life; such archetypes might be change, love, death, spirituality, acceptance, and so on. The minor arcana is divided into four suits, which might be the sword, stave, cup, and coin but could be divided differently according

to the intentions of the deck's devisor. The cards of the minor arcana are considered to be lesser compared to the major arcana because they discuss the minor mysteries of life, less important archetypes. It is for the devisor of the deck to decide which archetypes are considered important and thereby incorporated within the major arcana, and which are less important and placed in the minor arcana.

There are different techniques for choosing the cards in a reading: one popular option is for the reader to ask the client to shuffle the cards while focusing on a question, spread the deck, and choose the cards he or she feels most drawn to. The layout changes according to the amount of detail the reader is interested in and according to the type of question asked by the client. An example of a layout might be the ancient and popular "Celtic cross" where the client chooses 10 cards of the 78 and lays them, face down, in the shape of a Celtic cross. Each of the 10 positions in the layout carries a different meaning; one position, for example, might signify the main theme while a different position might signify past events influencing this theme.

# JUXTAPOSING THE PARANORMAL AND NONPARANORMAL APPROACHES

There is no doubt regarding the popularity of tarot cards as a mean of divination. Even in western societies where, in certain areas, pragmatic mainstream science leads public opinion, we can still see the culture of tarot reading flourishing. A quick Web search reveals over a million sites for tarot readers (both online and face-to-face options). The popularity of a subject, on the other hand, is not an indication of reliability or validity, nor does it make the roots of the phenomenon clear. When examining the phenomenon of tarot cards, two juxtaposing approaches regarding its popularity might be taken: the first approach, the paranormal one, claims that indeed some paranormal forces are at work as a reading takes place. The second approach, the nonparanormal one, claims that there is nothing mysterious in the process of tarot reading and the whole phenomenon can be explained by examining simple psychological effects.

Within the paranormal approach it is claimed by occultists (e.g., Sharman-Burke & Greene, 1986; Waite, 1910) that the tarot reveals the quality of the moment for a consulting individual. It is important to say that the cards cannot predict the future as if it is fixed and fated (in contradiction with common belief and common practice of many tarot readers). The cards, therefore, portray opportunities, hidden motives, and potentials and do not describe unchangeable events. According to a variety of writers working with tarot (e.g., Bartlett, 2006; Sams & Childers, 1991) tarot cards allow the reader to deeply penetrate the meaning of the moment for a client by creating more awareness regarding its potentials and influences. In this context we need to shift our understanding of the word "moment" away from the Western perspective of it being restricted by the constraints of time

and move toward the understanding of the moment on a qualitative level. Here the "moment" is viewed as an expression of all that the individual is, on any possible level, conscious and unconscious, connected with any past event and influencing any future one. As the themes of the moment can be illustrated by main archetypes, tarot cards are focusing on a variety of archetypal meanings that aim to interpret the individual's moment. All the potentials and deepest understandings of the "moment" exist, according to this approach, in the unconscious of the individual, and the images from the tarot cards help us to connect with such inner knowledge. Chosen cards in a reading, therefore, are not random but the exact archetypes that express the deepest unconscious inner knowledge and provide important insights. In the words of Metzner (1971, p. 56):

Like the sphinx, an equally obscure image of equally mysterious origin, the tarot poses a riddle: what is the meaning? And, since no external explanations that would allow us to categorize it in neat, pre-programmed concepts, come with it, we are forced to look within if we want to solve the riddle. And so it awakens us a little more to the unused treasures, which lie buried within each and every one of us.

This paranormal perspective might be explained in two different ways: ESP or PK. One explanation might be that the reader is using ESP to read the client's mind and is therefore able to comment accurately on the client's issues. The second option is that these situations involve PK, in which the client's mind is influencing either the choosing of the cards or the reader's mind so that his or her own inner issues are expressed. Under this hypothesis, for example, it might be claimed that the process of choosing the cards is PK-based; therefore the cards in the layout are not random but are coherent expressions of the client's inner workings. It might also be that both ESP and PK are integrated in the process of tarot reading.

Nonparanormal approaches focus on psychological processes and possible fraud when explaining the popularity of tarot reading. One of the most emphasized factors is the Barnum effect, i.e., the tendency to interpret general statements as applying specifically and accurately to one's own unique circumstances. In his article "Wanted—a good cookbook," Meehl (1956, p. 266) portrays the Barnum effect by saying:

... personality descriptions from tests are made to fit the patient largely or wholly by virtue of their triviality. . . . Any nontrivial, but perhaps erroneous, inferences are hidden in a context of assertions or denials which carry high confidence simply because of the population base rates, regardless of the test's validity.

This quotation refers to clinical psychology testing, but precisely the same understanding can be applied to any divination reading. Perhaps it is the triviality of the statements given by the reader that makes the client accept them so eagerly, and any nontrivial piece of knowledge (which is dangerous since it might be erroneous, as Meehl says) is well hidden and only subtly stated. Such general statements are easy to use in divination as the issues that the readings are dealing with are archetypes, concerning almost every individual's life. Studies supporting the validity of the Barnum effect include Dickson and Kelly (1985), Dies (1972), Fichten & Sunerton (1983), and Forer (1949).

A wider nonparanormal explanation to divination's success might be found in the "cold reading" techniques. "Cold reading" is a set of deceptive psychological techniques which are used in the psychic reading to create the impression that the reader has paranormal ability (Rowland, 2002); the Barnum effect technique, which has been described earlier, is one branch in this tree of "cold reading" (Dutton, 1988). This nonparanormal explanation might be attributed to the work of palm readers, astrologists, tarot readers, clairvoyants, tea leaves readers, spirit mediums and any other individual who conveys an impression of paranormal powers when working with a client. In his 1977 paper, Hyman provides a list of techniques the cold reader relies on. These techniques involve the use of good memory and sharp observation while carefully studying the client. Cues might be elicited from a variety of sources such as clothing (cost, style, age) that provide plentiful information for those who have learned to observe such things; clothes might indicate socioeconomic level and how conservative the client is. Another cue might be physical characteristics of the client: skin colour, weight, posture, general appearance, and hands could provide important hints, just as the manner of speech, the use of grammar, and gestures could provide the reader with many valuable pieces of information.

The reader usually holds premeditated lists of information concerning different categories of people (similar to the reader's statements suggested by Roe, 1996). Each category contains different issues and therefore different statements that can be used. Preliminary information gathered by the different cues might be used by the reader in creating an initial category regarding the client. When such a category is established, further delving into this information might be done by testing the client's reactions. The reader can touch upon the general hypothesis and observe the client's responses: verbal content, eye movement, pupillary dilation, and other bodily movements that indicate the accuracy of the statement given by the reader. Observing these reactions allows the reader to impress the client by seemingly knowing what bothers him or her. The reader can also "fish for details" by casually throwing in a sentence such as "I can see something concerning January"; if January carries no importance for the client, he or she will not respond to that (and chances are the client will forget about it by the end of the reading). On the other hand, January might be meaningful for the client for some reason, leading to a comment like: "my birthday is in January" or "my mother passed away in January," statements the reader will use and develop to strengthen the notion of knowledge and ability. It might be that the reader is purely a charlatan, knowingly taking advantage of different cold reading techniques to impress the client, but it might also be possible that the reader unintentionally picks up on different clues at an unconscious level and interprets this knowledge as having a paranormal basis. For example, the reader might observe the way a client is dressed and deduce his or her financial state. During divination the reader might deliver points that are connected to these financial understandings without actually linking between the knowledge obtained and this financial information, which is provided, according to the reader's belief, by the cards.

Schwartz (1978) described some cold reading techniques in a radio program in which Peter Hurkos was a psychic reader. During a divination performance via the phone with one of his listeners, Hurkos (who had a thick Dutch accent) said "I see a duk" (which rhymes with took). The caller responded to this statement by saying, "Why, that's amazing! Our dog is right here in the room with me." It is quite obvious (when we have the time to analyze and think) that the word "duk" sounds similar to a variety of other possible words, which widens the options for a hit. The caller (as the client in a reading) craves for information and finds meaning in ambiguous data. The client wants the reading to work and to provide interesting information and might ignore or mend statements given by the reader. An example of that might be Hurkos saying: "One, two, three, four, five—I see five in the family." And the caller answers: "That's right. There are four of us and Uncle Raymond, who often stays with us." Perhaps the caller truly considers Uncle Raymond as a family member but it might also be that the answer "four" did not match the "five" stated by Hurkos, and counting Uncle Raymond provided a solution. These are examples of cold reading combined with the client's enthusiasm, which provide persuasive results.

# PARAPSYCHOLOGICAL STUDIES

The field of parapsychology is not abundant with tarot experiments; few studies can be found. Blackmore's (1983) tarot study describes three experiments testing the validity of tarot cards as interpreters of the participants' personality. Tarot cards can be used for a variety of explorations, and divination is only one of them. Learning about one's present or past, concentrating on personality characteristics, is another option; Blackmore's study explores this option. Experiment 1 involved 10 participants who were each given two readings. The participants were all enthusiastic students in a parapsychology course who were interested in tarot. The first reading (ordinary) was a regular face-to-face reading after which participants were asked to rate the relevance of the reading on a 7-point scale; the mean

score was 5.7. The second reading (test) was conducted without any face-to-face contact between the reader and the participant. The participant first shuffled and chose the cards; then a second experimenter recorded the chosen cards and their order and gave the data to the reader to interpret alone.

The reader wrote a description for each of the 10 layouts, and the descriptions were given to the participants a week later for rating. The aim was to find out whether or not the participants would be able to find their own reading and rate it significantly higher compared to the other participants' readings. The mean score participants gave their own reading was 4.1 and they gave the other readings a mean score of 3.2. This difference is significant statistically, t(9) = 2.13, p = 0.03, one-tailed. Such results hint at a possible paranormal effect by showing that participants could actually distinguish between their own readings and nonrelevant ones. Another important piece of data is the fact that participants gave much higher scores for the ordinary readings (5.7) compared with the test readings (4.1), t(9) = 3.54, p = 0.003, one-tailed, which does not rule out a possible paranormal effect but may suggest that a face-to-face interaction is more effective and powerful for the participant on the experiential level.

In her own paper, Blackmore criticized this experiment due to the fact that the participants knew each other. If participants know each other they might, for example, avoid choosing a certain description since it "fits" a certain individual in the group. Kennedy (1979) describes a situation in which judges know each other: under such circumstances this knowledge might influence the choices of the judges, therefore creating dependency which invalidates the type of statistical analysis Blackmore was using in her first experiment. It should be noted that multiple judging of free-response experiments can never be regarded as statistically independent.

A second experiment in her study used the same methodology except that participants were recruited by an advertisement. Here the mean score participants gave to their own reading was 3.3, which was not significantly higher than the 3.2 mean score given to others' readings, t(9) = 0.21, p = 0.84, one-tailed. These results contradict those found in Experiment 1, and one explanation might be that the participants in Experiment 2 were not as involved, interested, and enthusiastic as those in Experiment 1. To deal with this issue, Blackmore chose 10 participants for Experiment 3 who were involved in parapsychology. However, Experiment 3 produced nonsignificant results: a mean score of 3.4 for participants' own readings and 3.3 for the others' readings (full statistical analysis is not given). It is hard, therefore, to reach any clear conclusion from these results as Experiment 1 produced different results from Experiments 2 and 3 although Blackmore herself concludes that these experiments show that participants were not able to pick out their own description. It should be added, in the context of these experiments, that there is agreement among tarot readers regarding the importance of face-to-face interaction when reading the cards, which allows the reader to connect to the client fully and to interpret the chosen cards coherently (Angeles, 1987); a sceptical explanation for that might be the easy usage of "cold reading" techniques (which will be discussed later) in a face-to-face environment.

McCusker and Sutherland (1991) tested the frequency of choosing particular tarot cards in comparison with the mean chance expectation. In their experiments, participants meditated for 20 min and then randomly picked up three cards from a tarot deck while the cards were facing down; this procedure was repeated every morning for 365 days (not always successive) leading to an accumulated 1,095 recorded selections. The results of this experiment seem to show that the frequency of appearance for the tarot cards does not follow the chance expectation probabilities. In other words, this might imply that the cards do not appear randomly but are influenced by the client's PK effect. It is important to mention Blackmore's (1991) criticism of this study, which focuses on the fact that the choosing process was biased. Tarot cards, over time, accumulate stickiness or roughness of the surface, scratches on the surface, and other kinds of imperfections that allow the person who is using the cards to identify (consciously or unconsciously) and choose certain favoured cards. These imperfections might have influenced the choosing process that was made by hand, giving an alternative explanation to the results that has nothing to do with any paranormal influence. Another point, which Blackmore does not mention, is the fact that such stickiness or roughness of the surface might influence the actual randomization process. When such cards are being shuffled, they might stick to each other or influence the shuffle in other ways as a result of their damaged surface, producing a nonrandom shuffling process.

The third and last experiment specifically dealing with tarot cards is Roe's (1996) study. This research examined the possible paranormal approach, claiming that it is a PK effect from the client that allows the accuracy of the reading; the client is using PK in order to influence the reader's mind so that the reader expresses certain issues and solutions which are most relevant for the client. Note that this is a different PK approach from the former experiment in which PK was examined in connection with the process of card choosing compared to influencing the reader's mind as examined in this study. This mind-to-mind influence could also be regarded as PK of the recipient's mind. Twenty-seven participants received a tarot reading via a computer screen while thinking that it was a human reader who was supplying the statements appearing on the screen. These statements were actually taken out of a 75-item list. Twenty items were chosen for each reading; half of those were selected "live" by an RNG (experimental items) and the other half were pre-chosen by using random number tables (control items). The idea behind this novel and creative experiment was that the RNG represents an equivalent to the reader's mind. Experienced readers, according to Roe, develop a list of statements and ideas they use in their readings. The reason is that, although we wish to consider our life unique, we all share, in many aspects, the same general problems, issues, and doubts, which allows the experienced reader to create a corresponding list of answers. If PK influence does take place in a tarot reading, the client might be influencing the reader's mind so that the most accurate statements will be given. In the same way, the participant sitting in front of the computer screen might be influencing the RNG so that the chosen statements (experimental) might reflect his/her issues more accurately compared to pre-selected items (control) that were not influenced by the client's PK. Therefore, the hypothesis in Roe's study was that experimental items will be rated as more accurate compared to control ones. Results show that RNG-produced items were rated higher, as predicted, but the difference was not significant, t(39) = -1.333, p = .097, one-tailed. These interesting results, which are suggestive of a possible PK influence in the process of tarot reading, invite further research.

It is important to point out the variety of perspectives regarding the possible ways PK might be influencing the outcome of tarot readings. It is common to find the definition of PK as being a "mind-to-matter" interaction, whereas ESP represents "mind-to-mind" interaction (Girden, 1962). Roe's (1996) study represents a different understanding of PK in which a "mind-to-mind" interaction has to be considered instead of the normal "mind-to-matter" one except that here we are dealing with "mind to mind" on an influencing level instead of the receptive one. In Roe's study, PK is considered to be directed from the client, influencing the reader's mind. Under these circumstances the tarot cards become meaningless, an epiphenomenon that is irrelevant to the reader's report. A different perspective on the matter might be that the client is influencing the actual choosing of the cards in a way that makes the specific chosen cards meaningful, therefore allowing the reader to gain relevant information from these cards. The common ground for both of these perspectives is the influence of the PK effect, which is being manifested in these two different ways.

## CONCLUSION

As we have seen, tarot cards might be seen as based upon paranormal influences that navigate the entire interaction between the reader and the client, just as they might be seen as based upon nonparanormal influences in which simple psychological processes, such as the Barnum effect and "cold reading," explain the information provided by the reader to the client. The most important point, though, as we consider the topic of tarot cards, is people's fascination with it. Facing one's own inner processes and receiving a reflection of that which constructs our deeply buried conflicts and questions seems to provide an important experience that many are attracted to. Hopefully, this article has made the nature of this attraction clearer.

## REFERENCES

- Angeles, A. (1987). The tarot book. Tel Aviv: Or Am.
- Bartlett, A. (2006). *The tarot bible: The definitive guide to the cards and spreads.* London: Godsfield Press.
- BLACKMORE, S. (1983). Divination with tarot cards: An empirical study. Journal of the Society for Psychical Research, **52**, 97–101.
- BLACKMORE, S. (1991). Correspondence regarding "probability and the psyche." *Journal of the Society for Psychical Research*, **58**, 116–177.
- DECKER, R., & DUMMETT, M. (2002). A history of the occult tarot, 1870–1970. London: Duckworth.
- DICKSON, D. H., & KELLY, I. E. (1985). The "Barnum Effect" in personality assessment: A review of the literature. *Psychological Reports*, **57**, 367–382.
- Dies, R. R. (1972). Personal gullibility or pseudodiagnosis: A further test of the "fallacy of personal validation." *Journal of Clinical Psychology*, **28**, 47–50.
- DUTTON, D. L. (1988). The cold reading technique. Experientia, 44, 326–337.
- FICHTEN, C. S., & SUNERTON, D. (1983). Popular horoscopes and the "Barnum Effect." *Journal of Psychology*, **114**, 123–134.
- Forer, B. R. (1949). The fallacy of personal validation: A classroom demonstration of gullibility. *Journal of Abnormal and Social Psychology*, 44, 118–123.
- GIRDEN, E. (1962). A review of psychokinesis (PK). *Psychological Bulletin*, **59**, 353–388.
- HYMAN, R. (1977). Cold reading: How to convince strangers that you know all about them. *Sceptical Inquirer*, **1**(2), 18–37.
- Kaplan, S. R. (1980). *The encyclopaedia of tarot.* New York: U. S. Games Systems.
- Kennedy, J. E. (1979). Methodological problems in free-response ESP experiments. *Journal of the American Society for Psychical Research*, **66**, 401–407.
- McCusker, B., & Sutherland, C. (1991). Probability and the psyche. Journal of the Society for Psychical Research, 57, 344–353.
- MEEHL, P. E. (1956). Wanted—A good cookbook. *American Psychologist*, 11, 263–272.
- METZNER, R. (1971). Maps of consciousness. New York: Macmillan.
- ROE, C. A. (1996). Clients' influence in the selection of elements of a psychic reading. *Journal of Parapsychology*, **60**, 43–70.
- ROWLAND, I. (2002). The full facts book of cold reading. London: Ian Rowland.
- Sams, J., & Childers, L. (1991). Sacred path cards: The discovery of self through native teachings. San Francisco: Harper.
- Schwartz, R. A. (1978). Sleight of tongue. *The Skeptical Inquirer*, **3**(1), 47–55.

SHARMAN-BURKE, J., & GREENE, L. (1986). *The mythic tarot*. London: Rider. Tobacyk, J., Milford, G., Springer, T., & Tobacyk, Z. (1988). Paranormal beliefs and the Barnum effect. *Journal of Personality Assessment*, **52**, 737–739.

WAITE, A. E. (1910). *The key to the tarot.* London: Rider. WILLIS, T. (1988). *Magick and the tarot.* Wellingborough, UK: Aquarian.

Department of Psychology, University College London 26 Bedford Way London WC1H 0AP, UK i.ivtzan@ucl.ac.uk

## Abstracts in Other Languages

## Spanish

RESUMEN: Las cartas Tarot, consideradas por algunas personas como una herramienta para predecir el futuro, y para entender nuestros asuntos internos, se originó en el antiguo Egipto y sigue siendo popular en nuestros días. El conflicto entre explicaciones paranormales y no paranormales gira alrededor de alegaciones que las cartas reflejan asuntos individuales de forma precisa. La explicación paranormal dice que las cartas muestran oportunidades, motivos ocultos, y posibilidades que proveen claridad sobre las preguntas y conflictos de las personas. Las cartas, de acuerdo a la explicación paranormal, presentan una reflección de los procesos interiores del consultante. Por otra parte, la explicación no paranormal se basa en dos conceptos psicológicos: el efecto Barnum y "cold reading." El efecto Barnum se refiere a nuestra tendencia a interpretar afirmaciones generales como específicas y certeras a nuestras propias circunstancias, mientras que "cold reading" se refiere a un grupo de técnicas psicológicas de decepción usadas para crear la impresión que la persona tiene habilidades paranormales. Esta revisión contrasta estas dos perspectivas e informa sobre estudios que utilizaron las cartas Tarot.

#### German

ZUSAMMENFASSUNG: Tarotkarten, die von manchen als Mittel zur Zukunftsvorhersage und zum Verständnis persönlicher Anliegen herangezogen werden, stammen aus dem alten Ägypten und blieben bis in unsere Zeit hinein populär. Der Konflikt zwischen paranormalen und nichtparanormalen Erklärungen ergibt sich aus weitverbreiteten Behauptungen, die Karten würden persönliche Anliegen genau widerspiegeln. Die paranormale Erklärung nimmt an, die Karten würden günstige Gelegenheiten, versteckte Motive und Potentialitäten symbolisieren und daher zur Klärung persönlicher Fragen und Konflikte beitragen. Dieser Erklärung zufolge spiegeln die Karten die innerpsychischen Prozesse des Ratsuchenden. Die nichtparanormale Erklärung hingegen basiert auf zwei

psychologischen Erklärungsansätzen: dem Barnum-Effekt und dem "cold reading" ("kaltem Lesen"). Der Barnum-Effekt bezieht sich auf unsere Tendenz, allgemein gehaltene Aussagen so umzudeuten, als würden sie sich auf spezifische Art und Weise auf einzigartige persönliche Situationen beziehen; "cold reading" dagegen umfasst eine Anzahl psychologischer Täuschungstechniken, die bei medialen Aussagen verwendet werden, um den Eindruck zu erwecken, der Kartenleser habe paranormale Fähigkeiten. Dieser Übersichtsartikel vergleicht diese beiden Perspektiven unter Rückgriff auf Untersuchungen mit Tarotkarten.

## French

RESUME: Les cartes de Tarot, considérées par certains comme un instrument pour prédire le futur et connaître les destinées personnelles, tirent leur origine de l'Egypte ancienne et restent encore populaires de nos jours. L'explication paranormale suppose que ces cartes décrivent des opportunités, des motivations cachées ou potentielles, et permettent par conséquent de clarifier les questions et les conflits d'un individu. Selon l'explication paranormale, les cartes fournissent une analyse des processus internes du client. L'explication non-paranormale est en revanche fondée sur deux explications psychologiques: l'effet Barnum et la "lecture froide". L'effet Barnum correspond à notre tendance à interpréter des propositions générales comme si elles s'appliquaient spécifiquement et de façon pertinente à nous-mêmes, alors que la "lecture froide" renvoie à un éventail de techniques psychologique qui sont utilisées dans la voyance pour créer l'impression que le voyant a vraiment une capacité paranormale. Cet article associe ces deux perspectives à travers une revue des études impliquant des cartes de Tarot.