



PLAYING BEHAVIOUR OF THE DOLPHINS IN CAPTIVITY

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SYNOPSIS

To play is something natural for dolphins. In captivity, the playing behaviour represent the starting point for the training program in order to present shows with dolphins in dolphinarium. The training program use the conditional reflexes and the food – pieces of fish - like reward, but also, the trainer can increase the progress of the animals through the speaking and caressing because the captive dolphins are very sensitive to these human attitudes. We present the stages of the training program in the Dolphinarium from Constanta (Romania) but also different behaviour reactions recorded for the captive dolphins (belonging to three species: *Phocaena phocaena*, *Delphinus delphis* and *Tursiops truncatus*) during the training program and during the show presentations

INTRODUCTION

In the open sea, playing is something natural for dolphins, no matter about age, sex or a specifically period over-year. It is true that the young dolphins seems to be more frisky, but is visible the availability of any dolphins to play. Far-away from the human being's regard or nearest the boats, the dolphins are swimming through the waves or upper, perform spectacular jumps, one pursuing or touching gentle other, pick up or push different things from water and, all this time, communicate by different kind of sounds.

The playing is based on two instinct attitudes: the attention and the probing activity in the surrounding environment.

In captivity, the playing behaviour represent the starting point for the training program in order to present shows with dolphins in dolphinarium. Near everything can be use like a toy by a dolphin and the trainers can use it to attract the dolphin's attention. The “toy” is griped between jaws or is pushing with the “beak”, flippers or dorsal fin, lonely or in group, for minutes or, sometimes, hours. But the small things from the pool could be very dangerous due the dolphin's habit to hide it, also, by

gobbling that can bring about the dolphin's death. This danger is higher when in the pool are present more dolphins due their competition for "toys", because the animals seem to be afraid that someone from other dolphins can take and keep for himself only the "toy".

Why are playing the dolphins? First of all, the playing is an important part of the dolphins' visual language. Secondly, the dolphins must spend a long free time because their food is represented by gregarious fishes that the dolphins are searching and hunting in groups, so, very efficiently. It is difficult to demonstrate this, but it is possible that to play is a pleasant activity for dolphins, too.

Taken from the open sea and brought in captivity, the dolphin must learn to survive in a new limited space, with new sounds and, sometimes, with a group of dolphins that have specifically rules and where he has no position. The dolphin cannot hunt fishes but receive pieces of food, so not only another feeding way, but almost every time a different food from it habitual food. The relation between the captive dolphin and the human being began from the first moments of the captivity life of dolphin (Dima & Gache, 2004).

METHODS AND STUDY PERIOD

Our observations starting from the summer of 1986 and are going on, focused especially on the bottle-nosed dolphin (*Tursiops truncatus*) and, occasionally, on the other two species present in the Back Sea. We consulted, also, the dolphinarium's archive, so, we present the stages of the training program (not the schedule and progress of this – see, Naidin & Dima, 2006) in the Dolphinarium from Constanta (Romania) but also different behaviour reactions recorded for the captive dolphins belonging to three species: the harbour porpoise -*Phocaena phocaena*, the common dolphin - *Delphinus delphis* and the bottle-nosed dolphin - *Tursiops truncatus* during the training program and during the show presentations.

RESULTS AND DISCUSSIONS

For the free dolphins, the playing behaviour could be part of the learning process, especially for the young individuals, but also a form of the social behaviour. Swimming one around other, breaching the waves, jumping or use an object – pieces of seaweed, a dead fish, etc. – represent different way to play of the free dolphins. Probably, these kind of behavioural manifestations for the adult dolphins represent just a play. What another reasonable explanation than an exuberant play can be found for the solitary or group of dolphins swimming near the boats or surfing with the near shores breakers? In captivity, the human beings use this playing behaviour of the dolphins for show representations, after a period of training program.

In the open sea, the dolphins are living in groups with strong rules, but trying use the constraints for the training in captivity was without any result. The training

program use the conditional reflexes and the food – pieces of fish - like reward, but also, the trainer can increase the progress of the animals through the speaking and caressing because the captive dolphins are very sensitive to these human attitudes. The trainer must know very well the psychological profile of the dolphins in order to obtain the best results. Our observations permitted to identify four principal dolphin profiles:

1. the “weak” – coward and timid dolphin, that inhibit himself easy and can establish slowly relations with other dolphins or with the trainers; these dolphins have problems to survive in captivity;
2. the “power unbalanced” – dolphins with strong personality, sometimes aggressive, with dominant position in group; usually, these dolphins manifest a propensity to illness and are passing slowly to the captivity life;
3. the “the slowly power balanced” – active and friendly dolphins, that accept easily the captivity life and have a relative good resistance to illness danger; these dolphins manifest availability to play and have good, but slowly answers in the training program;
4. the “active power balanced” – active, friendly, curiously and very receptive dolphins, that accept easily the captive life and have a good health; these dolphins have rapid reactions and perform spectacular shows in dolphinarium.

Step by step, the captive dolphins began to associate the human being appearance with the moment of food receiving or caress. The fear, panic and insecurity are disappearing, being replaced with interest and joy attitudes in the presence of the human beings. The captive dolphin began to accept the food and start to play like in use to do in the open sea. In this moment, the dolphin can enter in the training program, passing through three major stages:

- a. the food acceptance from the human’s hand (pieces of fish) – this stage is facilitated by the presence of other dolphins, old residents in the pool;
- b. to accustom the dolphin with the trainer – is a slowly or rapid process depending by the psychological profile of the dolphin; during this period, it is necessary the contact of the animal with the same trainer because is this decisive for the communication (the both, trainer and dolphin must learn to recognise the visual and sonorous signals);
- c. the training program – the trainer establish the general plan of individual or collective trainings, based on the psychological profile of the dolphin and the behaviour observations done during the first two stages. Every trainer says that he knows his dolphins and the animals recognise him.

It is very important to avoid any event situation that can affect the dolphin’s behaviour and the training program. The strong sounds bring about stress or panic reaction because the dolphins are very sensitive living in a world dominated by sounds. In the same time, the appearance of some new objects in the pool can disturb the dolphin’s attention, but also can induce a very intensive frightful reaction that can be manage very difficult due the high impressible character of these animals. These kinds of incident not only disturb the training rhythm, but the entirely training program

too, because the dolphin can refuse to perform any exercise. In this situation, the trainer must return at the beginning, retrying the training lessons starting with the first.

Once, at the beginnings of our dolphinarium, when there were present just harbour porpoises (*Phocaena phocaena*), during one training session with a dolphin male, the trainer released a living fish in the pool's water. The dolphin was the best of the captive group, an active power balanced individual that performing impressive numbers during the dolphins' shows. The fish' appearance unleashed a very passion and noisy hunting behaviour of the dolphin. From the first moment, it was obviously that the porpoise is playing, displaying his high qualities of hunter: swimming quickly, reached just in few second the fish touching it body with the "beck", but leaving the fish to take distance, started once again to follow it, repeating these movements several times, for minutes and minutes. The trainers gave the training's began signal, but the dolphin ignored completely, playing with the fish despite the fact this refuse attitude was recorded never before from this individual. Then, the trainer offered two pieces of fish, throwing it in water. No attention reaction from the dolphin that, while the pieces of fish sinking through the water, gone swimming violent in the corner where the living fish was swim, catching and eating it, returning quickly to nourish deck where he picked up and gulped the pieces of fish. After this, the porpoise take the expecting position to start the training program.

Various times, we saw dolphins performing part or entirely show in our dolphinarium without any command or food reward. Sometimes, this behaviour started after the trainer's appearance, being, probably, a form to attract the human being's attention. But we observed this behaviour in the absence of human, too, and it is very difficult to assume if the dolphins use to do this one-self training for pleasant or because the spleen.

Our observations permit us to notice that it is really very difficult to evaluate exactly when a dolphin learnt the show program. For example, a common dolphin male (*Delphinus delphis*) was catch during the summer, being sheltered alone in the covered pool for one week in order to accommodate him to the captive life. Seeing that he accept the food, we decided to transfer him in the open pool where was living another common dolphin male, resident in our dolphinarium about one year. The new resident, learnt quickly to perform some numbers, interspersing some free jumps between the exercises. Despite the aggressively behaviour of his pool partner that drives him away from the nourish deck all the time, after only two months he learnt the numbers of whole show, performing it very well. Five months after his arrival in our dolphinarium, the old resident died and the trainers discovered that the dolphin caught in that summer could perform the numbers just through imitation but did not learnt anyone and the training program was started from the beginning like the dolphins never participated in the shows before that moment. During the first days, the dolphin was depressive due his pool partner's death. Slowly, he recovered the active attitude but refused to perform some exercises, performing others no like an answer to the trainer's command but like a playing. Step by step, started to respect the commands, but keep a restless attitude for a long time (performing free jumps between the exercises, taking long periods of floating, coming on the nourish deck for caress or

asking food from the human being). He accepted very hard to perform the exercise “passing through a suspended circle” – maybe, the narrow space was giving him fears, certainly is the fact that the animal was becoming agitate immediately that he was receiving the signal for this exercise; the breath rhythm intensification was the first sign of stress, but the dolphin, refusing the food, was going swimming far away, ignoring even the caress signs of his trainer (generally, the captive dolphins are very sensitive and asking caress from human being). The attitude was changed just when in the same pool was released a male of bottle-nosed dolphin (*Tursiops truncatus*), probably like a positive demonstration of forces in the front of new resident and potential rival.

The confusion on a signal for a certain exercise can appear also after a long captivity life and very good performance in shows demonstration and we did not found an explanation (we could not associate this confusion behaviour with no one other external element or influence factor). For example, the oldest resident of our dolphinarium is a bottle-nosed dolphin male, arrived there in August 1986, so with a long experience in captivity and shows demonstration. In October 2000, so, after more than 14 years of captivity life, this animal mixed up the signal for “free jump” with the signal for “backwards jump”. Every wrong execution during the training program was followed by a nervous crisis, more violent if the trainer was going out from the pool perimeter or his eyesight.

It is true that between the dolphins there exist champions – individuals that touch unbelievable performances. In the history of our dolphinarium the best basket player was a harbour porpoise male that was performing eight – nine baskets from ten balls throwing, including in wavelet water and when the wind was influencing the ball’s direction. Often, the dolphin was expressing a hesitation moment (5 - 8 seconds long) before a ball throwing, like he was studying the correct angle to head the ball and the best direction to the basket. A male of common dolphin was the only one dolphin that learnt to sing; more than this, in just six months he became the best show performer dolphin from the dolphinarium. During the summer season of the year 1975, this male performed all the shows of the season, without one day of rest. But after 19 months of captivity life, without a visible reason, the animal became agitate, very nervous and panic-stricken few days before the summer-ending; he was strongly picking up the water with the tail fin, staying long periods in floating position. During the operation of transferring in the covered pool for wintering period, his breath rhythm touched 15 breaths per minute (normal rate is about 4 breaths per minute). Immediately after the transfer in the covered pool for wintering period, the dolphin took suicide, striking through the pool’s walls, despite all the human efforts to quiet him (including the presence of a diver swimming nearest the animal and caressing him).

During our study period, the bottle-nosed dolphin became the “top” species in our dolphinarium because is bigger, so, more spectacular during the show presentations, is not so sensitive to the captive life and manifest a high receptivity for training programs. For this reason, we could follow closely the playing behaviour of this species, in solitary life conditions or in different sizes groups. We’ll present some examples.

While in the summer pool two males were present there, we received a new dolphin, a female. She learnt, easy and relative quickly, to perform some show numbers: “vertical position with horizontal flippers”, “ball and rings’ presentation”, “free jump” and “jump to the trainer’s hand”. Because the males were very aggressive, the female took a passive-defensive attitude, staying close to the nourish desk, where was performing the learnt numbers. For several weeks, the female was taking just the objects (balls, rings, etc.) that were touching her body and presented it to the trainer, but did not tried to searching it in the pool listening the trainer’ signal. After 3.5 months of captivity life, the female began to search the balls around the nourish desk only.

The oldest and most longeval dolphin in our dolphinarium (that we mentioned earlier) was never a champion but from beginnings of his captivity life he was manifesting like a dominant male and non-disciplinable individual. After just two weeks of captivity life, this dolphin was performing spectacular and very high “free jumps”; still now, when his age is estimated to 29 years old, he is jumping without any problem or delay to the trainer’s hand, when this is on the diving board, at 3.5 meters high upper the pool. After one month of captivity life, he was searching, picking up on the beck and present rings to the trainer. But during the years and while he became older, his non-disciplinable behaviour is worsen – for example, he performs the show number before receiving the trainer’ signal (the dolphin knows very well the numbers’ succession and anticipate the trainer’s orders), so it is really difficult to include him in a group of dolphins to perform a show together. A calm and firm trainer that uses to remonstrate with him when the dolphin is hurried has very good results with this animal. With this trainer, the dolphin accepts to be dominated. Sometimes, he refuses the caress from the human personal and time to time, he manifest strong nervous crisis due the long period of loneliness. The music has a very strong calming effect, even during the nervous crisis.

In group, the bottle-nosed dolphins are more receptive to the training programs, despite the fact that some individuals can be more active and perform the show numbers easier and quickly. For example, in the trio formed by two males and one female that arrived in our dolphinarium in 1998’ summer, the dolphins manifested availability to play during the second day from their arrival, performing free jumps and duo or trio swimming rounds. One of the males was very active and receptive, while the second male was timid and reticent; the female had a intermediary attitude. During the first week, the dolphins were accustoming to the trainer’s presence and to receive food at the nourish desk, being training to perform the “vertical jump” in front of the desk in order to receive pieces of fish from the trainer’s hand. The timid male was not performing well this jump no after eight days – during the jump, his position was slanting right, like the free dolphins use to jump in open see. More than this, sometimes, the male was leaving the nourish desk even during the food’s administration, swimming in the opposite part of the pool. After two week of training program, the female became the leader of the group, but the active male was performing the best show numbers during the training sessions. In then period of the first month from their arrival in our dolphinarium, these three dolphins learnt to

perform exercises that use elements performing by the free dolphins: “free jump”, “jump to the diver board”, “vertical position with horizontal flippers”, “cheers” and “stranding on the nourish desk”. The complete show program was learnt in six months, the active male and female performing, constantly, the best show numbers. The most difficult number was the “jump through suspended circles” (performed just after six months) and the “backwards jump” (performed just by the female, after four months of training).

It is obviously the preference of the captive dolphins to play with balls, no matter its dimension. When the balls are in the pool's water, the dolphins are playing forgetting completely about the trainer's presence. Just when all the balls were blown out on the pool's borders, the animals are looking and calling for the trainer. The small balls (like the tennis ball) represent a danger for the dolphins because they use to dispute it and when one of them catches this ball, he tries to hide it and keep it very strong with the jaws. Through the desire of keeping the ball's possession, the dolphin can gobble the ball and this can induce the animals' death.

During the reproductive season, the pair partners can have different and unequal performance during the show's representations. At the beginning of this period, the both partners, female and male, have oscillated evolutions, but through the reproductive season is ending, the female became agitated and, sometimes, refuses to perform different show numbers, while the male performs very good show representations.

When the female is in calf period, the male adopts a protective attitude of his partner, taking in charge the female's tasks during the show representation, especially when she manifests an indifferent, apathetic disposition. As we saw in the cases of dolphin pregnancy in captivity, one day before the birth, the female refuses to participate in the show representation, stays floating near the whole day. Despite the fact that the male performs all the show numbers and show representations of the day, he manifests an anxiety attitude, swimming near and around the female during the rests between the show representations. When the calf was born dead, no one of the pair partners did not perform the show numbers or manifest interest to play; the male remained nearest the female all the time, leaving her just to receive food.

On the 11th August 1999, in Romania, including in Constanta city, there was a total solar eclipse. We observed carefully the psychological status and general behaviour of the three bottle-nosed dolphins, residents in the open pool. The animals were not manifested nervous or anxiety attitudes; more than this, the dolphins were performed very good show representations before and after the solar eclipse's moment. The younger male had a medium breath rhythm about 1.6 breaths per minute before the solar eclipse, respectively, about 3 breaths per minute after the solar eclipse's ending. The others two dolphins had a constant, normal, breath rhythm during the whole period.

One surely explanation or undeniable theory is still very difficult to assume, but the playing behaviour like a form of the dolphins to pass the free time could be one of the key pieces for the big and complex dolphins' brain's development, the complex communication system and dolphin intelligence's development, but also for the

spectacular psychological manifestations observed in the dolphins group or in the relations between dolphins and man, at least ones of them being absolutely useless (from the human point of view) for a animal life: friendship, trust and caress.

CONCLUSIONS

The natural playing behaviour of the dolphins represents the basis of the training programs in the captivity life.

We identified four principal psychological profiles for the captive dolphins, essential for the trainer's work in order to obtain the best results.

The new arrival dolphins in a dolphinarium pool learn easier and more rapid the show numbers through imitation the old resident dolphins.

Between the captive dolphins there are champions that perform really spectacular show representations.

The playing behaviour and performance in the show representations can be influenced by many external factors.

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