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A STEREOTYPED BEHAVIOUR PATTERN IN DOLPHINS

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Summary.

Stereotyped behaviour patterns are frequently developed by wild animals in captivity, especially in confined and monotonous environments (HEDIGER 1950, MEYER-HOLZAPFEL 1968). These behaviour patterns often take the form of modified escape attempts or auto-stimulation as a reaction to sensory deprivation. Three individual Atlantic Bottlenosed dolphins (*Tursiops truncatus*) developed a similar stereotyped head-pressing behaviour when placed in relatively close confinement.

Case history 1.

A sub-adult dolphin was confined for a 6 month period with a female in a 40,000 litre perspex tank as part of a theatrical show. The dolphins were trained daily for about 2 hours each morning, and then took part in a 5 minute performance twice during each evening. Feeding was spread throughout the day, but for most of the time the dolphins were left alone. The male was frequently observed to press its forehead against the perspex side of the tank with a rolling action. The forehead of the

dolphin, between the beak and the blowhole, is covered by the soft and elastic melon, a large pad with a connective tissue sheath which may have acoustic functions associated with high frequency sound emissions (MEAD 1975). The dolphin pushed against the tank wall and rebounded, then braked and swam against the wall again, lowering the head considerably to bring the melon in contact with the wall (Fig. 1).

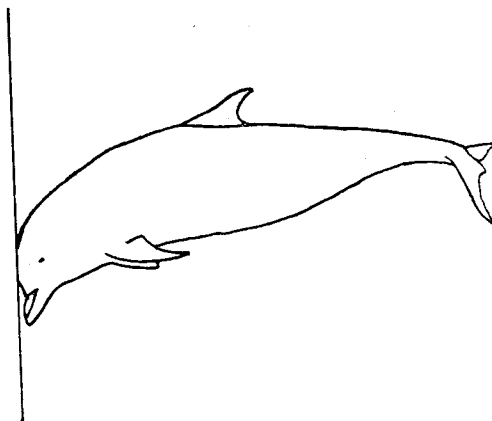


Figure 1. Dolphin pressing his head against the wall of the tank.

The whole action was slow and gentle and the skin surface remained undamaged. The movement was repeated at a frequency of about 10/min for several minutes if the dolphin's attention was not distracted, and was carried out when observers were within the animal's sight, provided that they did not offer any specific stimulation. When the dolphins were moved to a large outdoor pool, the behaviour disappeared immediately.

Case history 2.

A pair of sub-adult dolphins, which had been in captivity in various large outdoor pools for 5 years, were placed in a 60,000 litre concrete indoor holding pool for medical treatment of the male dolphin. Neither dolphin had been in any small pool before. Both animals became extremely disturbed, swimming violently and uttering continuous distress sounds. After a few hours the male, who was not feeding, developed head-pressing behaviour, swimming rapidly to the pool side and then braking sharply before rolling the side of his melon of the wall. Initially this occurred at various different places around the pool, but settled at a point close to the exit channel. In this case the behaviour took place in short periods of 30 to 60 seconds, and was not extinguished by human stimulus. Some superficial skin abrasion was caused by the rough concrete. The male animal rapidly deteriorated in condition, and died with a longstanding suppurative pleuro-pneumonia and intestinal candidiasis. Before his death, the female had only showed occasional head-pressing, but subsequently became very distressed and developed a similar pattern of behaviour. On her release into the large pool headpressing immediately stopped, although other distress signs, including calling, tail-slapping and refusal of food, persisted for 24 hours.

and elastic melon, acoustic functions associated with the dolphin pushed the wall again, lost contact with the wall (Fig. 1).

Conclusions.

The behaviour of captive cetaceans in pools has been extensively recorded (CALDWELL and CALDWELL, 1972), but specific stereotyped reactions do not seem to have been identified. It is possible that the continuous swimming patterns of dolphins, even in large groups, could be interpreted as stereotypy, but these patterns tend to cover all the available area and so represent the maximum available swimming distance for naturally active animals. Repetitive movements which do not cover the whole area are rarely seen. Head-pressing behaviour is not related to the uncontrolled collisions with pool sides which may occur in some newly captured animals (RIDGWAY, 1966, ANDERSON, 1976) or as a terminal event at death. Such collisions are invariably made with the point of the jaw, are often at full speed with considerable damage to the animal, and disappear with time. Minimum display pool sizes for Bottlenosed dolphins have been recommended (GREENWOOD, 1972, DUDOK VAN HEEL, 1974). These allow about 200,000 litres of water for two animals. Holding pools for isolation or medical and research work are much smaller, and it is unusual for animals to react unfavourably to short-term confinement, provided they are trained and accustomed to it. In these cases the pools were above the usual size for holding pools, and all other factors conformed to normal practice. In one case, however, the confinement was longterm and stimulus levels were unusually low, and in the other the dolphins were completely unused to small pools. The stereotyped head-pressing movement exhibited by these three animals would appear to be a similar reaction to a restricted monotonous environment.

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remained undamaged. After several minutes if several observers were present and specific stimulation, the abnormal behaviour disappeared.

In a large outdoor holding pool for dolphins in any small pool, the dolphins frequently and uttering sounds, but not feeding, developed and then braking. This occurred at the exit close to the exit 30 to 60 seconds, a skin abrasion was noted in condition, intestinal candidiasis. The distressing, but sublethal behaviour. On her distress through other distress for 24 hours.