Between the shark tank and the deep blue sea: incidents from a history of the Durban Aquarium

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We trace the history of the Durban Aquarium from its founding to the present. With reference to individuals such as Kelpie the dolphin (*Stenella euphrosyne*), Sally the sawfish (*Pristis pectinatus*), ORI II the penguin (*Spheniscus demersus*) and Ballard the curator (*Homo sapiens*), we delineate mechanisms such as *visibility, accelerated turnover, transgression, consumption of spectacle*, and the *predation taboo* which work to shape the dynamic tension between science and spectacle, between freedom and captivity and between modern and postmodern in the life of the aquarium.

Ons volg die geskiedenis van die Durban Akwarium vanaf sy aanvang tot die hede. Met verwysing na indiwidue soos Kelpie die dolfyn (*Stenella euphrosyne*), Sally the saagvis, (*Pristis pectinatus*), ORI II die pikkewyn (*Spheniscus demersus*) en Ballard die kurator (*Homo sapiens*), beskryf ons meganismes soos *sigbaarheid, versnelde omset, oortreding, verorbering van vertoning*, en die *rooftaboe*, wet elk bydra tot die dinamiese spanning tussen wetenskap en vertoning, tussen vryheid en gebondenheid, tussen modern en postmodern in die lewe van die akwarium.

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> 'An aquarium can give endless pleasure and amusement and can also be quite decorative, but it must be remembered that if it is to be a success it must copy as nearly as possible the conditions in which its inhabitants usually live. This is not very hard to do: it merely means that the owner of an aquarium has to obey a few simple rules. First the water must be kept fresh and aerated (it must contain tiny bubbles of air). Secondly, the inhabitants of the aquarium must not be overcrowded. Thirdly, the inhabitants must be able to live together without fighting or eating each other. Fourthly, the animals must not be overfed' (*Children's Britannica*).

The world of recreational, commercial and scientific fish keeping, although sadly neglected in the psychological literature, is large and ever expanding. The growing enthusiasm for recreational aquarium work alone has, according to Huntley and Sausaman's (1994) authoritative directory, already spawned no fewer than 960 aquarium clubs and organizations in 32 different countries – and this does not include informal recreational fish keeping (ranging from gold-fish bowls to, in some cases, large and quite sophisticated aquaria) for which no exact figures are as yet available. It should also be remembered that aquaria, fish ponds and the like, may often contain not only fish, but also shell fish, molluscs, worms, insects, protozoa, reptiles and certain mammal species.

The immediate significance for psychology of what may be termed the aquarium movement is that many individuals are caught up in its rituals and traditions and may be socially identified with it to a surprising extent. For social psychologists the various splits and schisms which exist in the fish-keeping community (for instance between salt and fresh water aquarists) provide a natural laboratory within which the operation of theories of intergroup conflict and cooperation may be observed. For clinicians and counsellors, knowledge of this sub-culture could be important in establishing rapport with clients who come from such backgrounds.

However in this article we are not concerned with these immediate benefits of research into fish keeping, but rather with the longer term lessons which psychology may be able to learn from aquarium studies as the human condition evolves from modern to postmodern. Given that the decentring of individual subjectivity is a key feature of postmodernity (Jencks, 1992), psychological research on non-subjective and gregarious organisms such as fish may provide clues as to what the postmodern human subject might look like. Since, however, neither the modern nor the postmodern individual can be said to have a 'natural' habitat of any sort and is doomed to exist in a man-made environment, it would be pointless to study fish as they occur in their natural form in the ocean. Instead, we suggest that *captive* fish most closely resemble the postmodern person (in that they are both ego-less and maintained in an artificial environment) and for this reason we are currently engaged in research on animals and fish placed in conditions of enforced community for the purpose of entertainment or scientific scrutiny.

In the classical era of animal experimentation (e.g. Birney & Teevan, 1961; Cicala, 1965; Southwick, 1963; Weber & van der Walt, 1973) many important facts about human drives, motives and behaviour were learnt by extrapolation from studies involving (amongst others) goats, pigeons, fish, monkeys and rats, and it is this now disregarded scientific tradition which we hope to resurrect, with some modification, in the postmodern era. Specifically, in the case of the aquarium, we wish to draw the eye away from the multi-coloured display presented by captive fish, and on to those captivated by the display, thus transforming a device for the surveillance of fish into an observatory of human subjectivity as this is revealed in the design of the aquarium and in the carefully calculated behaviours of its aquatic inmates. This therefore becomes an ironic recreation of the aquarium, not by using the surface meaning of a text to imply a real deeper meaning, but rather in the postmodern sense of a perpetual vertiginous movement from one textual surface to another.

Kelpie: the aquarium as science and spectacle

> 'The most advanced amusement park in the world, combining the latest electronic and biological technologies. I'm not talking about rides. Everybody has *rides*. Coney Island has *rides*. And these days everybody has animatronic environments. The haunted house, the pirate den, the wild west, the earthquake – everyone has those things. So we set out to make biological attractions. Attractions so astonishing

that they would capture the imagination of the entire world' (Michael Crichton, *Jurassic Park*).

The Aquarium (as the Durban Seaworld complex, which includes a research facility and a dolphinarium, is popularly known) is regarded with considerable fondness by most white South Africans. For them the beach front, on which the aquarium occupies what is probably the prime site (SAAMBR, 1986) was for many decades the ultimate tourist hotspot (Greater Durban Marketing Authority, 1994). For black South Africans, until recently banned from Durban's main beaches, the sentiment may be somewhat different.

The foundation stone of the Durban Aquarium (or the Centenary Aquarium as it was then known), and of the Oceanographic Research Institute associated with it, was laid in March 1957 and the aquarium was first opened to the public in June 1959 (SAAMBR, 1986).

Since then it has developed in four phases. The first phase, completed in 1959, involved the construction of the main circular tank, which has a depth of 6 m, a diameter of 14 m and a volume of 840 m^3 (SAAMBR, 1986). The second phase, completed in 1961, saw the completion of the Shark Tank (originally called the Shark Research Tank) which has a volume of 380 m^3, as well as 'a block of well laid out and equipped laboratories, experimental tank room, deep freeze facilities, dark room, etc.' (Campbell, 1961, p. 1). The third phase of development 'was the addition of the Aquarium Restaurant and above it a new administration wing and lecture hall – the restaurant is unique in that it has views of the shark tank and the sea' (SAAMBR, 1986, p. 11). The fourth, and most recent development has been the addition of a dolphinarium (in 1976), consisting of 'a rectangular display pool 24 m by 14 m and 6 m deep and undercover seating for 660 people' (SAAMBR, 1986, p. 11). Plans for further expansion are continually being made, and already the aquarium management has acquired 518 m^2 to the north of the complex for projected future reconstruction and development such as a larger shark tank and expanded technical, laboratory and office facilities (Bowmaker, 1988).

The aquarium is a project of the South African Association for Marine Biological Research, which was founded in 1947 and by 1963 had a membership of 557 (Davies, 1963a), but also has institutional links with the Durban City Council, the University of Natal, the Council for Scientific and Industrial Research and the Department of Oceanography. Through these links, and in terms of its founding charter, the aquarium has been charged not only with conducting scientific research on fish, but also with providing 'public entertainment and education' on marine matters (SAAMBR, 1986, p. 7).

Thus already coded into the conditions which led to its existence is the primary tension within which the Aquarium operates, namely that between science and spectacle, or, following Michael (1991), between modern (stabilization-clarification-practicality) and postmodern (instability-transgression-consumption of spectacle). The aquarium as a modern institution exists as a resource for the project of scientifically mapping out the marine biology of South Africa's east coast, to the practical end of guiding the sustainable exploitation of marine organisms in service of the capitalist economy. As a postmodern institution, it exists to provide the public with an ever-changing spectacle which (like television) may be consumed in a spirit of passivity and perpetual distraction (Collins, 1992).

However, to call the relation between science and spectacle as it is embodied in the Aquarium a tension is to put it too strongly; rather the Aquarium should be seen as a matrix within which the apparent polar opposites of amusement and edification may be reconciled. Reading through the annual reports produced over the years by various presidents and directors of the South African Association for Marine Biological Research (e.g. Campbell, 1961, 1963; Clarence, 1988; De Freitas, 1993) it is remarkable how easily the discussion moves between the twin imperatives of research and diversion. Writing in 1963, Campbell could for instance in one breath report that '[as a tourist attraction] the Aquarium is as popular as ever – our research programme is developing and covering new fields' (p. 2). How is this easy co-existence achieved? We identify three mechanisms which are used to rationalize the link between spectacle and science: Spectacle pays for science; science informs spectacle; and spectacle is science.

The aquarium is often presented as a legitimate institution because profits are used to further marine research. Thus the mayor of Durban could, at an early stage, point out that the Association for Marine Biological Research will 'utilise all profits from the Aquarium for research on the shark problem, food from the sea and other projects' (Milne, 1963, p. 1), while the Greater Durban Marketing Authority (1994) still exhorts the public to 'remember your visit supports marine research' (p. 26). The Aquarium is also sometimes billed as 'the only aquarium in South Africa which exists primarily for the purpose of subsidising marine biological research' (Architect & Builder, 1991). While one may question the extent to which this is actually true (a large proportion of research costs is covered by outside grants and much of the aquarium's profits appear to be ploughed into expansion of the exhibition space), it can be taken as a social fact that the aquarium (like Space Travel or the Kruger National Park) is good for research.

Conversely, the aquarium as spectacle is only conceivable as a product of science. As Clarence (1988) puts it: 'A sound scientific knowledge is required to maintain a high quality presentation involving the many aspects of marine life in the Aquarium and the fascinating dolphins, seals and penguins in the Dolphinarium' (p. 2).

Most telling, however, is the argument that spectacle and science are one. An aquarium, like Darwin's collection of stuffed Galapagos finches is, per definition, scientific in that it gathers together and preserves for scientific scrutiny examples of known species. Aquarium staff therefore always take great pains to identify and label new specimens, noting whether, in terms of size, age and colouring, they represent typical or unusual exemplars. However, an aquarium is more than a static collection of specimens, also affording scientists an opportunity to observe natural behaviour patterns which would otherwise not be recorded. A case in point is the birth of Kelpie, the first bottlenosed dolphin (*Stenella euphrosyne*) to be born in the aquarium (Peddemors, 1988). The aquarium environment enabled scientists to observe, over a period of several days, not only the birth itself (dolphins are born tail-first), but also the post-natal behaviours of mother and calf. Such an opportunity is most unlikely to present itself in the wild, and researchers were able to learn valuable facts about the calf's suckling position – namely, side presentation during the first four days, vertical presentation thereafter (see Figure 1).

The kind of visibility needed for the scientific and tourist consumption of such spectacles are not very different, and when the Association for Marine Biological Research boasts that the main tank 'has 48 large viewing windows and contains a spectacular display of over 1000 specimens comprising some 75 species' (SAAMBR, 1986, p. 7) or that the shark tank has 22 viewing windows, it is speaking at once in the idiom of both science and spectacle, both modernism and postmodernism.

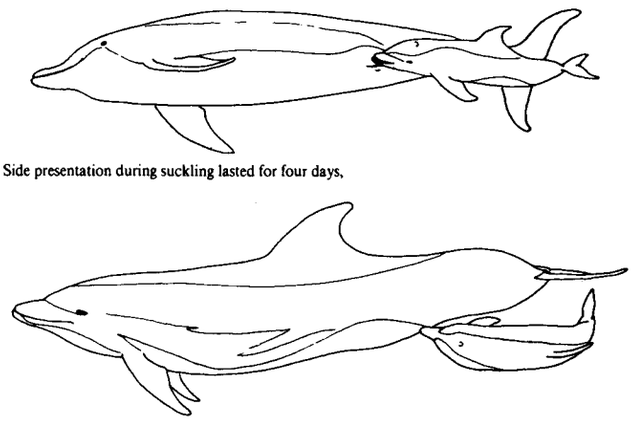

Figure 1 Post-natal suckling pattern in the bottlenosed dolphin (from Peddemors, 1988, p. 33)

Perhaps not surprisingly therefore, the most serious crises in the history of the Association involved threats to the aquarium as a system of scientific and popular visibility – as was the case soon after its founding when the water gradually became murky. Luckily these problems were soon overcome, and four years later Davies (1963b) was able to report that 'the increased sea water supply together with improved filtration techniques improved the clarity of both tanks enormously and the visibility has been of a very high standard throughout the year' (p. 10). However, by 1988 the difficulties had returned, leading Bowmaker (1988) to complain that 'the Aquarium has had a problematic year stemming essentially from water clarity problems which seemed to originate at the same time as the expansion of the Dolphinarium and the greater water requirements there' (p. 9). Once again these problems were mastered, allowing the aquarium management to attend to issues of visibility at a more nuanced level: The lighting needed to be carefully selected to allow a certain amount of internal illumination without detracting from the lit up tanks. The chosen lighting reflects off the ceiling allowing a soft, non-distracting glow' (Architect & Builder, 1991, p. 27).

It is tempting to speculate that this concern with visibility, apart from its obvious commercial and scientific motives, represents a species of Foucaultian disciplinary power – the behaviour of the fish being controlled in a panoptical arrangement whereby they are kept under constant surveillance by lay or scientific observers invisibly stationed at the 48 (plus 22) viewing windows. The question is, however, what sorts of behaviours these observers would find pleasing, and what distasteful, and how they would enforce their preferences.

Sally: the aquarium as miniature ecology

> 'Zoos don't recreate nature... Let's be clear. Zoos take the nature that already exists and modify it very slightly, to create holding pens for animals. Even those minimal modifications often fail... But a zoo is not a model for this park. This park is attempting something far more ambitious than that. Something much more akin to making a space station on earth' (Michael Crichton, *Jurassic Park).*

In 1963 the aquarium obtained an unusual new specimen – a Giant Sawfish (*Pristis pectinatus*), which was named Sally. Davies (1963c) reports as follows on Sally's initial adaptation to life in the aquarium:

> 'At first it swam violently against the walls and had great difficulty in swimming without rubbing the end of its saw against the sides of the tank. Gradually, however, its movements became better adjusted to the confinement of the tank and within a month of being captured it had become adept at swimming round the tank without encountering the walls' (p. 11).

However, Sally's behavioural problems were not at an end as she soon proved to be particularly aggressive towards small sharks, so that within a couple of months there was hardly a shark in the tank which had not been attacked. 'It was about this time,' according to Davies (1963c), 'that a systematic programme for the taming of the sawfish was begun' (p. 12). This involved the application of operant conditioning techniques with a carefully planned reward schedule and was so successful that Sally eventually learnt to accept food from a diver in response to the stimulus of being tapped on the head two or three times. How this behaviour (which was very popular with the viewing public) generalized to not attacking sharks is not clear, but that it did is evident from Davies' (1963c) report that Sally, 'has become a model member of the community in the Shark Tank and no longer slashes at the sharks with her saw or takes any notice of the other inmates of the tank' (Davies, 1963c, p. 12).

Sally's sad history is emblematic of the ways in which the Aquarium functions as a miniature, partially self-regulating ecology, containing all the elements – internalization of boundaries, passivity as requirement of good citizenship, consumption as spectacle – which help to maintain its delicate balance.

Imagine for a moment a visitor to the aquarium – one of the over a million in the first two years (Campbell, 1961), or of the several million since. Such a visitor, we contend, is expected to pretend that the body of water placed on view has, as it were, temporarily been sliced out of the ocean, allowing a momentary glimpse into a pristine submarine world. For the illusion to work, the aquarium must, like an old-style social psychology experiment, be completely transparent to, but completely unaffected by, the observer. This is why it is important that Sally should learn to swim as if in a free expanse of water, swerving just in time to avoid the invisible barrier between her and us; always acting in such a way as to not let on that we, as observers, are present in her world.

In another world of course we are present, in our millions, and have to be disciplined and routed around the outside contours of Sally's slice of ocean (and admonished not to tap on the glass), in much the same way as Sally has to learn to do from the inside. As Simpson (1963, p. 7) reports: 'The ground level of the entire site will be reduced considerably to allow for an uninterrupted movement of the general public ... by means of paths and gradually sloping ramps around the Aquarium building.' As an interim measure, 'a public address system was installed in the Aquarium with speakers in each of the galleries of the main tank and the shark tank in order to assist with the direction of the visitors ... This has proved invaluable and has also been a help in finding the parents of lost children' (Davies, 1963b, p. 10). Later on visitor congestion was reduced by building an underground link between the aquarium and dolphinarium (Clarence, 1988) and, still later, the aquarium was completely refurbished with a view to the 'restructuring of access points' (Architect & Builder, 1991). 'The aim in the foyer,' we are told, 'was to create a fresher more attractive environment and to rationalise the public traffic flow' (p. 27). Furthermore, a special tile was used 'which can withstand heavy duty traffic and is easily replaceable' (p. 28).

Sooner or later of course this carefully managed procession,

by its sheer volume, will break through the glass barrier and threaten to unbalance the hermitically sealed, self-equilibrating world in which we imagine Sally to exist. The frequency with which such breaches actually occur is evidenced in a report by Ballard (1988), the aquarium curator, on objects found in the filter when the sand was removed for the first time in 20 years: 'A total of 6699 coins, amounting in value to R136,61 and a host of other items including lens covers, gold chains, sunglass lenses, a distributor rotor arm, amethysts, gold rings, bullets, earrings and a bracelet' (p. 17).

These intrusions are quaint and intriguing precisely because they are exceptions to the rule, proving that the Aquarium universe is in fact self-sustaining and quite separate from our own.

ORI II: the predation taboo

> 'The juvenile roared, but it did not attack, and Regis now edged toward the trees and high foliage to the right. In another few steps he would be in hiding. "Back! You! Back!" Regis shouted, and then, at the last moment the juvenile pounced, and knocked Regis flat on his back. "Cut that out!" Regis yelled, and the juvenile ducked his head, and Regis began to scream. No words, just a high-pitched scream. The scream cut off abruptly, and when the juvenile lifted his head, Grant saw ragged flesh in his jaws' (Michael Crichton, *Jurassic Park*).

As we know, the aquarium is a humane environment, closely mimicking real underwater ecologies, and already by 1963 it was possible to say that mortality in both the main tank and the shark tank was 'extremely low' (Davies, 1963b, p. 9); also, when a 60% calf mortality rate was recorded in the dolphinariurn it was reassuring to know that this 'appears to be similar to estimated levels of calf mortality in wild populations' (Bowmaker, 1988, p. 9). Nevertheless, births never quite seem to compensate for deaths, and it is therefore necessary for the aquarium to acquire new exhibits – such as Sally the sawfish – on a regular basis. The disquieting consequences of such intrusions into an otherwise harmonious and self-sufficient system are reviewed below.

Sometimes the danger is subtle, as when newly acquired seals introduced a pathogen to dolphins already resident in the dolphinarium (Bowman, 1988; Fothergill, 1988). At other times, apparently benign new members of the aquarium community, such as Angel Fish (*Heniochus acuminatus*) which perform the useful function of 'de-lousing' larger fish, are found to have character flaws – in this case an 'unfortunate habit of biting the soft areas surrounding the eyes of the stingrays which give rise to severe irritation and sometimes results in blindness' (Davies, 1963c, p. 13).

Occasionally, the aquarium is faced with a full-blown crisis necessitating drastic steps to restore the peace. Such was the case when two large Brindle Bass (*Promicrops lanceolatus*) were acquired and introduced to the main tank:

> 'Unfortunately, however, the two Brindle Bass refused to accept dead food and within a few weeks... began to take a heavy toll of specimens in the tank and in spite of them being offered live rock lobster and pieces of filleted fish they persisted in catching their own food. In this way, many valuable specimens were lost. When the large Brindle Bass swallowed ORI II the aquarium pet penguin together with the more recently acquired younger penguin, it was decided that in spite of their large size and striking appearance, they were no longer welcome in the main tank and they were removed' (Davies, 1963b, p. 10).

It is instructive, although perhaps coincidental, that the Hon Mr Belzasar John Vorster Minister of Justice and later Prime Minister, who presided over numerous forced removals, of a different kind – visited the aquarium, together with Mrs Vorster, in the same year (SAAMBR, 1963).

As a last resort, when offending individuals can not be re-educated or removed, their intended prey has to be taken out of harm's way: 'In 1965 a new entrance hall housing four new display tanks and a souvenir shop, was added to the aquarium. These tanks have proved extremely popular as it is possible to exhibit some of the smaller, more colourful reef fish which do not survive the predation pressure in the main tank, and also organisms of interest such as rock lobsters, octopuses and eels' (SAAMBR, 1986, p. 10)

Thus the contradiction is revealed: the aquarium can only survive as an apparently natural, bio-diverse ecological system if its inhabitants refrain from natural behaviour. When the Brindle Bass persist in catching their own food they are breaking the first law of good aquarium citizenship, namely the predation taboo. As the *Children's Britannica* (1970) tells us, 'the inhabitants must be able to live together without fighting or eating each other' (p. 231). For readers interested in personal experimentation in this regard, we recommend any basic aquarium book, which is sure to provide details on which species have a 'peaceful community aquarium temperament' (Wardley Corporation, 1992, p. 19), and which can only 'be kept in a community aquarium with fish of its own size' (p. 21).

The aquarium, then, functions as metaphor and exemplar of modern scientific enquiry – in which nature is first constructed in order then to be studied – and of the modern liberal state – in which resistance is first abolished in order then to be accommodated. Again, it is probably coincidental that professor Desmond Clarence, president of the South African Association for Marine Biological Research, was also able to play 'a leading role in the positive attempts by influential components of the community of Natal-KwaZulu to resolve their political differences, as Chairman of the Indaba' (SAAMBR, 1988, p. 2)

At the same time, however, the aquarium is firmly part of the postmodern world – the world, in Michael's (1991) terms, of instability, transgression and consumption of spectacle. Where the predation taboo and the consequent human intrusion (in having to feed the fish) is the terrible lie at the heart of the aquarium as a modern institution, as a postmodern institution it is able to celebrate the transgression of the boundary between observer and experiment. By ritualizing the painfully necessary process of feeding Sally dead fish, and by dishing it up as spectacle, it becomes possible to have one's cake and eat it.

The illicit thrill, repeated at set times daily, of seeing a scuba diver at the wrong side of the aquarium window, feeding fish, himself possibly running the risk of becoming fish food, allows us to share in the scientists' and politicians' deception – no longer as guilt-laden modern subjects, but with the delicious innocence of postmodernity.

And it is important to emphasize that we are innocent, as innocent as the Emperor Snappers and Blood Snappers; the Swallow-tailed Rock Cod, the Stockfish and the Spiny Dogfish; the Zambezi River sharks, the Brown sharks, the Long-nosed Grey sharks, the Milk sharks, the Sand sharks, the Blackfin sharks, the Blue sharks, the Night sharks and the Hammerhead sharks; the Bottlenosed dolphins and the River dolphins; the British Consul, the Minister of Justice, the Minister of Bantu Education (and their wives), the Vice-Chancellor of the University of Exeter and Lady Cook (together with all the other ordinary and distinguished visitors to the aquarium); the Director, his

Administration, the Research Team; the Aquarium Curator and his team, the Dolphinarium staff, the Technical staff, the Animal Health Panel, the Consultant Veterinarian, and the Maintenance and Cleaning staff – all innocent and all at peace as we gaze upon one another, first from one side of the glass and then from the other. Because, as Foucault (1977, p. 156) would remind us: 'In this form of management, power is not totally entrusted to someone who would exercise it alone, over others, in an absolute fashion; rather, this machine is one in which everyone is caught, those who exercise the power as well as those who are subjected to it'.

> 'An uproar of voices was coming from the farmhouse. They rushed back and looked through the window again. Yes, a violent quarrel was in progress. There were shoutings, bangings on the table, sharp suspicious glances, furious denials. The source of the trouble appeared to be that Napoleon and Mr Pilkington had each played an ace of spades simultaneously. Twelve voices were shouting in anger, and they were all alike. No question, now, what had happened to the faces of the pigs. The creatures outside looked from pig to man, and from man to pig, and from pig to man again: but already it was impossible to say which was which' (George Orwell, *Animal Farm).*

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