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The Fifteenth Symposium of the European Association for Aquatic Mammals—Hamburg, Federal Republic of Germany—March 1987

The fifteenth Symposium of the Association was held in Hamburg from the 15th–18th March, and was attended by well over 120 persons. Once again, there was excellent representation from all over the world, and for the first time, we were delighted to welcome colleagues from Cuba. Twenty-nine papers were read, and while it would be invidious to select any of these out for special mention, it was highly satisfactory to have up-dates on a number of problems, which had been reported to previous conferences. The summaries below contain the full addresses of the authors, from whom further information on their papers may be obtained, although a number of these papers will appear, in full, in succeeding volumes of 'Aquatic Mammals'.

After the introduction by President—**Dr D. C. Taylor**—and the local host—**Dr Claus Hagenbeck**—the first session on medicine and pathology was chaired by the President—**Dr D. C. Taylor.**

Dr Moesker gave an excellent summary of the methods used to overcome infectious disease problems at the Pieterburen Seal Centre over the last 16 years of its existence. He also mentioned that the existence of polychlorinated biphenyls in the fish was having an effect on the seals by lowering their birth rate. Records over the years showed that although originally only new-born seals were coming for treatment, in 1986 two-thirds of the cases were adults.

Dr A. Moesker,
Zeehonden Creche, 9968 Pieterburen, Netherlands.

Dr Laurie Gage summarized the treatment she used on neonatal orphaned Harbour seals in California, and reported that she was getting an increasing success rate at treating premature seal pups (*Phoca vitulina*) still with their lanugo or silky coat. She pointed out that the main problem was a hypoglycaemia, and delineated the feeding protocol, which she had designed for each pup. The formal procedure was to release the pups back to the wild after they had reached over 60 pounds of weight.

Dr Laurie J. Gage,
Marine World Foundation, Marine World Parkway, Vallejo, California 94589, USA.

Dr van der Kamp summarized the pathological findings he had discovered in Harbour seals from Pieterburen during the years 1985–1986. He divided the autopsies into different age groups, and listed the infective agents responsible for their conditions. In 1986, a medical advice board was set up, and he reported that there was now an improvement in the animals chances of survival. During the period—1st November 1986 to 1st March 1987—only six seals have been presented for autopsy whereas there were 22 in the same period during 1985.

Dr J. S. van der Kamp,
Zeehonden Creche, 9968 AG Pieterburen, Netherlands

Dr John Lewis presented details of a case of mycobacteriosis in a Southern sealion whilst he was working for the International Zoo Veterinary Group, although he is now employed by the Zoological Society of London. This paper will be published in full in a future number of 'Aquatic Mammals'.

Dr J. C. M. Lewis,
The Zoological Society of London, Department of Veterinary Science, Regent's Park, London, UK.

Professor Turner gave another fascinating and stimulating paper on haematological variations in bottlenose dolphins, going back over samples collected for a period of five years. He compared the haematological standards in captivity with those from feral samples, and asked colleagues to continue to send samples to him.

Professor R. Turner,
Moorhouse Farm, Moorhouse, Lane, Oxenthorpe, Keighley, West Yorkshire, UK.

Mr R. Kastelein gave an interesting paper on the importance of the dophinarium at Harderwijk in the Netherlands as a national rehabilitation centre for stranded cetacea and summarized the number of individuals which had been stranded during the period 1970–1983 and reported to Harderwijk. This included 266 Harbour porpoises, 36 white-beaked dolphins and 14 bottlenose dolphins. Of the latter, only 11 were alive, rehabilitation was tried on 8, but only 2 recovered sufficiently to be returned to the sea. He recorded the treatment that was given, so that

progress could be made in learning from past experiences.

R. Kastelein,
Dolfinarium Harderwijk, Strand Boulevard Oost 1, Harderwijk, Netherlands.

Dr C. van Nie reported on the post-mortem of 38 Harbour porpoises found stranded in the Netherlands over the period 1983 to 1986, of which only 33% were suitable for accurate and detailed post-mortem examination. The results were tabulated by slides.

Dr C. J. van Nie,
Rijksmuseum van Natuurlijke Historie, P.O. Box 9517 RA, Leiden, Netherlands.

Professor Turner reporting on a case of malignant reticuloendotheliosis in a killer whale, followed **Dr Greenwood's** brief summary of the behaviour of this animal prior to death. He had been caught in 1981 when approximately 2 to 3 years old, and in 1986 started to lose weight rapidly although he would eat up to 45 kg of fish per day. The diagnosis of Hodgkin's disease, as Professor Turner said, was with hindsight, but he was absolutely certain that no treatment could have been effective for this animal.

Professor R. Turner,
Moorhouse Farm, Moorhouse Lane, Oxenthorpe, Keighley, West Yorkshire, UK.

Professor Stanzani with a very interesting video, summarized the management of the live stranded bottlenose dolphin, which was called 'Garibaldi', and which had been transported to Riccione in order to adapt him to live in the wild. The animal was released 30 metres off the beach at Riccione on the 13th March 1987, and had disappeared from sight within three hours. As a preliminary to this procedure, a survey of Italy had found about 20 swimming pools running with seawater, and a volunteer body of about 200 people willing to help at any time. He, himself, had been called out about 10 times in one year.

Professor L. Stanzani,
Adriatic Sea World, Lungamore della Republica, 47036 Riccione (Fo), Italy.

The next days session was chaired in the morning by **Dr Margaret Klinowska,** and covered behaviour.

Mr G. Dehnhardt, using a number of slides, illustrated how he had evaluated stimulus in Zalophus and Tursiops animals at the dolphinarium at Munster. He was, perhaps, surprised how quickly the sealion reached 100% selection of a variety of shapes, whereas the dolphins would only reach up to 90% accurate selection after something approaching 120 attempts.

G. Dehnhardt,
Department of Ethology, University of Munster, Teichstrasse 2, 4400 Munster, Federal Republic of Germany.

Patricia St. John gave a most interesting paper on the use of communication with autistic children and the similarities of communication with animals. In summary, the techniques utilized with communication with cetacea strongly suggest that communication problems in many other fields may be ameliorated or solved by the use of these techniques. Originally, the work was done in conjunction with the Pittsburgh AquaZoo, Pittsburgh, but Mrs St. John was on route to Duisburg to continue work there.

Patricia St. John
Mid-point, Research Foundation for Creative Communications Inc., Box 17, Route 133, Bridgewater, Conneticut 06752, USA.

Laura Chirighin gave a most interesting history of the relationship of two young bottlenose dolphins with their dams, and compared the development either with other. It was perhaps no surprise to many of the audience to realize that the most recently born calf appeared to develop quicker than the first animal, and some of this may have been from the influence of the older, more developed calf in the same pool 24 hours per day.

Laura Chirighin,
Flat 6, Tudor Lodge, 8 Murray Road, Northwood, Middlesex, UK.

Thierry Navarro listed the behavioural observations he had made on captive bottlenose dolphins between July 1985 and August 1986 at Brighton in England, illustrating his paper with many slides and also a film, and identifying the percentage of time spent in resting and other movements.

Thierry Navarro,
31 rue Gerard de Nerval, St. Memmie, 51000 Chalons-sur-Marne, France.

Patricia St. John reported on a study she had made with *Inia geoffrensis* indicating that aggression by this species maybe related to a lack of interpretation by the humans of the animals' desire, and this was better appreciated when observed in the pool in the water with the animals.

Patricia St. John
Mid-point, Research Foundation for Creative Com-

munications Inc., Box 17, Route 133, Bridgewater, Conneticut 06752, USA.

The second session was under the chairmanship of **Cees Kamminga,** and dealt with sonar and sensory perception.

The first paper was given by **Paul Terry,** who reviewed the Third Animal Sonar Symposium which took place in 1986 in Helsinki in September, and will be published later this year by Plenum Press. This was the third conference to take place in twelve years, and he was particularly interested in the report that the melon of the bottlenose dolphin and several other species may be composed of two layers, an outer of harder tissue, and an inner layer of soft tissue, and that there is a structure at the back of the melon next to the nasal plug—the dorsal bursa—which may be a connection for sound production in the manner of the high frequency sound transducer. This has also been recorded in the Harbour porpoise. He finally went on to mention the big bang theory that perhaps dolphins can stun fish by slapping their jaws together hard, producing a high peak intensity of sound.

R. P. Terry,
Information Theory Group, Technische Hogeschool Delft, 2600 GA Delft, Netherlands.

A. Dral gave a very good and clear exposition of the development and use of the dolphins eye. He explained, very clearly, why the animal was able to accommodate vision, not only in the air, but also in water without difficulty since the lens was made of different refractive indices, being high in the centre, and lesser around the periphery leading to a perfect focal point. The operculum lowers in brighter light, which happens in air so that then most of the light goes through the periphery of the lens.

A. G. D. Dral,
Netherlands Institute for Sea Research, P.O. Box 59, Denburg-Texel, Netherlands.

Dr Klinowska, testing the taste of wild and captive dolphins, illustrated how toothed whales do have a sense of smell, and the Baleen whales have some smell. She illustrated this by describing a double-blind test using a pricked bag of chemicals, or a placebo, and watching the reactions of animals to this. A negative reaction indicated the animal carried on what he was doing, and a positive reaction gave an intense concentration, especially when using human menstrual blood samples.

Dr M. Klinowska,
Research Group in Mammalian Ecology and Reproduction, Physiological Laboratory University of Cambridge, Downing Street, Cambridge, UK.

I. van Pijlen gave an interesting paper on fish detection in the Eurasian otter indicating, after a series of discriminating tests, that the predatory behaviour of otters with reindeer trout appeared to be more related to vision than to any other sense.

I. van Pijlen,
Leiden State University, Netherlands.

Paul Terry summarized the pace of research in Odontocete sonar systems, pointing out that that carried out in bats was way ahead, although, of course, the problems were complex. He compared the development after birth and noted that dominant frequency in sonar could change, for example, Baluga whales in Hawaii raised the level of frequency of the preferred range.

R. P. Terry,
Information Theory Group, Technische Hogeschool Delft, 2600 GA Delft, Netherlands.

The afternoon of the second day was taken up with a very interesting visit to the unique Hagenbeck's Tierpark at Stellingen, which had lead the world for so many years in the techniques of keeping captive animals.

The first session on the third morning related to the status in the wild, and was chaired by **Dr Kroger,** who gave the first paper on research and ecology of cetaceans in Europe. This he made a most interesting review, and reported on the formation of a European Cetacean Society with Peter Evans of Oxford as its Secretary. The Society had six working committees, dealing with problems, such as strandings, and bi-catches, together with the difficulties of accurate recording of sightings.

Dr R. H. H. Kroger,
Max-Planck-Institut, D-7400 Tubingen 1, Spemasnnstrasse 38, Federal Republic of Germany.

Dr dos Santos reported a fascinating history of preliminary observations of the bottlenose dolphins in the Sado Estuary over several years. He indicated how easy it was to recognize as many as 26 individual animals by the pattern of the dorsal fins, out of a total population of about 40 animals. He reported that the main food was mullet, and that sometimes the dolphins threw the fish onto the sand, crawling out to eat them afterwards. He had recorded one animal that was being drowned due to the blow-hole being blocked by the tentacles of an octopus thus confirming a story put about for a long time by fishermen, and he recorded a number of medusae flipped out of the water by the dorsal surface of the tail after the

animal had passed underneath. He concluded his talk with a fascinating film of the area.

Dr E. dos Santos,
Instituto Superior de Psicologia Aplicada, R. Jardim do Tabaco 44, 1100 Lisboa, Portugal.

Frans Engelsma showed a unique video on observations of a wild bottlenose dolphin while recording sonar sound. He described the specialized equipment necessary, and confirmed how interested dolphins were with strange operations in their environment. He demonstrated how the animal (nicknamed Jeanne Louise) appeared to release bubbles from under the water surface in order to equate her stability.

F. J. Engelsma,
Ouwehands Dierenpark, Rhenen, Netherlands.

Cees Kamminga continued the story of 'Jeanne Louise' comparing the parameters of sound emission in the wild as against those he has been recording for many years in captivity. Strangely enough, most of the recordings he took in captivity were louder than those in the wild, which doesn't confirm previous observations, but he did find, in this particular case, the animal made more efficient use of the band width. The signal to noise ratio in the wild was very good.

Cees Kamminga,
Information Theory Group, Technische Hogeschool Delft, 2600 GA Delft, Netherlands.

R. Kastelein through his contacts with the Hubbs Research Institute, attempted an assessment of the population of Commerson's dolphins in the Straits of Magellan. He had, in fact, seen a school of 110 one evening at one time on a still day. At a conservative estimate, he reckoned that there was 3160 animals still in the Straits of Magellan, but as dolphin and sealion meat was still used to feed King crabs as bait, the species is under pressure. The law, of course, lays down that bait meat ought to be sheep, but of course, dolphin meat is cheaper. At the end of the paper, it was discovered that the oil drilling disturbances, and the pollution in the North Patagonian limit of the range was destroying the dolphins, which in 1978 numbered about 1000 according to **Dr Gewalt,** but were now reduced to zero.

R. Kastelein,
Dolfinarium Harderwijk, Strand Boulevard Oost 1, Harderwijk, Netherlands.

J. van Velden in his paper on mass stranding and echo location, compared the sonar signals of a classic mass stranding *Pseudorca crassidens*, and several coastal species. Since the latter don't strand, is this perhaps related, he asked, to the low frequency sound making definition of coasts more difficult for deep sea species.

J. G. van Velden,
Information Theory Group, Technische Hogeschool Delft, 2600 GA Delft, Netherlands.

The final session of the Symposium was under the chairmanship of **Dr Claus Hagenbeck** and the opening paper was by **Jaap van der Toorn** from the Tampere Dolphinarium. He reported that at the dolphinarium, water control was carried out under natural treatment via biological filtration, and has been so since March 1985. The main components of the system are a trickling filter and an array of foam fractionaters. He reported that the system was very efficient in removing organic matters from the water, and resulted in water of good quality and satisfactory clarity. It did, however, transpire that ozone was also made use of in the oxidation processes.

Jaap van der Toorn,
Delfinaario, Tampereen Sarkanniemi OY, Sarkanniemi, SF-33230 Tampere 23, Finland

Dr Stede gave an interesting insight into quality criteria of fish from the side of the Inspector rather than the animal. He identified particular species that were relatively free of contamination, and also areas of even the Baltic Sea.

M. Stede,
State University for Fish and Fish Products, Cuxhaven, Federal Republic of Germany.

Dr Roken reviewed the work he had done since 1978 on pollution of fish with PCBs and DDTs, and suggested a measure of oxidative rancidity by monitoring hydroxyperoxide. He confirmed the reduction in pollutants in blood from animals originally measured with high levels in 1978, which had reduced to much lower levels by the recent sampling in 1987. He highlighted the five criteria for looking after fish, that it should be stored at minus 25°C, in airtight containers, should be low in fat, the peroxide levels should be checked, especially if the fish is vomitted up by the animals, and this should be checked again if the fish is to be kept longer than six months.

Dr B. Roken,
Kolmardens Djurpark, S-61800 Kolmarden, Sweden.

Mr Manton gave a short introduction to the difficulties of running and arranging a studbook, based on his experiences over some 19 years with the Pere David deer Register. He pointed out that identification of individuals in a permanent fashion was only

one of the problems—responses from colleagues was perhaps an area where communication could be vastly improved.

V. J. A. Manton,
The Zoological Society of London, Whipsnade Park, Dunstable, Bedfordshire, UK.

Dr Solangi discussed his experience with the training of bottlenose dolphins in the ocean, and it was interesting to the audience to realize that these animals would prefer to bring live fish out of the harbour to their trainers in exchange for dead fish on which they were used to feeding, rather than to eat the live fish. He said that the biggest problem was the release of the animals out of their original captive pen to which, incidentally, they returned immediately they had contact with bigger animals in the wild.

Dr M. Solangi,
Marine Life, 150 Debuys Road, Beloxi Mississippi, USA.