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Veterinary Science Making Waves

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Professor Johannes Odendaal had a variety pets from a very young age and he was a breeder of three dog breeds. He qualified as a veterinarian in 1971. After 14 years in private practice and running a boarding kennels, he became an academic in 1986 during which time he obtained three doctoral degrees: DVSc, DPhil, PhD. He established the Department of Veterinary Ethology, University of Pretoria in 1990 and the Veterinary Council recognised this new subject as a veterinary specialist field in 1999. He was involved in animal welfare projects since he was in practice, an involvement which continued when he joined the academia. For his efforts he received a meritorious certificate from the SPCA and life-long honorary membership. He also taught Animal Welfare at the Veterinary Faculty and served on the Animal Welfare Committee of the World Veterinary Association. Professor Odendaal became a Research and Development Professor in the Faculty of Health Sciences at the Tshwane University of Technology, Pretoria in 2000. He retired in 2006, and is currently owner of Ethology Consultancy, a company that presents companion animal behaviour courses, internationally (www.ethology.co.za).

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Summary

Alvin Toffler described the development of humankind as three waves, of which the first was the agricultural age, the second the industrial age and the third the information/communication age. It seems as if the developments in Veterinary Science followed very much the same 'waves'. The First Wave started in 1762, Lyon, France when the first Veterinary Faculty was established. The motivation for this and following Veterinary Faculties was to serve Agriculture. During the Second Wave emphasis was placed on the side-effects of the industrial age, namely technological advances that contributed to the use of improved techniques and instrumentation with accompanied specialisation. The Third Wave characteristics demand from veterinarians to communicate and share information with professionals far beyond their traditional role and training. Third Wave veterinarians are also increasingly involved in "softer issues" such as animal welfare and environmental ethical issues. They need a thorough knowledge of animal behaviour to secure positive, healthier and longer human-animal interactions by applying preventative approaches. In order to provide a "Third Wave service" to clients, the onus is now on Veterinary Faculties to adapt curricula and prepare future veterinarians for the realities of today and tomorrow.

Key words: Toffler waves, Veterinary waves, Third Wave characteristics

INTRODUCTION

Alvin Toffler, a renowned futurist, described how modern humans went through three identifiable stages of development. When such grandiose observations are made, the approach will obviously be based on generalisations. Although detail and exceptions could reveal aspects of the truth, a broad perspective can also contribute to the understanding of behavioural phenomena.

Viewing changes on a majestic scale and making sense of it is not for everyone to be appreciated, because it just feels too far away from some people's real world. Individuals often find it difficult to connect to a larger context, because they experience their own small world as the whole universe. If one adds to such contexts extensive time-periods such as the 'past' and 'future', people can really get lost in relating to those concepts. Modern-day futurists are basing their work on intensive research, attempting to make more accurate predictions than ancient oracles and lay prophets, but they still have to live by the notion that 'it is better to be vaguely right than completely wrong'. However, the aim of this paper is not to predict the future of veterinary science but rather to indicate that, what some may call 'the future', is already here.

TOFFLER'S WAVES

Surely, Toffler's ideas were exposed to sociological analysis by his rivals and peers and the intent is not to participate in such debates, but to borrow his main theme in order to apply it to similar large-scale developments in veterinary science.

To make his point Toffler used 'waves' instead of developments, which is quite an interesting concept. 'Wave' is an organic term, which adds some natural life to the metaphor. A wave does not represent a static highlight or a mere passing tendency, because waves do not occur in single file. First waves are followed by successive movements, which are as clearly recognisable as the first one. Waves are dynamic processes with growing impetus and energy to a point that they are standing out from the surface. This is in contrast to sudden, shocking changes such as eruptions or earth quakes that everybody is immediately aware of. Wave development is subtle of nature and is only really recognised at their height.

Although successive waves appear, it is not a linear process that leaves previous waves completely behind. It is rather a matter of taking characteristics from the first wave to the formation of following waves. The last wave cannot influence the first, but some aspects of the first wave will continue in successive waves, merging with the characteristics of the next waves. The assumption is that reference is made to water waves. In order to create such a wave, there should be a stimulus, e.g. a strong wind at sea or a stone thrown in a dam. In the case of human behaviour the trigger-mechanisms are specific needs. As long as such needs exist, for so long will characteristics of waves continue to be present in successive waves. Toffler⁽¹⁾ identified humankind's most important cultural waves as follows:

The First Wave was the development of agriculture. Following the ice-age, humans settled mostly at water-rich areas of land. Hunting became more challenging in areas where a number of people made use of the same resources for providing meat to every individual. A wise cultural solution was to develop agriculture by using domesticated animals and plants, in order to produce the needed food on a more predictable and larger scale. As settlements became more populated, the demand for greater agricultural developments increased. In this way, the first 'development wave' has reached a peak as an identifiable progress in humankind's history.

The Second Wave came, with the Enlightenment as stimulus, when an industrial revolution

developed. Cultivating food and slaughtering animals were no longer sufficient to keep the growing human population occupied. Technological advances, science, new patents and mass machine production created another 'development peak'. City-life became a new concept, leaving agriculturists, in terms of numbers, behind in rural areas. There is no doubt that the Industrial Revolution also merged with agriculture and that is why characteristics from the First Wave were still part of the Second Wave. After all, people still needed food, but now they also need industrial activities to survive in a new environment, sometimes quite a distance from the open agricultural land. There has been a shift from a close human-animal/plant relationship to a new human-machine relationship.

The Third Wave is referred to as the information age with its accompanied information explosion. It is as if the industry-peak has created a greater need for human communication as in a feed-back system. John Naisbitt⁽²⁾ said in his *Megatrends* that "high tech/high touch" is a response to modern technological advances. Of all the new techniques that were developed by industry, it was the development of technology in the information sector that was responsible for the next 'development peak'. As in case of the Second Wave, the Third Wave has still characteristics of the First and Second Wave, because people still needed food, and urbanisation still needed industrialisation.

Despite the continuation of First and Second Wave characteristics, we currently live and deal with the peak of the Third Wave. People, who ignore or do not react to the demands of the Third Wave environment, will find themselves marginalised. There is talk of a 'digital divide', which means there is also an information/communication divide. To many people this is seen as major threat, because the last thing they want to be known for is that they are behind the times. There is thus a constant need for contact.

Another point about wave action is that as the waves rush to the edge they accelerate and this also seems to be true for cultural waves. The Third Wave came much quicker, only over a period of decades after the Second Wave, which on its turn lasted centuries, while the Second Wave developed only millennia after the First.

Although Toffler's book was published some time ago, it does not affect the validity of his observations, due to the enormous time-scales that they cover. The overall truth or messages is unaltered and is still applicable for the purpose of an application to the veterinary profession.

VETERINARY PROFESSION'S PEAK MOMENTS

Toffler's waves-metaphor will now be applied to find perspective on the veterinary profession's own 'wave experiences'. Although formal veterinary training only started during the Enlightenment, it was still part of the last period of the First Wave. From there, it seems that the veterinary profession followed similar developments as humankind. The first Veterinary Faculty was established in 1762 in Lyon, France where the initial training was aimed at treating production animals. This motivation was also true for all other Faculties in the world. There may be a few recent exceptions in North America, but it is a historical fact that the motivation for establishing Veterinary Faculties was in the first place to ensure healthy animals for food production. This approach in veterinary science was often viewed as the "higher calling", namely to help provide food for the nation. It was furthermore contrasted to the "lesser calling", namely to 'waste' veterinary science on companion animals. The role in providing food is in all cases supported by the state, giving veterinary science a certain status, but also a dependency on state policy and funds. There is no doubt that the First Wave in veterinary science was also an agricultural one. However, despite the support from the state for veterinarians, such positions offered by the state are not particularly lucrative. Veterinarians engaged in production animal practice as a sole source of income only occurs in the most advanced economies, but in general, this type of practice is now far behind in numbers and income, compared to mixed or companion animal practices. Furthermore, production animal

veterinary services experience a constant 'threat' from other animal-scientist professionals who continuously press to do procedures that are protected by law for veterinarians only. There are also some other difficulties: farmers, by nature, often help themselves as far as they can; and urbanisation keep many newly qualified veterinarians away from rural areas. Not everyone, after a long, expensive study would decide to practice in rural areas, while the majority of the general population is moving to live in cities⁽³⁾.

One could say that the next wave was inevitable. Progress in technology and industry also filtered through to the veterinary profession. An increasing involvement in companion animal practice created the best opportunities for improving veterinarians' technical expertise. They often borrowed, mimicked or taken over techniques and instrumentation first used by the medical profession. Another characteristic of the Second Wave was the development of an independency from the state-agriculture dyad. If dependency is associated with immaturity, disability or poverty; the new wave indicated that veterinarians became mature and on their own, with unlimited abilities, and affluent. It is no wonder that the World Small Animal Veterinary Association became the largest, richest and most influential section of the very diverse veterinary profession. (Is it not high time to change the name to the World Companion Animal Veterinary Association?). The trend is not only apparent in the international organisation of veterinary science, but was also indicated in a number of surveys of different countries with regard to private practices⁽³⁾. Without an earth-shattering announcement, veterinary science has transformed itself to assume a new role in society. The higher calling or need was not anymore "food for the nation", but the "best service through specialisation and technology".

The Third Wave, to which some veterinarians still show resistance, is already approaching a new peak. In a surprise move, the main focus shifted to another human need – not food or technological advanced treatments, but a need for animal companionship. Veterinary science is now increasingly involved in 'soft issues' such as compassion and considering quality of life, which includes the needs of the human owner as well as the animal companion. Veterinary services show a greater human orientation by fulfilling human needs *via* animal ownership. This resulted in veterinary involvement into matters of which they were not particularly part of in the past. Such matters include: animal welfare dilemmas, the use of animals in medical research and environmental ethical issues. All of a sudden, veterinarians had to have opinions on animal issues far beyond their traditional training. They are requested to participate in debates such as on animal rights, animal liberation, the justification of cosmetic operations on animals, genetic manipulation and cloning, the culling of wildlife, transport to slaughter houses, and whether road kills are acceptable sources of food for companion animals⁽⁴⁾.

However, there was even a bigger challenge on hand. Apart from verdicts on human ethics and morality related to animals, it also became necessary to participate in multi-disciplinary teams of people who are dealing with human-animal interaction studies or programmes. These professionals are not the agriculturists or medical practitioners from the past multi-disciplinary approaches, but scientists from the so-called soft sciences. They include psychologists, sociologists, criminologists, theologians, jurists, architectural town and regional planners, physiotherapists, occupational therapists, speech therapists, social workers, psychiatrists, public health officials, nurses, marketing staff (animal advertisements), journalists on reports related to animals, educationists, philosophers and archaeologists⁽⁵⁾. As the comprehensive role of companion animals in human life is unfolding in human-animal interaction studies, veterinarians are consulted to make such interactions mutually beneficial. Veterinarians became an integral part of health teams striving for and maintaining the physical and mental health of humans⁽⁶⁾.

Veterinarians should have the necessary knowledge on how to select and match healthy and well-adapted companion animals for these intimate, and sometimes critical, situations. When animals are used in sensitive human-animal relationships, veterinarians will also be responsible for the welfare of those animals. To be able to consult on animal-assisted therapies or

activities, veterinarians need a thorough knowledge of companion animal behaviour. The emphasis moves from attending to disease and injury in a clinical way; to the care and welfare of the animals, which includes those aspects that could prevent disease and injury. This level of expertise can be achieved by giving Veterinary Ethology greater prominence in veterinary curricula. Veterinary Ethology is obtaining knowledge of animals' behaviour, in order to provide a scientific basis for their care and welfare, by fulfilling basic animal needs. Such needs should also be taken into account when determining the goals of a particular human-animal interaction. The challenge became how to fulfil animals' basic needs in human-provided environments. Finding equilibrium between animal and environment should be an important part of veterinary medicine, because that is the foundation of animal welfare and well-being. This approach will prevent veterinarians participating in aims to achieve 'maximums' as in agriculture, but rather work towards optimal performances or production of animals. The 'treatment' will in many cases focus on 'treating a sick environment' instead of attempting to change healthy animals' behaviour in a mechanistic way. Animals are not used anymore as "objects" that need to be managed to fit into artificial environments, but the environment now becomes the "object" to be changed. Therapy becomes less clinical, but rather aims to take the necessary measures to fulfil animals' basic needs. When a balance could be struck between animals' behavioural needs and the environments they are kept and operating in, it should contribute to positive human-animal interaction, which would also be secured for longer periods of time. Such longer relationships also mean healthier animals with less clinical needs. In a profound sense, knowledge on animal behaviour and the application thereof, *is* animal welfare, because animals only fare well when their basic needs are met⁽⁷⁾.

If these goals could be achieved by newly trained veterinarians, it may be the key to the profession's survival in the Third Wave. One could say that the new "higher calling" is to "communicate with clients and other professions that were previously excluded from veterinary circles". This calling is based on exchanging newly gained information with a much broader audience and on issues previously not thought to be part of veterinary science. These communication skills are not in the first place technological of nature, but have particularly a human and humane character. Interaction with clients is personal, direct and open, with one goal in mind: "How can I serve my community and their animals best by sharing information". Communication comes from Latin's *communicare*, and take note that the last part spells *-care*. Another Latin lesson is that the word (animal) 'doctor' derives from *docere*, which means 'to teach'. This approach is not a recipe for bankruptcy, because many veterinarians are already making a fair living from running their practices on the principle that exchanging information is the most important part of their success.

Whether Veterinary Faculties will have the courage to rewrite curricula to prepare students for their Third Wave experiences, has to be seen. Obviously, there will still be a need to attend to production animals and to use high technological approaches in clinical services, because those characteristics are carried forward to the Third Wave. However, in all aspects of veterinary services Third Wave qualities are, or should be, by now present due to the merger of wave characteristics. For example, treating animals at a high cost is to be in an animal-disease business – not necessarily promoting animals' welfare. It could be a shocking realisation that veterinarians (and for that matter also medical practitioners) are actually in a 'disease-business' and not a 'health-business'. If animals do not get ill or injured there is very little for traditional veterinarians to do – unless veterinarians orientate themselves to operate within the parameters and requirements of the Third Wave. The question is not whether veterinarians will participate in the Third Wave, but when will Veterinary Faculties make the necessary changes to train future students for Third Wave demands? Changes should be started by faculty leaders who are able to 'think' and understand the Third Wave. The next step would be to take tutors with them to design Third Wave curricula, and the final step would be to apply Third Wave criteria in selecting new students.

It may appear to be an either/or choice but one should remember that the Third Wave is

already a reality. Many veterinarians have already formed the Third Wave by natural instinct and adapting to a new survival strategy. Modern trends in veterinary student profiles reinforce the Third Wave approach, namely, there is a significant increase of women entering the profession (in some countries women were limited to a small minority until recently); students are coming increasingly from city environments; and as student numbers increase, the average age of qualified veterinarians becomes younger, which means that they are less and less aware of First and Second Wave characteristics as the main demands⁽³⁾.

To end, an animal welfare issue of particular importance in my country, will be discussed as an example of an ongoing activity that is out of pace with the Third Wave. Whether the problem exists in other countries is not sure, but it is expected that it could be just the case in at least some other countries. The situation involves the provision of companion animal vaccines. At the moment these vaccines are provided at a very high price and only under the hand or direct supervision of a veterinarian. The common five-in-one vaccine for dogs, costs for a client, more than ten times the retail price of the vaccine. Taking into consideration that the company that produces the vaccine has already made a profit on their research, manufacturing, packaging, labelling, promoting and distributing of the vaccine, the veterinarian's fee is still ten-fold higher than the company's price. Where does the animals' welfare fit into this scenario? Apart from the veterinarians' exuberant end-price to the client, it would also be possible to cut the current retail price of the vaccines by minimising actions by companies that do not contribute directly to the animals' health. Of all the arguments that companion animal veterinarians usually put forward to defend this practice, the main one is: "it is our bread-and-butter income". Veterinarians' bread and butter should, however, not be negatively affected by an animal welfare approach, because vaccination should be part of veterinarians' holistic preventative measures to ensure health, and not part of a purely money-making scheme. The other arguments for overly expensive vaccines sound very "professional, ethical and concerned" in that vaccines should be handled "correctly"; and that the animal really "needs to be examined" for a full consultation fee before a vaccine could be administered. Such arguments, however, fall flat if one compares them with the use of human vaccines by non-medical staff as well as the distribution of vaccines to production animals and wildlife. Such discrepancies make the current veterinary control over, and fees for, companion animal vaccines unprofessional, unethical and unconcerned. The other controversial part of this practice is to continue annual vaccinations till the animal dies. As advised by veterinarians, boarding kennels and catteries do not take animals unless they had a recent vaccination by a veterinarian, even if the animal is older than ten years. The real question is: is there any proof that companion animals that were not vaccinated after their third year, ever attracted any of the diseases contained in the vaccine, in a standard suburb environment? Is this a case of "professional concern" or is it another bread-and-butter matter?

Pharmaceutical companies will obviously come to the defence of companion animal practitioners, but will their arguments be truly welfare-related or also a bread-and-butter case? If those companies, and veterinarians they serve, are serious about companion animal welfare, they have to revisit their involvement in the provision of companion animal vaccines. If vaccines are only available to the upper middle class and the rich, the exercise is a money-making scheme. The diseases that vaccines protect companion animals against are virtually absent among those communities who can afford the high prices. An animal welfare approach would firstly, make the same vaccines available at about US\$1 (I can hear veterinarians and companies screaming) to all companion animal owners; and secondly, remove the bread-and-butter control of veterinarians over the administration and bringing it in line with the use of other animal vaccines. The one dollar is a round speculative figure, but probably not far from the mark if one really wants to eradicate the common companion animal viral diseases among poor animal owners. To reach such bottom-line price, those vaccines could be subsidised by other expensive services and medicines. The poor can in any case not afford treatment of their animals, which means that freely available cheap vaccines will not affect the clinical workload of veterinarians.

The Third Wave is in full momentum among the veterinary profession despite any attempt to deny it or not to deal with it by veterinary authorities. It is now the time for leaders in world veterinary politics, and especially deans of Veterinary Faculties, to follow where many members of the profession already are or where many are moving to. Veterinary education probably needs the greatest effort, because natural forces in the Third Wave are taking veterinarians with the movement, despite what is lacking in their training. Such a change will solve animal welfare issues as the one discussed above, because a traditional "inspect-inject-collect" approach does not contribute to animals' welfare and well-being. The emphasis on clinical subjects simply became insufficient to prepare students for Third Wave demands. One also cannot just add to curricula, they should be thoroughly revised to find balance in the preparation of students who want to serve clients in the Third Wave world. Maybe today's higher calling for veterinarians should be: "we serve, because we (really) care".

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